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A Land-Grant University

Auburn University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award Bachelor's, Master's, Educational Specialist and Doctor's degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur Georgia 30033-4097 or call (404)679-4500 for questions about the accreditation of Auburn University.

Auburn University is an equal opportunity educational institution/employer.
Vision and Mission

Vision

The following statement of vision and mission was developed by the Task Force on Mission established in 1995 and was approved by the Board of Trustees on March 20, 1997 and amended May 7, 2004, and reaffirmed on February 1, 2013.

Auburn University will emerge as one of the nation’s preeminent comprehensive land-grant universities in the 21st century. Central to all its functions will be the university’s historic commitment of service to all Alabamians as the state becomes a part of a global society with all of its challenges and opportunities. The university will be widely recognized for the quality of its undergraduate, graduate, and professional educational programs, the effectiveness of its research and outreach programs and the broad access to the university provided through the innovative use of information technology. The university will ensure the quality of its programs through the careful focusing of its resources in areas of institutional strengths. One constant will remain unchanged at the university is that intangible quality Auburn men and women call the “Auburn spirit.”

Mission

Auburn University’s mission is defined by its land-grant traditions of service and access. The university will serve the citizens of the State through its instructional, research and outreach programs and prepare Alabamians to respond successfully to the challenges of a global economy. The university will provide traditional and non-traditional students broad access to the institution’s educational resources. In the delivery of educational programs on campus and beyond, the university will draw heavily upon the new instructional and outreach technologies available in the emerging information age.

As a comprehensive university, Auburn University is committed to offering high-quality undergraduate, graduate, and professional education to its students. The university will give highest priority for resource allocation for the future development of those areas that represent the traditional strengths, quality, reputation, and uniqueness of the institution and that continue to effectively respond to the needs of students and other constituents. Consistent with this commitment, the university will emphasize a broad and superior undergraduate education that imparts the knowledge, skills, and values so essential to educated and responsible citizens. At the same time, the university will provide high-quality graduate and professional programs in areas of need and importance to the state and beyond. To accomplish these educational goals, Auburn University will continue to compete nationally to attract a faculty distinguished by its commitment to teaching and by its achievements in research, both pure and applied. The university will strive to attract a faculty that will bring distinction and stature to the undergraduate, graduate, and professional programs offered by the university.

Because research is essential to the mission of a land-grant university, Auburn University will continue development of its research programs. The primary focus of this research will be directed to the solution of problems and the development of knowledge and technology important to the state and nation and to the quality of life of Alabama citizens. The university’s research programs will make important contributions to instructional programs through the involvement of graduate and undergraduate students and the renewal of the faculty. Research will also provide the knowledge base for outreach programs. In carrying out its research mission, the university will emphasize established areas of strength and will focus available resources in those areas of research and doctoral study that are, or have the potential to develop into nationally and internationally recognized centers of excellence.

Extension and outreach programs are fundamental to the land-grant mission because these programs directly affect the lives of all citizens in the state. The university will maintain the strengths of its traditional outreach programs and will increasingly involve the broader university in outreach programs that respond to the changing needs of the society in which we live. The university will continue to seek new and innovative ways to reach out to the people it serves.

Auburn University’s mission is expressed through instruction, research, and outreach.

Instruction

Auburn University is committed to excellence in teaching at both the undergraduate and the graduate level. This commitment has long been reflected in the diversity of course offerings and in the variety of instructional approaches that are offered. Increasingly, electronic technology is providing instructors with innovative and creative teaching strategies. The high academic aptitude of the university’s incoming students also makes accelerated learning possible.

The liberal arts and sciences - introduced in the university’s nationally recognized Core Curriculum - are the heart of Auburn’s undergraduate programs. They lay the foundation not only for advanced study and career preparation but also for the development of a more responsible citizenry through students’ personal and intellectual growth. The Core Curriculum provides students with a common
set of experiences, develops their powers of analysis and communication, and encourages their understanding of human culture and
the natural world. Auburn has won recognition for its high academic quality.

Auburn offers baccalaureate degrees in more than 130 areas across the spectrum of disciplines and provides the state’s only publicly
supported programs in many fields, including several in agriculture, architecture, building science, forestry, pharmacy, and veterinary
medicine. Particularly strong baccalaureate programs can be found in the Colleges of Business, Education, Engineering, Liberal
Arts, and Sciences and Mathematics. For many years, ROTC programs at Auburn have also been nationally prominent in providing
leadership for the military.

While Auburn has long been widely recognized for the quality and diversity of its undergraduate and first-professional programs, more
recently expanding research accomplishments have broadened the scope and raised the prominence of the university’s graduate
programs. Today Auburn supports a comprehensive graduate school, providing master’s level programs in more than 64 areas and
awarding the doctorate in more than 40 fields. In many fields it offers the state’s only doctoral program. For many years the university
has enjoyed strong graduate programs in agriculture, the biological and physical sciences, education, engineering, forestry, the
human sciences, mathematics, pharmacy and veterinary medicine. More recently, excellent graduate programs have also emerged
in business, the liberal arts and the social sciences. The university anticipates expanded research activity and graduate instruction,
especially in agriculture and the biological sciences, in engineering and the physical sciences, in veterinary and pharmacaal sciences, as
well as in business and education.

Research

Research is the means through which new knowledge is created and new information is developed. As such, research at Auburn
University is an essential link in its three-pronged mission of instruction, research and outreach. Successes among the varied research
activities within each of our 12 academic schools and colleges continue to bolster Auburn’s reputation among the nation’s top
universities.

Auburn’s role as a land-grant university emphasizes research in agriculture, natural resources, the life sciences, engineering and the
physical sciences. Strong and expanding research programs exist in agriculture; architecture, design and construction; business;
education; engineering; forestry and wildlife sciences; human sciences; the liberal arts; nursing; pharmacy; science and mathematics;
and veterinary medicine.

Whether in the laboratory, the field, or in the classroom, Auburn University’s research endeavors are diverse, comprehensive, and
free and collaborative, focusing on developing solutions to major problems that confront humankind and on expanding the base of knowledge
and technologies available to improve our quality of life. Additionally, major efforts to increase the protection and commercialization of
intellectual properties are central to Auburn’s continual drive for improvements in its research mission.

These efforts mesh to create a research environment that enhances the state’s economic, cultural, social and intellectual development
and, at the same time, undergirds the university’s undergraduate, graduate, professional and outreach programs.

In support of these efforts, the Auburn University Huntsville Research Center interfaces with agencies and industries in order to
increase research funding, raise our national profile, as well as bring new ideas and products to government, industries and consumers.
A high-tech economic engine for Alabama, Huntsville executes billions of dollars in federal contracts yearly. Increasingly, these
contracts require the collaboration of a broad array of disciplines. The Auburn University Huntsville Research Center enables North
Alabama business, industry, and government to access the capabilities of one of the Southeast’s major research institutions.

Lastly, the Auburn Research and Technology Foundation (ARTF) and the Auburn Research Park were developed to further integrate
research and the business community to complement the economic development and research initiatives of the university. In addition
to facilitating the commercialization of university technologies and industry-university partnerships, the research park offers employment
opportunities for Auburn’s students and graduates, as well as a thriving business incubator.

Outreach

As a land-grant institution, Auburn University has a mission of outreach – engaging its expertise beyond campus to improve quality of
life across Alabama, nationally, and even internationally. More importantly, outreach provides opportunities for engagement to establish
mutually beneficial and reciprocal partnerships between Auburn University and the communities that it serves. Through outreach and
extension programs, citizens benefit from greater access to Auburn’s high quality educational resources. Community collaboration
benefits the university as well, providing valuable insights and information for teaching and research, and enhancing the institution’s
relevance to the broader society. Auburn University is recognized by the Carnegie Foundation’s “Community Engaged Institution"
designation for the quality and scope of its outreach programming.
Outreach includes three major areas of engagement activity – lifelong learning, knowledge expertise, and community partnership. Auburn University’s lifelong learning programs expand access to learning for individuals of all ages, offering opportunities for professional continuing education as well as skills development and personal enrichment. The university shares its knowledge and expertise with the public to strengthen business, education, healthcare, and government, and address other issues of mutual concern. Finally, engaged partnerships help bond Auburn University faculty, students and communities in a variety of enriching activities which promote scholarship, learning, public service and civic involvement, and contribute to the common good.

Much of Auburn’s engagement focuses on university strategic objectives for enhancing learning, expanding community economic development and improving health, wellness and quality of life. University faculty members are engaged significantly in these outreach initiatives. Auburn students have a role in the outreach mission too, and there are many innovative ways for students and their faculty mentors to collaborate in community engagement locally, regionally, and even internationally. The Office of the Vice President for University Outreach provides administrative leadership and support for faculty and student outreach work campus wide, as well as in developing community partnerships. Units comprising University Outreach include the Center for Educational Outreach and Engagement, the Government and Economic Development Institute, Encyclopedia of Alabama, Office of Faculty Engagement, Office of Professional and Continuing Education, Office of Public Service, Osher Lifelong Learning Institute, and the Outreach-Global initiative.

University Outreach is also home to the AUBURNSERVES initiative (www.auburnserves.com), a collaboration of Auburn’s faculty, academic units, campus organizations, and community partners supporting service-learning, experiential education, public service, and engagement programs.

There are more than 75 outreach units and program initiatives within the university’s schools and colleges. Some of these include the Caroline Marshall Draughon Center for the Arts and Humanities in Liberal Arts, the Auburn Technical Assistance Center in Business, the Truman Pierce Institute in Education, Engineering Continuing Education, and the Rural Studio and Urban Studio programs in Architecture. Auburn University also serves as the headquarters for Alabama’s Cooperative Extension System, which serves all 67 Alabama counties with educational programs and services provided by faculty specialists and local extension educators.

From this base of organizational and faculty resources, Auburn hosts a diverse range of outreach activities. Annually, the university produces hundreds of conferences, non-credit courses and training programs, with registrations averaging more than 40,000. Many of these programs are approved to offer continuing education units (CEUs) and other certifications of completion. Auburn collaborates on hundreds of technical assistance projects annually with industrial and governmental constituents across the state, representing millions of dollars in direct impact from improved processes, cost savings, and investments. Auburn supports roughly 100 outreach facilities and research sites throughout Alabama, giving the university a statewide community presence greater than any other educational institution. This makes Auburn’s outreach resources highly accessible to citizens.

Lists of professional programs are available at the www.auburn.edu/outreach/opce website. A comprehensive directory of Auburn’s outreach resources and contacts is available at www.auburn.edu/outreach.
General Information

AUBURN UNIVERSITY, chartered in 1856, is located in Auburn, Alabama, and traces its beginning to the East Alabama Male College, a private liberal arts institution whose doors opened in 1859. From 1861 to 1866 the college was closed because of the Civil War. The college had begun an affiliation with the Methodist Church before the war. Due to financial straits, the church transferred legal control of the institution to the state in 1872, making it the first land-grant college in the South to be established separate from the state university. It thus became the Agricultural and Mechanical College of Alabama.

Women were admitted in 1892, and in 1899 the name again was changed, to the Alabama Polytechnic Institute. In 1960, the school acquired a more appropriate name, Auburn University, a title more in keeping with its location, size and complexity. The institution has experienced its greatest growth since World War II, and today enrolls more than 25,000 students. The majority are Alabama residents.

Auburn University Montgomery was established as a separately administered branch campus in 1967. The institution has developed rapidly, especially since moving to a 500-acre campus east of Montgomery in 1971. Current enrollment at AUM exceeds 4,900.

- Administration (p. 29)
- Auburn University Calendar 2017-2018 (p. 33)
- Auburn University Libraries (p. 36)
- Enrollment Statistics (p. 37)
- Financial Information (p. 58)
- Information Technology (p. 66)
- Policy Notes (http://bulletin.auburn.edu/generalinformation/policynotes)
- Student Services (p. 67)

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Auburn University Calendar 2018-2019

Auburn University reserves the right to make adjustments to this calendar

- Undergraduate Calendar (p. 33)
- Graduate Calendar (p. 35)
- Undergraduate Online Programs Calendar (https://wp.auburn.edu/auburnonline/online-calendar)

Undergraduate Calendar 2018-2019

2018 Summer Semester

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 17</td>
<td>Classes Begin</td>
</tr>
<tr>
<td>May 21-23</td>
<td>Drop Course Penalty Days- Dropping a course during these days will result in a $100 Drop Fee per course dropped.</td>
</tr>
<tr>
<td>May 23</td>
<td>5th Class Day- Last day to drop from course with no grade assignment. - Last day for potential tuition refund for dropped classes.</td>
</tr>
<tr>
<td>May 28</td>
<td>Memorial Day</td>
</tr>
<tr>
<td>Jun 15</td>
<td>Early Alert/Mid-Term Grade Deadline</td>
</tr>
<tr>
<td>June 20</td>
<td>Mid-Semester - 24th Class Day- Last day to withdraw from course with no grade penalty. &quot;W&quot; assigned.</td>
</tr>
<tr>
<td>June 21</td>
<td>NO CLASS – Study/Reading Day for Mini-Semester I on this day</td>
</tr>
<tr>
<td>June 22-23</td>
<td>NO CLASS - Finals for Mini#Semester I on this day</td>
</tr>
<tr>
<td>July 4</td>
<td>Independence Day</td>
</tr>
<tr>
<td>July 27</td>
<td>Classes End</td>
</tr>
<tr>
<td>Jul 30-31</td>
<td>Study/Reading Day</td>
</tr>
<tr>
<td>Aug 1-3</td>
<td>Final Exam Period</td>
</tr>
<tr>
<td>Aug. 4</td>
<td>Commencement</td>
</tr>
</tbody>
</table>

2018 Summer Mini-Semester I

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 17</td>
<td>Classes Begin</td>
</tr>
<tr>
<td>May 21-23</td>
<td>Drop Course Penalty Days- Dropping a course during these days will result in a $100 Drop Fee per course dropped.</td>
</tr>
<tr>
<td>May 23</td>
<td>5th Class Day- Last day to drop from course with no grade assignment. - Last day for potential tuition refund for dropped classes.</td>
</tr>
<tr>
<td>May 28</td>
<td>Memorial Day</td>
</tr>
<tr>
<td>June 4</td>
<td>Mid-Semester - 12th Class Day</td>
</tr>
<tr>
<td>June 20</td>
<td>Classes End</td>
</tr>
</tbody>
</table>
### 2018 Summer Mini-Semester II

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 25</td>
<td>Classes Begin</td>
</tr>
<tr>
<td>Jun 27-29</td>
<td>Drop Course Penalty Days- Dropping a course during these days will result in a $100 Drop Fee per course dropped.</td>
</tr>
<tr>
<td>June 29</td>
<td>5th Class Day- Last day to drop from course with no grade assignment. - Last day for potential tuition refund for dropped classes.</td>
</tr>
<tr>
<td>July 4</td>
<td>Independence Day</td>
</tr>
<tr>
<td>July 9</td>
<td>Early Alert/Mid-Term Grade Deadline</td>
</tr>
<tr>
<td>July 11</td>
<td>Mid-Semester - 12th Class Day</td>
</tr>
<tr>
<td>July 27</td>
<td>Classes End</td>
</tr>
<tr>
<td>Jul 30 - 31</td>
<td>Study/Reading Day</td>
</tr>
<tr>
<td>Aug 1-3</td>
<td>Final Exam Period</td>
</tr>
</tbody>
</table>

### 2018 Fall Semester

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug 20</td>
<td>Classes Begin</td>
</tr>
<tr>
<td>Aug 27 - Sep 10</td>
<td>Drop Course Penalty Days- Dropping a course during these days will result in a $100 Drop Fee per course dropped.</td>
</tr>
<tr>
<td>Sept 3</td>
<td>Labor Day</td>
</tr>
<tr>
<td>Sep 10</td>
<td>15th Class Day- Last day to drop from course with no grade assignment. - Last day for potential tuition refund for dropped classes</td>
</tr>
<tr>
<td>Oct. 9</td>
<td>Mid-Semester- 36th Class Day</td>
</tr>
<tr>
<td>Oct. 11-12</td>
<td>Fall Break</td>
</tr>
<tr>
<td>Oct. 18</td>
<td>41st Class Day- Student deadline for request to move finals to Associate Deans</td>
</tr>
<tr>
<td>Nov. 2</td>
<td>Last Day to Withdraw- Last day to withdraw from course with no grade penalty. &quot;W&quot; assigned.</td>
</tr>
<tr>
<td>Nov 2</td>
<td>Last Day to Withdraw- Last day to withdraw from course with no grade penalty. &quot;W&quot; assigned. - Students who need to submit forms to lift holds on their accounts must submit the forms several business days ahead of the deadline to allow for processing.</td>
</tr>
<tr>
<td>Nov. 19-23</td>
<td>Thanksgiving Break</td>
</tr>
<tr>
<td>Dec. 7</td>
<td>Classes End</td>
</tr>
<tr>
<td>Dec. 8-9</td>
<td>Study/Reading Days</td>
</tr>
<tr>
<td>Dec. 10-14</td>
<td>Final Exam Period</td>
</tr>
<tr>
<td>Dec. 15</td>
<td>Commencement</td>
</tr>
</tbody>
</table>

### 2019 Spring Semester

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 9</td>
<td>Classes Begin</td>
</tr>
<tr>
<td>Jan 16-30</td>
<td>Drop Course Penalty Days- Dropping a course during these days will result in a $100 Drop Fee per course dropped.</td>
</tr>
<tr>
<td>Jan. 21</td>
<td>Martin Luther King, Jr. Day</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Jan 30</td>
<td>15th Class Day - Last day to drop from course with no grade assignment. - Last day for potential tuition refund for dropped classes.</td>
</tr>
<tr>
<td>Feb 28</td>
<td>Mid-Semester (36th Class Day)</td>
</tr>
<tr>
<td>Mar 7</td>
<td>41st Class Day - Student deadline for request to move finals to Associate Deans</td>
</tr>
<tr>
<td>Mar 11-15</td>
<td>Spring Break</td>
</tr>
<tr>
<td>Apr 26</td>
<td>Classes End</td>
</tr>
<tr>
<td>Apr 27-28</td>
<td>Study/Reading Days</td>
</tr>
<tr>
<td>Apr 29 - May 3</td>
<td>Final Exam Period</td>
</tr>
<tr>
<td>May 4-6</td>
<td>Commencements</td>
</tr>
</tbody>
</table>

**Graduate Calendar 2018-2019**

*Auburn University reserves the right to make adjustments to this calendar*

**Summer 2018**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 17</td>
<td>Classes begin (full semester and Mini-Semester 1)</td>
</tr>
<tr>
<td>May 21-23</td>
<td>Drop Course Penalty Days for full summer semester and Mini-Semester 1- Dropping a course during these days will result in a $100 Drop Fee per course dropped.</td>
</tr>
<tr>
<td>May 23</td>
<td>5th Class Day (last day to register for Summer 2018)- Last day to drop from course with no grade assignment</td>
</tr>
<tr>
<td>May 28</td>
<td>Memorial Day Holiday</td>
</tr>
<tr>
<td>June 4</td>
<td>Mid-Semester for Mini-Semester 1- Last day to withdraw from course with no grade penalty. “W” assigned</td>
</tr>
<tr>
<td>June 19</td>
<td>5th Class Day for Mini-Semester 2- Last day to drop from course with no grade assignment</td>
</tr>
<tr>
<td>June 20</td>
<td>Classes end for Mini-Semester 1</td>
</tr>
<tr>
<td>June 21</td>
<td>Mid-Semester for Mini-Semester 1</td>
</tr>
<tr>
<td>June 22</td>
<td>Last day to submit Dissertation First Submission Approval Form with University Reader info and dissertation in PDF form for format check to <a href="mailto:doctoral@auburn.edu">doctoral@auburn.edu</a></td>
</tr>
<tr>
<td>June 22-23</td>
<td>Final Exam Period for Mini-Semester 1</td>
</tr>
<tr>
<td>June 25</td>
<td>Classes begin for Mini-Semester 2</td>
</tr>
<tr>
<td>June 25-29</td>
<td>Submission of master’s thesis PDF form for format check to <a href="mailto:thesis@auburn.edu">thesis@auburn.edu</a> (OPTIONAL)</td>
</tr>
<tr>
<td>June 27-29</td>
<td>Drop Course Penalty Days for Mini-Semester 2 – Dropping a course during these days will result in a $100 Drop Fee per course dropped</td>
</tr>
<tr>
<td>July 4</td>
<td>Independence Day Holiday</td>
</tr>
<tr>
<td>July 11</td>
<td>Mid-Semester for Mini-Semester 2</td>
</tr>
<tr>
<td>July 16</td>
<td>Last day for doctoral final defense and submission for Form Z; last day for Non-Thesis Masters’ (Form 8) final oral examinations</td>
</tr>
<tr>
<td>July 20</td>
<td>Last day for Master's/Thesis students to submit Form 9 (Thesis Master's Final Examination Form), ETD Final Approval Form, and electronic thesis to AUETD</td>
</tr>
<tr>
<td>July 23</td>
<td>Last day for PhD/Doctoral student submission of ETD Final Approval Form, electronic dissertation to AUETD, and Survey of Earned Doctorates (SED)</td>
</tr>
<tr>
<td>July 27</td>
<td>Classes end for full summer semester and Mini-Semester 2</td>
</tr>
</tbody>
</table>
### Auburn University Libraries

Auburn University Libraries consists of three libraries on campus. The largest library on campus is the Ralph Brown Draughon Library, a 377,000 square-foot structure with seating for 4,850. Branch libraries are located in the College of Veterinary Medicine and the College of Architecture, Design and Construction. Auburn University is one of the 125 universities that are members of the Association of Research Libraries. AU Libraries serves as a Federal Depository Library for Alabama.

Collections include more than 3.6 million volumes, more than 2.7 million items in microform, and 152,000 maps. The libraries license access to over 200 electronic databases, including online full-text access to over 5,000 scholarly journals and receive more than 57,000 current serials, including publications issued by the U.S. government.

The libraries offer an online catalog to library holdings at www.lib.auburn.edu, expedited electronic document delivery to faculty and students via the AubieExpress service, delivery of books or documents held at other libraries via Interlibrary Loan, and expedited purchasing of titles requested by faculty or students via Purchase Request.

The Draughon Library contains the Learning and Study Commons and over 1400 power outlets to allow students to use personal laptops while in the library; carrels for faculty and graduate student use; a Media and Digital Resource Laboratory to provide access
to the latest multimedia hardware and software along with on-site expertise to assist users; and over 200 university and public computer workstations - including laptop computers that can be checked out to faculty and students. The attached Mell Classroom Building provides additional study spaces and circulation services.

Reference service and library use instruction is provided by subject-specialist librarians. Draughon Library also features an expanded assistive technology workstation area on the second floor that hold three workstations with specialized software for helping vision-impaired patrons use library and Internet resources.

The Special Collections and Archives Department collects rare and unique material related to the history, literature and natural history of Alabama; the American Civil War; the history of aviation; and family history in the southeastern United States.

Library borrowing privileges are extended to enrolled students; members of the administrative, research, instructional and extension staffs of the university; student, faculty and staff spouses; and active alumni association members.

**Enrollment Statistics**

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- College of Architecture, Design and Construction (p. 39)
- Harbert College of Business (p. 40)
- College of Education (p. 41)
- Samuel Ginn College of Engineering (p. 44)
- College of Forestry and Wildlife Sciences (p. 46)
- Graduate School (p. 47)
- College of Human Sciences (p. 47)
- Interdepartmental Programs (p. 48)
- College of Liberal Arts (p. 48)
- School of Nursing (p. 51)
- Harrison School of Pharmacy (p. 51)
- Provost (p. 51)
- College of Sciences and Mathematics (p. 51)
- College of Veterinary Medicine (p. 52)
- University College (p. 53)
- All University (p. 53)
- Enrollment by Alabama County (p. 53)
- Enrollment by State (p. 54)
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**COLLEGE OF AGRICULTURE - Fall 2017**

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### Auburn University

#### College of Agriculture

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### College of Architecture, Design and Construction - Fall 2017

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**Enrollment by State — Fall 2017**

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## U.S. Territories and Possessions - Fall 2017

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## Enrollment by Foreign Country - Fall 2017

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Financial Information

Auburn University’s fees have remained somewhat lower than those charged by similar institutions in the Southeast and in other sections of the country. As institutional costs have risen, the Board of Trustees has authorized small increases in fees from time to time. Every effort is made, however, to hold fees and charges at a minimum.

The following fees and charges are in effect at this time. However, since the catalog must be published well in advance of the next school year, it is not always possible to anticipate changes. Thus the fee schedule may have to be revised. Every effort will be made to publicize changes as far in advance as possible.

- Basic Charges (p. 61)
- Other Fees and Charges (p. 63)
- Alabama and Non-Alabama Student Policy (p. 58)
- Academic Common Market (p. 58)
- Financial Aid (p. 62)
- Scholarships (p. 65)

Academic Common Market

The Academic Common Market is an agreement among 12 Southern Regional Education Board states (Alabama, Arkansas, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Virginia and West Virginia). According to the agreement, if one of these states does not offer a particular degree program in its state-supported universities, a resident of that state may enroll in that degree program at a university in one of the other states without having to pay out-of-state tuition. Each state specifies which programs offered at out-of-state universities it will allow its residents to attend as common market students. The states of Florida, North Carolina, and Texas do not participate in the Academic Common Market.

To be eligible for consideration for the Common Market at Auburn, students must be enrolled in degree programs agreed to by their home states, be classified as a junior or senior at Auburn, have a 3.0 GPA for all college-level coursework attempted, including transfer work, and be certified as a resident of one of the other states. Auburn students who enter as common market students and do not complete 12 hours per term, do not maintain a 3.0 cumulative GPA, or who later change to a degree program not certified as eligible by their home states, lose the waiver of out-of-state tuition.

Since out-of-state residence is a requirement for being a common market student, students may not use the time spent as common market students to qualify them as residents of Alabama.

See the Academic Common Market (http://www.auburn.edu/admissions/academic-common-market.html) website for more information. Application materials are due by March 15 for the following year. If space remains, applications for spring semester received by October 15 will be considered.

Alabama and Non-Alabama Student Policy

Students enrolled prior to June 1, 1996 should consult with the Office of the Registrar for changes in residency status.
Policy for Students Enrolled for the First Time June 1, 1996, and Thereafter

For the purpose of assessing tuition and fees, applicants shall be classified as Alabama or non-Alabama students. Non-Alabama students are required to pay non-resident tuition.

An Alabama student is a person which shall be a citizen of the United States, or a permanent resident, and who shall have resided and had habitation, home and permanent abode in the State of Alabama for at least 12 consecutive months immediately preceding current registration. In applying this regulation, “applicant” shall mean a person applying for admission to the institution, if applicant is married or 19 years of age, and financially independent. Otherwise, it shall mean parents, parent or legal guardian of his/her person. If the parents are divorced, residence will be determined by the residency of the parent to whom the court has granted custody.

A person who establishes a guardianship for purpose of avoiding non-Alabama fees will be subject to non-resident tuition.

No person who moves to Alabama for the primary purpose of attending college shall be considered to have demonstrated intent to establish domicile in the State of Alabama, and will generally not be considered eligible for classification as a resident student. Clear and convincing evidence to the contrary must be presented to overcome this presumption.

In determining Alabama student status for purposes of assessing fees, the burden of proof is on the applicant.

Additional Persons Eligible for Resident Tuition

1. Military personnel on active duty stationed in Alabama, their spouses and dependent children (as defined by Internal Revenue Codes), as well as military personnel whose State of Residence on their Leave and Earnings Statement (LES) is Alabama, who have continuously filed Alabama income tax returns for the duration of their service, and their spouses and dependent children.

2. Non-resident undergraduate students who are currently being awarded an academic, athletic, or other scholarship by Auburn University that is at least equal to the amount of the current tuition rate for Alabama students, provided that the scholarship is fully funded by a donor or other external source and non-resident graduate students appointed on qualifying assistantships of at least 1/4-time will be classified as a non-resident for tuition purposes, and the out-of-state portion of tuition will be waived, leaving the student obligated for the equivalent of resident tuition. Institutionally funded scholarships and externally awarded scholarships are excluded from this provision and do not carry with them a waiver of any portion of non-resident tuition costs.

3. Full-time employees of a state of Alabama agency or institution, their spouses and dependent children.

4. Spouse and dependent children of a non-resident, provided the nonresident has been employed in Alabama full-time for at least 12 consecutive months prior to registration, has filed an Alabama Income Tax Return for the tax year prior to the year in which the student is admitted, and did not claim a credit on the Alabama return for income taxes paid to another state.

5. Non-resident students with junior or senior standing selected for programs included in the Southern Regional Education Board Academic Common Market, provided the student does not change to another program not included, is enrolled in 12 hours per term and earns a 3.00 GPA each term. In such cases of change, reduction in course load or failure to meet the GPA, the student will be classified as a non-resident for tuition purposes and the out-of-state portion of tuition that had been waived previously, will no longer be waived. See section on Academic Common Market for application process.

6. Persons whose spouses by legal marriage are bona fide Alabama residents.

7. Students enrolled in the College of Veterinary Medicine professional DVM program admitted under contract with the Southern Regional Education Board.

Section 702, Veterans Access, Choice and Accountability Act of 2014 and 2017 Amendments. The following qualified individuals shall be charged a rate of tuition not to exceed the in-state rate for tuition and fees purposes:

- A Veteran using educational assistance under either chapter 30 (Montgomery G.I. Bill – Active Duty Program) or chapter 33 (Post 9/11 G.I. Bill), of title 38, United States Code, who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence) and enroll in the school in the school within three years of discharge or residence from a period of active duty service of 90 days or more.

- Anyone using transferred Post 9/11 G.I. Bill benefits (38 U.S.C. 3319) who live in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence) and enroll in the school within three years of the transferor’s discharge or release from a period of active duty service of 90 days or more.
• Anyone described above while he or she remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or term) at the same school. The person so described must have enrolled in the school prior to the expiration of the three year period following discharge or release as described above and must be using educational benefits under either chapter 30 or chapter 33, of title 38, United States Code.

• Anyone using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. 3311(b)(9) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal State of residence).

• Anyone using transferred Post 9/11 G.I. Bill benefits (38 U.S.C. 3319) who lives in Alabama while attending a school located in Alabama (regardless of his/her formal state of residence) and the transferor is a member of the uniformed service who is serving on active duty.

Initial Determination of Eligibility
To be initially classified as eligible for resident tuition, students must demonstrate that they or their parent, guardian or spouse qualify for one of the eligibility categories prior to the first day of class. A signed statement is required that qualification for the eligibility category claimed has been met prior to registration.

Transfer Students
In the case of new transfer students, classification as a resident by the previous institution does not guarantee that status at Auburn University. Enrollment by a non-resident student at a college or university within the state of Alabama for more than 9 hours in any term during the period when the student is attempting to establish residency will normally exclude that student from consideration. That student will be considered to be in the state for the purpose of education.

Change in Eligibility for Resident Tuition
Students determined to be eligible for resident tuition will maintain that eligibility upon re-enrollment within 12 months of their most recent enrollment, unless there is evidence that the student subsequently has abandoned resident status (e.g., registering to vote in another state.) Students failing to re-enroll within 12 months must establish eligibility upon re-enrollment.

Students initially classified as ineligible for resident tuition will retain that classification for tuition purposes until they provide clear and convincing evidence that they have established permanent domicile in Alabama. The burden of proof of change in eligibility rests on those requesting change. Evidence relevant to an initial determination of eligibility is also relevant to establishing a change in eligibility.

Non-resident students who carry an academic load considered normal (10 or more hours per term, undergraduate, or 7 hours or more hours per term, graduate) for students at Auburn University will be presumed to be in the State of Alabama primarily for the purpose of gaining an education and, thus, have not demonstrated the intent to establish a true domicile in Alabama. Clear and convincing proof may overcome this presumption, but again, the burden of proof rests on those requesting change in eligibility. Any change in resident tuition eligibility occurring during an academic term will not become effective until the registration for the succeeding term.

The following types of evidence may contain data to support the establishment of twelve 12-month residency in the State of Alabama. In all cases, the person must be at least 19 years of age or married, and financially independent. Otherwise, the person’s residency will be based on that of the parent or guardian.

1. Ownership of rental or residential property in the State of Alabama and continuous occupation thereof on an extended term of not less than twelve consecutive months.
2. Full-time permanent employment in the State of Alabama.
3. Possession of State of Alabama License(s) required to do business or practice a profession in Alabama.
4. Legal marriage to a bona fide Alabama resident.
5. Registration to vote in the State of Alabama.
6. Filing of Alabama resident income tax returns.
7. Holding a current Alabama driver's license.
8. Registration of vehicle in Alabama, and payment of property taxes, thereon.
9. Evidence of local banking activity within the State of Alabama for 12 consecutive months prior to making application for residency change.

The Office of the Registrar at Auburn University and the Office of the Registrar at AUM shall have the responsibility for determining whether a student shall be classified as an Alabama or non-Alabama student. The decision of the Office of the Registrar shall be
subject to review by the Residency Committee (at Auburn) or the Chancellor (at AUM) or the designated representative of each, upon written request of the applicant.

**Procedures for Appeal of Residency Decision**

The following outlines the process by which students may seek review, or appeal the initial decision of residency for tuition purposes.


2. Should the submitted residency review be denied, students may submit to the Residency Advisor a written request for appeal by the Residency Committee. This request should outline the circumstances that have changed since the initial residency decision.

3. Along with the written request, students should submit whatever evidence they feel is relevant to their appeal. Examples of the relevant evidence can be found in the Auburn University Residency Guidelines in this *Bulletin*.

4. The letter of request for appeal and the supporting evidence must be received no later than two business days before the committee meeting. The Residency Advisor will prepare all materials for presentation to the committee regarding each individual appeal.

5. The committee will vote on the merits of each appeal as it relates to the written guidelines adopted by the state of Alabama and the Auburn University Board of Trustees.

6. Students will receive a letter informing them of the Residency Committee's final decision and reason.

7. All proceedings and votes will be recorded and filed in the Office of the Registrar.

**Basic Charges**

The following is a schedule of the tuition structure effective Fall, 2018. If you need more details, please call the Student Financial Services Office at (334) 844-4634.

### Tuition and Student Services Fee

<table>
<thead>
<tr>
<th>Basic Charges</th>
<th>Resident</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Hour Tuition - Undergraduate to 12 hours* (1)</td>
<td>401.00</td>
<td>1,203.00</td>
</tr>
<tr>
<td>Credit Hour Tuition - Graduate/Professional to 9 hours* (1)</td>
<td>535.00</td>
<td>1,605.00</td>
</tr>
<tr>
<td>Student Services Fee</td>
<td>826.00</td>
<td>826.00</td>
</tr>
</tbody>
</table>

* No additional charge for credit hours exceeding 12 (undergraduate)/9 (graduate)

### Non-Credit/Specialty Fees

<table>
<thead>
<tr>
<th>Basic Charges</th>
<th>Resident</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auburn Abroad Fee (2)</td>
<td>677.00</td>
<td>677.00</td>
</tr>
<tr>
<td>Auditing Fee - Undergraduate per course (3)</td>
<td>401.00</td>
<td>1,203.00</td>
</tr>
<tr>
<td>Auditing Fee - Graduate/Professional per course (3)</td>
<td>535.00</td>
<td>1,605.00</td>
</tr>
<tr>
<td>Clearing for Graduation (4)</td>
<td>450.00</td>
<td>450.00</td>
</tr>
<tr>
<td>College of Veterinary Medicine Clinical Rotation Fee</td>
<td>677.00</td>
<td>677.00</td>
</tr>
<tr>
<td>GRA/GTA Enrollment Fee</td>
<td>615.00</td>
<td>615.00</td>
</tr>
<tr>
<td>Horticulture</td>
<td>401.00</td>
<td>401.00</td>
</tr>
<tr>
<td>International Student Fee</td>
<td>130.00</td>
<td>130.00</td>
</tr>
<tr>
<td>Music Fee (full hour lessons) (5)</td>
<td>246.00</td>
<td>246.00</td>
</tr>
<tr>
<td>Music Fee (half-hour lessons) (5)</td>
<td>163.00</td>
<td>163.00</td>
</tr>
</tbody>
</table>

### Professional Fees, Program Fees, Differential Tuition*

<table>
<thead>
<tr>
<th>Basic Charges</th>
<th>Resident</th>
<th>Non-Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Architecture, Design, &amp; Construction (per semester)</td>
<td>2,160.00</td>
<td>2,160.00</td>
</tr>
<tr>
<td>College of Business FR/SO (per semester)</td>
<td>260.00</td>
<td>260.00</td>
</tr>
<tr>
<td>College of Business FR/SO Summer (per semester)</td>
<td>75.00</td>
<td>75.00</td>
</tr>
<tr>
<td>College of Business JR/SR (per semester)</td>
<td>560.00</td>
<td>560.00</td>
</tr>
<tr>
<td>College of Business JR/SR Summer (per semester)</td>
<td>150.00</td>
<td>150.00</td>
</tr>
<tr>
<td>College of Business Graduate - per credit hour</td>
<td>200.00</td>
<td>200.00</td>
</tr>
<tr>
<td>College of Engineering Undergraduate FR (per semester)</td>
<td>412.00</td>
<td>412.00</td>
</tr>
<tr>
<td>College of Engineering Undergraduate SO/JR/SR (per semester)</td>
<td>721.00</td>
<td>721.00</td>
</tr>
<tr>
<td>College of Human Sciences - Interior Design (per semester)</td>
<td>2,000.00</td>
<td>2,000.00</td>
</tr>
<tr>
<td>College of Veterinary Medicine (per semester)</td>
<td>4,542.00</td>
<td>8,542.00</td>
</tr>
<tr>
<td>Honors College 1st year (per semester)</td>
<td>250.00</td>
<td>250.00</td>
</tr>
<tr>
<td>Honors College 2nd year (per semester)</td>
<td>225.00</td>
<td>225.00</td>
</tr>
<tr>
<td>Honors College 3rd year and beyond (per semester)</td>
<td>200.00</td>
<td>200.00</td>
</tr>
<tr>
<td>School of Nursing - per clinical credit hour</td>
<td>200.00</td>
<td>200.00</td>
</tr>
<tr>
<td>School of Pharmacy (per semester)</td>
<td>5,283.00</td>
<td>5,283.00</td>
</tr>
</tbody>
</table>

* Professional fees, program fees, differential tuition are in addition to regular credit hour tuition

Graduate students’ tuition and student services fee are waived, provided they are on a one-quarter time or greater appointment and are being paid according to the approved salary structure as a Graduate Research or Teaching Assistant. Their appointment date must be effective as of the eighth class day of the fall or spring semester, the fifth class day of summer semester/session. Professional and Program fees are not waived. Graduate students that have their tuition and student services fee waived pay the GRA/GTA enrollment fee each semester.

1. The university tuition and student services fee are used to meet part of the cost of instruction, physical training and development, laboratory materials and supplies for student use, maintenance, operation and expansion of the physical plant, library and student activities. The Student Activities portion of the fee supports: Intercollegiate Athletics, Student Center Operations, Campus Recreation, and Student Activity Projects within Student Affairs. Student Activity Projects supported are: the Auburn Student Media Group, Black Student Union, International Student Organization, Leadership Programs, Service Programs, Student Governance, Student Organizations, and Student Programming. This fee includes $0.25 held in reserve to cover damage to university property by students. The student services fee is waived for full-time faculty and staff. All students except faculty and staff are eligible to participate in Student Activities.

2. Students participating in the Study Abroad/Exchange Program will pay the Auburn Abroad Fee, and any course work resulting in AU credit or grades will be assessed in accordance with the university fee structure.

3. Not charged to faculty and staff.

4. A student who is a candidate for a degree in a term in which no credit hour work is taken at Auburn University is required to be cleared for graduation and pays the Clearing for Graduation fee. The Graduation fee is to be paid in addition to this fee.

5. This additional music fee is to be paid for each Performance Course of individual instruction. Instruction is available in either half-hour or hour lessons.

**Financial Aid**

The Office of Student Financial Services at Auburn University provides financial assistance to students who need aid to attend the university. Students seeking assistance are required to complete the Free Application for Federal Student Aid (FAFSA) each year. The FAFSA is available for the new aid year beginning each October. Students should apply as early as possible in order to maximize eligibility because many funds are limited. Counselors are available each weekday from 7:45-4:45 in 203 Martin Hall. Application links and instructions are available on the Web at www.auburn.edu/finaid.
Federal aid includes grants, loans and part-time employment.

**Grants**
Federal Pell Grants are available to eligible undergraduate students who demonstrate exceptional need. Federal Supplemental Educational Opportunity Grants are available, in limited number, to eligible undergraduates with the greatest financial need.

**Loans**
Federal Subsidized and Unsubsidized Loans provide long-term, low interest loans to students. The Health Professions Loan Program makes available, in limited number, long-term loans for students in Pharmacy and Veterinary Medicine. Federal PLUS loans are also available for eligible parent borrowers of dependent students.

**Work**
The Federal Work-Study Program provides part-time employment, in limited number, for students who demonstrate financial need.

**Scholarships**
The Scholarship Office is located in 108 Martin Hall and on the Web at www.auburn.edu/scholarship.

**Graduate Assistantships**
Graduate students may be eligible for teaching and research assistantships and traineeships. Information is available from the department of the student's major field.

**Other Fees and Charges**

**Course Drop Fee**
A $100.00 per class fee is charged for classes students drop between the 6th and 15th class day of the fall and spring semester. The charge is assessed for classes dropped between the 3rd and 5th class day of the summer semester/session.

**Late Payment Charges**
All students, regardless of classification, must clear tuition, fees and other university obligations by the deadlines set by the university, or be liable for late payment charges. Late payment charges will be assessed following each due date at 1.5 percent of the unpaid balance.

<table>
<thead>
<tr>
<th>Returned Check Charge</th>
<th>25.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: All checks accepted subject to collection.</td>
<td></td>
</tr>
</tbody>
</table>

**Application Fee**
An application fee must accompany all applications for admission and is not refundable nor applicable to registration fees. (See “Undergraduate Admissions” section under Academic Policies.) An application fee must accompany the application for housing and is not refundable or applicable to housing fees. (See “Housing and Residence Life” section under Student Services.)

**Fees Related to Graduation**

<table>
<thead>
<tr>
<th>Graduation Fee (each degree)</th>
<th>40.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Replacement Diploma Fee</td>
<td>40.00</td>
</tr>
<tr>
<td>Graduate School Copyright Fee</td>
<td>55.00</td>
</tr>
<tr>
<td>Thesis/Dissertation Fee</td>
<td>contact Graduate School for amount</td>
</tr>
</tbody>
</table>

**Internship Courses**
Students registering for an internship course only, and no other courses, will be assessed provided that the student is not enrolled in any other courses and is taking an internship course only.

Rent for Student Housing, (See “Housing and Residence Life” under Student Services.)
Meal Plans (See “Auburn University Dining” under Student Services.)
Special Service Fees

<table>
<thead>
<tr>
<th>Service</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative Education Program</td>
<td>100.00</td>
</tr>
<tr>
<td>Cooperative Education/Graduate Distance Education ID Fee (athletic tickets)</td>
<td>96.00</td>
</tr>
<tr>
<td>Cooperative Education Diploma Fee</td>
<td>15.00</td>
</tr>
</tbody>
</table>

Proctoring Fees

Students taking online classes may have the option (as approved by the instructor) to take exams using a third-party proctoring service provided by non-Auburn vendors (e.g., ProctorU, Examity, an individual or a vendor within SmarterProctoring). Third-party proctors are external to Auburn University and require fees for proctoring services to be paid directly by the student taking the exam.

Resignations and Refunds

Students officially resigning prior to the start of a term will not be held liable for tuition and fees (other than non-refundable fees).

Students resigning during the first 15 class days of the fall and spring semesters and the first 5 class days of the summer term and/or session will be charged a $100 Resignation Fee.

The liability for tuition and fees will not be excused for resignations effective after the 15th class day of fall and spring semesters and the 5th class day of summer semester and/or session except in cases of resignation caused by personal illness (physicians statement required), death or illness of an immediate family member (death certificate or physician’s statement required) or call into military service (copy of activation orders required, excluding temporary training assignments). A pro-rata reduction will be made in cases of personal illness, death or illness of an immediate family member (parent, sibling, spouse, child or legal guardian) and a full reduction for military service activation. Students having made prior payment will be refunded the amount paid less their liability after the resignation. Students suspended for disciplinary reasons are not eligible for refunds or reductions in liability. Resigning students receiving refunds will first have their refunds applied to any outstanding obligations and to any scholarship, grant or loan which they had received for the term.

Students reducing course loads on or prior to the 15th day of classes of fall and spring semesters and the 5th class day of summer semester and/or session may be eligible for a partial refund or reduction in liability of tuition and fees. To be eligible, the adjustment must be completed on or before the 15th day of classes of fall and spring semesters and the 5th class day of summer semester and/or session. In such cases, tuition and fees will be reassessed based on the adjusted schedule.

Students who believe that extenuating circumstances warrant an exception to the refund policy must submit an appeal in writing to the Director, Office of Student Financial Services, Martin Hall. Acceptance or rejection of the appeal will be communicated within 10 business days.

Any Federal Title IV financial aid recipients who resign will be liable for any unearned funds received as determined by the Federal Return of Funds Policy. These amounts will be charged back to the student’s university account and immediately due to the university.

Payment of University Obligations

University registration or other requests for class assignment create a liability for the payment of tuition and fees resulting from assigned classes. Students are expected to meet all financial obligations when they fall due. The university reserves the right to deny admission, dis-enroll, prevent participation in graduation and withhold transcripts, cap, gown and diploma, and pursue collection of debt of any student who fails to meet promptly their financial obligations to the university. It is each student’s responsibility to be informed of all payment due dates, deadlines, and other requirements by referring to official sources of university information such as this bulletin, office and departmental web sites, official calendar of events, announcements printed in the Plainsman, or that disseminated by other means from time to time.

Students owing charges for prior terms will not be allowed to register for future terms until all charges are paid. Students who fail to meet their financial obligations or fail to make satisfactory financial arrangements with the university, may be referred to a collection agency. Students that fail to pay any unpaid balance on their student account will be personally responsible for the debt, and agree to reimburse Auburn University the fees of any third party collection agency, which may be based on a percentage at a maximum of 40% of the debt (including principal and late fees prior to referral to such agency) and all costs and expenses including reasonable attorneys’ fees, court costs, and any other charges necessary for the collection of the debt.
The Auburn University Billing and Receivable System will bill students the majority of their charges. Among the charges included within this system are those for tuition and fees, dining plan, housing and parking. Other charges will be included in the system as deemed appropriate. Any questions concerning a charge should be directed to the department responsible for that particular charge.

Statements will be processed at approximately monthly intervals corresponding to the university’s semester schedule. A statement for tuition and fees will be billed and due prior to the beginning of each semester. Additional charges will be billed as incurred. All charges appearing on a billing statement must be cleared by the due date for that statement or late payment charges will be assessed. Late payment charges may be waived for tuition resulting from university registration and housing charges when financial aid is processed through the university and evidence of such aid is recorded on the statement.

Statements will be delivered via eBill (the university’s electronic billing system.) Students are notified through TigerMail when a new billing statement has been processed. Students may grant access to others to view their eBill statements and receive electronic statement notifications.

Checks
Checks given in payment of any university obligation are accepted subject to final collection. If the bank on which the check is drawn does not honor the demand for payment and returns the check unpaid, the student will pay a returned check fee of $25 and any applicable late payment charges. If payment is not cleared promptly, the student’s registration may be canceled. The university has the right but not the obligation to redeposit any insufficient check without notice to the student or maker.

Veterans
All veterans (Chapter 30 - Montgomery GI Bill, and Chapter 33 - Post 9 11 GI Bill), reservists and guard members (Chapter 1606 - Montgomery GI Bill Selected Reserves), and veterans’ dependents (Chapter 35 - Dependent Education Assistance Program) are responsible for paying fees and charges on the same basis as other students. The Fry Scholarship is also available to dependents of fallen service members. Vocational Rehabilitation and Employment program (Chapter 31) and students receiving the Alabama GI Bill should make arrangements for their tuition, fees and books to be paid prior to their first payment due date.

Foreign Students Under Contract
A special administration management/program fee will be negotiated for foreign students who come to the university under a contractual arrangement that requires special administrative and programming arrangements beyond those of the regular academic program of the university.

Scholarships
Students must complete the scholarship application through the Auburn University Scholarship Opportunity Manager (AUSOM) at auaccess.auburn.edu by 4:45 p.m. CST on the following dates to receive scholarship consideration:

- December 1 for accepted incoming freshmen
- February 1 for accepted incoming transfer students and current Auburn students
- June 1 for Nursing or Veterinary Medicine students accepted into the professional program and Pharmacy students enrolled in the professional program

Students should complete the Free Application for Federal Student Aid (FAFSA)*, available October 1 online, at fafsa.ed.gov for financial aid. The FAFSA, and any verification documents requested by Student Financial Services, must be received and processed prior to February 1 for final need-based scholarship consideration.

For additional information, visit auburn.edu/scholarship.

*The FAFSA is the only form a student is required to complete to be considered for student assistance from any of the Title IV, HEA programs except for information needed to ensure the student’s eligibility for such assistance (e.g., information needed to complete verification or to demonstrate compliance with the student eligibility provisions of the HEA and the regulations). Additional information, if requested, will be listed on the student’s AU Access My Finances page after we receive the results of the FAFSA. For additional information, visit auburn.edu/finaid.

Freshman Scholarships
Spirit of Auburn Scholarships are awarded among Alabama residents with a minimum 28 ACT or equivalent SAT score and a 3.5 high school GPA at three levels beginning in October. Students must have the minimum test score and high school GPA required for
consideration at each level. Presidential Scholars receive tuition for four years. Founders Scholars receive $32,000 over four years at $8,000 per year. University Scholars receive $16,000 over four years at $4,000 per year.

**Academic Scholarships** are awarded among non-resident students with a minimum 29 ACT or equivalent SAT score and a 3.5 high school GPA at three levels beginning in October. Students must have the minimum test score and high school GPA required for consideration at each level. Presidential Scholars receive $72,000 over four years at $18,000 per year. Heritage Scholars receive $52,000 over four years at $13,000 per year. Charter Scholars receive $32,000 over four years at $8,000 per year.

Additional Freshman Scholarships may be available. For more information, visit [auburn.edu/scholarship](http://auburn.edu/scholarship).

**General Scholarships**
Criteria for General Scholarships vary and may include but not be limited to geographic location, academic achievement, and financial need. Eligible students must have a minimum 3.0 GPA. General Scholarships are awarded competitively during spring semester for the upcoming academic year, and award amounts vary.

**Departmental Scholarships**
Criteria for Departmental Scholarships vary and may include but not be limited to academic major, geographic location, academic achievement, and financial need. Departmental Scholarships are awarded during spring semester for the upcoming academic year, and award amounts vary.

**Information Technology**

The Office of Information Technology (OIT) located at 300 Lem Morrison Drive, offers computing and communication services to the university community and reports to the Chief Information Office. OIT provides Auburn University with a reliable, secure information technology infrastructure and technical support that enables and encourages the effective use of information technology. Contact OIT via the IT Service Desk at (334) 844-4944, via email at servicedesk@auburn.edu, online at [http://www.auburn.edu/oit/](http://www.auburn.edu/oit/) and follow us on Twitter (AuburnOIT) and Facebook (Auburn University OIT).

**Connectivity**
Auburn University’s campus network is the Ethernet backbone linking computers and networks in all buildings to each other and Auburn University to the Internet. Auburn University is also a participant in the Internet2 initiative. A secure wireless network is available to Auburn students and employees in most public spaces on campus, in classrooms, and in the campus residence halls.

**Computing Access**
Each currently enrolled student has a username and password, which provide access to AU Access, TigerMail, network storage, OIT computing stations, Tiger Print, restricted online class materials, and other computing resources. Students have web access to the student information system via the My Academics tab in AU Access, where they can register for courses, view grades, and access additional student services. eBill provides online payment of University fees as well as account summaries. Students log into AU Access for registration, billing, and academic records. Many online resources are also accessible through mobile devices via the official Auburn University mobile app ([http://www.auburn.edu/app](http://www.auburn.edu/app)).

Computing stations and labs across campus are available for use by students and employees. OIT maintains several computing labs, most of which are available 24 hours a day. OIT computing labs have general purpose software for database, spreadsheet, word processing, web browsing, email, and course-specific software.

**Identity Management**
Identity Management issues ID cards for all Auburn University affiliates and employees, assists in resolving username and password issues, and manages faculty access to appropriate resources. To request access for an ID for an affiliate, please use the Access Request Form located at [www.auburn.edu/oit/idm](http://www.auburn.edu/oit/idm). For more information contact IDM at idm@auburn.edu or call (334) 844-4386.

**Online Resources**
Auburn University is committed to providing convenient and secure web applications to the University community. Student admissions, registration and records, campus directory services, administrative systems, email, and instructional and research tools are available to the Auburn University students and employees.

University colleges, schools, and departments maintain websites specific to their areas. The Auburn website includes online directory services, news, calendars, a campus map, and a search engine. AU Access, the campus portal, SharePoint and restricted webspace
are provided for sensitive information. The Office of Information Technology website is located at www.auburn.edu/oit. It serves as a central dissemination point for information about and assistance with computing, information technology, multimedia, and telecommunications at Auburn University.

**Instructional Technology**

Auburn University is dedicated to providing all faculty and students with effective technology to enhance teaching and improve learning. Canvas provides ways for faculty to manage course activities and content, and ways for students to interface with their course material, teachers, and each other. For more information on Canvas and other instructional technology support see: www.auburn.edu/biggio/technology.

Web-based technologies are available for hybrid and online education programs and to enhance the online learning experience for all students. Several technology-enhanced classrooms are available on-campus, as are several special course-specific computer classrooms and general computer labs.

**Telecommunications**

OIT provides telephone, data network (wired and wireless), and Cable TV services for all academic and administrative campus buildings, and wireless network to dormitories. Additional information on Telecommunications services available to AU students including cellular service discounts.

**Infrastructure Planning**

OIT participates on all building committees for new buildings and major renovation projects. Through this process, OIT ensures that telecommunications, audio/visual, and networking needs are addressed and that these systems are properly designed. OIT meets regularly with the Facilities Division to coordinate necessary infrastructure improvements. In support of Auburn University’s mission, OIT is continually planning and upgrading its backbone copper, fiberoptic cabling infrastructure, and core network equipment to meet Auburn University’s growing data and telecommunications needs.

**Hardware**

OIT manages AU Lease (aulease@auburn.edu), a computer leasing program for campus departments, and the Student PC Shop, a computer setup and repair shop for students. Additional information on the Student PC Shop is available at http://www.auburn.edu/oit/spcs. Additional information on AU Lease services is available at www.auburn.edu/aulease.

**Support**

Training, documentation, and consulting are provided for Auburn University students and employees via orientations, seminars, workshops, publications, and the IT Service Desk. The IT Service Desk is available on University business days and Sundays to answer questions and offer assistance on IT-related issues. Contact the IT Service Desk at (334) 844-4944, via email at servicedesk@auburn.edu, or drop by the third floor of the RBD Library. Hours of operation can be found at www.auburn.edu/oit/helpdesk.

The Office of Information Technology does not administer an academic program. Inquiries concerning computer curricula should be directed to the Samuel Ginn College of Engineering or the Raymond J. Harbert College of Business.

**Policies**

Auburn University’s Information Technology policies are on the web at www.auburn.edu/oit/policies. Email (username@auburn.edu) is an official means of communication at Auburn University. As such, students are responsible for checking their Auburn University issued email account in a timely fashion and on a regular basis.

**Student Services**

- Auburn University Bookstore (p. 68)
- Auburn University Dining (p. 76)
- Division of Student Affairs (p. 68)
- Housing and Residence Life (p. 71)
- Music, Theatre and Lectures (p. 72)
- Parking Services (p. 72)
- Student Health Services (p. 74)
- Tiger Card / Tiger Club Accounts (p. 79)
Auburn University Bookstore

The Auburn University Bookstore, located in Haley Center, is a full-service college store dedicated to serving the Auburn campus community. The mission of the store is to support student success, promote the Auburn Spirit and provide a welcoming destination for all. The AU Bookstore offers:

- Option to rent or purchase new or used books, e-books in-store and online.
- All-Access Program - Digital course content delivered to the student account on Canvas before the 1st day of class then billed to the student e-bill after drop & add.
- Technology service and educational pricing on technology products.
- Apple Authorized Service Provider.
- Auburn gifts, apparel, novelties and alumni merchandise, including diploma frames.
- Graduation Cap & Gowns.
- Special order services for general books as well as school and office supplies.
- Bookstore gift cards, UPS & FedEx shipping service, postage stamps.
- Special events geared toward students offered throughout the school year.

Visit Study Essentials, a satellite bookstore in the RBD Library open extended hours daily. You’ll find supplies for projects, test materials, calculators, headphones, snacks and beverages, and a small Auburn gift selection.

We give back! All revenue from the AU Bookstore is returned to Auburn University, making it a great way for students, faculty, staff and alumni to show their support for Auburn University.

Division of Student Affairs

The mission of Student Affairs is to cultivate a healthy and supportive campus environment that engages students, advances learning, encourages leadership and prepares students for future success. Student Affairs is comprised of the following departments, programs and services that support students both inside and outside the classroom.

Auburn Cares

The Auburn Cares office works with students to aid them in the successful navigation of challenging, personal life issues, critical incidents, hardships and emergencies that may impede a student's success and retention at Auburn University. Staff serve as an advocate, liaison or resource to students and families during times of student distress, need or emergency. In addition, the Auburn Cares office operates the Campus Food pantry to assist students struggling with food insecurity.

Telephone: (334) 844-1305
Website: auburn.edu/AuburnCares

Greek Life

Greek Life provides guidance and support to 52 nationally-affiliated fraternities and sororities. The office guides the overall programming for the Greek community, provides opportunities for interpersonal development, teaches leadership skills and provides educational sessions about risk management issues.

Auburn University's Greek system is comprised of four councils: Interfraternity, Panhellenic, National PanHellenic, and Multicultural.

The Interfraternity Council governs, serves, represents, and promotes the following fraternities at Auburn University: Alpha Epsilon Pi, Alpha Gamma Rho, Alpha Sigma Phi, Alpha Psi, Alpha Tau Omega, Beta Theta Pi, Beta Upsilon Chi, Chi Phi, Delta Chi, Delta Tau Delta, FarmHouse, Kappa Alpha Order, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Kappa Tau, Pi Kappa Alpha, Pi Kappa Phi, Sigma Chi, Sigma Nu, Sigma Pi, Sigma Tau Gamma, Tau Kappa Epsilon, and Theta Chi.

The Panhellenic Council coordinates activities of its member sororities: Alpha Chi Omega, Alpha Delta Pi, Alpha Gamma Delta, Alpha Omicron Pi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Delta, Kappa Gamma, Phi Mu, Pi Beta Phi, Sigma Kappa, Sigma Sigma Sigma and Zeta Tau Alpha.

The Multicultural Greek Council coordinates the activities of its member groups: Kappa Delta Chi sorority and Omega Psi Phi fraternity

Telephone: (334) 844-4600

Website: auburn.edu/greeklife

**Office of Student Involvement**

Getting involved with a campus organization is a great way for you to meet others with similar interests and it also serves as a learning tool to build your co-curricular transcript and skills that future employers seek. All student organizations are designed to maximize and enhance the Auburn experience building on the academic knowledge you will learn in the classroom. The Office of Student Involvement is home to more than 500 student organizations on campus which are divided among the five branches of the office: Leadership Programs, Service Programs, Student Governance, Student Programming and Student Organizations.

The Service Programs branch provides opportunities for students to serve the local community and other areas through service projects including AU Dance Marathon, Alternative Student Breaks, IMPACT, The Big Event and many more. Jump in with service programs to engage with the community in an area that you are passionate about.

The Student Governance branch is home to the Black Student Union (BSU), International Student Organization (ISO), and Student Government Association (SGA).

The mission of the Black Student Union is to represent the interests and concerns of all black students at Auburn University, bring together all aspects of black student life for the purpose of improving the campus environment, provide support for the students and the community, promote interaction and good relationships among black students and other Auburn students by encouraging pluralism on the part of the faculty, administration and the student body at large.

The International Student Organization is a student organization created to improve multinational understanding and promote relationships between people of different cultures. The International Student Organization also helps ease the process of adaptation for international students. The organization actively promotes diversity and beneficial interaction between international and domestic students.

The mission of the Student Government Association is to “serve and promote the individual student, while unifying all that is Auburn.” SGA works with administrators on campus to ensure that the students’ needs are being met while also providing fun programming activities for all students to attend like Hey Day and Homecoming. SGA implemented a feedback system called Auburn Answers that students can submit their concerns through regarding anything on campus; a student serving in SGA will relay that concern to an administrator and work to resolve the problem.

The Student Programming branch houses University Program Council (UPC) and Welcome Week.

UPC is a programming board that works to bring a variety of events to campus for students to enjoy. Some of the most popular events are Open Mic Night, Movie in Jordan-Hare Stadium, Cooking Workshop, Speakers & Comedians and concert series “Auburn Airwaves.” Most UPC events are free to students and provide different opportunities to experience something unique on-campus.

Welcome Week is Auburn University’s official welcome to new and returning students each fall. Events are held throughout the first week of fall classes and provides students with the opportunity to attend more than 75 free events, meet new friends and learn more about different campus organizations and departments.

The Student Organizations branch is home to more than 500 student-run organizations on campus. These organizations range from honors and academic groups to special interests to cultural groups. If there is an organization that we don’t offer, then you can start that group on campus. You can find a full listing of organizations and build a profile to assist in finding organizations and events that fit their interests by logging on to auburn.edu/involvement.

The Involvement Ambassadors are available to serve as a resource for any student or student organization seeking assistance in finding opportunities for involvement. The Involvement Ambassadors provide one-on-one consultations with students as well as conduct workshops for larger groups.

Telephone: (334) 844-4788
Auburn Student Media Group

The Auburn Student Media Group includes the five student media organizations listed below.

Telephone: (334) 844-4057

Website: http://wp.auburn.edu/studentaffairs/department/

The Auburn Circle is Auburn University's literary and fine art magazine. It serves as a forum for the artists, writers, photographers and designers of the University. Issues are published once every fall and spring and are free to all students. The magazine recently was named the second-best literary magazine in the country by the College Media Association's Pinnacle Awards.

Website: http://wp.auburn.edu/circle/

Eagle Eye TV is Auburn's student-run television station, located in the Auburn University Student Center. The students produce seven weekly shows, covering the relevant news and sports information to the campus and community. Eagle Eye has a digital first philosophy, so every story they cover is posted to their website, http://www.eagleeyeauburn.com/ prior to airing on a newscast. You can watch Eagle Eye on channel 6 on Auburn's campus and watch or read their coverage on http://www.eagleeyeauburn.com/.

Website: http://www.eagleeyeauburn.com/.

The Glomerata, distributed annually, is Auburn University's yearbook. The Glom is student-produced and documents the academic year in which it is produced. The yearbook includes photographs and stories about student life, athletics, faculty and administration achievements, the community and organizations' activities.

Website: http://diglib.auburn.edu/collections/gloms/

The Auburn Plainsman and ThePlainsman.com are the student-run campus newspaper and online news source at Auburn University. First published in 1894, the newspaper is one of the country's most-lauded student newspapers and is a member of the Associated Collegiate Press Pacemaker Hall of Fame. ThePlainsman.com is read by hundreds of thousands students, alumni, parents and sports fans around the world each month. In addition to serving readers, The Auburn Plainsman provides opportunities for students from all majors to gain practical experience and develop professional skills.

Website: ThePlainsman.com (http://www.theplainsman.com)

WEGL 91.1 FM is Auburn University’s student-run, non-commercial radio station that provides a wide range of music and information for the Auburn community. WEGL also streams its broadcasts online.

Website: wegl91auburn (http://www.weglfm.com)

Student Center

The Auburn University Student Center is the Auburn Family’s home away from home. Some of the services available in the 184,000-square-foot center include the James E. Foy Information Desk, Tiger Card Center, a City of Auburn police substation, Tiger Transit, a full-service postal kiosk, ATMs, food venues, a game lounge, television and study lounges, and email kiosks. The Student Center also offers a variety of meeting rooms, a ballroom, and event and outdoor spaces that serve students, departments and the general public.

Telephone: (334) 844-1300

Website: auburn.edu/studentcenter

Parent and Family Programs

The Office of Parent and Family Programs is the campus link for all Auburn University parents. The office facilitates communication between the University and parents, provides opportunities for parents to be actively involved in the life of the University, sponsors programs for parents to attend and provides services to meet the critical needs of Auburn parents.

Telephone: (334) 844-1493

Website: auburn.edu/aupa
Student Conduct

The Office of Student Conduct is responsible for addressing non-academic violations of university policy through the Code of Student Conduct. The office provides a fair, impartial and educational student conduct process for students and student organizations, as well as involved parties, charged and associated with violations. Additionally, dean’s certifications requests are processed and completed by the Office of Student Conduct.

Telephone: (334) 844-1305

Website: auburn.edu/studentconduct

Veterans Resource Center

The Auburn University Veterans Resource Center assists veterans, guardsmen, reservists, active duty, military dependents, and survivors federal Veteran Affairs educational benefits in making a successful transition into the AU community. The center provides timely and comprehensive support with a range of services for current and former military service members, including eligible military dependents, by collaborating with university faculty and staff, VA representatives, the local veteran community, and civilian-advocate organizations.

Telephone: (334) 844-8167

Website: auburn.edu/veterans

Additional information regarding Student Affairs may be obtained through the website at http://wp.auburn.edu/studentaffairs/.

Housing and Residence Life

Auburn University Housing offers on-campus housing accommodations for undergraduate students in five residential communities consisting of a total of 32 residence halls. The University does not offer on-campus housing accommodations for graduate students. All residence halls are air-conditioned and are equipped with Wi-Fi. The halls are within walking distance to classes, dining, recreational areas, laundry facilities, mailrooms and the library.

Residence halls in the Hill and Quad communities are suite style: two students share a room that is connected by a bathroom to another room shared by two students. There are a limited number of single rooms available. In Cambridge, two students share a room and have a private bathroom attached to that room. There are a limited number of single rooms available. The Village Community residence halls are primarily configured in four bedroom, two bath units: four students each have their own bedroom and share a bathroom with the roommate on their side of the suite. The Village also features a kitchenette and common space shared by all four students. There are a limited number of three bedroom and two bedroom, one bath units as well. South Donahue Hall which features two single bedroom, two bath units that share a common area and kitchenette. South Donahue has a very limited number of four single bedroom, two bath units. For more details, including rental rates, please visit the Housing website at www.auburn.edu/housing.

Housing for students with disabilities is available in all residential areas.

Auburn University Housing hosts several special interest communities across campus. Auburn Global students live with our domestic residence in two of our buildings in the Hill. Honors College members can request to live with other members in Honors Collage halls in the Quad and Village. Residential Learning Communities based off of similar interests or academics are located in the Quad. Panhellenic sororities on campus can live on their sorority specific hall located in the Village. For more details on these Special Interest Communities, floor plans, rental rates, and amenities, please visit the Communities tab on the Housing website at www.auburn.edu/housing.

Each residence hall is staffed by undergraduate student, graduate student, and professional staff members who oversee the daily operations of the residence hall and foster communities that are engaging, supportive and inclusive. Undergraduate Resident Assistants (RAs) provide social and educational programs for residents that are designed to engage students, advance learning, encourage leadership, and prepare students for future success. RAs are directly supervised by our Graduate Area Coordinators (GACs). In addition, residents may participate in social programs provided by professional staff members or our department as a whole. Residence Life staff also ensure resident compliance with any department, university, and community rules and regulations. All hall staff members are trained and supervised by full-time Residence Life professional staff members.

Admission to Auburn University does not automatically include a room reservation, and first-year students are not guaranteed housing. Students may apply for housing after they are accepted to the University and have submitted the $200 confirmation deposit to
Admissions. Priority for housing requests is generally based upon the date the application is received. A $50 non-refundable application fee and a $250 refundable pre-payment are required with the housing application.

Telephone: (334) 844-4580.
Website: www.auburn.edu/housing.

**Off-Campus Housing**
Auburn University has partnered with Off Campus Partners to provide off-campus housing resources. Students can go to auburn.offcampuspartners.com to browse and view apartments, condos, townhouses and homes that are available to rent in the greater Auburn-Opelika community. Users can also use the off-campus housing site to find a roommate, ride share or buy and sell furniture and textbooks.

Website: http://offcampushousing.auburn.edu/.

**Music, Theatre and Lectures**
Classical concerts, touring productions by prominent theatre, music, and dance companies and ensembles, lectures by political figures, news commentators, specialists and prominent scholars, touring and resident exhibitions at the university’s art museum and galleries, and a major motion picture series are among the special events featured each year at the university. Many of these activities are free.

The Auburn University Department of Music features a wide variety of ensembles including Chamber Choir, Gospel Choir, Singers, Men’s Chorus, Women’s Chorus, Marching Band, Concert Band, and Symphonic Band, the Symphony Orchestra, Opera Workshop and other specialized ensembles which offer opportunities for students who want to perform in musical groups. Faculty, guest artists, many ensembles, and students present concerts throughout the academic year for university personnel and the community.

Auburn University Theatre produces a full season of exciting plays and musicals both on the main stage of the University Theatre and in the Telfair Peet Theatre Black Box. Auditions and participation in theatre productions are open to the entire university community. Admission to all AU Theatre productions is free to every Auburn student with a valid AU ID. The department is also home to one of the oldest student organizations on the Auburn campus, The Auburn University Players. Auburn University Theatre provides a great opportunity to participate in, and appreciate the performing arts.

Student Media produces broadcasts and publications for Auburn students and provides them with opportunities to participate in the creation and dissemination of the university literary magazine, yearbook, newspaper, radio station, broadcast news, and entertainment programming.

**Parking Services**

**MISSION STATEMENT**
Parking Services’ mission is to enhance transportation to and within Auburn University’s campus for all students, faculty, staff and campus guests by promoting and providing alternate modes of transportation creating a more sustainable campus while maximizing the usage of available parking spaces.

**VISION STATEMENT**
Parking Services’ vision is to transition a majority of travel to and within Auburn University’s campus from vehicular to alternate modes of transportation in an effort to create a more sustainable campus while providing clear information to enhance understanding of parking rules and regulations with friendly, helpful customer service.

**VEHICLE(S) REGISTRATION**
Students, employees and visitors of Auburn University who park a vehicle on campus must register their vehicle(s) as prescribed in the Auburn University Parking and Traffic Regulations. Any vehicle not properly registered on, or after, the first day of class for Fall Semester will be ticketed.

Vehicle registration is valid for one (1) year beginning the first day of Fall Semester until the day before the first day of the following Fall Semester. The initial registration period for students is July 9 – August 17. Students may register after August 17th for non-preferred parking (C or RO). Registration for Faculty/Staff starts on July 9th and continues throughout the year. Students and Employees are encouraged to register online. Motorcycle and bicycle registration opens on July 9th for faculty, staff and students. If you change
vehicles, add additional vehicles or the vehicle license plate information changes during the permit year, you must notify the Parking Services Office through either an email (parking@auburn.edu) or by coming to our office with the information.

**Student Commuter Vehicle Registration (C/PC)** requested prior to August 18th, will be included in the random drawing for a PC (Proximate C-zone parking), if indicated when pre-registering online. Notification of zone assignments (C, PC1, PC2, PC3 or PC4) will be given via an email correspondence on August 18th.

**Student On-Campus Resident Vehicle Registration (R)** requested prior to August 18th, will be included in the random drawing for either a RW, RX, RD, RT, or RH parking zone depending on the resident hall assigned and the zone indicated when completing online pre-registration. There are a limited number of parking spaces in close proximity of residence halls. If the student will be living in one of these areas and wishes to be included in the random drawing, he or she will be able to indicate preference when pre-registering online. Notification of zone assignments (RW, RH, RX, RD, RT or RO) will be given via an email correspondence on August 18th.

**Student vehicle registration payments** may be made through the student e-Bill process or in person at the Office of Student Financial Services in Mary Martin Hall.

**Employees** have the option of registering their vehicle(s) online and paying with pre-tax dollars via payroll deduction. Employees who do not wish to participate in the online registration or who do not choose payroll deduction must register their vehicle and pay in person at the Parking Services Office.

A valid picture ID is required for all transactions in the Parking Services Office.

**All bicycles** operated on campus must be registered annually online through My Campus or at the Parking Services Office.

The following information is needed to register a bicycle at Auburn University:

- Brand
- Color
- Number of speeds
- Serial number (usually located on the bottom bracket of the bicycle frame)

The registration decal will be placed on the frame below the seat so that it can be easily seen. Bicycle registration is valid from the first day of Fall Semester through the day before the start of the next Fall Semester. Excluding the first 15 (15) calendar days of Fall semester, any bicycle parked on the Auburn University campus that does not have a valid AU bicycle permit displayed and/or is parked on or in any of the following locations will be removed and placed in the Auburn University impound lot at the owner's expense:

- On an entryway to a building
- On sidewalks while left unattached to a rack
- On handicap ramps
- In any location where they obstruct pedestrian traffic

Bicycles will be held by Parking Services for one calendar year, and if not claimed, turned over to the Department of Property Control for disposal. A $10 charge will be incurred by the claimant in order to retrieve a bicycle that has been impounded.

**Auburn University Medical Permits** are required for all vehicles displaying a permanent or temporary state issued handicap permit.

The Auburn University Medical Permit must be picked up in the Parking Office and will only be issued upon presentation of proper documentation.

- **Permanent Disability** - Documentation must be obtained from the AU Office of Accessibility for students; all others will provide proper documentation from the appropriate state

- **Temporary Disability** - Provide proper documentation from the appropriate state

- **Temporary Medical Permit** - Provide proper documentation from the AU Medical Clinic

**PARKING ENFORCEMENT**
All zone parking restrictions, except resident and PC permits, are in effect Monday through Friday from 7 a.m. - 5 p.m., throughout the year as long as the University is officially open or unless denoted otherwise. Resident parking zone restrictions (RW, RH, RT, RD and RQ) are in effect 24 hours every day. PC1, PC2, PC3 and PC4 parking zone restrictions are in effect Monday through Friday from 7 a.m. - 2:30 p.m., during Fall and Spring semesters. From 2:30 pm to 5 pm, Monday through Friday, all PC-zone lots are open to any valid AU PC-zone vehicle as well as all other valid AU registered vehicles (excluding any vehicle registered for a “R” zone). Exceptions will be noted during all Auburn University home football games, other official University events, summer camps that are utilizing resident parking and other special events. Alternate parking will be provided for any zone that will be displaced by any of these events.

A notification of a parking violation will be placed on the vehicle if it is not registered with Auburn University Parking Services. If the vehicle is registered to a faculty, staff or student; an email will be sent the next business day to the person notifying them that they have received a ticket. All parking fines associated with a student of Auburn University or Auburn University-Montgomery will be transferred to their student e-Bill account after 10 days unless the ticket has been paid in the Parking Services Office, the student notifies Parking Services to move the ticket to their e-bill account or the ticket has been appealed. Failure to pay the ticket may result in the student being unable to register for classes, graduate, or obtain transcripts. If the student withdraws from school, any outstanding parking ticket fines will be collected from any refunds of any nature due to the student. Late charges may be charged by the Bursar's Office on late payment of tickets. All parking fines associated with a faculty or staff will be sent to Payroll for payroll deduction after 10 days unless the ticket has been paid in the Parking Services Office the Parking Services Office has been notified to transfer the ticket for payroll deduction or the ticket has been appealed.

**APPEALING OF A TICKET**

All appeals must be initiated within ten (10) days from the date that the ticket was issued.

The ticket can be appealed through the My Campus component of AU Access. The appeal must include remarks as to why the ticket is being appealed. The Parking Services Office will assign the appeal a hearing date and notify the appellant of the date of the hearing. There are three (3) Appeals Boards. They meet on Tuesday, Wednesday and Thursday monthly during the Fall and Spring semesters. The appellant has the right to appeal before the Traffic Appeals Board and plead his or her case. The Board's decision will be emailed to the appellant, and the decision is final; however, the appellant retains the right to a second appeal. The second appeal must be submitted to the Parking Services Office in person within five (5) working days from the date that the appeal decision was emailed to the appellant.

The Board may make one of the following three decisions:

- Approval
- Denial
- Adjustment

A decision of denial or adjustment does not remove the ticket from the determination if a vehicle will be towed or wheel locked. A person may only appeal three (3) tickets during the Academic Year (the first day of Fall Semester through the day before the start of the next Fall Semester).

**WHEEL-LOCKED/TOWED VEHICLE**

Any motorized vehicle not registered with the Auburn University Parking Services Office is subject to being wheel-locked or towed upon receipt of a second ticket without being registered. Any motorized vehicle that is registered with the Auburn University Parking Services Office is subject to being wheel-locked or towed upon receipt of a fifth ticket against the individual whom the vehicle is registered. The date for the count of these tickets is from the first day of classes for Fall semester through the day before the first day of classes for the following Fall semester. Any ticket that has been excused or has been appealed and approved by the Auburn University Appeals Board will not count in this total. All others including paid ticket(s), excused ticket(s), warning ticket(s) and ticket(s) adjusted to $0 by the Auburn University Appeals Board will be counted.

To obtain the complete Auburn University Parking Rules and Regulations,

http://www.auburn.edu/administration/parking/

**Student Health Services**

*Auburn University Medical Clinic*
The Medical Clinic provides a full range of primary, preventative, and urgent medical care services for Auburn students, faculty, staff, visitors, and members of the surrounding community. Services are provided on an appointment basis, but walk-ins will be evaluated and given appointments or seen immediately based on the urgency of their condition. Care is provided by our team of fully licensed and Board-Certified/Eligible Physicians (MD, DO), Certified Registered Nurse Practitioners (CRNP) and Certified Physician Assistants (PA-C), and supporting staff. Services are provided on a fee-for-service basis with on-site billing.

Student Health Services:

- Primary and urgent care
- Allergy services
- Chiropractic care
- Immunizations and vaccines
- Laboratory and x-ray
- Massage therapy
- Mental health
- Pharmacy
- Sports Medicine
- Women's health

Telephone: (334) 844-4416

Website: cws.auburn.edu/aumc

Student Insurance

The Student Government Association sponsors an Accident and Sickness Insurance Plan, which is available to registered undergraduate and graduate students, spouses and dependents. An insurance plan or its equivalent is required for all international students and recommended for all students.

Telephone: (334) 844-4416

Website: https://cws.auburn.edu/aumc/pm/StudentInsurance

Student Counseling Services

The mission of Student Counseling Services is to provide comprehensive preventative and clinical mental health services to enhance the psychological well-being of individual students, as well as the broader campus culture. Student Counseling Services provides brief individual therapy, unlimited group therapy, and psychiatric services to address the emotional, developmental and mental health-related concerns of students. Educational and academic-related programs, skill-building workshops and outreach presentations are offered to the campus community. Services are professional and confidential. All services are provided for no charge except for ADD assessment and psychiatric services. Students needing long-term therapy or 24-hour crisis management are provided appropriate community referrals.

Telephone: (334) 844-5123

Website: http://wp.auburn.edu/scs/

Health Promotion and Wellness Services

Health Promotion and Wellness Services (HPWS) provides educational programs, prevention efforts and other healthy initiatives to enhance the well-being of Auburn students and the Auburn University campus community. Using research and assessment as a foundation for developing initiatives, Health Promotion and Wellness Services utilizes peer outreach, workshops, training and consultation to reach individuals, student groups and the campus community. This includes the Be Well Hut, a student ambassador program, which promotes outreach on various relevant health topics for college-aged students.

HPWS offers individual substance use intervention services through the TESI and SUTT program. The office provides medical nutrition therapy, serves on the eating disorder treatment team and provides nutrition outreach. Sexual assault and interpersonal violence have no place on a college campus. HPWS offers support and advocacy for survivors of these types of incidents and hopes to prevent future incidents of violence through We.Auburn, the university’s green dot bystander intervention program.

Telephone: (334) 844-1528
Campus Recreation and the Recreation and Wellness Center

Campus Recreation and the Recreation and Wellness Center offer a variety of programs and services specifically designed to promote a healthy and active lifestyle. The Recreation and Wellness Center encourages students, faculty, and staff to pursue lifelong health and wellness. Programs include Aquatics, Auburn Outdoors, Competitive Sports, Group Fitness, Personal Training, Olympic/Powerlifting, and Small Group training.

Telephone: (334) 844-0023
Website: http://campusrec.auburn.edu/

James E. Martin Aquatics Center

This facility provides two swimming pools for use by Health and Human Performance classes, intercollegiate athletics, intramural and club sports, students, faculty, staff, and community members. Programs and events are planned and staffed to provide a healthy and safe aquatic environment.

Telephone: (334) 844-4182
Website: http://aquatics.auburn.edu

Special Clinics

The Speech and Hearing Clinic of the Department of Communication Disorders, primarily a teaching facility, provides service for students with speech, hearing or language problems. These services may involve both diagnoses and treatment of problems.

Telephone: (334) 844-9600
Website: http://www.cla.auburn.edu/speechandhearingclinic/

Tiger Dining

More Than Great Food

Our convenient hours, grab-and-go options and late-night dining are designed with your schedule in mind. With a variety of options across campus, our meal plans offer the flexibility to eat when and where you want.

The Tiger Dining team is dedicated to delivering fresh ingredients, a variety of healthy and delicious meal options and a superior level of service. Our diverse selection of dining venues provides a comfortable place for you to eat, study and relax with friends. We look forward to the opportunity to serve you.

Convenient, Flexible, Fresh Made, Budget-Friendly, Healthy & Sustainable

It’s all about you. We’ve kept what’s most important to you in mind, building in the convenience, flexibility, quality, value and healthy options you deserve. We offer a variety of meal plans that fit your life and make it easier.

Block Meals

With a variety of healthy options and the lowest cost per meal, a block meal grants you entry to our two all-you-care-to-eat locations, Village Tiger Zone and Foy Commons. Unused block meals expire at the end of each semester.

Declining Balance

Declining Balance (DB) Dollars are like a gift card for food on campus. They are accessible via your Tiger Card and are accepted at all of our dining locations and food trucks. Running low? No problem! You may reload additional funds any time throughout the semester. Unused declining balance rolls from fall to spring semester and expires at the end of the summer term.

On-Campus Dining Plan

The on-campus student minimum requirement is $1,100 Declining Balance. On-campus students may upgrade to any of the plans listed below by clicking the Dining link on their Auburn Access page.
(*indicates the number of Block meals)

- Block *225 + $350 DB = $2,257
- Block *155 + $350 DB = $1,767
- Block *115 + $350 DB = $1,440

**Off-Campus Dining Plans**
The off-campus student minimum requirement is $350 Declining Balance. Off-campus students may upgrade to any plan listed above or below by clicking the link on their Auburn Access page.

- Block *65 + $250 DB = $850
- Block *40 + $250 DB = $632

**The minimum required plan will appear on your student bill unless you choose to upgrade to one of the block plans.**

**Dining Locations**

**Student Center:**
- Au Bon Pain
- *Cat Cora’s Wicked Eats
- Chick-fil-A
- *Salad Works
- *Steak ‘n Shake
- *WDE Supply Co.
- Starbucks

**The Village:**
- *Chick-fil-A Express (Spring 2019)
- *Toro Sushi
- *Tiger Zone Dining Hall
- *Sandwich Shack
- *WDE Supply Co.

**Terrell Food Court @ the Hill:**
- Boba Tea
- Chick in A Box
- Kick-Six Cafe
- Leila’s Pizza
- WDE Supply Co.
- Panda Express
- Rye of the Tiger Grill

**Foy Commons:**
- Chicken Salad Chick
- *Foy Commons Dining Hall
- Panda Express
- *Prevail Union Coffee

**Lupton Hall (Lower Quad):**
- #AU Smokehouse
- *#Fresh from the Plains
RBD Library:
  • *Panera

Lowder Business Building:
  • Starbucks

Haley Center:
  • Einstein Brothers’ Bagels

South Donahue:
  • #Wellness Kitchen
  • *South Donahue C-Store

Dudley Hall:
  • Drawing Board Café

Tiger Dining Food Trucks:
  • Amsterdam Cafe
  • Chick In A Box
  • #Firetruck Bar-B-Que
  • Hibachi Truck
  • Golden Tiger
  • Noodle Fun
  • Philly Connection
  • Smooth N Groove
  • *Starbucks
  • University Donut

#These locations proudly serve Auburn Foods

*New this fall

Locations subject to change

Let the Auburn App Help
Hungry? Want to know where to go on campus? Any time of the day, use the Auburn University app’s built-in dining function to give you up-to-date hours and locations.

Download the official Auburn University free app by searching for “Auburn University” on your Apple or Android mobile device.

EAT ON CAMPUS! STUDIES SHOW THAT STUDENTS WHO SPEND MORE TIME ON CAMPUS PERFORM BETTER AND GRADUATE EARLIER.

Auburn University Tiger Dining
255 Heisman Drive, Suite 1203, Auburn, AL 36849
P: 334-844-8504  Fax: 334-844-8512
dining@auburn.edu
auburn.edu/dining
TigerCard/Tiger Club Accounts

A Tiger Club Account provides a convenient means of making purchases on campus and at selected off-campus locations using the student’s TigerCard. It can be used at bookstores, dining facilities, laundry and vending locations, copy centers, and other student services. The TigerCard is the student’s official ID card. It is used at the Library, for door access on campus and may be required for other campus functions.

In order to make purchases using an AU TigerCard, an AU student first must establish a Tiger Club Account and deposit funds into that Account. Purchases will be debited from the available funds in the student’s account. Cash withdrawals are not permitted and refunds may be made only on a closed account. Refunds will be transferred to the Office of Student Financial Services and applied to any debt owed Auburn University. The Office of Student Financial Services will refund any remaining balance to the student.

Applications for a Tiger Club Account must be made electronically at www.auburn.edu/tigercard. Itemized statements are available for viewing online.

Additional information regarding Tiger Club Accounts may be obtained by contacting the TigerCard/Tiger Club Accounts Office located in the Student Center, Auburn University, AL 36849. Telephone: (334) 844-1220 or 1-877-345-2058. Website: www.auburn.edu/tigercard.
Policies

The following policies apply to both graduate and undergraduate students:

- Academic Policies (p. 80)
- Non-Academic Policies (p. 121)

The following policies apply only to the graduate students:

- Graduate School Policies (p. 122)

The following policies apply only to the undergraduate students:

- Appeals of Suspension (p. 135)
- Appeals of Dismissal (p. 135)

Academic Policies

The following policies to both Graduate and Undergraduate students unless otherwise noted.

- Academic Advising (p. 80)
- Academic Programs and Curricula (p. 81)
- Accommodation Policy for Students with Disabilities (p. 85)
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Academic Advising

Academic advising consists of an ongoing conversation between advisor and student. It centers on the discussion of academic matters, career plans, professional goals, internship possibilities, additional educational opportunities, and other related topics. In this conversation, the advisor serves as a guide and mentor, drawing upon other campus resources for assistance with this responsibility. One important aspect of this conversation is the planning of an academic program and the keeping of accurate records of the student's progress towards completion of that program.

Students are strongly encouraged to meet with an academic advisor in their chosen college or school prior to registration for the next academic term. In some colleges, schools and departments, such meetings are required. Contact information for the academic advisors in each college or school may be found through the Academic Advising (http://www.auburn.edu/academic/provost/academic_advising/academicAdvising.php) page, which also provides additional information and links to resources that may help students derive the most benefit from their academic advising experience at Auburn University.
Academic Programs and Curricula

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An academic program is an organized plan of study which, when successfully completed, is recognized by the awarding of a degree. It includes all courses and related activities required by the university and those required by a school, college, department or interdisciplinary program. At Auburn University, the minimum number of semester hours in an undergraduate academic program is 120, including 41-2 semester hours of the Core Curriculum. The academic program must include the University Core Curriculum and the major. It may also include a school or college core curriculum, a minor, and supporting course work. For undergraduates, the academic program is the most general term describing the formal course of their baccalaureate education. Students not completing an approved academic program do not qualify for baccalaureate degrees. Students who are completing an academic program may take courses in addition to those required by it, including a minor or free electives beyond those required for graduation by their academic programs.

An undergraduate program option is a formal variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. Some academic programs are structured only in the form of several formal program options. A program option is designated on the transcript. Other variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, will not be designated on the transcript, but must meet the same minimal requirements for overlap as formal options. At Auburn University, all formal program options, like all academic programs, must include the Core Curriculum. Moreover, a formal program option must preserve the integrity of the academic program of which it is a variant by requiring at least half of the specific course work required by the program above and beyond the Core Curriculum. (In majors that are largely “menu-driven,” with few specific course requirements, the menus of courses must contain sufficient overlap that a student in one option is not excluded from having half or more courses in common with students in any other option in that degree program.) All academic programs and designated variations (whether called options, tracks, concentrations, or any other name) must be approved by the Alabama Commission on Higher Education (ACHE).

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

A curriculum model is the schematic organization of an academic program that is listed in this Bulletin. A curriculum model is outlined for all undergraduate academic programs and program options and must be represented in the Auburn University Bulletin.

A major is usually the largest part of an academic program which differentiates it from other programs. The term designates that portion of the program which consists of a specified group of courses offered by a particular academic department or interdepartmental program. The major may include lower-division courses and always includes specified upper-division courses or choices among courses offered by the department or interdepartmental program. The major may include course work from other departments. The major does not include other components of the academic program: the Core Curriculum, a school or college curriculum (if any), a required second major (if any), a required minor (if any), supporting course work (if any), or free electives. At Auburn University, all majors must represent substantial academic concentration in a well-defined discipline or interdisciplinary field. The minimum number of hours required for an undergraduate major is 30 hours of course work in the discipline or in a closely
an allied field. Of these hours, a minimum of 20 must be taken in upper-division (numbered 3000 or above) courses in the major. Departments must have the consent of other departments before requiring their courses in a major.

A minor is an organized sequence or cluster of courses, including both lower- and upper-division courses, offered by a department or interdepartmental program. It is more restricted in scope than the major but may also have a somewhat different focus and objective that make it appropriate for students whose principal concentration is in another discipline. Not all departments or interdepartmental programs offer a minor. At Auburn University, the term minor designates those sequences or clusters of courses that have been formally proposed as minors by departments or interdepartmental programs and approved by the University Senate Curriculum Committee. The minimum number of semester hours in a minor is 15. Of these, six hours may be lower-division courses. The remaining semester hours in the minor (a minimum of nine hours) must be courses numbered 3000 or above. At least nine semester hours required for the minor must be completed at Auburn University. Courses a student has taken in fulfillment of the university Core Curriculum, the school/college core curriculum (if any) or the courses designated as “in the major” (e.g. counting toward the GPA “in the major”) may not be used to fulfill a minor. Elective courses (not in the major) and required supporting courses (e.g. required courses in the academic program that are not used to fulfill the university Core Curriculum or the school/college core and which are not counted toward the GPA in the major) may be used toward a minor. Some academic programs may require students to earn a minor. Students whose academic programs do not require a minor are free to earn one, though in such cases they should recognize that fulfilling the requirements for a minor may delay their graduation. No academic program is required to allow for a minor in its curriculum model. Students must follow announced university procedures and deadlines for declaring a minor. In addition, students may not be awarded a minor after the degree for the major has been awarded.

No course taken under the S/U option may be counted toward a minor. Students must earn a minimum overall grade average of C (2.0) on all course work in the minor. Individual colleges, schools and departments may have higher grade-point requirements.

The phrase "supporting course work" designates courses that are required for the completion of a specific academic program but not included in the University Core Curriculum, the major, the school or college core curriculum (if any), the minor (if required), and free electives. At Auburn University, academic programs may require courses that are not specific to the major but support the general education and preparation of students in that program. Because these courses are usually outside the department of the major area of study, departments must have approval of the departments offering the courses they designate as required supporting course work. Supporting course work may be used in satisfying the requirements for a minor if a minor is not required by the academic major.

An undergraduate certificate consists of 12-21 hours of courses in an integrated structure that demonstrates competency in specific skills or knowledge designed to enhance the professional preparation of Auburn students. Completion of the certificate appears on the official Auburn University transcript. At least 50% of the credits should be at the 3000 level or higher. The offering academic unit may choose to count towards the undergraduate certificate credits taken as part of Auburn University’s general education requirements, an academic minor, or major. Academic units may specify a set of required courses or a combination of required courses and electives in the design of certificate programs. In keeping with Auburn policy, no more than 50% of course credits required for a certificate may be obtained through transfer credit. Courses applied to the requirements of an undergraduate certificate program may follow either standard or S-U grading (as appropriate), but at least 50% of courses counted toward the certificate must follow standard grading and the student must have completed all courses with a minimum overall Grade Point Average of C (2.0) or better. Individual colleges, schools, departments or academic units may have higher requirements.

**Second Baccalaureate and/or Concurrent Degrees**

To earn a second baccalaureate degree, a student must complete all the additional requirements for the second degree (including course work in the major fields, college/school core requirements and courses in support of a major). At least 30 semester hours of the second degree must be unique to the second degree and may not be used as major, supporting or core courses for the first degree. In addition, the total number of hours to complete both degrees must total at least 30 additional semester hours. If 30 unique hours or 30 additional hours cannot be identified, the student is not eligible to receive a second baccalaureate degree. Students who are completing a second degree must comply with all the same grade-point requirements and residency requirements as other students. Students may elect to pursue and to receive the two degrees simultaneously if college and departmental requirements can be met simultaneously.

A student completing a degree within the Samuel Ginn College of Engineering who wishes to complete a second degree in a major outside of that college must complete the additional social science and humanities requirements of the university core curriculum. All students should consult with their advisor concerning eligibility for a second degree, and if eligible, complete appropriate paperwork to declare the second degree. It is recommended that students declare the second degree prior to the beginning of the senior year. The student must meet the prospective academic advisor in each college associated with their degrees to ensure proper enrollment in the UNIV 4AA0 graduation course for each college along with a review of degree requirements. Students completing a second or two degrees concurrently receive a diploma for each degree. The transcript will list each degree and each major. Eligibility for graduation with academic honors for the second baccalaureate degree requires a minimum of 60 semester hours above the requirements for the first baccalaureate degree. Students earning the second baccalaureate degree must earn the minimum overall grade average required for the honors distinction on the 60 additional hours for the second degree and must be achieved on Auburn University courses. Honors
calculations for the second baccalaureate degree follow the same procedures as graduation honors for the first degree (see Graduation Honors).

Students who completed a first baccalaureate degree at an institution other than Auburn University and subsequently pursue a second degree at Auburn University are not required to fulfill Auburn University’s Core Curriculum. However, they may be required to take some classes listed as fulfilling the Auburn University Core Curriculum if these classes are pre-requisites to major classes.

**Double Major**

To earn a double major, a student must complete all requirements for one degree program, all the major courses in a second major (courses bolded in the curriculum model), and other requirements for the second major such as grade-point requirements. College/school cores or other supporting coursework associated with the second major are not required unless they serve as course prerequisites for second major courses.

At least 20 hours in the second major must be unique and not courses that have been used as major, supporting, or core courses in the degree program. If at least 20 hours of unique courses do not exist between the second major and the major, supporting, and core courses in the degree program, a double major is not possible.

To declare a double major, the student initiates the process by meeting with an academic advisor in the college of his/her current degree program. The advisor, in conjunction with the advisor in the second major, will determine if a least 20 hours of unique courses as noted above exist and, if so, provide instructions for declaring a double major. The student is responsible for ensuring that the appropriate process is completed, approved by the appropriate college(s), and submitted to the Registrar's Office prior to the senior year.

The student who completes the requirements for a double major is awarded one degree, e.g., BS or BA. The degree is determined by the degree program declared on the submitted form. If the second major is embedded in a degree program that leads to the same degree as the declared degree program, both majors will appear on the diploma and on the transcript. If the second major is embedded in a degree program that leads to a degree that is different from the declared degree program, the declared degree program dictates which degree and which baccalaureate major will appear on the diploma; the declared degree and both majors will appear on the transcript.

If a student changes his/her decision to pursue a double major, it is his/her responsibility to notify the Office of the Registrar and the dean’s office of his/her college(s). Additional majors, beyond a double major, are allowed if the student can complete all the requirements outlined above, including 20 unique hours for any additional major not used as major, supporting, or core courses in the degree program or any of the other majors. A double major or additional majors may not be awarded after the degree for the first major has been granted.

**Accelerated Bachelor's/Master's Degree Plan**

The Accelerated Bachelor’s/Master’s Degree Plan allows Auburn students in some academic programs to count up to nine approved hours (in a 30-35-hour master’s program) or 12 approved hours (in a 36-hour or greater master’s program) toward both a bachelor’s and a master’s degrees. These hours must be at the graduate level.

To be considered for admission, students must have completed at least 45 credit hours and no more than 96 credit hours, including advanced placement credits. Transfer students must have completed at least 24 credit hours at Auburn University. All students must have a cumulative GPA of 3.0/4.0 or higher on course work completed at Auburn. Individual graduate programs may set higher standards or require additional criteria for admission to the accelerated degree program.

Students must complete an “Application for Admission to the Accelerated Bachelor's/Master’s Degree Plan,” and work with a graduate advisor in the degree-granting department to complete an approved Plan of Study, including: a) a list of the courses that count toward both the undergraduate and graduate degree; and b) the projected dates for the completion of the bachelor’s and master’s degrees. Students in the Honors College remain eligible to graduate with Honors while participating, and should consult with an Honors advisor.

Students must maintain a cumulative GPA (CGPA) of 3.0/4.0 or higher on Auburn University coursework; if the student completes the bachelor’s degree requirements with a cumulative GPA of less than 3.0/4.0 at Auburn, the student cannot double-count credit hours and is terminated from the program.

Students must apply for admission to the Graduate School by the prescribed deadline. Admission to the Accelerated Degree Plan does not guarantee admission to the Graduate School. Students cannot opt to bypass the bachelor’s degree.

Students may withdraw voluntarily from the Accelerated Plan at any time. Students must notify, in writing, the graduate program officer and the coordinator/director of undergraduate studies in their respective departments. Students who withdraw from the program
voluntarily or because they do not meet program requirements will not be awarded graduate credit for double-counted courses. Students may contact their major program to see if it participates or visit the Graduate School’s website for a listing of current ABM plans: http://grad.auburn.edu/abm.html.

Residence Policy. Percentage of Course work Earned in Residence at Auburn University Policy
A minimum of 25 percent of the total semester hours are required for the baccalaureate degree and at least 50% of the course work in the major must be earned at Auburn University (sometimes referred to as “in residence”). As a general rule, these hours must be taken in the final year and in the school/college curriculum of graduation. The student’s dean may waive the final year’s residence and may also allow course credit to be earned at another institution during the final year. However, the minimum of 25 percent of Auburn University course work is a firm requirement.

Undergraduate Online Learning

Campus-Based Students
All regularly admitted campus-based students are eligible to enroll in online course sections that are not part of Auburn Online programs. A campus-based student may not exceed the maximum class hour load by adding an online course.

Auburn Online Programs
All Auburn Online students must apply and meet Auburn University’s minimum admission requirements. Auburn Online students will be permitted to register for Auburn Online program courses only. Admission requirements for Auburn Online programs are available at http://www.auburn.edu/online/.

Information on all available online courses may be obtained from Auburn Online: Online1@auburn.edu.

Credit For Military Science and Physical Education
A student may be allowed a maximum of 6 credits in military science courses toward graduation. All undergraduate curriculum models must accommodate these 6 credits in military science either through elective hours or substitutions. In addition, students may count additional hours of military science credits toward graduation if their curriculum model provides for additional free elective hours. A student may be allowed four credits of physical education activity courses toward graduation. A student who has served on active duty in the Armed Forces may receive physical education credits as follows: for less than six months of service, no credit; for six months to less than a year, two hours of credit for Physical Education; for one year or more in the service, three hours of credit. Application for credit for military experience should be submitted to the Office of the Registrar.

Auburn University awards academic credit for courses that are part of an enrolled student’s military training or service, provided that the military training credits accepted are at the collegiate level and have resulted in learning outcomes comparable to those students would achieve through the Auburn University’s own instruction. In determining the academic credit to be awarded, Auburn University uses as a guideline the standards and recommendations of the Guide to the Evaluation of Educational Experiences in the Armed Services published by the American Council on Education.

Change of Major or Curriculum
Students must have their dean’s approval to change to another major within the same college or school. To change Colleges or Schools within the university, students must complete a Change of Major Form.

Internal Transfers and High-Demand Majors
Transfer applicants (from on and off campus) to certain high-demand majors must meet specific requirements for admission to the major.

In the College of Architecture, Design and Construction, the following programs have been approved for special admissions requirements based on space available in the major: Bachelor of Architecture, Bachelor of Interior Architecture, Bachelor of Science in Building Science, Bachelor of Industrial Design, and Bachelor of Fine Arts in Graphic Design.

In the College of Education, the following programs have been approved for special admissions requirements based on space available in the major: Bachelor of Science in Elementary Education.

In the College of Human Sciences, the following programs have been approved for special admission requirements based on space available in the major: Bachelor of Science in Interior Design, and Bachelor of Science in Nutrition (Dietetics Option).

In the College of Liberal Arts, the following programs have been approved for special admissions requirements based on space available: Bachelor of Science in Communication Disorders, Bachelor of Arts in Media Studies, Bachelor of Arts in Communication,
Bachelor of Arts in Public Relations, Bachelor of Arts in Journalism, Bachelor of Arts in Health Administration, Bachelor of Arts in Music, Bachelor of Music Performance, Bachelor of Social Work, Bachelor of Fine Arts in Theater.

In addition, the Bachelor of Science in Nursing has been approved for special admissions requirements based on space available.

Students wishing to transfer into a high demand major should contact the school or college advising office for details on the criteria for admission and the application process.

Curriculum Model Change

When the university changes a curriculum model, students in the altered curriculum may be required to complete the subjects and hours placed above the level to which they have progressed. They will not, however, be required to complete additional subjects placed in the curriculum below the level they have achieved. Courses shifted from one class level to another are exempt from this latter provision. Students’ deans will determine the revised subject requirements, and the registrar will determine the revised total hour and grade-point requirements. In no case for students who are continuously enrolled, however, will the changed curriculum compel them to accumulate additional hours and grade points to graduate. In other words, students must complete the university core requirements in place during the term that they first enroll, and in general they must complete the school, college or major requirements in place when they declare a major. Undergraduate students who have not been enrolled at Auburn University for a period of five years or more and who are returning to the same curriculum may be subject to different university, college, school or departmental requirements than those which existed at the time of their initial entry, as well as those which existed at the program level when continuous enrollment ceased.

Academic Program Assessment

Auburn University is committed to fostering the academic achievement and personal development of its students. To carry out that commitment, the university continuously gathers information about the effectiveness of its academic programs, about the progress of its students toward educational and personal goals, and about the achievements and perspectives of its alumni. This information is used to monitor program effectiveness, to recognize educational trends and opportunities, and to develop a sound, factual basis for academic planning.

Each Auburn student is expected to participate in the university’s assessment efforts. Academic programs use various means to gather assessment information, including portfolios, performances, achievement tests, comprehensive examinations, surveys, interviews, focus groups, evaluation forms, and other methods. While enrolled, a typical student can expect to take part in one or more of these assessment activities. The total time spent on assessment activities is not likely to exceed 15 hours over the course of four years of enrollment. Participation in these activities may be a completion requirement for some degree programs.

Accommodation Policy for Students with Disabilities

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires academic accommodations, access to assistive technology training, or support services, contact the Office of Accessibility for additional information, 1228 Haley Center; 334-844-2096 (Voice/TT) or visit the Office of Accessibility website.

Bachelor's Degree Requirements

To earn the bachelor’s degree from Auburn University, students must complete the requirements of the university’s Core Curriculum, and they must choose a curriculum and complete its requirements and those of the college or school with at least a 2.0 average in all Auburn courses attempted, at least a 2.0 average on transfer credits accepted for their major degree program, and a 2.0 average in all course work in the major. These requirements are university requirements. Individual colleges, schools and departments may have higher requirements. Credits required for graduation are at least 120 hours. The student’s dean clears subject and non-course requirements in the curriculum; the registrar, together with the dean’s office, clears total hours, and cumulative GPA. A list of specific courses identified as major courses in each curriculum is available in the appropriate dean’s office.

Graduation

Clearing for Graduation

Seniors must register for the UNIV 4AA0 graduation course (administrative course – non-graded) in the term in which graduation is to occur. Enrollment in this course provides Auburn University with a list of expected degree candidates so that all administrative work can be processed in plenty of time for graduation. It also allows the graduating student access to the SCORE general education assessment program and the Online Diploma Application.
Students who are nearing graduation should meet with their academic advisor in their dean’s office to arrange for a graduation check about a year before their expected graduation. In general, deferred grades (IN, NR, PE) from a previous term of courses to be used toward degree requirements must be cleared by mid-semester of the student’s graduation term.

Students must be enrolled at Auburn University in the term in which degree requirements are completed. The undergraduate student who is registered for no credit hours at Auburn University in the term of graduation will be registered for the UNDG 4900 Clearing Graduation course (administrative course – non-graded, no coursework). Enrollment in this course is due to the staff and/or the facilities of the university being used for graduation administrative work, the clearing of deferred grades, and/or when a student is completing graduation coursework requirements at an institution other than Auburn University. Graduate students should refer to the “Registration and Graduation Requirements” section under The Graduate School portion of this Bulletin.

A graduation fee is payable to the Office of Student Financial Services at the beginning of the term of graduation. If a student is in default on any payment (tuition, medical clinic, parking, library, etc.) due to the university, the diploma and academic record (transcript) will not be issued until the matter is cleared. Students are responsible for notifying the Office of the Registrar when such matters are resolved in order to receive their diploma.

Degrees are conferred each term. Commencement exercises are held after fall and spring semesters and summer term. Diplomas are mailed to the graduates after degrees are awarded, about 6 to 8 weeks after graduation. Transcripts are ordered online.

Class Attendance and Examinations

Students are expected to attend all their scheduled classes. College work requires regular class attendance as well as careful preparation. Specific policies regarding class attendance are the prerogative of individual faculty members. Faculty shall inform each class in writing at the beginning of the course regarding the effect of absences on the determination of grades.

The student is expected to carry out all assigned work and to take examinations at the class period designated by the instructor. Failure to carry out these assignments or to take examinations at the designated times may result in an appropriate reduction in grade, except as provided below.

Instructors shall determine the policy regarding grading which they feel is best for the course. This policy shall be presented to the class, in writing, at the beginning of the term and will govern the actions of the instructor in the course.

Arrangement to make up missed major examinations (e.g. hour exams, midterm exams) due to properly authorized excused absences (as defined by the Student Policy eHandbook) shall be initiated by the student within one week from the end of the period of the excused absence. Normally, a make-up exam shall occur within two weeks from the time that the student initiates arrangements for it. Instructors are encouraged to refrain from giving make-up examinations during the last three days prior to the first day of final examinations. The format of make-up exams and opportunities for students to make up work other than major examinations are at the discretion of the instructor whose make-up policies should be stated in writing at the beginning of the term. Instructors are expected to excuse absences for:

1. Illness of the student or serious illness of a member of the student’s immediate family. The instructor may request appropriate verification.
2. The death of a member of the student’s immediate family. The instructor may request appropriate verification.
3. Trips for members of the student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to such absences, but in no case more than one week after the absence. Instructors may request formal notification from appropriate university personnel to document the student’s participation in such trips.
4. Religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays.
5. Subpoena for court appearance.
6. Any other reason the instructor deems appropriate.

If the instructor does not appear within 20 minutes after the designated class hour, it may be assumed the class is canceled.

It is university policy that all classes will meet as scheduled on the last day before and the first day after holiday periods designated by the university.

Unresolved problems regarding class attendance or procedures should be referred to the University Student Academic Grievance Committee.
Examinations

Examinations are classified as (1) final examinations at the end of each term; (2) special examinations; and (3) other course examinations as determined by the instructor.

Announced tests in undergraduate courses will be administered at a regularly scheduled meeting of the course. Exceptions to this regulation may arise in specialized courses requiring performance or oral tests, and in multiple-sectioned laboratory classes requiring practical laboratory tests. Faculty having sound reasons for scheduling tests at times other than regularly scheduled meeting times are to obtain approval from the department head prior to the beginning of the term, and are to present a written schedule of these changes to the class during the first few days of the term. Rescheduled tests are not to interfere with other scheduled academic endeavors of the students involved, and an appropriate reduction in regularly scheduled class time is to be given to compensate for the rescheduled test period.

Final Examinations

A final examination is a desirable means of evaluation in most undergraduate courses. In unusual circumstances, performance tests, term papers, research projects or other forms of evaluation appropriate to the objectives of the course may be substituted for a final examination with the approval of the department head, who will report such action to the dean. Instructors not giving a final examination are to present to the class at the beginning of the term a written description of the forms of evaluation to be used and the means of determining final grades. The professor teaching a 6000-level course or higher shall determine whether a formal final examination is appropriate.

Final examinations are to be given as scheduled in the term examination schedule. Exceptions to this policy require prior approval by the provost. Rescheduled examinations must not interfere with scheduled academic activities of the students involved.

Auburn University students are provided the conditional right to take no more than two (2) final examinations in a single calendar day if the student provides the designated timely notice to the affected faculty members. The deadline for student requests to reschedule final examinations with affected faculty members, under this policy, is the Mid-Semester Day (mid-term in the summer). Students with three or more final examinations scheduled on one calendar day should contact instructors on or before the designated deadline to request rescheduling so that no more than two final examinations fall on any calendar day. Any Auburn student unable to get an instructor(s) to voluntarily move the examination(s) will present this situation to the associate dean of the student’s major college and, after verification, that associate dean will contact the faculty member(s) scheduled for the middle exam period(s) of the student’s scheduled finals to arrange to reschedule the exam(s). Each student must contact the appropriate associate dean within one week following the mid-semester date, either to report the rescheduled examination(s) or to ask for assistance in rescheduling.

Student Academic Grievance Policy

The Student Academic Grievance policy, which appears in full in the Student Policy eHandbook (http://www.auburn.edu/student_info/student_policies), is designed to resolve academic grievances of students which result from actions of faculty or administrators.

Core Curriculum and General Education Outcomes

The purpose of the Auburn University Core Curriculum is to foster the knowledge, skills, and perspectives that are hallmarks of an Auburn graduate. By completing courses that represent a range of disciplines students begin to acquire an educated appreciation of the natural world, of human life, and of the interactions between them. In particular, students complete the subject area distribution requirements identified below, which meet the requirements established by the Alabama General Studies Committee.

The specific courses each student completes in order to fulfill Auburn University’s core curriculum requirements will depend upon the particular major in which the student is enrolled. Students should consult their curriculum models and discuss their options with their academic advisor. All Auburn students are required to complete a six semester credit hour sequence in either History or Literature as part of their requirements. Courses ending in “7” are Honors courses. Online versions (XXX3) of approved core courses may also be taken to fulfill University core requirements.

English Composition: 6 hours required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100/1103</td>
<td>English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 1107</td>
<td>Honors Writing Seminar I</td>
<td></td>
</tr>
<tr>
<td>ENGL 1120</td>
<td>English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 1127</td>
<td>Honors Writing Seminar II</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 6
### Humanities: 12 total hours required

*Note: Students enrolled in the Samuel Ginn College of Engineering are required to complete 9 hours of Humanities.*

#### Literature (at least 3 hours)

Select at least one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 2200/2203/2207</td>
<td>World Literature before 1600</td>
</tr>
<tr>
<td>ENGL 2210/2213/2217</td>
<td>World Literature after 1600</td>
</tr>
<tr>
<td>ENGL 2230/2233</td>
<td>British Literature before 1789</td>
</tr>
<tr>
<td>ENGL 2240/2243</td>
<td>British Literature after 1789</td>
</tr>
<tr>
<td>ENGL 2250/2253</td>
<td>American Literature before 1865</td>
</tr>
<tr>
<td>ENGL 2260/2263</td>
<td>American Literature after 1865</td>
</tr>
</tbody>
</table>

#### Fine Arts (at least 3 hours)

Students must complete at least one fine arts course from this list.

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ARCH 2600</td>
<td>The Art of Architecture, Place, and Culture</td>
</tr>
<tr>
<td>ARTS 1510/1513</td>
<td>Looking at Art: Approaches to Interpretation</td>
</tr>
<tr>
<td>ARTS 1610/1613</td>
<td>Introduction to Art History</td>
</tr>
<tr>
<td>ENVD 2040</td>
<td>Design, Invention and Society</td>
</tr>
<tr>
<td>MUSI 2730/2733/2737</td>
<td>Appreciation of Music</td>
</tr>
<tr>
<td>MUSI 2740/2743</td>
<td>Survey of Popular Music</td>
</tr>
<tr>
<td>MUSI 2750</td>
<td>Music and Science</td>
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<tr>
<td>MDIA 2350</td>
<td>Introduction To Film Studies</td>
</tr>
<tr>
<td>THEA 2010/2013/2017</td>
<td>Introduction to Theatre</td>
</tr>
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</table>

#### Other Humanities Choices

In addition to the Literature and Fine Arts courses listed above, students may select courses from this list to complete the required 12 hours in Humanities.

<table>
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<tbody>
<tr>
<td>COMM 1000/1003</td>
<td>Public Speaking</td>
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<tr>
<td>FLGC 1150/1153</td>
<td>Global Fluency and Awareness</td>
</tr>
<tr>
<td>HONR 1017</td>
<td>Honors Technology and Culture II</td>
</tr>
<tr>
<td>PHIL 1010/1017</td>
<td>Introduction to Logic</td>
</tr>
<tr>
<td>PHIL 1020/1023/1027</td>
<td>Introduction to Ethics</td>
</tr>
<tr>
<td>PHIL 1030/1037</td>
<td>Ethics and the Health Sciences</td>
</tr>
<tr>
<td>PHIL 1040</td>
<td>Business Ethics</td>
</tr>
<tr>
<td>PHIL 1050</td>
<td>Introduction to Political Philosophy</td>
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<tr>
<td>PHIL 1060</td>
<td>Philosophy East and West</td>
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<tr>
<td>PHIL 1070</td>
<td>Art, Value, and Society</td>
</tr>
<tr>
<td>PHIL 1080</td>
<td>Introduction to Philosophy of Religion</td>
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<tr>
<td>PHIL 1090</td>
<td>Philosophy of Race and Gender</td>
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<tr>
<td>PHIL 1100/1103</td>
<td>Introduction to Philosophy</td>
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<td>PHIL 1110</td>
<td>Ethical and Conceptual Foundations of Science</td>
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<td>PHIL 1120</td>
<td>Introduction to Environmental Ethics</td>
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<tr>
<td>RELG 1040</td>
<td>Introduction to Western Religions</td>
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<tr>
<td>RELG 1050</td>
<td>Introduction to Eastern Religions</td>
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<tr>
<td>UNIV 2710/HONR 2717</td>
<td>The Human Odyssey I</td>
</tr>
</tbody>
</table>
### Science and Mathematics: 11-12 hours required

**Mathematics (3-4 hours)**

Students must complete at least one mathematics course from this list.

Select one of the following: 3-4

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
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<td>MATH 1100</td>
<td>Finite Math and Applications</td>
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<tr>
<td>MATH 1120/1123</td>
<td>Pre-Calculus Algebra</td>
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<tr>
<td>MATH 1130/1133</td>
<td>Pre-Calculus Trigonometry</td>
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<tr>
<td>MATH 1150/1153</td>
<td>Pre-Calculus Algebra and Trigonometry</td>
</tr>
<tr>
<td>MATH 1610/1613/1617</td>
<td>Calculus I</td>
</tr>
<tr>
<td>MATH 1680/1683</td>
<td>Calculus with Business Applications I</td>
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</table>

**Science sequence (8 hours)**

Students must complete a sequence from this list.

Select one of the following Series: 8

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<th>Course Title</th>
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</thead>
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<tr>
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<td>BIOL 1000 &amp; BIOL 1001</td>
<td>Introduction to Biology and Introduction to Biology Laboratory</td>
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<tr>
<td></td>
<td>BIOL 1010 &amp; BIOL 1011</td>
<td>A Survey of Life and A Survey of Life Laboratory</td>
</tr>
<tr>
<td>B</td>
<td>BIOL 1020 &amp; BIOL 1021</td>
<td>Principles of Biology and Principles of Biology Laboratory</td>
</tr>
<tr>
<td></td>
<td>BIOL 1030 &amp; BIOL 1031</td>
<td>Organismal Biology and Organismal Biology Laboratory</td>
</tr>
<tr>
<td>C</td>
<td>CHEM 1010 &amp; CHEM 1011</td>
<td>Survey of Chemistry I and Survey of Chemistry I Laboratory</td>
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<tr>
<td></td>
<td>CHEM 1020 &amp; CHEM 1021</td>
<td>Survey of Chemistry II and Survey of Chemistry II Laboratory</td>
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<td>D</td>
<td>CHEM 1030 &amp; CHEM 1031</td>
<td>Fundamentals Chemistry I and Fundamental Chemistry I Laboratory</td>
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<td>Fundamental Chemistry II and Fundamental Chemistry II Laboratory</td>
</tr>
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<td>E</td>
<td>CHEM 1110 &amp; CHEM 1111</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
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<td></td>
<td>CHEM 1117 &amp; CHEM 1118</td>
<td>Honors General Chemistry I and Honors General Chemistry I Laboratory</td>
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<tr>
<td></td>
<td>CHEM 1120 &amp; CHEM 1121</td>
<td>General Chemistry for Scientists and Engineers II and General Chemistry II Laboratory</td>
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<tr>
<td></td>
<td>CHEM 1127 &amp; CHEM 1128</td>
<td>Honors General Chemistry II and Honors General Chemistry II Laboratory</td>
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<td>F</td>
<td>GEOL 1100</td>
<td>Dynamic Earth</td>
</tr>
<tr>
<td></td>
<td>GEOL 1110/1117</td>
<td>Earth and Life Through Time</td>
</tr>
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</table>
### Core Curriculum and General Education Outcomes

**Series H**
- PHYS 1500 General Physics I
- PHYS 1510 General Physics II

**Series I**
- PHYS 1600/1607 Engineering Physics I
- PHYS 1610/1617 Engineering Physics II

**Series J**
- CSES 1010 Soils and Life
- CSES 1020 Crops and Life

**Series K**
- SCMH 1010/1013/1017 Concepts of Science
- BIOL 1010 A Survey of Life

**Series L**
- SCMH 1010/1013/1017 Concepts of Science
- GEOL 1100 Dynamic Earth

**Series M**
- SCMH 1010/1013/1017 Concepts of Science
- PHYS 1000 Foundations of Physics

**Series N**
- SCMH 1010/1013/1017 Concepts of Science
- PHYS 1150 Astronomy

**Social Sciences: 12 hours total required** *(Note: Students enrolled in the Samuel Ginn College of Engineering are required to complete 9 hours of Social Science.)*

### History (at least 3 hours)
Select one of the following:
- HIST 1010/1013/1017 World History I
- HIST 1020/1027 World History II
- HIST 1210/1217 Technology and Civilization I
- HIST 1220/1227 Technology And Civilization II

### Other Social Sciences (at least 3 hours)
In addition to the history courses listed above, students can select hours in other Social Science courses listed below to total 12.
- AFRI 2000 Introduction to Africana Studies
- ANTH 1000/1003/1007 Introduction to Anthropology
- COUN 2000 Living and Communicating in a Diverse Society
- ECON 2020/2023/2027 Principles of Microeconomics
- ECON 2030/2033/2037 Principles of Macroeconomics
- GEOG 1010/1013/1017 Global Geography
- HONR 1007 Honors Technology and Culture I
- HONR 1027 Honors Sustainability and the Modern World I
- HONR 1037 Honors Sustainability and the Modern World II
- NATR 2050 People and the Environment: An Introduction to Conservation Social Sciences
- POLI 1050/1057 Global Politics and Issues
- POLI 1090/1093/1097 American Government in Multicultural World
- PSYC 2010/2013/2017 Introduction to Psychology
### General Education Student Learning Outcomes

In addition to introducing students to broad areas of knowledge, the General Education program also emphasizes foundational skills they will build upon throughout their undergraduate education. In order to become lifelong learners and use their education to solve practical problems, by the time of graduation, students will be able to effectively:

#### Locate, evaluate, and use information (SL-A).

<table>
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<tr>
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<th>Course Name</th>
<th>Credit Hours</th>
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<tr>
<td>ENGL 1120</td>
<td>English Composition II</td>
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<td>or ENGL 1123</td>
<td>English Composition II</td>
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<tr>
<td>or ENGL 1127</td>
<td>Honors Writing Seminar II</td>
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#### Read and think critically (SL-B).

<table>
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<th>Course Name</th>
<th>Credit Hours</th>
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</thead>
<tbody>
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<td>World Literature before 1600</td>
<td>3</td>
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<tr>
<td>ENGL 2210/2213/2217</td>
<td>World Literature after 1600</td>
<td>3</td>
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<tr>
<td>ENGL 2230/2233</td>
<td>British Literature before 1789</td>
<td>3</td>
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<td>ENGL 2240/2243</td>
<td>British Literature after 1789</td>
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<td>ENGL 2250/2253</td>
<td>American Literature before 1865</td>
<td>3</td>
</tr>
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<td>ENGL 2260/2263</td>
<td>American Literature after 1865</td>
<td>3</td>
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<tr>
<td>HONR 1007</td>
<td>Honors Technology and Culture I</td>
<td>3</td>
</tr>
<tr>
<td>HONR 1017</td>
<td>Honors Technology and Culture II</td>
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<td>HONR 1027</td>
<td>Honors Sustainability and the Modern World I</td>
<td>3</td>
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<tr>
<td>HONR 1037</td>
<td>Honors Sustainability and the Modern World II</td>
<td>3</td>
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<td>HONR 2717</td>
<td>Honors Human Odyssey I</td>
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<td>PHIL 1010/1017</td>
<td>Introduction to Logic</td>
<td>3</td>
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<td>PHIL 1020/1023/1027</td>
<td>Introduction to Ethics</td>
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<td>PHIL 1030/1037</td>
<td>Ethics and the Health Sciences</td>
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<td>PHIL 1040/1043</td>
<td>Business Ethics</td>
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<td>PHIL 1050</td>
<td>Introduction to Political Philosophy</td>
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<td>PHIL 1060</td>
<td>Philosophy East and West</td>
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<td>PHIL 1070/1073</td>
<td>Art, Value, and Society</td>
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<td>PHIL 1080/1083</td>
<td>Introduction to Philosophy of Religion</td>
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<td>PHIL 1090</td>
<td>Philosophy of Race and Gender</td>
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<tr>
<td>PHIL 1100/1103</td>
<td>Introduction to Philosophy</td>
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<td>PHIL 1120</td>
<td>Introduction to Environmental Ethics</td>
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#### Apply mathematical methods (SL-C).

<table>
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<th>Credit Hours</th>
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<td>MATH 1120/1123</td>
<td>Pre-Calculus Algebra</td>
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<td>MATH 1130/1133</td>
<td>Pre-Calculus Trigonometry</td>
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<td>MATH 1150/1153</td>
<td>Pre-Calculus Algebra and Trigonometry</td>
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<td>MATH 1610/1613/1617</td>
<td>Calculus I</td>
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<tr>
<td>MATH 1680/1683</td>
<td>Calculus with Business Applications I</td>
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</table>
**Write and revise for a variety of purposes (SL-D).**

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<th>Course Title</th>
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</tr>
<tr>
<td>ENGL 1120/1123/1127</td>
<td>English Composition II</td>
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**Create and deliver oral presentations (SL-E).**

<table>
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<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>COMM 1000/1003/1007</td>
<td>Public Speaking</td>
</tr>
</tbody>
</table>

**Analyze their own society and its relationship to the larger global context (SL-F).**

<table>
<thead>
<tr>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
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<td>Principles of Microeconomics</td>
</tr>
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<td>ECON 2030/2033/2037</td>
<td>Principles of Macroeconomics</td>
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<tr>
<td>HIST 1010/1013/1017</td>
<td>World History I</td>
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<tr>
<td>HIST 1020/1027</td>
<td>World History II</td>
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<tr>
<td>HIST 1210/1217</td>
<td>Technology and Civilization I</td>
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<td>HIST 1220/1227</td>
<td>Technology and Civilization II</td>
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<td>HONR 1007</td>
<td>Honors Technology and Culture I</td>
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<tr>
<td>HONR 1017</td>
<td>Honors Technology and Culture II</td>
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<tr>
<td>HONR 1037</td>
<td>Honors Sustainability and the Modern World II</td>
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<td>People and the Environment: An Introduction to Conservation Social Sciences</td>
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<tr>
<td>POLI 1050/1057</td>
<td>Global Politics and Issues</td>
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<td>POLI 1090/1093/1097</td>
<td>American Government in Multicultural World</td>
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<td>RELG 1040</td>
<td>Introduction to Western Religions</td>
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<td>Introduction to Eastern Religions</td>
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<td>Introduction to Sustainability</td>
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<tr>
<td>UNIV 2710/HONR 2717</td>
<td>The Human Odyssey I</td>
</tr>
<tr>
<td>UNIV 2720/HONR 2727</td>
<td>The Human Odyssey II</td>
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**Interact in intercultural situations (SL-G).**

<table>
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<td>Living and Communicating in a Diverse Society</td>
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<td>FLGC 1150/1153</td>
<td>Global Fluency and Awareness</td>
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<td>Introduction to Eastern Religions</td>
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<td>The Human Odyssey I</td>
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**Apply scientific principles (SL-H).**

<table>
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<td>BIOL 1010</td>
<td>A Survey of Life</td>
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<td>Course</td>
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<td>----------------------------------------------------------------------</td>
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<tr>
<td>BIOL 1011</td>
<td>A Survey of Life Laboratory</td>
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<td>BIOL 1020/1027</td>
<td>Principles of Biology</td>
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<td>BIOL 1021</td>
<td>Principles of Biology Laboratory</td>
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<td>BIOL 1030/1037</td>
<td>Organismal Biology</td>
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<td>BIOL 1031</td>
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<td>CHEM 1020 &amp; CHEM 1021</td>
<td>Survey of Chemistry II and Survey of Chemistry II Laboratory</td>
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<td>CHEM 1120 &amp; CHEM 1121</td>
<td>General Chemistry for Scientists and Engineers II and General Chemistry II Laboratory</td>
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<td>Honors General Chemistry II and Honors General Chemistry II Laboratory</td>
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<td>CSES 1010</td>
<td>Soils and Life</td>
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<td>CSES 1020</td>
<td>Crops and Life</td>
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<td>Earth and Life Through Time</td>
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<td>Foundations of Physics and Foundations of Physics Laboratory</td>
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<td>Engineering Physics II</td>
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<tr>
<td>SCMH 1010/1017</td>
<td>Concepts of Science</td>
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**Analyze and value creative artistic endeavors (SL-I).**

<table>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>The Art of Architecture, Place, and Culture</td>
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<td>ARTS 1510/1513</td>
<td>Looking at Art: Approaches to Interpretation</td>
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<td>ARTS 1610/1613</td>
<td>Introduction to Art History</td>
<td>3</td>
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<tr>
<td>ENGL 2200/2203/2207</td>
<td>World Literature before 1600</td>
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<tr>
<td>ENGL 2210/2213/2217</td>
<td>World Literature after 1600</td>
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<td>ENGL 2230/2233</td>
<td>British Literature before 1789</td>
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<td>British Literature after 1789</td>
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<td>ENGL 2250/2253</td>
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<td>American Literature after 1865</td>
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</tr>
<tr>
<td>ENVD 2040</td>
<td>Design, Invention and Society</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 2730/2733/2737</td>
<td>Appreciation of Music</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 2740/2743</td>
<td>Survey of Popular Music</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 2750</td>
<td>Music and Science</td>
<td>3</td>
</tr>
<tr>
<td>MDIA 2350/2353</td>
<td>Introduction To Film Studies</td>
<td>3</td>
</tr>
</tbody>
</table>
THEA 2010/2013/2017 Introduction to Theatre 3
THEA 2020 Aesthetics of Acting 3

1. Course focuses on more than one General Education Outcome.
2. For some students, the Oral Communication Outcome is addressed in one or more courses in the major rather than in the Core Curriculum.
3. A student who completes PHYS 1600/07, may be permitted to complete the Physics sequence with PHYS 1510 in some majors. A student should consult his or her academic advisor for more information.

**English Composition Requirements**

Students who enroll at Auburn University as freshmen and students who transfer from another institution into Auburn must meet Auburn’s six semester hour English composition requirement. Requirements are based on when the student first began collegiate study and whether the student’s English composition courses were taken at Auburn University. If a student’s particular situation is not covered in the explanations below, or if a student has questions about his or her status, then the student should contact the Director of Composition by calling the Department of English at (334) 844-4620 or via e-mail at english@auburn.edu.

Students beginning collegiate study at Auburn as freshmen in fall 2000 or later must complete English Composition I and II (ENGL 1100 and ENGL 1120 or their online counterparts ENGL 1103 and ENGL 1123) or the Honors equivalents (ENGL 1107 and ENGL 1127) with a grade of C or better in each course. The grades of C or better are required by the Articulation and General Studies Committee agreement. Students who earn a grade of D or F in a composition course at Auburn must repeat that course. Students may repeat the course at another institution, unless they wish to use the grade adjustment policy to exclude the grade of D or F. Students must complete the composition sequence to be eligible to take Core Literature courses.

Transfer students beginning collegiate study at another institution in summer 1998 or later must meet Auburn’s composition requirement. They may do so in one of two ways: (1) take English Composition I and II at another institution, provided these courses are comparable in scope and coverage to ENGL 1100 - ENGL 1120 and there is no duplication of hours, and earn a grade of C or better in each, or (2) take ENGL 1100 - ENGL 1120 (or ENGL 1107 - ENGL 1127) at Auburn and earn a grade of C or better in each.

Transfer students who have earned a grade of C or better in English Composition I, and earned three semester hours or five quarter hours at another institution will be required to take ENGL 1120 (or ENGL 1127) at Auburn. Students may also fulfill the requirement for ENGL 1120 by taking an English Composition II course at another institution, provided the course is similar in scope and coverage to ENGL 1120 and they earn a grade of C or better.

Transfer students who have been exempted on the basis of standardized test scores from English Composition I carrying five quarter hours or three semester hours at another institution, and who have earned a grade of C or better in a subsequent English composition course at the same institution carrying the same amount of credit, will have fulfilled Auburn’s composition requirement. Transfer students who have been exempted with credit will have both the exemption credit and course credit accepted at Auburn. Transfer students who have been exempted without credit will be given the course credit and, in addition, will be awarded sufficient advanced standing credit to fulfill Auburn’s English composition requirement.

Transfer students who have been exempted from English Composition I at another institution but have had no subsequent English composition course there or have not earned a grade of C or better in the subsequent course must still complete Auburn’s six semester hour freshman composition requirement. However, if they meet any of Auburn’s criteria for exemption from ENGL 1100, they will receive three semester hours of credit for ENGL 1100 at Auburn and will be required to take ENGL 1120 (or ENGL 1127) at Auburn. Additionally, if they meet any of Auburn’s criteria for exemption from ENGL 1120, they will receive three semester hours of credit for ENGL 1120.

All transfer students should confer with their major academic advisor concerning the composition requirement as soon as possible after enrolling at Auburn.

Students who enter an undergraduate program at Auburn after receiving a bachelor’s degree from an accredited institution are exempt from meeting the composition requirement.

All students may be eligible to exempt ENGL 1100 and/or ENGL 1120 with credit on the basis of their score in one of the following standardized tests: the English portion of the ACT; the verbal portion of the SAT; the International Baccalaureate English A1 exam; or the CEEB Advanced Placement Exam in English. Note that CLEP test scores are not eligible for exemption. The exemption scores for each test are reviewed each year and are available in the Auburn University Advanced Placement Program, which is distributed by the Office of the Registrar (http://www.auburn.edu/administration/registrar/helpful_resources/enrollment/ap-ib-clep-information.html).
Literature Requirements

Students beginning college work in Fall 2011 or after must take at least one Core literature course. They may take a second course in the same literature to complete a sequence. Completion of the freshman composition requirement is a pre-requisite for all the literature courses.

All Auburn students beginning college work before Fall 2011 must fulfill the Core Curriculum literature requirements by taking one of three sequences:

<table>
<thead>
<tr>
<th>Course Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 2200/2203/2207</td>
<td>World Literature before 1600</td>
</tr>
<tr>
<td>ENGL 2210/2213/2217</td>
<td>World Literature after 1600</td>
</tr>
<tr>
<td>ENGL 2230</td>
<td>British Literature before 1789</td>
</tr>
<tr>
<td>ENGL 2240</td>
<td>and British Literature after 1789</td>
</tr>
<tr>
<td>ENGL 2250</td>
<td>American Literature before 1865</td>
</tr>
<tr>
<td>ENGL 2260</td>
<td>and American Literature after 1865</td>
</tr>
</tbody>
</table>

Literature courses taken at other institutions may fulfill the Core literature requirement with the following provisions:

1. Students may transfer as equivalents of the three sequences for Core Curriculum credit only sophomore-level literature survey courses covering a broad historical period.

2. Students transferring a single literature course may receive credit for ENGL 2200 only if it is the first course in a World Literature sequence and includes literature of the ancient world. Any survey of modern literature (beginning at any time after 1600 and extending to the present), whether world literature or a national literature, will transfer as credit for ENGL 2210.

3. Freshman literature courses and literature courses based on genres (poetry, the short story, the novel), themes, or narrowly defined historical periods will not fulfill the Core literature requirements but are eligible for transfer as electives.

Students or advisors with special questions about placement or credit for the Core literature requirements may call the Coordinator of Core Literature at (334) 844-4620.

History Requirements

One of the purposes of the university’s Core Curriculum is to give students an understanding of their culture and its backgrounds. Course sequences designed especially for this purpose are those in World History and Technology and Civilization. Native students beginning college work before Fall 2011 must earn six hours of credit in one of these sequences. Students beginning college work in Fall 2011 or after must have at least one Core history course and a complete Core sequence in either literature or history.

Credit in history earned at another institution may be allowed on transfer as shown below in meeting this particular requirement.

1. If transfer students have three hours in the first course of a broad, introductory two-course sequence in world history or western civilization or technology and civilization or U.S. history they must complete a history sequence, by taking HIST 1020/HIST 1027 (for world history and western civilization), HIST 1220/HIST 1227 (for tech. and civ.) or HIST 2020 (for U.S. history). A transfer student who has taken the last course in a similar two-course sequence would take HIST 1010/HIST 1017 or HIST 1210/HIST 1217 or HIST 2010/HIST 2017 to complete a sequence.

2. Students entering an undergraduate program at Auburn, after earning bachelors’ degrees from other accredited universities, may be exempted from the history requirements unless their curricula specify otherwise.

Oral Communication Requirement

All Auburn University bachelor’s degree programs provide components to ensure competence in oral communication skills. Program information documenting oral communication components is maintained in the Office of the Provost/Vice President for Academic Affairs. Appropriate accommodations will be made to enable individuals with disabilities to satisfy this requirement.

Core for Students Starting College Before 2011

Students beginning college work before Fall 2011 must meet the previously established requirements listed below:

<table>
<thead>
<tr>
<th>Component</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition</td>
<td>6</td>
</tr>
<tr>
<td>ENGL 1100</td>
<td>English Composition I</td>
</tr>
<tr>
<td>ENGL 1120</td>
<td>English Composition II</td>
</tr>
<tr>
<td>English Literature</td>
<td>6</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ENGL 2200/2203/2207</td>
<td>World Literature before 1600</td>
</tr>
<tr>
<td>ENGL 2210/2213/2217</td>
<td>World Literature after 1600</td>
</tr>
<tr>
<td>ENGL 2230</td>
<td>British Literature before 1789</td>
</tr>
<tr>
<td>ENGL 2240</td>
<td>British Literature after 1789</td>
</tr>
<tr>
<td>ENGL 2250</td>
<td>American Literature before 1865</td>
</tr>
<tr>
<td>ENGL 2260</td>
<td>American Literature after 1865</td>
</tr>
</tbody>
</table>

### Philosophy

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 1010/1017</td>
<td>Introduction to Logic</td>
</tr>
<tr>
<td>PHIL 1020/1023/1027</td>
<td>Introduction to Ethics</td>
</tr>
<tr>
<td>PHIL 1030/1033</td>
<td>Ethics and the Health Sciences</td>
</tr>
<tr>
<td>PHIL 1040</td>
<td>Business Ethics</td>
</tr>
</tbody>
</table>

### Fine Arts

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 2600</td>
<td>The Art of Architecture, Place, and Culture</td>
</tr>
<tr>
<td>ARTS 1710/1717</td>
<td>Introduction to Art History I</td>
</tr>
<tr>
<td>ARTS 1720/1727</td>
<td>Introduction to Art History II</td>
</tr>
<tr>
<td>ARTS 1730/1737</td>
<td>Introduction to Art History III</td>
</tr>
<tr>
<td>MUSI 2730</td>
<td>Appreciation of Music</td>
</tr>
<tr>
<td>THEA 1010</td>
<td>Introduction to Theatre for Majors I</td>
</tr>
<tr>
<td>THEA 2010/2017</td>
<td>Introduction to Theatre</td>
</tr>
</tbody>
</table>

### Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1100</td>
<td>Finite Math and Applications</td>
</tr>
<tr>
<td>MATH 1120/1123</td>
<td>Pre-Calculus Algebra</td>
</tr>
<tr>
<td>MATH 1130/1133</td>
<td>Pre-Calculus Trigonometry</td>
</tr>
<tr>
<td>MATH 1150/1153</td>
<td>Pre-Calculus Algebra and Trigonometry</td>
</tr>
<tr>
<td>MATH 1610/1613</td>
<td>Calculus I</td>
</tr>
<tr>
<td>MATH 1680/1683</td>
<td>Calculus with Business Applications I</td>
</tr>
<tr>
<td>MATH 1710</td>
<td></td>
</tr>
</tbody>
</table>

### Science (in sequence)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1000</td>
<td>Introduction to Biology</td>
</tr>
<tr>
<td>BIOL 1010</td>
<td>A Survey of Life</td>
</tr>
<tr>
<td>BIOL 1020</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>BIOL 1030</td>
<td>Organismal Biology</td>
</tr>
<tr>
<td>CHEM 1010</td>
<td>Survey of Chemistry I</td>
</tr>
<tr>
<td>CHEM 1020</td>
<td>Survey of Chemistry II</td>
</tr>
<tr>
<td>CHEM 1030</td>
<td>Fundamentals Chemistry I</td>
</tr>
<tr>
<td>CHEM 1040</td>
<td>Fundamental Chemistry II</td>
</tr>
<tr>
<td>CHEM 1110</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHEM 1120</td>
<td>General Chemistry for Scientists and Engineers II</td>
</tr>
<tr>
<td>GEOL 1100</td>
<td>Dynamic Earth</td>
</tr>
<tr>
<td>GEOL 1110/1117</td>
<td>Earth and Life Through Time</td>
</tr>
<tr>
<td>PHYS 1000</td>
<td>Foundations of Physics</td>
</tr>
<tr>
<td>PHYS 1150</td>
<td>Astronomy</td>
</tr>
<tr>
<td>PHYS 1500</td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHYS 1510</td>
<td>General Physics II</td>
</tr>
<tr>
<td>PHYS 1600</td>
<td>Engineering Physics I</td>
</tr>
<tr>
<td>PHYS 1610</td>
<td>Engineering Physics II</td>
</tr>
<tr>
<td>SCMH 1010/1013/1017</td>
<td>Concepts of Science</td>
</tr>
</tbody>
</table>

### History (in sequence)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HIST 1010/1013/1017  World History I
HIST 1020/1027  World History II
HIST 1210/1217  Technology and Civilization I
HIST 1220/1227  Technology And Civilization II
UNIV 2710  The Human Odyssey I
UNIV 2720  The Human Odyssey II

Social Science

Group I (select one)
ANTH 1000/1003  Introduction to Anthropology
GEOG 1010  Global Geography
PSYC 2010/2013/2017  Introduction to Psychology
SOCY 1000/1007  Sociology: Global Perspective

Group II (select one)
ECON 2020/2023/2027  Principles of Microeconomics
POLI 1020/1027  Political Economy
POLI 1090  American Government in Multicultural World

Students in the Honors College may take Honors sections of Core courses as available.

English Composition Requirements

Students who enroll at Auburn University as freshmen and students who transfer from another institution into Auburn must meet Auburn’s six semester hour English composition requirement. Requirements are based on when the student first began collegiate study and whether the student’s English composition courses were taken at Auburn University. If a student’s particular situation is not covered in the explanations below, or if a student has questions about his or her status, then the student should contact the Director of Composition by calling the Department of English at (334) 844-4620 or via e-mail at english@auburn.edu.

Students beginning collegiate study at Auburn as freshmen in fall 2000 or later must complete English Composition I and II (ENGL 1100 and ENGL 1120 or their online counterparts ENGL 1103 and ENGL 1123) or the Honors equivalents (ENGL 1107 and ENGL 1127) with a grade of C or better in each course. The grades of C or better are required by the Articulation and General Studies Committee agreement. Students who earn a grade of D or F in a composition course at Auburn must repeat that course. Students may repeat the course at another institution, unless they wish to use the grade adjustment policy to exclude the grade of D or F. Students must complete the composition sequence to be eligible to take Core Literature courses.

Transfer students beginning collegiate study at another institution in summer 1998 or later must meet Auburn’s composition requirement. They may do so in one of two ways: (1) take English Composition I and II at another institution, provided these courses are comparable in scope and coverage to ENGL 1100 - ENGL 1120 and there is no duplication of hours, and earn a grade of C or better in each, or (2) take ENGL 1100 - ENGL 1120 (or ENGL 1107 - ENGL 1127) at Auburn and earn a grade of C or better in each.

Transfer students who have earned a grade of C or better in English Composition I, and earned three semester hours or five quarter hours at another institution will be required to take ENGL 1120 (or ENGL 1127) at Auburn. Students may also fulfill the requirement for ENGL 1120 by taking an English Composition II course at another institution, provided the course is similar in scope and coverage to ENGL 1120 and they earn a grade of C or better.

Transfer students who have been exempted on the basis of standardized test scores from English Composition I carrying five quarter hours or three semester hours at another institution, and who have earned a grade of C or better in a subsequent English composition course at the same institution carrying the same amount of credit, will have fulfilled Auburn’s composition requirement. Transfer students who have been exempted with credit will have both the exemption credit and course credit accepted at Auburn. Transfer students who have been exempted without credit will be given the course credit and, in addition, will be awarded sufficient advanced standing credit to fulfill Auburn’s English composition requirement.

Transfer students who have been exempted from English Composition I at another institution but have had no subsequent English composition course there or have not earned a grade of C or better in the subsequent course must still complete Auburn’s six semester hour freshman composition requirement. However, if they meet any of Auburn’s criteria for exemption from ENGL 1100, they will receive three semester hours of credit for ENGL 1100 at Auburn and will be required to take ENGL 1120 (or ENGL 1127) at Auburn.
Additionally, if they meet any of Auburn’s criteria for exemption from ENGL 1120, they will receive three semester hours of credit for ENGL 1120.

All transfer students should confer with their major academic advisor concerning the composition requirement as soon as possible after enrolling at Auburn.

Students who enter an undergraduate program at Auburn after receiving a bachelor’s degree from an accredited institution are exempt from meeting the composition requirement.

All students may be eligible to exempt ENGL 1100 and/or ENGL 1120 with credit on the basis of their score in one of the following standardized tests: the English portion of the ACT; the verbal portion of the SAT; the International Baccalaureate English A1 exam; or the CEEB Advanced Placement Exam in English. Note that CLEP test scores are not eligible for exemption. The exemption scores for each test are reviewed each year and are available in the Auburn University Advanced Placement Program, which is distributed by the Office of the Registrar (http://www.auburn.edu/administration/registrar/helpful_resources/enrollment/ap-ib-clep-information.html).

Literature Requirements

Students beginning college work in Fall 2011 or after must take at least one Core literature course. They may take a second course in the same literature to complete a sequence. Completion of the freshman composition requirement is a pre-requisite for all the literature courses.

All Auburn students beginning college work before Fall 2011 must fulfill the Core Curriculum literature requirements by taking one of three sequences:

<table>
<thead>
<tr>
<th>ENGL 2200/2203/2207</th>
<th>World Literature before 1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 2210/2213/2217</td>
<td>World Literature after 1600</td>
</tr>
<tr>
<td>ENGL 2230</td>
<td>British Literature before 1789</td>
</tr>
<tr>
<td>&amp; ENGL 2240</td>
<td>and British Literature after 1789</td>
</tr>
<tr>
<td>ENGL 2250</td>
<td>American Literature before 1865</td>
</tr>
<tr>
<td>&amp; ENGL 2260</td>
<td>and American Literature after 1865</td>
</tr>
</tbody>
</table>

Literature courses taken at other institutions may fulfill the Core literature requirement with the following provisions:

1. Students may transfer as equivalents of the three sequences for Core Curriculum credit only sophomore-level literature survey courses covering a broad historical period.

2. Students transferring a single literature course may receive credit for ENGL 2200 only if it is the first course in a World Literature sequence and includes literature of the ancient world. Any survey of modern literature (beginning at any time after 1600 and extending to the present), whether world literature or a national literature, will transfer as credit for ENGL 2210.

3. Freshman literature courses and literature courses based on genres (poetry, the short story, the novel), themes, or narrowly defined historical periods will not fulfill the Core literature requirements but are eligible for transfer as electives.

Students or advisors with special questions about placement or credit for the Core literature requirements may call the Coordinator of Core Literature at (334) 844-4620.

History Requirements

One of the purposes of the university’s Core Curriculum is to give students an understanding of their culture and its backgrounds. Course sequences designed especially for this purpose are those in World History and Technology and Civilization. Native students beginning college work before Fall 2011 must earn six hours of credit in one of these sequences. Students beginning college work in Fall 2011 or after must have at least one Core history course and a complete Core sequence in either literature or history.

Credit in history earned at another institution may be allowed on transfer as shown below in meeting this particular requirement.

1. If transfer students have three hours in the first course of a broad, introductory two-course sequence in world history or western civilization or technology and civilization or U.S. history they must complete a history sequence, by taking HIST 1020/HIST 1027 (for world history and western civilization), HIST 1220/HIST 1227 (for tech. and civ.) or HIST 2020 (for U.S. history). A transfer student who has taken the last course in a similar two-course sequence would take HIST 1010/HIST 1017 or HIST 1210/HIST 1217 or HIST 2010/HIST 2017 to complete a sequence.

2. Students entering an undergraduate program at Auburn, after earning bachelor’s degrees from other accredited universities, may be exempted from the history requirements unless their curricula specify otherwise.
Dean's List and Graduation Honors

Dean's List

The name of every eligible student who meets certain scholastic requirements for a given semester is placed on a list prepared for the dean of the student’s college or school. This honor is also noted in the student’s permanent record.

To meet Auburn University’s requirements for inclusion on the dean’s list, the student must be enrolled for 12 credit hours exclusive of any S-U option courses, pass all courses attempted for the semester, have no D or D* grades that term, and earn a GPA of at least 3.75 (on the 4.00 system). All grades, including those excluded by the grade adjustment/course repeat policy, are used for determining academic honors. The special requirements, applied in addition to the university regulations, are listed as follows:

• College of Architecture, Design and Construction: 3.75 average; only if an S-U graded course is required in the student’s curriculum may it be included in the 12-hour minimum total.

• School of Nursing: 3.75 average, only if S-U graded courses are required in the student’s curriculum may they be included in the 12 hour minimum total if and only an S grade is earned in these courses.

Graduation Honors

Undergraduate students with a minimum overall grade average of 3.40 are graduated Cum Laude; a 3.60 Magna Cum Laude; and a 3.80 Summa Cum Laude. This distinction of high academic achievement is placed on the student’s diploma and on his or her permanent record.

The grade average for graduation honors must be achieved on Auburn University course work. At least 60 hours in residence at Auburn University are required for graduation honors. All grades, including those excluded by the grade adjustment/course repeat policy, are used for determining academic honors. Grades of S or U and non-credit courses are not used in the calculations. Students earning a second baccalaureate degree must earn the minimum overall grade average required for honor distinction on the additional hours completed for the second degree. Those additional hours must total at least 60 credit hours.

Students meeting all of the requirements of the Auburn University Honors College graduate as University Honors Scholars.

Enrollment

Registration and Scheduling

Every student who makes use of the instructional staff and facilities of the university must register and pay fees. This rule also applies to students who are clearing incomplete grades, clearing for graduation, or working on graduate theses. The university calendar (p. 33) lists the dates for registration and late registration/schedule adjustment. Students are urged, and depending on the curriculum may be required, to seek guidance from their advisers before attempting to register for classes, and they are urged to register during their assigned registration period. Students should register for courses during the term preceding the term they plan to attend. When registering, the student is responsible for observing the pre-requisites or co-requisites of courses. Any waiver of these requirements must be approved by the department head or, in some cases, the dean. Waiver of the junior standing pre-requisite for courses that may be taken for graduate credit must have the Graduate School dean’s approval. The dean may reduce a student’s class load. Students may register for classes via the web through the 5th university class day in Spring and Fall semesters, and through the 1st university class day during Summer term. Students may register for classes after the close of student web registration only with the approval of the college, school or department offering the course. No student without a course schedule will be allowed to register after the 15th day of classes during Fall or Spring or after the 5th day of classes in any Summer term without the approval of the provost.

Permission To Register

All students must have a username and a password prior to participating in registration, late registration or schedule adjustment. All registration holds must be cleared prior to the start of registration to avoid delays in registration.

Undergraduate Transient Students

An Auburn student may take courses at another institution on a transient basis for one term. In order to do so, students in good standing who have earned fewer than 90 credit hours must first fill out the transient form online. All students are encouraged to meet with their academic advisor prior to completing a transient form.

• To access the online transient form you will need to first log into Tigeri.

• Choose "Student Main Menu."
• From the available options, choose "Transient Enrollment for Auburn Students at Other Institutions."
• Read the Transient Enrollment Guidelines carefully. The online form may not be appropriate for every situation.
• Choose the term, state, and institution you wish to take courses as a transient student, and click the Search button.
• When the correct courses are listed, click "Proceed to Transient Form" to produce and print the form. *If you have issues printing, you may need to try a different browser or adjust your print settings.
• Mail or hand deliver the form to the institution you plan to attend.

Students who have earned more than 90 credit hours and students who are on Academic Warning may be eligible to take transient courses, but they must first meet with their academic advisor, who will discuss their options and help them begin the transient approval process.

Credit will only be accepted from regionally accredited institutions where there are reasonable course equivalencies. It is the responsibility of the student to determine the accreditation status of any institution where they intend to take courses as a transient student.

Students will be given transfer credit for those approved courses listed on the Transient Form provided a grade of D or better is earned (with the exception of courses which require a C or better such as English Composition).

Students may not take courses for transfer credit taken at another institution while on suspension or dismissal from AU. Additionally, students may not enroll in courses at another institution for which they have not met the AU prerequisites if the intent is to transfer these courses back to AU. Students can not receive transfer credit from another institution for an AU course where the Grade Adjustment Policy has been applied.

### Classification

<table>
<thead>
<tr>
<th>Year</th>
<th>Completed Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophomore</td>
<td>completed 30 hours and is in the 31st to 60th credit hour</td>
</tr>
<tr>
<td>Junior</td>
<td>completed 60 hours and is in the 61st to 90th credit hour</td>
</tr>
<tr>
<td>Senior</td>
<td>completed 90 hours and is in the 91st hour or higher</td>
</tr>
</tbody>
</table>

The codes for identifying the classification of students are as follows: FR, Freshman; SO, Sophomore; JR, Junior; SR, Senior; 5YR, fifth year; UND, undergraduate non-degree students; UPR, undergraduate provisional; MST, master’s; EDS, educational specialist; EDD, doctor of education; PHD, doctor of philosophy; GPR, graduate provisional; GND, graduate non-degree; P1, first-year professional; P2, second-year professional; P3, third-year professional; and P4, fourth-year professional.

A student with a baccalaureate degree who undertakes a program for a second bachelor’s degree will be classified as an undergraduate.

### Undergraduate Course Load Policy

An undergraduate must enroll for 12 or more hours during a semester or summer term to be considered full-time for athletic, financial aid, loan and insurance purposes. The maximum load for students in undergraduate curricula is 18 hours during the semester, 7 semester hours during the 5-week session, and 14 hours during the 10-week session or any combination of summer sessions.

The maximum load may be exceeded under the following circumstances:

On approval of the dean, students may schedule overloads not to exceed 22 hours during the semester or 17 hours during the summer terms or 9 hours during a 5-week session. To be eligible for an overload, students must have passed all work attempted and earned a GPA of 2.5 or higher during their last semester at Auburn University in which they carried 15 or more hours (10 or more in their last summer). In determining whether to approve an overload exceeding these hour limits, the student’s academic dean will consider the student’s academic history, including grades and the number of courses taken in the past. Deans (or their designees) must seek approval from the Provost’s designee for overloads greater than the limit of 22 hours during the semester or 17 hours during the summer terms or 9 hours during a 5-week session.

International Students are required to be enrolled as full-time students during the academic year and are subject to special full-time enrollment regulations. They may NOT drop below the full-time course loads without prior written authorization from the Office of International Education. Dropping below full course loads without prior Office of International Programs (OIP) approval can subject international students to termination of their immigration status therefore international students and academic advisors must check with OIP PRIOR TO modifying full-time course loads for international students.
Undergraduate Grade Adjustment Policy (GAP)

All regularly admitted undergraduate students, who were enrolled during fall 2000 or after, may delete a maximum of three (3) course grades of D or F (including FA or U) associated with their undergraduate degree program from the computation of their cumulative GPA. Deletion of grades from the computation of the cumulative GPA is not available to professional students in audiology, pharmacy and veterinary medicine. Grades and credit considered as transfer credit, courses earned in a previously awarded baccalaureate degree, or grades that have been assigned as a result of an academic honesty decision are excluded from this policy.

This policy does not offer exemption from academic requirements for Auburn University degrees; adjustment only applies to grades in individual courses.

All core and major requirements must be met for graduation. Students should be aware that D or F/FA/U grades in required courses may be deleted from the computation of the cumulative GPA prior to a repeat, but the required course must be repeated at Auburn University before graduation.

Where a specific course is required for the core or a major, that course must be repeated to replace the deleted grade. Courses covered by this policy and needed to meet core area requirements or elective courses within a major may, subject to the approval of the academic dean, be replaced by any course accepted for that requirement, where applicable. All courses for which a grade is awarded at Auburn University will remain on the transcript. Students may submit a written request for grade deletion to their academic dean’s office at any time prior to graduation. Once a request for deletion of a grade has been granted and that grade has been removed from the calculation of the cumulative GPA, the grade and credit cannot be restored.

Students should follow guidelines for the repeat of courses in which grades of A, B, or C have been awarded (See the following section on Other Policies on Repeat of Courses). However, all grades will be used for determining all academic honors.

All Auburn University transcripts will include two GPAs: a semester GPA, and a cumulative GPA. The transcript will carry an appropriate notation that the cumulative GPA may not include grades for all courses attempted.

Note that a student may not GAP a course in a degree program once that program is complete and the degree earned.

Note that gapped grades will be seen by graduate schools and professional programs and may use un-gapped GPAs in the selection process.

Grades

Grade Definitions

Final passing grades are A, superior; B, good; C, acceptable; D, passing; and S, satisfactory. Final failing grades are F, failure; FA, failure for excessive absences; U, unsatisfactory; NR, no grade reported; and WF, officially dropped with permission of the student’s dean but failing at time of withdrawal and is calculated into the GPA. (For the definition of W, see the following section on Grade Assignment for Class Withdrawal.)

A TD, thesis and dissertation research credit, is assigned to courses 7990 Research and Thesis and 8990 Research and Dissertation.

A grade of IP (In Progress) is used by professional programs, specifically Pharmacy, Veterinary Medicine, and Professional Flight Management degree programs, and any other degree program designated as a “professional programs” by the university, where completion of courses within that program may extend beyond the end of a regular term. Students who are making progress toward completion of their work, but have not completed all course requirements may receive the IP grade. The IP grade is not calculated in the GPA until the grade is cleared. An IP grade must be become a grade of A, B, C, or D within one year from the end of the term the IP grade was awarded or the IP grade will become an “F”.

Grades of SA and SN may be assigned in certain specialized classes in which progress to the next level of a program depends on performance in the class. In such cases, a grade of SA in a particular course may be required for advancement. A grade of SN will give the student appropriate earned credit, but will not allow the student to advance in that program.

An NR is assigned systematically when the instructor does not assign a letter grade.

Faculty Policy on Assigning Grades of Incomplete (excludes Distance Education courses)

Effective Fall 2007, student (or appropriate representative) must contact the instructor in writing prior to the submission of final course grades to request a grade of Incomplete due to documented reason (illness/death in family/etc.).
If a student does not request an IN, the instructor should grade the student based upon the percentage of course work completed to date and using a 0 for any exams/assignments not completed.

To be eligible for a grade of IN, the student must have completed (and have passed) more than half of all class assignments for the semester or summer term.

The instructor must fill out the Incomplete Grade - Memorandum of Understanding form, indicating:

• reason for the IN,
• percent of course work currently completed at the time of submission and the grade average on that work,
• detailed information about the additional work needed to complete the course,
• timeline to complete the work (6 months maximum; preferably sooner), and
• grade the student should be assigned if the additional work is NOT completed by the deadline set for the completion of the work; the missing work is calculated as a 0.

Grades of Incomplete automatically become the grade identified by the instructor, if not cleared within 6 months.

If the instructor assigning a grade of IN leaves Auburn University, the Department Head should make a reasonable attempt to contact the former instructor and then assign a grade based upon the work presented by the student and the information provided on the Incomplete Grade - Memorandum of Understanding form.

Once an IN has been changed to another grade it may not be changed, in the future, to a different grade without approval of the provost.

Documentation of class work must be maintained by the student; the Incomplete Grade-Memorandum of Understanding form must be maintained by the student, faculty and the Office of the Registrar. For instructors who submit the IN Grade forms to the Office of the Registrar prior to course grades being rolled to academic history, the IN will be reflected on the electronic grade roster; faculty will be unable to change that grade on the electronic grade roster.

Instructors should NOT enter a grade on the electronic course roster for those students who are to be assigned the IN grade but leave the grade blank. The system will automatically convert blanks to NR. Once the IN Grade form is received by the Office of the Registrar, that office will convert the NR to the IN grade.

It is the responsibility of the instructor to send a copy of the Incomplete Grade - Memorandum of Understanding form to the Office of the Registrar.

When the student has completed the outstanding work, it is the responsibility of the instructor to initiate the change of grade form and send it to the appropriate department/dean’s office for additional signatures and transmittal to the Office of the Registrar.

These policies apply to all students in undergraduate and graduate courses.

Faculty Policy on Grade Changes (includes NR; Excludes IN)

Grades should be accurate when posted.

• Any change of letter grades (A, B, C, D, F, S, U, FA, and NR) should be made only in extraordinary situations.
• Any grade changes must be completed within 6 months of completion of the course.
• Any grade changes outside of this timeframe must also be approved by the provost.
• A final grade may be changed only by the written request of the instructor, with approval of the department head and dean, submitted to the registrar.
• A grade of F and additional penalties may be assigned for academic dishonesty. See the Student Academic Honesty Code section in the Policy eHandbook for further information.

Grade Assignment For Class Withdrawals

A student who withdraws from a course prior to the 15th class day during a semester (or the fifth class day of summer term) will have no grade assignment; however, from the 15th class day during a semester (or the fifth class day of summer term) through mid-semester (mid-term) a W (Withdrawn Passing) grade will be recorded for the course. A course may be dropped with a W after mid-semester only under unusual conditions and only with permission from the student’s dean. When approval for dropping the course under such circumstances is granted, a W may be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise, a grade of WF (Withdrawn Failing) is assigned. All failing grades are calculated into GPA as grades of F.
Grade Average and Quality Point Computation
A 4.0 grade scale is used. An A equals 4.0; B, 3.0; C, 2.0; D, 1.0; and F equals 0.0. Only course work attempted at Auburn University is used in determining the grade report average and continuation-in-residence requirements. S and U grades do not enter into grade-point computations.

S-U Grading
Grades of S (Satisfactory) and U (Unsatisfactory) may be assigned only to courses approved to be graded S-U, and courses elected under the S-U option.

A junior or senior with a minimum overall grade average of 2.5 on at least 20 hours of credit earned at Auburn may elect any course to be graded on the S-U option, except for courses required in the Core Curriculum or for required courses as defined by the student’s curriculum. A total of 12 credits may be earned at the rate of one course per term. Students will receive credit toward a degree for these courses, provided credit is normally accepted in their curricula for these courses.

An unclassified student may schedule one or more courses on the S-U option with the approval of the dean. Courses completed on the S-U choice by unclassified students may not be applied later to degree requirements should the student become a degree candidate.

A graduate student may enroll in undergraduate courses, except for 6000-level courses taken for graduate credit, under the S-U option on the major professor’s recommendation.

 Students are not permitted to change from S-U grading to conventional grading or vice versa after the fifteenth class day of the fall and spring terms or the fifth class day of any summer term.

Grade Reports
Grade information may be obtained via tigeri at the Auburn University homepage, www.auburn.edu.

Undergraduate Continuation in Residence Requirements
Auburn University may place an undergraduate student on academic warning or suspension at any time if the student flagrantly neglects academic work or fails to make satisfactory progress toward graduation.

An academically suspended student who has incomplete or other deferred grades which could, when cleared, remove the suspension will be permitted to register conditionally for the next semester. The suspension must be removed within three weeks of the beginning of the semester (one week for summer sessions); otherwise the Office of the Registrar will resign the student.

No credit earned at another institution by a student on academic suspension from Auburn will be used in clearing a suspension or in meeting requirements for an Auburn University degree.

A student who resigns after mid-term may be subject to academic suspension. (See Resignation for further information.)

Academic Warning
Academic Warning status is imposed at the end of any term for which the student’s cumulative GPA on Auburn course work is below 2.0.

Academic Suspension
Any student who is on Academic Warning status will be placed on Academic Suspension if both of the following conditions apply: (1) the term GPA is below 2.2 and (2) the cumulative GPA on Auburn course work is below that required for the designated number of hours earned as follows:

<table>
<thead>
<tr>
<th>Hours Earned</th>
<th>Required Minimum Auburn Cumulative GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-30.999</td>
<td>1.50</td>
</tr>
<tr>
<td>31-60.999</td>
<td>1.80</td>
</tr>
<tr>
<td>61-90.999</td>
<td>1.90</td>
</tr>
<tr>
<td>91 or more</td>
<td>1.97</td>
</tr>
</tbody>
</table>

All students, whether beginning freshmen or transfers, are not subject to suspension until they have received one semester warning.
Terms of Suspension
A student who incurs a First Academic Suspension may not enroll in the university for a minimum of one semester. Summer term does not count as a semester for terms of suspension. A student may not take coursework at Auburn University or at another institution of higher education during the period of suspension and apply the credit to an Auburn University degree. A student returning from academic suspension will be on Academic Warning status. A student who incurs a Second Academic Suspension may not enroll in the university for a minimum of two semesters. A student who has incurred two academic suspensions will be placed on Last Warning. A student on Last Warning who does not achieve at least a 2.2 in the current academic term or reach the overall GPA target listed above will be dismissed from the University. A student on suspension may not take coursework at Auburn University or any other institution of higher education, either during summer term or during the other semesters of suspension, and apply the credit to an Auburn University degree. Under some extraordinary circumstances, a student who has been dismissed from Auburn University may be readmitted at a future date. In these cases, no coursework taken elsewhere during the period of dismissal can be applied toward an Auburn University degree.

Suspension for Resigning Students
The academic dean will review all grades for the semester in which a student who is on Academic Warning resigns after mid-semester (or term). If the student’s GPA in that term’s course work results in the student’s cumulative GPA being below the minimum cumulative GPA required, the student will incur Academic Suspension.

James Harrison School of Pharmacy
A student enrolled in the James Harrison School of Pharmacy who is placed on academic suspension and who wishes to re-enter the school must, in addition to complying with other university readmission requirements, be approved for readmission by the Pharmacy Admissions Committee and, when applicable, by the university’s Admissions Committee.

College of Veterinary Medicine
Any student who earns less than a 2.25 GPA for any term will be placed on academic probation. A student who fails to earn a 2.25 GPA for any two terms in the same academic or calendar year may be dropped from the College of Veterinary Medicine for scholastic deficiency. In addition, a student who does not have an overall average of 2.25 for an academic year or who does not have a veterinary overall average of 2.25 for an academic year or who does not have a veterinary school cumulative average of 2.25 at the end of any academic year may be required to withdraw from the College of Veterinary Medicine.

A student who makes a grade of F in any course may be dropped from the College of Veterinary Medicine until such time as the course is offered again. Such students may be required to repeat certain other courses in the curriculum for the term in which a grade of F was earned.

Students who are dropped under the above provisions are eligible for admission to other curricula provided they meet the general scholastic requirements for continuance in the university. Scholastic penalties incurred during enrollment in the College of Veterinary Medicine will become part of the student’s record.

Policies and Procedures for Admissions
Auburn University is an equal-opportunity educational institution, and as a matter of policy, does not discriminate in its admissions policy on the basis of race, color, sex, religion, disability, sexual orientation, age, or national origin. Preference is given to the admission of Alabama residents at the undergraduate level; in considering applications to professional schools or programs with restrictive admissions policies, the length of residency in the state will be a factor.

Applications for resident and non-resident students are accepted for all curricula; however, the number of students and academic credentials of the applicants accepted for admission are determined by the availability of facilities and faculty.

Application Forms
Applicants are required to submit their application electronically using the document available on the Auburn University website at www.auburn.edu/apply. Application to the Graduate School, the College of Veterinary Medicine, or the James Harrison School of Pharmacy must be made to those schools.

Process for Application
Individuals may apply for undergraduate admission beginning September 1. Because of the large number of applications, credentials should be submitted as early as possible. In all cases, complete credentials along with the medical examination report must be filed at least three weeks before the term’s opening. The university reserves the right to establish earlier deadlines should
circumstances warrant. Prospective students who are offered admission to the university must maintain a level of academic achievement comparable to that in the record used for admission evaluation. Otherwise, the university reserves the right to rescind the offer of admission.

Application Fee

A $50 processing fee (international application processing fee is $60), payable by check, money order or credit card, must accompany all admission applications and is neither refundable nor applicable to other fees. Responses on the application forms and on related materials must be complete and accurate; entrance may be denied or registration canceled as a result of false or misleading statements.

Applicants may receive provisional acceptance after they submit the application form and current academic documents. However, they must complete and return a medical examination report form provided by the university at least three weeks before the term’s opening. The university may require additional medical examinations and may refuse admission to individuals whose health records indicate their health or the university community might be adversely affected by their attendance. All applicants must certify they have registered with the Selective Service Board or they are not required by law to register.

Applicants may be asked to supply evidence of good character. The university may deny admission to those whose presence is deemed detrimental to the institution or its students.

Admission of Freshmen

Favorable consideration for admission will be given to accredited secondary school graduates whose college standardized test scores, high school grades, and other factors give promise of the greatest level of success in college courses.

Secondary school students planning to apply for admission to AU should emphasize the following high school courses: English, mathematics, social studies, sciences, and foreign languages.

High School Curriculum Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th># of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>4 years</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3 years</td>
</tr>
<tr>
<td>Algebra I and Algebra II</td>
<td>2 years</td>
</tr>
<tr>
<td>Geometry, Trigonometry, Calculus or Analysis</td>
<td>1 year</td>
</tr>
<tr>
<td>Science</td>
<td>2 years</td>
</tr>
<tr>
<td>Biology</td>
<td>1 year</td>
</tr>
<tr>
<td>Physical Science</td>
<td>1 year</td>
</tr>
<tr>
<td>Social Studies</td>
<td>3 years</td>
</tr>
</tbody>
</table>

Recommended: one additional science, one additional social studies, and one foreign language.

Applicants are required to present scores from either the American College Test (ACT) or the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board. Scores must be received from the testing agency directly and will not be accepted on the high school transcript. Scores on both the ACT and SAT tests may be used as a partial basis for admission, for placement in English, chemistry, and mathematics, and for awarding university scholarships and loans. Applicants whose native language is not English are required to demonstrate proficiency in English.

Applicants of mature age who are not high school graduates may be considered for admission if their educational attainments are shown through testing to be equivalent to those of a high school graduate. The tests used include the USAFI General Educational Development Test, the American College Test, and/or other tests recommended by the Admissions Committee. The Committee will consider applicants from non-accredited high schools on an individual basis.

Early Admission

Early admission is for students who have met all the high school graduation requirements, have graduated early (typically following eleventh grade or mid-senior year), received a high school diploma, and wish to begin their college career early. The Early Admission application is the only paper admission application submitted to AU, as early admission students are unable to apply online.
Dual Enrollment

Dual enrollment is for those seeking dual (simultaneous) enrollment at Auburn University and their high school. If attending Auburn University as a dual enrolled student, the student must also submit a regular freshman admission application following the completion of their junior year of high school.

Basic requirements for both early admission and dual enrollment include:

- A minimum 22 ACT and/or 1020 SAT and 3.25 high school point grade point average.
- A letter from the high school principal/counselor assessing the applicant’s emotional and social maturity and readiness for college work.
- A letter of support from a parent or guardian.
- A letter from the student stating why you would like to participate in and feel qualified for our dual enrollment program.

Conditional/Special Admission

Individuals applying to Auburn as first-time College students, who are graduates of an accredited high school, may be admitted to Auburn on a conditional basis if they have inadequate SAT or ACT scores or high school records such that they would not qualify for regular admission. These students will be given an opportunity to demonstrate that they can make reasonable progress toward a degree. Upon completion of 15 college credit hours of approved courses at Auburn University, these students must have a cumulative grade point average of 2.0 or higher (on a 4.0 scale) to remain at Auburn.

For further admission information, prospective students may contact: Office of Enrollment Services, The Quad Center, Auburn, AL 36849, admissions@auburn.edu.

Admission of Transfer Students

Transfer applicants must provide official transcripts (not duplicated or faxed copies) from each college attended, including any at which the applicant enrolled while in high school. A minimum 2.5 cumulative GPA on a 4.0 scale on all college work attempted and eligibility to re-enter the institution last attended are required to be considered for transfer admission. Transfer applicants who were not eligible for admission to Auburn when they graduated from high school must present a minimum of 45 quarter hours or 30 semester hours of college credit. All transfer students who have attempted 30 semester hours or 45 quarter hours of college work must have earned a cumulative 2.5 GPA in at least 20 semester hours, or 30 quarter hours, of standard academic courses as required in Auburn University’s Core Curriculum, in addition to the overall 2.5 cumulative average. These 20 semester hours, or 30 quarter hours, must include at least one course in each of the following areas: English (college-level composition or literature), History, Mathematics - approved core mathematics for articulation and general studies (or its equivalent from other institutions), and Natural Science with a laboratory. Admission of transfer students to the university is contingent on availability of space.

Transfer applicants (from both on and off campus) to Architecture, Interior Architecture, and Building Science in the College of Architecture, Design and Construction must meet all university requirements and must have a minimum 2.8 cumulative GPA.

Entrance examinations may be required of applicants transferring from colleges with which the university has had little or no experience.

Transfer Credit

For students transferring from accredited public institutions within the state of Alabama, the amount of credit for freshman and sophomore course work is governed by the Articulation and General Studies agreement. Credit for Core Curriculum English writing courses is allowed only on grades of C or better, as approved by the Discipline Committee of the Articulation and General Studies Agreement. Courses with grades of D are only acceptable for transfer in those degree programs in which grades of D are acceptable for equivalent freshman and sophomore courses taken at Auburn University. The maximum credit allowed for work completed in a junior college will be equivalent to one-half of the student’s curriculum at Auburn but not to exceed 64 semester hours or 96 quarter hours.

For students transferring from other regionally accredited institutions, the amount of transfer credit and advanced standing allowed will be determined by the appropriate dean and the provost or designee. Courses with grades of D are only acceptable for transfer in those degree programs in which grades of D are acceptable for equivalent courses taken at Auburn University.

Students transferring from non-regionally accredited institutions or programs may be granted provisional credit. When such credit is allowed, the final amount of credit will be determined upon completion by the student of one year of course work at Auburn University. If
a C average is not achieved, the amount of credit will be reduced in proportion to the number of hours in which the student fails to earn a C average or better.

All courses offered at Auburn University are eligible to be transferred to other bachelor’s degree-granting colleges and universities, in accordance with the specific policies of those institutions.

For further admission information, prospective students may contact: Office of Enrollment Services, The Quad Center, Auburn, AL 36849, admissions@auburn.edu

Transferring from Auburn University Montgomery (AUM)

Undergraduates enrolled at either of Auburn’s campuses may take classes at either campus, if they are in good standing and have approval by the home campus. Those credits can count toward their graduation requirements. This policy does not supersede departmental requirements related to the minimum number of credits to be earned in the major at the home campus. During such terms when students take classes at the other campus, they are classified as transient students. Students must complete an admission application as a transient student; however, the application fee will be waived. To become a degree-seeking student on either campus, however, students must meet minimum transfer requirements.

For further admission information, prospective students may contact: Office of Enrollment Services, The Quad Center, Auburn, AL 36849, admissions@auburn.edu

Admission of Undergraduate Transient Students (Non-degree candidates enrolling for one term)

A student in good standing at an accredited college may be admitted to the university as a transient student when faculty and facilities are available. Generally, space availability is limited for the fall semester.

To be eligible for consideration, an applicant must submit an application, an acceptable medical report, and a letter of good standing bearing the signature of the dean or registrar of the college in which the applicant is currently enrolled.

Permission to enroll is granted for one term only; a transient student who wishes to re-enroll must submit a new application. Transient status does not constitute admission or matriculation as a degree candidate. The transient is, however, subject to the same fees and regulations as a regular student except for the continuation-in-residence requirements.

For further admission information, prospective students may contact: Office of Enrollment Services, The Quad Center, Auburn, AL 36849. admissions@auburn.edu

Admission of Unclassified Students

Admission to most undergraduate programs as an Unclassified Student may be granted on the basis of the bachelor’s degree from an accredited college. Unclassified students must submit the same admissions credentials and meet the same GPA requirement as transfer applicants.

For further admission information, prospective students may contact: Office of Enrollment Services, The Quad Center, Auburn, AL 36849. admissions@auburn.edu

Admission of International Students

Auburn University’s core mission is education. In this spirit, the University welcomes qualified international students to apply for admission to the university. All international students with an outstanding academic background and an ability to communicate in English are encouraged to apply.

Students who are proficient in English skills may apply for admission directly to the university or apply through Auburn Global. Students with less English proficiency may apply to Auburn Global and will be supported in the enhancement of their language skills in their first year, regardless of selected university major or degree. English proficiency is determined by satisfactory results on the Test of English as a Foreign Language (TOEFL), offered by the Educational Testing Service, Box 899, Princeton, N.J., 08540, U.S.A. For direct entry to the university, the student must also submit satisfactory results on the Scholastic Aptitude Test (SAT) or the American College Testing exam (ACT). International students should send all of their academic credentials to a professional credentials evaluation agency for evaluation, and when possible the evaluation should include a course by course evaluation with GPA.

All first-year international students, regardless of their English language proficiency level, can participate in the programs and services offered by Auburn Global as part of the International Accelerator Program (IAP). These personalized and supportive services include academic support, mentoring, social events, and participation in Auburn University and community events. The Auburn Global customized suite of services is designed to engage international students in the domestic culture and sets the foundation for a
successful collegiate experience. All international students are strongly encouraged to register for Auburn Global's programs and services.

Please note, when applying directly to the university there is a $60 processing fee payable by check, money order or credit card. This fee is non-refundable and cannot be applied to other fees. It is important that all materials submitted to the university or to Auburn Global are complete and accurate. Incomplete applications cannot be processed and those with inaccurate information may be subject to cancellation.

Applicants who present satisfactory academic credentials, test results, and evidence that they have sufficient funds to meet their college expenses will be sent an acceptance letter and the form I-20 (the authorization for a student visa). All students are required to purchase the university student insurance plan or provide evidence of equivalent coverage. This health insurance may be purchased upon arrival in the U.S.

Detailed information can be found at the: Office of International Programs, 228 Foy Hall, Auburn University, Auburn, AL 36849. intledu@auburn.edu

For further admission information, prospective students may contact: Office of Enrollment Services. The Quad Center. Auburn, AL 36849, USA, admissions@auburn.edu

For detailed information about the International Accelerator Program, prospective students may contact: Auburn Global Admissions, 332 Foy Hall, Auburn University, Auburn, AL 36849. 1-888-575-2469; admissions@auburnglobal.org

**International Accelerator Program**

The International Accelerator Program (IAP) at Auburn Global is a freshman year of study for international students. It eases the transition from high school in another country to U.S. higher education by combining credit-bearing courses from the first year of your degree with additional support services, teaching tailored to your academic and language level, and cultural experiences, helping to ensure your future success. There are three flexible Accelerator routes to choose from, depending on your qualifications and personal preferences: the Integrated Accelerator, the Academic Accelerator, and the Extended Accelerator. For more information on the program and routes to enter, see http://www.auburnglobal.org/about-the-iap/. Students in the Accelerator Program are enrolled in a minimum of 18 clock hours in Fall and Spring semesters, and 14 clock hours in summer.

IAP students take a core curriculum* and choose one of three academic tracks:

1. Humanities
2. STEM (Science, Technology, Engineering, and Mathematics)
3. Business

<table>
<thead>
<tr>
<th></th>
<th>Term 1</th>
<th>Term 2</th>
<th>Term 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td>GLOB 0100: American University Life</td>
<td>GLOB 1010: Academic Performance</td>
<td>GLOB 1020: Building Success in Career</td>
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<tr>
<td>English: Academic and</td>
<td>English for Academic Purposes (EAP) &amp; Technology for Academic Purposes (TAP)</td>
<td>English Course Supplements &amp; Oral Proficiency for International Students</td>
<td>Public Speaking</td>
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<tr>
<td>Extended Accelerator</td>
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<tr>
<td>English: Integrated</td>
<td>Writing Proficiency for International Students</td>
<td></td>
<td>Public Speaking</td>
</tr>
<tr>
<td>Accelerator</td>
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<tr>
<td>General Education Courses</td>
<td>Auburn in the World: Industry and Society (including Integrated English Lab)</td>
<td>Principles of Microeconomics (including English Supplement)</td>
<td>Global Geography &amp; Introduction to Film</td>
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<td>General Education Courses</td>
<td>Auburn in the World Lab</td>
<td>World History (including English Supplement)</td>
<td>World History 2</td>
</tr>
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<td></td>
<td></td>
<td>Fundamentals of Chemistry &amp; Lab (including English Supplement)</td>
<td>2. STEM: Fundamentals of Chemistry 2</td>
</tr>
<tr>
<td>Credits/Hours</td>
<td>EAP 18</td>
<td>AAP 20 IAP 17</td>
<td>Learning Tracks: 3. Business: Principles of Microeconomics</td>
</tr>
</tbody>
</table>

*This is a sample curriculum and may be subject to change.
Admission of Auditors

Auditing of courses is restricted, but when faculty and facilities are available, individuals who do not seek admission for course credit may audit a lecture course or the lecture portion of a course upon approval of the dean and the head of the department. A formal application must be filed. Auditors must register and pay appropriate fees. Although listed on class rolls, auditors are not required to take part in classroom discussion, tests, examinations or reports, and they receive no grade or credit. However, students who attend the audited course rarely or never will have non-attendance of the course indicated on their records.

A student enrolled in other courses for credit will be granted permission to audit a course only on the approval of the dean and the head of the department of the course involved.

Students may not change from audit to credit after classes begin, but may change from credit to audit within the first four weeks of classes (seven class days during any summer session). No refund of fees will be made except for changes made during the first three weeks of classes in accordance with university policy.

For further admission information, prospective students may contact: Office of Enrollment Services, The Quad Center, Auburn, AL 36849. admissions@auburn.edu

Confirmation Deposit

All applicants who meet the university admission requirements and are offered provisional admission are required to pay a $200 non-refundable deposit to confirm the offer of admission. Deposits for the summer or fall semesters are due by May 1, and deposits for the spring semester are due by November 1. However, it is suggested students deposit as early as possible. Confirmation deposits for transfer, auditor, unclassified and transient applicants are due by one week prior to the start of class for summer semester, fall semester is due by June 1, and spring semester are due by October 1. Students will receive housing information and orientation registration materials following submission of the deposit.

Advanced Standing and Credit

Prospective students are advised to check the website of the Office of the Registrar for specific information on placement and credit at www.auburn.edu/administration/registrar/.

Entering students with superior preparation or with special competence in a specific area may qualify for advanced placement or credit. Placement or credit may be granted on the basis of Advanced Placement Examinations of the College Board, International Baccalaureate scores, scores on college ability or achievement tests, departmental proficiency examinations, and other evidences of experience and competence.

Students enrolled at Auburn may apply to an academic department for a Departmental Proficiency Test if they have demonstrated a reasonable basis of experience or study in the subject area. If they score a satisfactory grade on the examination, they will be eligible for placement in an advanced course and for credit in the subject. Students who have previously enrolled for the subject at Auburn are not eligible for this test in the same subject.

The amount of advanced placement credit granted in each subject area is determined by the recommendation of the academic teaching department with the approval of the student’s academic dean and the provost or designee.

Students transferring to Auburn who have received advanced placement credits from another institution may be awarded these credits insofar as Auburn’s requirements for awarding such credits are met. Advanced placement credits may not be substituted for residency requirement.

Admission to Graduate Standing

Admission to graduate standing is granted only by the university’s Graduate School. A $50 ($60 international) application fee is required. A bachelor’s degree or equivalent from an accredited college or university and submission of satisfactory scores on the General Test of the Graduate Record Examinations (GRE) is required for Graduate School admission in all departments except: Community Mental Health; Industrial Design; Integrated Design and Construction; Landscape Architecture; Nursing; School Counseling; and Real Estate Development. The Physicians MBA and Executive MBA programs do not require any standardized test for admission. The following programs require the Graduate Management Admission Test (GMAT): Accountancy; Aviation and Supply Chain Management; Finance; and MBA. The following programs require the GRE or the GMAT: Hospitality and Management (GMAT preferred).

Readmission

Students who have previously attended Auburn and who wish to re-enter must secure permission to register from the Office of the Registrar if they have not been enrolled at AU during the preceding 12 months or if they have been academically ineligible to
be enrolled. Undergraduate students who have not been enrolled at Auburn University for a period of five years or more and who are returning to the same curriculum may be subject to different university, college, school, or departmental requirements than those which existed at the time of their initial entry, as well as those which existed at the program level when continuous enrollment ceased. The university, college, school, or department reserves the right to review a former student’s completed work, and if deemed appropriate, require any readmitted student to meet graduation requirements as listed in the catalog in effect at the time of re-entry. In addition, each college/school may have more specific requirements for readmitted students. A student seeking readmission who has attended another college since being enrolled at Auburn University must: (1) be eligible to re-enter the last institution attended; and (2) have a 2.0 average overall in course work attempted at other colleges if they have been enrolled elsewhere for two or more terms. An official transcript from each institution attended must be furnished to Admission Processing, Enrollment Services. Students who have been away from the university for more than one term must re-establish their right to residency. They will initially be classified as a non-resident and be required to produce normal documentation. For further information, students may contact: Office of the Registrar, Langdon Hall, Auburn, AL 36849. www.auburn.edu/administration/registrar/.

Orientation
To help entering freshmen adjust to the first semester at the university, including scheduling of courses, Auburn provides a summer orientation program, Camp War Eagle. Freshmen entering summer or fall semester attend sessions on campus during the summer prior to entrance. In these sessions, students meet faculty members, administrators, and student leaders, and plan with their advisors a schedule of their first semester of college work. New transfer students (and freshmen who enter in the January term) should plan to attend one of the regularly scheduled Successfully Orienting Students (SOS) sessions held prior to the beginning of each term. At these programs, new students will have the opportunity to meet with an advisor and plan their schedules for the upcoming term. Other new students may meet with advisors during the regular registration period at the beginning of the term in which they plan to enroll. For further information, students may contact the First Year Experience, 189 Foy Hall, Auburn, AL 36849. fyedesk@auburn.edu

Policies on Directed Studies

Credit for Directed Studies
The university policy on directed studies was approved effective August 2006. Auburn University offers directed readings courses, also referred to as special problems courses or independent studies, in accordance with established policy.

Directed readings courses allow in-depth study of a particular subject by a student who is well into her or his major and, in extraordinary circumstances, accommodate scheduling issues when no other remedy is available.

Directed readings courses should not normally be used as replacements for required courses or as a solution to routine scheduling problems.

Eligibility - To be eligible to take a directed readings course a student must be at junior level or above, and the course must be taken for credit toward the student’s major or minor; exceptions may be approved as follows:

Exceptions concerning junior standing or higher, or concerning credit toward the student’s major or minor, must be approved by the instructor and the offering department head/chair (or dean, if the instructor serves as department head/chair or associate dean), and by the dean of the college in which student is enrolled, if different from the offering college.

A student must have the approval of her/his dean and the provost to take more than 9 hours of directed readings coursework for credit over the course of her/his degree program.

Approval to Teach Course - A standard Approval for Independent Study/Directed Readings Form, available through the Office of the Provost website, will specify the necessary approvals and serve as the vehicle for obtaining them.

Policy on Withdrawal and Resignation
Withdrawal refers to the situation where a student drops a class or classes, but remains enrolled in at least one class (at least one credit hour) at the university that term. Resignation refers to the student dropping all classes (0 credit hours) and no longer being enrolled that term.

Withdrawal from a Course. Students may withdraw from a course via the web up through the last business day prior to the opening of registration for the following term in spring and fall semester and the posted date in the summer. Students who withdraw from a course before the posted term census date (15th class day in spring and fall and 5th class day in summer) will have no grade assignment and no record of having attempted the course on the transcript. Students who withdraw after census and on or before the
Enrollment in Terms Following a Medical Resignation. Students who plan to enroll in subsequent semesters or summer terms following a medical resignation will be required to submit medical documentation from a licensed health care provider which indicates readiness to return to an academic environment. Additionally, academic units reserve the right to request further documentation and/or other requirements specific to the student’s individual program of study. All documentation will be submitted to the Office of Accessibility and is kept confidential. A hold will be placed on the student’s registration until this documentation is submitted. If the student has
already registered for the following semester, the schedule will be dropped if documentation is not submitted by a specified date and/or
the student has not contacted the Office of Accessibility.

Retroactive Dating of Withdrawals and Resignations. Retroactive dating refers to establishing an effective date for withdrawal or
resignation before the date that one is filling out the form, often, prior to midterm. For retroactive dating to be allowed, there must be a
compelling reason that the forms were unable to be filed at the requested effective date.

Retroactive withdrawals/ resignations are most frequently initiated when a student has documentation from a health professional
(doctor/ psychologist, etc.) verifying a medical condition, which is confirmed by the Office of Accessibility, and the medical condition
prevented the student from withdrawing or resigning on the effective date.

When a student initiates any retroactive withdrawal/ resignation, the student’s associate dean must determine if the retroactive
withdrawal/ resignation is based on a medical or non-medical justification/ explanation. If the retroactive withdrawal/ resignation is
based upon a medical justification/ explanation, the associate dean will direct the student to the Office of Accessibility. The medical
documentation must identify why the student was so impaired that he/she was unable to withdraw/ resign in a timely manner.

If the retroactive withdrawal/ resignation is based upon a non-medical justification/ explanation, the associate dean follows the
procedures for all other (non-medical) withdrawals/ resignations, gathering information from the instructors and submitting the
documentation to the designee from the Office of the Provost. The Provost's designee will determine why the student was unable to
resign in a timely manner and if an earlier effective date is warranted.

If one or more of the student’s instructors has left Auburn University, the instructor(s) should be contacted by email, by the individual
recommending the retroactive withdrawal/ resignation, for information. If the faculty member does not respond, the department head/
chair should respond on behalf of the faculty member.

Retroactive withdrawals/ resignations should not be undertaken if more than two calendar years have passed since the course(s) was/
were taken, without the direct review and approval of the Provost.

\section*{Repeat of Courses}

No student may repeat a course for credit in which the student has previously earned a grade of A, B, or C without written permission
from the student’s academic dean. Courses specifically designated as repeatable in the Auburn University Bulletin are exempt from this
regulation. Students may repeat courses, only once, in which they earn a grade of D or F without written permission from the student’s
academic dean. Grades and hours for both attempts will be included in the calculation of the GPA unless the Grade Adjustment Policy
(http://bulletin.auburn.edu/undergraduate/academicpolicies/gradeadjust) has been invoked for the first attempt. If the grade adjustment
policy is not invoked in the case of the repeat of a D grade, then the course credit hours may count only once toward graduation unless
the course is designated as repeatable.

\section*{Satisfactory Progress}

\subsection*{Student Athletes}

In addition to meeting the general academic requirements of the university, student athletes must meet all academic requirements,
including those relating to satisfactory progress toward a degree, set forth in the legislation of the Southeastern Conference (SEC) and
of the National Collegiate Athletic Association (NCAA).

\subsection*{Student Financial Aid Recipients}

In addition to meeting the general academic requirements of the university, applicants for student financial aid funds must maintain
Satisfactory Academic Progress to receive, or to continue to receive, assistance through federal, state, and institutional student aid
programs. Descriptions of these Satisfactory Academic Progress requirements for distinct classifications of Auburn students are
available from the Office of Student Financial Services.

\subsection*{Veterans}

All students who are eligible and receiving Federal VA Education Benefits (Chapters 30, 31, 33, 35, 1606, 1607), in addition to meeting
the general academic requirements set forth by the university, must maintain Satisfactory Academic Progress (SAP) as approved by
the State Approving Agency of the State of Alabama, Department of Education. If the students who are utilizing one of the benefits
listed above does not meet SAP, his/her enrollment will be terminated with the VA. For theses specific standards, please refer to the
Satisfactory Academic Progress section of this \textit{Bulletin}. 
Special Academic Opportunities

- The Honors College (http://bulletin.auburn.edu/undergraduate/academicpolicies/specialacademicopportunities/honorscollege)
- National Honor & Recognition (http://bulletin.auburn.edu/undergraduate/academicpolicies/specialacademicopportunities/nationalhonorandrecognition)
- International Academic Opportunities (http://bulletin.auburn.edu/undergraduate/academicpolicies/specialacademicopportunities/internationacademicopportunities)
- Service Learning & Student Engagement (http://bulletin.auburn.edu/undergraduate/academicpolicies/specialacademicopportunities/servicelearningandstuentenagement)
- Cooperative Education (Co-Op) Program (http://bulletin.auburn.edu/undergraduate/academicpolicies/specialacademicopportunities/ coop)

Cooperative Education (Co-Op Program)

The Cooperative Education (Co-Op) Program provides opportunities for students to alternate semesters of academic study with full-time, career-related, paid work experience in industry, business, and government agencies.

Coordination of study and work combines theory and practice. As a result, students find increased meaning in and motivation for their studies. This experience helps to develop a sense of responsibility, judgment, and maturity. Students also benefit financially, since they are paid for their work.

In four-year undergraduate curricula, the Cooperative Education Program is sometimes a five-year plan. A student must complete at least two semesters of the freshman year with an above-average scholastic record before being placed with an employer. Cooperative Education is offered in all curricula of the College of Agriculture; Architecture, Design and Construction; Business; Engineering; Liberal Arts; Sciences and Mathematics and in all curricula of the School of Forestry and Wildlife Sciences.

A graduate Co-Op Program can be arranged for certain students in masters and doctoral programs where employers can provide professional work experiences directly related to the student’s specialized field of study.

For additional information, contact: Cooperative Education (Co-Op) Program, 104 Ramsay Hall, Auburn, AL, 36849-5123. Telephone: (334) 844-5410. Website: www.auburn.edu/co-op.

International Academic Opportunities

- International Academic Opportunities (p. 113)
- International Internships, Academic/Curricular Practical Training (p. 113)
- English as a Second Language (ESL) Program (p. 114)
- Office of International Programs (p. 114)
- OIP International Student and Scholar Services (p. 114)
- OIP Auburn Abroad Experience (p. 114)

International Academic Opportunities

Access to international opportunities is provided throughout many colleges, schools, departments and other student support units. However there are several units on campus that provide specialized services for English language study, study abroad and international students attending Auburn University.

There are also opportunities to receive early English-language training and a cultural introduction to American university life through our undergraduate and graduate pathway programs. These pathway programs are further described in the Policies and Procedures for Admissions section of this bulletin.

At the graduate level, several departments have joint programs with international university partners to earn graduate degrees in an accelerated bachelor's/master’s format. Detailed information about these programs can be found within the various academic college and department sections of this bulletin.

International Internships, Curricular Practical Training (CPT) and Academic Training (AT)

Academic internship experience both within the US and abroad are highly encouraged for all disciplines and all AU students. Students interested in participating in such experiences should check with their academic units for specific requirements. For international
students, practical training is available (depending on U.S. immigration status) such as Curricular Practical Training (for F-1 students only) or Academic Training (for J-1 students only). Students may also undertake academic internships abroad through the Auburn Abroad office. For further details on Auburn Abroad or CPT/AT, students should check with International Student and Scholar Services (ISSS).

**English as a Second Language (ESL) Program**

The ESL Program operates under the Assistant Provost for International Programs and offers English language instruction to international students and visiting scholars. It provides courses in oral and written proficiency to support international students enrolled in undergraduate and graduate degree programs, a course in classroom communication skills for international graduate teaching assistants, and an Intensive English program involving 25 hours of instruction per week in listening, speaking, reading, writing, grammar, pronunciation, and TOEFL skills. It also operates an International Student English Center that develops international students’ and scholars’ English skills through tutoring and workshops at no charge. For additional information, contact: 316 Foy Hall, (334) 844-2122; email: raffadc@auburn.edu; or visit www.auburn.edu/esl.

**Office of International Programs**

The Office of International Programs (OIP) is a unit of the AU Division of Academic Affairs. Its mission is to provide leadership and relevant administrative support to academic units, faculty, students, and staff for the effective promotion and efficient adoption of Auburn University’s internationalization goals. The International Students and Scholar Service (ISSS) component of the OIP assists foreign national students, visiting scholars, and university employees in achieving their academic objectives. The Auburn Abroad unit of the OIP promotes and facilitates student and faculty participation in an international education experience through programs outside of the United States. For additional information, contact: Office of International Program, 228 Foy Hall; 334-844-5001; intledu@auburn.edu; or www.auburn.edu/international.

**OIP International Student and Scholar Services**

The ISSS unit of the OIP provides assistance and guidance to foreign national students, visiting scholars, and University employees regarding US immigration requirements and Auburn policies for studying and/or working at Auburn University. Documentation of eligibility for study in the United States, work authorizations, and other government documents required by international students, scholars, and employees are issued and monitored by the ISSS. Joint orientation programs are conducted in cooperation with the Office of International Student Life and other units of the University to assist students, visitors, and employees adapt to the AU community. Currently, the university has more than 1200 international students, visiting scholars, and employees from over 90 nations. Go to the section on International Student Services for additional information.

**OIP Auburn Abroad Experience**

The Office of International Programs (OIP) Auburn Abroad unit seeks to develop, expand and facilitate credit bearing study, internship and exchange opportunities outside of the United States. Each year more than 1000 Auburn University students participate in the Auburn Abroad experience. More than 90 percent of these students go on faculty led programs and Exchange Programs with the rest going on other university or provider programs. In addition, entering freshman can go abroad a few weeks before their first Fall Semester under a weeklong Prefreshman Program abroad. The Office of International Programs also works with the Office of Diversity and Multicultural Affairs on a Prefreshman PLUS program. Recently, several colleges have joined together with the Office of International Programs to offer the AU CORE Curriculum Program in Rome during the summer. With some planning, credit earned through an Auburn Abroad experience can be integrated with Auburn University degrees and applied to core, major, minor, and elective courses. Students on Auburn University faculty-led programs and Exchange Programs will earn AU credit and will receive grades on their transcript. Students going on other university programs will earn transient/transfer credit for their courses abroad. If a student chooses to go on other university programs, they will need to be enrolled in an Auburn Abroad placeholder course to be able to use their financial aid.

Auburn Abroad experiences vary considerably in length and are available for all semesters including summer. Each college and school within Auburn University has programs abroad tailored to their students’ needs. The Auburn Abroad staff conducts Fall and Spring Study Abroad and Passport Fairs, and over 100 other information sessions each year to inform students about international opportunities. Both undergraduate and graduate students can participate in the Auburn Abroad Experience. Requirements for acceptance into the Auburn Abroad Experience include the following: (1) a minimum institutional cumulative GPA of 2.25 for undergraduates and 3.0 for graduate students, (2) the student must attain the age of 19 prior to the start date of program unless they are in the Prefreshman Program and/or have signed the minor forms, (3) the student’s record must show no pending Auburn University judicial actions and the student must be in good academic standing in their college or school. Faculty directors for programs abroad may also have additional requirements. Although some programs require prior knowledge of a foreign language, there are many that do not.
Students considering any type of credit bearing experience abroad should start their Auburn Abroad Experience by attending either (1) a weekly, thirty minute general orientation session conducted by the Auburn Abroad Staff or (2) by attending a faculty led program orientation session. The Auburn Abroad Experience sessions are held every semester. Sessions are conducted on Thursdays at 3pm and repeated on Fridays at 11am in the Auburn Abroad conference room, 242 Foy Hall. These sessions include an introduction to the on-line Auburn Abroad application process, hints on searching for faculty led and other types of programs abroad, the credit approval process, transcript information, information on a variety of funding resources, and paperwork needed for scholarship, PACT and other benefit programs. Students interested in faculty led programs must contact the faculty director(s) for the dates of their orientation sessions. After students attend a study abroad orientation session, they are ready to start their on-line study abroad application, found at www.auburn.edu/studyabroad on the Program Search link. They need to complete this on-line application, submit a completed Course Approval Form, and respond to any Auburn Abroad Unit emails requesting additional information. The Course Approval Form requires special attention and students must obtain all required signatures including department chair and dean. The on-line application and requested materials must be completed and submitted by the deadline dates listed on www.auburn.edu/studyabroad to be considered. Current deadline dates are: Summer Programs: March 30; Fall Programs - April 30 and Spring Programs: October 15.

The OIP staff monitors students’ on-line applications and will enroll individual students in one of the following Auburn Abroad Full Time Placeholder courses: (UNIV 2940 / UNIV 2945, UNIV 4940 / UNIV 4945, UNIV 5940 / UNIV 5945 or UNIV 7940 / UNIV 7945). These placeholder courses will be listed on the students’ transcripts while they are abroad. Once students complete their course work abroad and the Auburn Abroad staff receives and processes their transcript through the registrar, then the actual, approved courses listed on their Course Approval Form will be listed on the students’ transcripts as Auburn University Credit. These processes and dates are subject to change and it is the individual student’s responsibility to attend orientation sessions and check the website to insure that they are in compliance. In addition to receiving credit for an abroad experience, students enrolled in Auburn Abroad are provided opportunities to attend pre-departure sessions and will be enrolled in the Auburn University International Emergency Travel Assistance plan. Students will receive an enrollment card and material to read concerning the assistance plan, health and safety issues. The Auburn Abroad staff, along with the Office of Public Safety and Security routinely monitor global situations and will provide assistance to students in distress abroad. Returning students are encouraged to become Global Tiger Peer Advisors when they return, share their “Global Tiger Tale” on the Auburn Abroad website and submit photos from their experience abroad for the annual student photo contest. For additional information please visit the OIP Auburn Abroad Experience Website at www.auburn.edu/studyabroad and/or send an email to: auab@auburn.edu.

National Honor and Recognition

- National Honor Societies (p. 115)
- National Recognition Societies (p. 115)

National Honor Societies

The following members of the Association of College Honor Societies have established chapters at Auburn:

Alpha Delta Mu (Social Work), Alpha Epsilon (Biosystems Engineering), Alpha Epsilon Delta (Pre-Medicine), Alpha Kappa Delta (Sociology), Alpha Lambda Delta (Freshman Scholarship), Alpha Phi Sigma (Criminal Justice), Alpha Pi Mu (Industrial Engineering), Alpha Sigma Mu (Metallurgical & Materials Engineering), Beta Alpha Psi (Accounting), Beta Gamma Sigma (Business), Cardinal Key (Junior Leadership), Chi Epsilon (Civil Engineering), Eta Kappa Nu (Electrical and Computer Engineering), Kappa Delta Pi (Education), Iota Delta Sigma (Counselor Education), Lambda Sigma (Sophomore Leadership), Mortar Board (Student Leadership), Omega Chi Epsilon (Chemical Engineering), Omicron Delta Kappa (Student Leadership), Kappa Omicron Nu (Human Sciences), Phi Alpha Theta (History), Phi Beta Kappa (Arts and Sciences), Phi Eta Sigma (Freshman Scholarship), Phi Kappa Phi (Senior Scholarship), Phi Lambda Sigma (Pharmacy Leadership), Phi Sigma Tau (Philosophy), Pi Delta Phi (French), Pi Lambda Sigma (Pre-Law), Pi Sigma Alpha (Political Science), Pi Tau Sigma (Mechanical Engineering), Psi Chi (Psychology), Rho Chi (Pharmacy), Sigma Delta Pi (Spanish), Sigma Gamma Tau (Aerospace Engineering), Sigma Pi Sigma (Physics), Sigma Tau Delta (English), Tau Beta Pi (Engineering), Tau Sigma Delta (Architecture & Allied Arts), Xi Sigma Pi (Forestry).

National Recognition Societies

The following national societies have chapters established at Auburn:

Alpha Epsilon Lambda (Graduate), Alpha Eta Rho (Aviation), Alpha Kappa Psi (Business), Alpha Phi Omega (Service), Alpha Psi Omega (Theatre), Angel Flight (Air Force ROTC Auxiliary), Arnold Air Society (Air Force ROTC), Beta Beta Beta (Biology), Block and Bridle (Animal Husbandry), Delta Nu Alpha (Transportation), Delta Sigma Pi (Commerce & Business Administration), Eta Sigma Delta (Hotel and Restaurant Management), Gamma Sigma Delta (Agriculture), Golden Key National Honor Society, Kappa Kappa Psi (Band), Kappa Omicron Nu (Human Sciences), Kappa Psi (Pharmacy), Lambda Tau (Medical Technology), National Student Speech,
Language, Hearing Association (Communication Disorders), Omicron Delta Epsilon (Economics), Omicron Kappa Pi (Architecture), Order of Omega (Greek Leadership), Phi Delta Kappa (Education), Phi Delta Chi (Pharmacy), Phi Lambda Sigma (Pharmacy), Phi Lambda Upsilon (Chemistry), Phi Mu Alpha (Music), Phi Psi (Textiles), Phi Zeta (Veterinary Medicine), Pi Alpha Xi (Horticulture), Pi Lambda Upsilon (Chemistry), Phi Mu Epsilon (Mathematics), Pi Sigma Epsilon (Marketing), Semper Fidelis (Marine Corps ROTC), Sigma Alpha Iota (Music), Sigma Delta Chi (Journalism), Sigma Gamma Epsilon (Earth Sciences), Sigma Lambda Chi (Building Construction), Sigma Theta Tau (Nursing), Sigma Xi (Scientific Research), Society for Technical Communication (Liberal Arts), Steerage (Navy ROTC), Tau Beta Sigma (Band), Upsilon Pi Epsilon (Computer Science).

Service Learning & Student Engagement

Auburn University has a long history of service to the community as part of its land-grant mission of outreach. The value of public service is also emphasized in the Auburn Creed. Service engagement is one of Auburn’s strategic objectives for enhancing students’ academic experience, and it is required for many courses of study. Students may engage in organized outreach activities over their academic career at Auburn, through a variety of curricular, co-curricular, and extracurricular services experiences.

Service engagement enhances academic study and provides opportunities for personal and professional growth, while making a difference in the surrounding community. Engagement also builds appreciation for collaboration and cooperation by working with community partners in a service environment. Students may participate in public service activities through formal service-learning courses and internships that have been established in the university curriculum. Many majors require service as a component of disciplinary study. Students can also fulfill their personal service interests through student organizations, volunteerism in campus service projects, or direct engagement with community agencies.

Students can access information on service learning and service opportunities through AUBURNSERVES, an on-line network hosted by the university’s engagement office, the Office of Public Service. AUBURNSERVES is a collaboration of campus partners including University Outreach, student organizations, learning communities, and academic programs in the schools and colleges, and more than 175 non-profit and community agencies in the east Alabama area and across the state. AUBURNSERVES offers students and their faculty mentors contact information for a wide range of organized service options available through these campus and community partners. The network also provides online resources for managing and documenting service projects.

For more information on student engagement and service learning at Auburn University, and to access the AUBURNSERVES network, visit www.auburnserves.com, or contact the Office of Public Service at (334) 844-5117.

The Honors College

The Honors College (HC) at Auburn University offers a select cohort of high-ability students a unique academic experience designed to provide many of the advantages of a small college in addition to the myriad opportunities available at a large and diverse research university. Because of their academic potential, Honors College students have access to a more academically challenging set of courses and programs. Due to their rigorous Honors-level courses, access to graduate courses, specialized advising, and regular exposure to diverse social and co-curricular programs, Honors College students have closer connections to faculty and with other students, providing a sense of community and identity within the larger university context.

Eligibility

Students may gain admission to the Honors College as an entering freshman based on ACT/SAT scores (29/1290 targeted minimum), high school GPA (3.85 minimum), an application essay, and a record of leadership and service. Students already enrolled at Auburn having a 3.4 unadjusted GPA may also be considered for admission.

Curriculum

The Honors curriculum provides Honors College students the opportunity for challenging scholarly courses across the university and within their disciplines, culminating in a sustained, in-depth experience in their major fields of study.

The two Honors College graduation distinctions, University Honors Scholar and Honors Scholar, are conferred at the time of graduation and printed on students’ diplomas and transcripts.

University Honors Scholar

To earn the designation University Honors Scholar, students are required to complete a minimum of 30 hours of Honors College courses, including a minimum of:
• 3 hours of Honors Participation Courses, AND
• 6 hours of coursework identified as Senior Year Experiences.

Students must also complete their disciplinary requirements and have a minimum 3.4 cumulative unadjusted Auburn GPA at the time of graduation.

**Honors Scholar**

To earn the designation *Honors Scholar*, students are required to complete a minimum of 24 hours of Honors College coursework, including a minimum of:

• 3 hours of Honors Participation Courses.

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

**OR**

To earn the designation *Honors Scholar*, students are required to complete a minimum of 7 hours of Honors coursework, including:

• 6 hours of Honors Research/Honors Thesis/Honors Special Topics or 6 hours of graduate level courses in the major field of study at the 6000 or 7000 level, AND
• 1 hour of an Honors Participation course.

Students must also complete their disciplinary requirements and have a minimum 3.2 cumulative unadjusted Auburn GPA at the time of graduation.

**Honors Course Options**

The Honors College curriculum is designed to give students flexibility with their choice of Honors courses in order to fulfill their diverse goals, needs, and interests. The Honors College offers students course work that fall into the following general areas:

**Honors Academic Courses**

• Honors University Core courses
• Honors Departmental courses
• Honors Study and Travel courses (maximum of 1)
• Honors Seminars (maximum of 2)
• Honors Research Seminar (maximum of 2)
• Honors Contract courses

**Honors Participation Courses**

• Honors Freshmen Exploration (one-time enrollment as a first-year student)
• Honors Lyceum (maximum of 2)
• Honors Book Club (maximum of 2)
• Honors Forum (maximum of 3)

**Honors Senior Year Experiences**

• Honors Research
• Honors Thesis
• Honors Special Topics
• Honors Contract courses in the major field of study at the 4000-5000 level
• Graduate-level courses in the major field of study (maximum of 12 hours)

**Honors Business Minor**

The Honors Business minor will consist of the five 3-hour courses below. Four of the five courses must be taken at the honors level to successfully complete the minor. The minor is limited to students in the Honors College.
### Policies

A grade of “C” or better in Honors courses is required to earn Honors College credit.

In order to remain in good standing as a member of the Honors College, students must meet the following minimum criteria:

1. Students are required to maintain satisfactory progress in completing the requirements of the Honors curriculum. Satisfactory progress is defined by attaining the following minimums by the end of the specified academic year:
   - First year: 7 Honors hours
   - Second year: 14 Honors hours
   - Third year: 21 Honors hours

2. First-year students must attain a minimum of a 3.0 cumulative unadjusted Auburn GPA and second, third, and fourth-year students must maintain a minimum of 3.2 cumulative unadjusted Auburn GPA. A student whose GPA falls below the minimum is given one semester to correct the deficiency or be suspended from the Honors College.

3. All first-year students in the Honors College must meet with an Honors Academic Advisor and submit a Plan of Study prior to registration for spring courses. Any changes to the Plan of Study should be done at a meeting with an Honors College Advisor.

4. Second, third, and fourth-year students must meet with an Honors Academic Advisor at least once a year to ensure retention and understanding of the program and to confirm progress being made toward the completion of the Honors requirements.

5. Students who do not successfully maintain good standing (Honors course progression, GPA, meeting at least once a year with their Honors advisor, and/or submission of the Plan of Study) will be suspended from the Honors College. Students may be reinstated upon attaining the minimum GPA and/or providing the Honors College with an updated Plan of Study for Honors courses. It is the student’s responsibility to notify the College when good standing has been attained.

6. Students meeting all of the requirements of the Auburn University Honors College graduate as University Honors Scholars. Students earning a second baccalaureate degree must complete an additional 30 Honors credit hours in order to earn the University Honors Scholar distinction on the second degree.

7. Any scholarships awarded by the Honors College are contingent upon maintaining membership in good standing in the Honors College. Suspension from the Honors College will result in a loss of Honors scholarship funding.

### Honors College Graduation Distinctions

After completing the requirements of the Honors College curriculum, students graduate with a special designation that is noted on their diploma and transcript.

- To graduate as a University Honors Scholar, students must complete all of the University Honors Scholar requirements, the requirements for their disciplines, and have a minimum cumulative unadjusted Auburn GPA of 3.4.

- To graduate as an Honors Scholar, students must complete all of the Honors Scholar requirements, the requirements for their discipline, and have a minimum cumulative unadjusted Auburn GPA of 3.2.

### Student Records

#### Confidentiality of Student Records

The university recognizes that the maintenance of student information and educational records is necessary and vital to assist the student’s education and development and to provide opportunities for university research and policy formulation. The university recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained.
The university will furnish annual notification to students of their right to inspect and review their educational records; the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the university decline to amend such records. This annual notice will be published in the Auburn University Bulletin and an electronic notification is sent to each active Auburn student.

The following guidelines have been developed to ensure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the university. Classification as a student in one component unit of the university (e.g., an undergraduate program) does not imply that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).

**Student Access to Records**

Auburn University’s permanent student education record consists of one or more of the following: the official transcript of grades, competency evaluations, and any narrative evaluations. This is in accordance with guidelines established by the American Association of Collegiate Registrars and Admissions Officers and the State of Alabama policies on Retention of Records.

Students have the right to be provided a list of the type of educational records maintained by the university which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a response from the university to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to Jan. 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to instructional, supervisory or administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. A physician or appropriate professional of the student’s choice may review these records.

**Procedures for Access**

The Office of the Registrar has a complete list of educational records maintained by the university which students may obtain. Students should contact the appropriate office to inspect and review their records. An office may require that a university official be present when a student inspects and reviews his or her educational records. Any questions concerning a student’s access to records should be directed to the registrar.

**Amending Educational Records**

Students may request that any information contained in their educational records which they consider to be inaccurate, misleading, or in violation of their privacy or other rights be amended or deleted from the records. (A grade or other academic scores may not be amended, except that the accuracy of recording the information may be challenged.)

Students who request that information in their records be amended should first direct their request to the official with primary responsibility for the information on the record. If the matter is not resolved to their satisfaction, students should direct their requests to the official’s dean or division head. If the matter is not resolved to their satisfaction, they may request a formal hearing.

**Right to a Formal Hearing and Procedures for Decision**

Students may request formal hearings to challenge information contained in their educational records. The hearing will be held in a reasonable time (not to exceed 45 days) and in a reasonable place. Students may be assisted or represented by persons of their choice, including an attorney, at the expense of the student, and shall be afforded a full and fair opportunity to present evidence relevant to the issue(s).
Students or their representative should request the hearing in writing and should specifically identify the information they seek to have amended. The request should be directed to the Office of the Provost/Vice President for Academic Affairs.

The Office of the Provost/Vice President for Academic Affairs will conduct the hearing and render a decision within a reasonable period of time after the conclusion of the hearing and the decision shall be based solely upon the evidence presented at the hearing. The student shall be notified in writing of the reason(s) for the decision and given a summary of the evidence.

If the decision is that the information in the student’s educational records is inaccurate, misleading or in violation of his rights and privacy, the statement(s) will be corrected or expunged from the student's records.

If the decision is that the information is not inaccurate, misleading, or in violation of the privacy or other rights of the student and that the information or parts thereof are to remain in the student’s educational records, the student shall be notified and given the right to enter a statement in the records setting forth any reason for disagreeing with the decision of the Office of the Provost/Vice President for Academic Affairs. This statement shall be maintained in the records as long as the record or contested portion thereof is maintained, and if the contested educational record or contested portion thereof is disclosed by Auburn University to any party, the student's explanation shall also be disclosed to that party.

The Secretary of Education has established a review board to receive complaints regarding violation of student's rights. Students wishing to file a complaint directly to the review board should write to the Family Policy and Regulations Office, Department of Education, Washington, D.C. 20202. Detailed procedures for this complaint procedure are listed under section 99.63 of the regulations issued by the Secretary and will be furnished upon request by the registrar, Auburn University.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act, (34 CFR Part 99), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

**Release of Directory Information**

The university may release directory information without the student’s written consent. Directory information consists of student’s complete name; local address and associated telephone number; place of birth; parent/spouse name, address and associated telephone number; mailing address and associated telephone number; E-mail address; photographs, video or other electronic image; participation in recognized activities and sports; weight and height of members of athletic teams; dates of attendance; enrollment time status (full or part time); degrees and awards received; and most recent previous educational agency or institution attended.

A student may deny the release of directory information by completing an Address Change/Information restriction request form available in the Office of the Registrar, Langdon Hall. Students may also restrict directory information on TigerI.

To deny the release of information regarding participation in recognized activities the student must notify the vice president for Student Affairs and the student’s academic dean in writing. To deny the release of athletic information, the student must notify the director of Athletics in writing. A former student, one who is not in attendance, must contact the appropriate offices to deny the release of information.

**Release of Educational Records**

The university will release a student’s educational record(s) upon the student’s written request. The student must:

1. Specify the records to be disclosed.
2. Include the purpose or purposes of the disclosure.
3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is university policy to furnish single copies of a student’s record at no charge.

The university may release student's educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Auburn University, and other agents acting on behalf of the university. If university officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest. Auburn University has designated the National Student Clearinghouse as a university official.
2. Officials of another school in which the student intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities,
and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to Nov. 19, 1974.

4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.

5. Organizations conducting studies for, or on behalf of, the university or its agencies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.

6. Accrediting organizations to carry out their accrediting functions.

7. Parents of a dependent student as defined in section 152 of the Internal Revenue Code of 1954. University officials may release educational records to parents on the basis of a written documentation from the parent that the student is a dependent as defined under the Code and there is reasonable notification of the student regarding the request.

8. A court of law to comply with a judicial order or lawfully issued subpoena with the understanding that the student will be notified in advance insofar as possible.

9. Appropriate parties to protect the health and safety of the student or other individuals in emergencies with the understanding that only information essential to the emergency situation will be released, that information will be released only to a party who would be in a position to deal with the emergency, and that the student will be notified insofar as possible of the information released, the purpose for the release, and to whom the information was released.

No personal information on a student will be released without a statement from the university to the party receiving the information that no third party is to have access to such information without the written consent of the student.

Each office with educational records will maintain a record of each request and disclosure of personally identifiable information from the educational records of a student except for information requested in writing by the student, information released to the student or the student’s parents, directory information, and information released to university officials and teachers who have a legitimate educational interest in the records. The student may inspect the record of requests, disclosures and the legitimate interests of parties requesting or obtaining information in the appropriate university office.

Non-Academic Policies

The statements set forth in this Bulletin are for informational purposes only and should not be construed as the basis of a contract between a student and Auburn University.

While the provisions of the Bulletin will ordinarily be applied as stated, Auburn University reserves the right to change any provision listed in this Bulletin, including but not limited to academic requirements for graduation, without actual notice to individual students. Every effort will be made to keep students advised of any such changes. Information on changes will be available in the Registrar’s Office and/or the dean’s office. It is important that each student be aware of his or her individual responsibility to keep apprised of current graduation requirements for the student’s respective degree program.

Civil Rights Compliance

Auburn University is an equal opportunity educational institution and operates without regard to race, sex, color, age, religion, national origin, disability or veteran status. The university complies with the regulations of Titles VI and VII of the Civil Rights Act of 1964, the Age Discrimination Act, the Age Discrimination in Employment Act, Title IX of the Education Amendments of 1972, Sections 503/504 of the Rehabilitation Act of 1973, the Vietnam Era Veterans Readjustment Assistance Act, the Americans with Disabilities Act of 1990, the Equal Pay Act and the Pregnancy Discrimination Act. As a matter of policy, Auburn University prohibits sexual orientation discrimination in matters regarding academic acceptance, academic performance, or dismissal, as well as employment decisions regarding hiring, promotion, and termination. Anyone wishing to file a complaint covered by the above should go to the Affirmative Action Office in 317 James E. Foy Hall, or call (334) 844-4794 between 7:45 a.m. and 4:45 p.m., Monday through Friday.

Equal Employment Opportunities

It is the policy of Auburn University to provide equal employment opportunities for all individuals without regard to race, sex, age, religion, color, national origin, disability or veteran status. Sexual orientation discrimination in employment decisions regarding hiring, promotion, and termination is also prohibited. Anyone wishing to file a complaint covered by the above should go to the Affirmative Action/EOO Office in 317 James E. Foy Hall, or call (334) 844-4794 between 7:45 a.m. and 4:45 p.m., Monday through Friday.
Prohibited Harassment

Harassment based on protected class constitutes a violation of university policy and may also constitute a violation of civil rights laws. Such harassment will not be tolerated by Auburn University. It subverts the mission of the university and threatens the careers, educational experience, and well-being of students, faculty, and staff. Prohibited harassment includes harassment based on race, sex, age, religion, color, national origin, disability, sexual orientation, and veteran status.

Sexual harassment is a form of sex discrimination and is prohibited by federal regulation. Sexual harassment in academic settings and in the employment area where students are involved is defined as unwelcome sexual advances, requests for sexual favors, and other verbal, graphic, or physical conduct of a sexual nature when (1) submission to such conduct may be explicitly or implicitly a term or condition of a student’s academic success or employment, (2) submission to or rejection of such conduct may be used as the basis for employment or academic decisions affecting the student and the student’s total educational and/or work experience, or (3) such conduct has the purpose or effect of substantially interfering with a student’s employment or academic performance or creates an intimidating, hostile, or offensive work or educational environment that is severe, pervasive, and objectively offensive. Students who wish to make a complaint of sexual or other prohibited harassment or discriminatory conduct should contact the Office of Affirmative Action/Equal Opportunity in 317 James E. Foy Hall, or call (334) 844-4794 between 7:45 a.m. and 4:45 p.m., Monday through Friday.

Smoking

Smoking of tobacco in AU facilities and vehicles is prohibited except where signs are posted indicating otherwise.

Weapons

Auburn University prohibits possession, use and transportation on university properties of any dangerous or potentially dangerous weapons, including fixed-blade knives, shotguns, rifles, handguns, bows and arrows, crossbows, brass knuckles, air guns, swords and fireworks or explosive devices.

Graduate School General Policies

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Points of Contact

GEORGE T. FLOWERS, Dean
MARIA WITTE, Associate Dean

The Graduate School is open 7:45-11:45 a.m. and 12:45-4:45 p.m., Monday through Friday.
Telephone: (334) 844-4700. Fax: (334) 844-4348.
E-mail: gradadm@auburn.edu
Web: www.grad.auburn.edu
Mailing Address: 106 Hargis Hall, Auburn, AL 36849-5122.

Calendar

The university operates on the semester system. The Graduate School calendar at the beginning of this Bulletin is also available at the Graduate School and contains the dates of various important deadlines. It should be followed carefully.

Graduate Study and University Employees

An Auburn University faculty member or employee may pursue a graduate degree with the approval of the head or chair of the employing department and the dean of the employing school or college. Inquiries should be made to the dean of the Graduate School.

Academic Programs and Curricula

An academic program is an organized plan of study which, when successfully completed, is recognized by the awarding of a degree. It includes all courses and related activities required by the university and those required by a school, college, department or interdisciplinary program. At Auburn University, the minimum number of hours in a doctoral program is 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses 7990 and 8990 and must include at least 10 hours of 8990. Some departments require more than 60 semester hours and requirements may vary according to a student's background and interest. The minimum number of hours in a master's degree program is 30 semester hours of courses, 6000-level and above.

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

A graduate minor is an organized sequence or cluster of courses offered by a department or interdepartmental program. Not all departments or interdepartmental programs offer a minor. At Auburn University, the term graduate minor designates those sequences or clusters of courses that have been formally proposed as minors by departments or interdepartmental programs and approved by the Graduate Council. The minimum number of semester hours in a minor is nine, all of which must be in courses at the 6000-level or above and must be completed at Auburn University.

Accelerated Bachelor’s/Master’s Degree Plan

The Accelerated Bachelor’s/Master’s Degree Plan allows Auburn students in some academic programs to count up to nine approved hours (in a 30-35-hour master’s program) or 12 approved hours (in a 36-hour or greater master’s program) toward both a bachelor’s and a master’s degrees. These hours must be at the graduate level.

To be considered for admission, students must have completed at least 45 credit hours and no more than 96 credit hours, including advanced placement credits. Transfer students must have completed at least 24 credit hours at Auburn University. All students must have a cumulative GPA of 3.0/4.0 or higher on course work completed at Auburn. Individual graduate programs may set higher standards or require additional criteria for admission to the accelerated degree program.
Students must complete an “Application for Admission to the Accelerated Bachelor’s/Master’s Degree Plan,” and work with a graduate advisor in the degree-granting department to complete an approved Plan of Study, including: a) a list of the courses that count toward both the undergraduate and graduate degree; and b) the projected dates for the completion of the bachelor’s and master’s degrees. Students in the Honors College remain eligible to graduate with Honors while participating, and should consult with an Honors advisor.

Students must maintain a cumulative GPA (CGPA) of 3.0/4.0 or higher on Auburn University coursework; if the student completes the bachelor’s degree requirements with a cumulative GPA of less than 3.0/4.0 at Auburn, the student cannot double-count credit hours and is terminated from the program.

Students must apply for admission to the Graduate School by the prescribed deadline. Admission to the Accelerated Degree Plan does not guarantee admission to the Graduate School. Students cannot opt to bypass the bachelor’s degree.

Students may withdraw voluntarily from the Accelerated Plan at any time. Students must notify, in writing, the graduate program officer and the coordinator/director of undergraduate studies in their respective departments. Students who withdraw from the program voluntarily or because they do not meet program requirements will not be awarded graduate credit for double-counted courses. Students may contact their major program to see if it participates or visit the Graduate School’s website for a listing of current ABM plans: http://grad.auburn.edu/abm.html.

**Graduate Study and University Employees**

An Auburn University faculty member or employee may pursue a graduate degree with the approval of the head or chair of the employing department and the dean of the employing school or college. Inquiries should be made to the dean of the Graduate School.

**Class Attendance**

Students are expected to attend all their scheduled classes. College work requires regular class attendance as well as careful preparation. Specific policies regarding class attendance are the prerogative of individual faculty members. Faculty shall inform each class in writing at the beginning of the course regarding the effect of absences on the determination of grades.

The student is expected to carry out all assigned work and to take examinations at the class period designated by the instructor. Failure to carry out these assignments or to take examinations at the designated times may result in an appropriate reduction in grade, except as provided below.

Instructors shall determine the policy regarding grading which they feel is best for the course. This policy shall be presented to the class, in writing, at the beginning of the term and will govern the actions of the instructor in the course.

Arrangement to make up missed major examinations (e.g. hour exams, midterm exams) due to properly authorized excused absences (as defined by the Student Policy eHandbook) shall be initiated by the student within one week from the end of the period of the excused absence. Normally, a make-up exam shall occur within two weeks from the time that the student initiates arrangements for it. Instructors are encouraged to refrain from giving make-up examinations during the last three days prior to the first day of final examinations. The format of make-up exams and opportunities for students to make up work other than major examinations are at the discretion of the instructor whose make-up policies should be stated in writing at the beginning of the term. Instructors are expected to excuse absences for:

1. Illness of the student or serious illness of a member of the student’s immediate family. The instructor may request appropriate verification.
2. The death of a member of the student’s immediate family. The instructor may request appropriate verification.
3. Trips for members of the student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to such absences, but in no case more than one week after the absence. Instructors may request formal notification from appropriate university personnel to document the student’s participation in such trips.
4. Religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays.
5. Subpoena for court appearance.
6. Any other reason the instructor deems appropriate.

If the instructor does not appear within 20 minutes after the designated class hour, it may be assumed the class is canceled.
It is university policy that all classes will meet as scheduled on the last day before and the first day after holiday periods designated by the university.

Unresolved problems regarding class attendance or procedures should be referred to the University Student Academic Grievance Committee.

**Examinations**

Examinations are classified as (1) final examinations at the end of each term; (2) special examinations; and (3) other course examinations as determined by the instructor.

Announced tests in graduate courses will be administered at a regularly scheduled meeting of the course. Exceptions to this regulation may arise in specialized courses requiring performance or oral tests, and in multiple-sectioned laboratory classes requiring practical laboratory tests. Faculty having sound reasons for scheduling tests at times other than regularly scheduled meeting times are to obtain approval from the department head prior to the beginning of the term, and are to present a written schedule of these changes to the class during the first few days of the term. Rescheduled tests are not to interfere with other scheduled academic endeavors of the students involved, and an appropriate reduction in regularly scheduled class time is to be given to compensate for the rescheduled test period.

**Student Academic Grievance Policy**

The Student Academic Grievance policy, which appears in full in the Student Policy eHandbook, is designed to resolve academic grievances of students which result from actions of faculty or administrators.

**Grades**

**Grade Definitions**

Final passing grades are A, superior; B, good; C, acceptable; D, passing; and S, satisfactory. Final failing grades are F, failure; FA, failure for excessive absences; U, unsatisfactory; NR, no grade reported; and WF, officially dropped with permission of the student’s dean but failing at time of withdrawal and is calculated into the GPA. (For the definition of W, see the following section on Grade Assignment for Class Withdrawal.)

A TD, thesis and dissertation research credit, is assigned to courses 7990 Research and Thesis and 8990 Research and Dissertation.

A grade of IP (In Progress) is used by professional programs, specifically Pharmacy and Veterinary Medicine, for those courses that extend beyond the end of the regular term. Students who are making progress toward completion of their work but have not completed all course requirements may receive the IP grade. The IP grade is not calculated in the GPA until the grade is cleared.

Grades of SA and SN may be assigned in certain specialized classes in which progress to the next level of a program depends on performance in the class. In such cases, a grade of SA in a particular course may be required for advancement. A grade of SN will give the student appropriate earned credit, but will not allow the student to advance in that program.

An NR is assigned systematically when the instructor does not assign a letter grade.

**Faculty Policy on Assigning Grades of Incomplete (excludes Distance Education courses)**

Effective Fall 2007, student (or appropriate representative) must contact the instructor in writing prior to the submission of final course grades to request a grade of Incomplete due to documented reason (illness/death in family/etc.).

If a student does not request an IN, the instructor should grade the student based upon the percentage of course work completed to date and using a 0 for any exams/assignments not completed.

To be eligible for a grade of IN, the student must have completed (and have passed) more than half of all class assignments for the semester or summer term.

The instructor must fill out the Incomplete Grade - Memorandum of Understanding form, indicating:

- reason for the IN,
- percent of course work currently completed at the time of submission and the grade average on that work,
- detailed information about the additional work needed to complete the course,
- timeline to complete the work (6 months maximum; preferably sooner), and
• grade the student should be assigned if the additional work is NOT completed by the deadline set for the completion of the work; the missing work is calculated as a 0.

Grades of Incomplete automatically become the grade identified by the instructor, if not cleared within 6 months.

If the instructor assigning a grade of IN leaves Auburn University, the Department Head should make a reasonable attempt to contact the former instructor and then assign a grade based upon the work presented by the student and the information provided on the Incomplete Grade - Memorandum of Understanding form.

Once an IN has been changed to another grade it may not be changed, in the future, to a different grade without approval of the provost.

Documentation of class work must be maintained by the student; the Incomplete Grade-Memorandum of Understanding form must be maintained by the student, faculty and the Office of the Registrar. For instructors who submit the IN Grade forms to the Office of the Registrar prior to course grades being rolled to academic history, the IN will be reflected on the electronic grade roster; faculty will be unable to change that grade on the electronic grade roster.

Instructors should NOT enter a grade on the electronic course roster for those students who are to be assigned the IN grade but leave the grade blank. The system will automatically convert blanks to NR. Once the IN Grade form is received by the Office of the Registrar, that office will convert the NR to the IN grade.

It is the responsibility of the instructor to send a copy of the Incomplete Grade - Memorandum of Understanding form to the Office of the Registrar.

When the student has completed the outstanding work, it is the responsibility of the instructor to initiate the change of grade form and send it to the appropriate department/dean’s office for additional signatures and transmittal to the Office of the Registrar.

These policies apply to all students in undergraduate and graduate courses.

**Faculty Policy on Grade Changes (includes NR; Excludes IN)**

Grades should be accurate when posted.

• Any change of letter grades (A, B, C, D, F, S, U, FA, and NR) should be made only in extraordinary situations.
• Any grade changes must be completed within 6 months of completion of the course.
• Any grade changes outside of this timeframe must also be approved by the provost.
• A final grade may be changed only by the written request of the instructor, with approval of the department head and dean, submitted to the registrar.
• A grade of F and additional penalties may be assigned for academic dishonesty. See the Student Academic Honesty Code section in the Tiger Cub for further information.

**Grade Assignment For Class Withdrawals**

A student who withdraws from a course prior to the 15th class day during a semester (or the fifth class day of summer term) will have no grade assignment; however, from the 15th class day during a semester (or the fifth class day of summer term) through mid-semester (mid-term) a W (Withdrawn Passing) grade will be recorded for the course. A course may be dropped with a W after mid-semester only under unusual conditions and only with permission from the student's dean. When approval for dropping the course under such circumstances is granted, a W may be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise, a grade of WF (Withdrawn Failing) is assigned. All failing grades are calculated into GPA as grades of F.

**Grade Average and Quality Point Computation**

A 4.0 grade scale is used. An A equals 4.0; B, 3.0; C, 2.0; D, 1.0; and F equals 0.0. Only course work attempted at Auburn University is used in determining the grade report average and continuation-in-residence requirements. S and U grades do not enter into grade-point computations.

**S-U Grading**

Grades of S (Satisfactory) and U (Unsatisfactory) may be assigned only to courses approved to be graded S-U, and courses elected under the S-U option.

A graduate student may enroll in undergraduate courses, except for 6000-level courses taken for graduate credit, under the S-U option on the major professor’s recommendation.
Students are not permitted to change from S-U grading to conventional grading or vice versa after the fifteenth class day of the fall and spring terms or the fifth class day of any summer term.

**Grade Reports**
Grade information may be obtained via tigeri at the Auburn University homepage, www.auburn.edu.

**Credit for Directed Studies**
The university policy on directed studies was approved effective August 2006. Auburn University offers directed readings courses, also referred to as special problems courses or independent studies, in accordance with established policy.

Directed readings courses allow in-depth study of a particular subject by a student who is well into her or his major and, in extraordinary circumstances, accommodate scheduling issues when no other remedy is available.

Directed readings courses should not normally be used as replacements for required courses or as a solution to routine scheduling problems.

Approval to Teach Course - A standard **Approval for Independent Study/Directed Readings Form**, available through the Office of the Provost website, will specify the necessary approvals and serve as the vehicle for obtaining them.

**Classified or Proprietary Research**
No thesis or dissertation should be based exclusively on a proprietary or classified research project, nor should a thesis or dissertation include proprietary or classified information. Any graduate student and advisor engaged in such research should identify an alternative topic for the thesis or dissertation. Should a thesis or dissertation include such information, the document must be rewritten with offending material excised.

**Research Involving Humans**
Auburn University established the Institutional Review Board for the Use of Human Subjects in Research (IRB) to evaluate research for compliance with the guidelines and policies of the U.S. Department of Health and Human Services, the Public Health Service, the Food and Drug Administration and other federal, state and local regulations. All research using human subjects – whether it is conducted by faculty, staff or students – must be approved in advance by the IRB, regardless of the source of funding, lack of funding or any other consideration. Research involving human subjects not approved in advance may be disallowed and may incur severe penalties for non-compliance with institutional policy. Information and review forms may be obtained from the Administrator for Special Programs, 307D Samford Hall, (334) 844-5966.

**Activities Involving Animals**
Auburn University’s Animal Resources Program requires compliance with the Animal Welfare Assurance negotiated with the Office of Protection from Research Risks/National Institutes of Health (OPRR/NIH). A major part of that Assurance involves the Institutional Animal Care and Use Committee (IACUC) that ensures compliance with the Assurance, the policies of the U.S. Department of Health and Human Services, the U.S. Department of Agriculture and all other federal, state and local regulations concerning care, treatment and use of animals. All activities, whether teaching, research, production or display of animals, and whether or not the activity is funded, must be approved in advance by the committee. The use of animals for any purpose that is not approved in advance by the IACUC may involve severe penalties for non-compliance with institutional policy and could jeopardize the university’s Animal Welfare Assurance filed with the OPRR and the NIH. Information may be obtained from the Director of Animal Resources, (334) 844-5667.

**Academic Engagement**
Any graduate student enrolled in a degree program culminating in a thesis or dissertation will directly engage in research and/or creative scholarship with the major professor, will have access to the tools needed for the research/scholarly activity, will be immersed in the culture of graduate education, will engage in the professional activities of the discipline, and will complete the research/scholarly activity in a reasonable period of time.

**Academic Integrity and Student Conduct**
Graduate students at Auburn University are expected to adhere to established standards of academic integrity, personal conduct, and professional conduct. The primary code of conduct is detailed in the Auburn University Code of Student Discipline.
Academic units may also define and publish standards appropriate to their disciplines as well as describing the processes for resolving disputes and appealing decisions. Students found in violation of policies defining academic integrity, personal conduct, and professional conduct may be subject to dismissal from the Graduate School.

AUETD Publication and Access Policy

AUETD is an online database of electronic theses and dissertations (ETDs) submitted by Auburn University students in partial fulfillment of the university’s graduate degree requirements. Its purpose is to make Auburn University’s ETDs widely available to the public and easy to find online. The ETDs in the AUETD database are indexed by Google and other internet search engines and may appear in search results for those search engines. Graduate students who want to limit access temporarily to the full text of their ETD must choose one of the limited access options during the ETD submission process (see options below). Students who choose to limit access to their ETD should be aware that basic bibliographical information about their ETD (including the abstract) will appear in the AUETD database and that the full text of their ETD will become publicly available immediately upon the expiration of the time limit set for limited access. Students who have questions or concerns about this policy are encouraged to contact Clint Lovelace at (334) 844-4112 BEFORE submitting their ETD to AUETD.

Limited Access Options

1. Unlimited access: Publication in AUETD with unlimited access is immediate and irreversible. Once a thesis/dissertation is published in AUETD, access via the world-wide-web may not be denied or reversed.

2. Limited access: Upon request, students may limit access to their thesis/dissertation only to users with a valid AU userid and password for a limited time period. Upon request, limited access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.

3. Withheld access: Upon request, students may withhold access to their thesis/dissertation to all users for a limited time period. This means that all users, including the students and their advisory committees are denied access to the thesis/dissertation in AUETD. Upon request, withheld access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.

4. Copyright. If students plan to copyright some of all of their thesis/dissertation, these plans should be discussed in advance with the major professor, especially if the thesis/dissertation includes shared data.

Online Offerings of Thesis and Dissertation Course Work

Recognizing the importance of global research and professional opportunities, international travel, and the wide-spread availability of technologies that bring remote research and scholarly partners together, the Graduate School allows thesis and dissertation coursework to be completed by means of online education in approved courses: Research and Thesis (7996) and Research and Dissertation (8996). Graduate students engaged in on-campus study must not be enrolled in Research and Thesis (7996) or Research and Dissertation (8996). At the time of enrollment, the major professor certifies compliance with this requirement.

General Regulations

Regulations listed here represent the minimums of the Graduate School. However, individual departments may impose more stringent requirements and students will be governed by them.

Exceptions to Graduate School Policies

Exceptions may be made to policies of the Graduate School under special circumstances. A person wishing to request an exception should write a letter to the dean of the Graduate School stating the nature of the request and the reasons for it. If a student is making the request, the letter should be submitted first to the major professor, who will write a letter of recommendation. Both letters go to the department head. If a member of the faculty is making the request, the letter goes to the department head, who will write a letter of recommendation. All letters go to the associated College/School dean for approval. Letters and comments then are forwarded to the dean of the Graduate School. A request for an extension of time to meet degree requirements must be justified. It must be accompanied by a proposed schedule for completion and assurance that the student is current in subjects included in the plan of study.

Graduate Certificate Definition

Graduate certificate programs constitute an integrated curriculum, but not necessarily one aligned with a specific academic program. They may exist within programs, bridge programs or offer content widely useable across programs. Graduate certificate programs
Graduate certificate programs pertain to graduate students, whether degree seeking or non-degree seeking. A graduate certificate is distinguished from graduate minors in two primary ways. First, graduate minors are intended exclusively for degree seeking graduate students. Graduate certificates may be directed to both degree seeking and non-degree seeking students. Second, there are limits to the number of course credits taken in pursuit of graduate minors that may be applied to a graduate degree (e.g., masters degrees require 21/30 hours to be in the major discipline). The limiting factor in the application of certificate course credits to graduate degrees is departmental policy or advisory committee recommendations. As an example, if a department developed a certificate program intended only for non-degree seeking students, that department could prevent those certificate courses from applying to a degree. However, in the absence of departmental policy, and with the approval of a student's advisory committee, both degree seeking and non-degree seeking students (if they later change status to degree seeking) may include all certificate-related courses toward degree requirements.

When new graduate certificates are proposed, they undergo the full process of curriculum review. This same process applies regardless of delivery method (i.e., on campus and distance). Special requirements for applicants may be negotiated between the certificate proposing program and the graduate school at the time the program is proposed. Consistent with Graduate School policy related to the Masters and Specialist degrees, all requirements for a graduate certificate must be accomplished within 6 years unless departmental criteria for the certificate necessitate a longer time. Certificate Programs that require an exception to this 6-year time limit must be approved by the Graduate Council. Not only must the content of the proposed certificate be appropriate, but the availability of a viable group of graduate faculty to teach the courses in the certificate must be documented. Proposals for graduate certificate programs must identify a specific person who will serve as coordinator. Certificates that bridge departments must have a home department to which all certificate applicants apply. But each affiliated department must also designate a coordinator. Students who fulfill all requirements for a graduate certificate will have the certificate noted on their transcript when the Graduate School receives a memo signed by the certificate coordinator documenting the successful completion of all certificate requirements.

Graduate certificates are to be differentiated from professional development certificates. No comprehensive definition of the latter is offered here, however, in brief, completion of a professional development certificate does not require admission to the Graduate School and is awarded based on participation in non-credit work. The definition of graduate certificate does not limit the ability of departments or other units from defining, implementing, or awarding professional development certificates. Professional development certificates are not subject to the Auburn University curriculum process, nor are their achievement noted on Auburn University transcripts.

Graduate Curriculum Model Change

When a graduate curriculum model is changed, the changes apply only to students who matriculate after the approval of the changes and to currently enrolled students who voluntarily choose to complete the requirements of the new curriculum model. In no case, for students who are continuously enrolled, will the changed curriculum compel them to accumulate additional hours and grade points to graduate. Curriculum model changes are to be implemented at the beginning of the semester in which the largest number of new students typically enroll (fall semester for most programs). Graduate students who have not been enrolled at Auburn University for two or more semesters and who are returning to the same curriculum may be subject to different university, college, school or departmental requirements than those which existed when continuous enrollment ceased.

Institutions with Special Affiliations

By special arrangement with Florida A & M University, the Graduate School application fee is waived for students applying from this institution.

Oak Ridge Associated Universities

Auburn University has been a sponsoring institution of the Oak Ridge Associated Universities (ORAU) since 1946. ORAU is a private, not-for-profit consortium of 82 colleges and universities and a management and operating contractor for the U.S. Department of Energy (DOE) with principal offices located in Oak Ridge, Tennessee. Founded in 1946, ORAU provides and develops capabilities critical to the nation’s technology infrastructure, particularly in energy, education, health and the environment. ORAU works with and for its member institutions to help faculty and students gain access to federal research facilities; to keep members informed about opportunities for fellowship, scholarship and research appointments; and to organize research alliances among our members in areas where their collective strengths can be focused on issues of national importance.

ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for DOE. ORISE is responsible for national and international programs in science and engineering education, training and management systems, energy and environment systems and medical sciences. ORISE’s competitive programs bring students at all levels, K-12 through postgraduate, and university faculty
members into federal and private laboratories. Other ORAU activities include the sponsorship of conferences and workshops, the Visiting Scholars program and the Junior Faculty Enhancement Awards. Contact Dr. Bryan A. Chin, (334) 844-4784, for more information about ORAU programs.

Graduate Program Option Definition

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

Two-Campus Studies

A student seeking a graduate degree at Auburn University, Auburn University at Montgomery, the University of Alabama, the University of Alabama at Birmingham, or the University of Alabama at Huntsville may take up to half the course work at another of these institutions. The courses taken must be approved in advance by the student’s Advisory Committee and the respective graduate deans. All credit must be earned at the two institutions in which the student is working, and none may be transferred from another institution. Students engaged in two-campus studies are required to meet the requirements of continuous enrollment at Auburn University.

Policy on Teaching Graduate Courses

The Auburn University Handbook states, “Lecturers and senior lecturers are not eligible for graduate faculty status.” However, Lecturers and senior lecturers who otherwise meet graduate faculty criteria (level 1) for the department may be granted permission to teach graduate-level courses and/or serve on graduate student committees on an exceptions basis under the following conditions:

1. A Lecturer/Senior Lecturer desiring to teach a graduate course or serve on a graduate student committee should make a written request to the department chair.
2. If this request is acceptable to the majority of the department’s tenure and tenure track graduate faculty and chair, a memo requesting such authorization will be submitted to the Graduate Dean for review and approval.
3. Authorization may be requested for teaching only, committee service only, or both.
4. No more than one Lecturer/Senior Lecturer may serve on a graduate student committee.
5. Authorization must be requested for each semester a graduate course is to be taught by a given Lecturer/Senior Lecturer.
6. Authorization must be provided each time that a Lecturer/Senior Lecturer serves on a graduate student committee.
7. The department will provide the faculty member with resources appropriate to the graduate service being provided. What constitutes appropriate support would vary by department, but the following points would generally apply:
   a. Service on a graduate committee should not simply be added on top of current service if the Lecturer is already performing at least 5% service and has an appointment that is supposed to be 95% teaching and 5% service. If a Lecturer serves on a graduate committee, other forms of service should be reduced, or the Lecturer should receive a higher percent of his or her appointment for service.
   b. In most cases, teaching a graduate course requires being completely up-to-date with the most recent research in the field. Appropriate support might include a course release for a Lecturer teaching the course for the first time.
   c. A lecturer should not teach a graduate course as an overload class.

Student Records

Confidentiality of Student Records

The university recognizes that the maintenance of student information and educational records is necessary and vital to assist the student’s education and development and to provide opportunities for university research and policy formulation. The university recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained.

The university will furnish annual notification to students of their right to inspect and review their educational records; the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights;
and of their right to a hearing should the university decline to amend such records. This annual notice will be published in the Auburn University Bulletin and an electronic notification is sent to each active Auburn student.

The following guidelines have been developed to ensure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the university. Classification as a student in one component unit of the university (e.g., an undergraduate program) does not imply that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).

**Student Access to Records**

Auburn University’s permanent student education record consists of one or more of the following: the official transcript of grades, competency evaluations, and any narrative evaluations. This is in accordance with guidelines established by the American Association of Collegiate Registrars and Admissions Officers and the State of Alabama policies on Retention of Records.

Students have the right to be provided a list of the type of educational records maintained by the university which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a response from the university to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to Jan. 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to instructional, supervisory or administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. A physician or appropriate professional of the student’s choice may review these records.

**Procedures for Access**

The Office of the Registrar has a complete list of educational records maintained by the university which students may obtain. Students should contact the appropriate office to inspect and review their records. An office may require that a university official be present when a student inspects and reviews his or her educational records. Any questions concerning a student’s access to records should be directed to the registrar.

**Amending Educational Records**

Students may request that any information contained in their educational records which they consider to be inaccurate, misleading, or in violation of their privacy or other rights be amended or deleted from the records. (A grade or other academic scores may not be amended, except that the accuracy of recording the information may be challenged.)

Students who request that information in their records be amended should first direct their request to the official with primary responsibility for the information on the record. If the matter is not resolved to their satisfaction, students should direct their requests to the official’s dean or division head. If the matter is not resolved to their satisfaction, they may request a formal hearing.

**Right to a Formal Hearing and Procedures for Decision**

Students may request formal hearings to challenge information contained in their educational records. The hearing will be held in a reasonable time (not to exceed 45 days) and in a reasonable place. Students may be assisted or represented by persons of their choice, including an attorney, at the expense of the student, and shall be afforded a full and fair opportunity to present evidence relevant to the issue(s).
Students or their representative should request the hearing in writing and should specifically identify the information they seek to have amended. The request should be directed to the Office of the Provost/Vice President for Academic Affairs.

The Office of the Provost/Vice President for Academic Affairs will conduct the hearing and render a decision within a reasonable period of time after the conclusion of the hearing and the decision shall be based solely upon the evidence presented at the hearing. The student shall be notified in writing of the reason(s) for the decision and given a summary of the evidence.

If the decision is that the information in the student's educational records is inaccurate, misleading or in violation of his rights and privacy, the statement(s) will be corrected or expunged from the student's records.

If the decision is that the information is not inaccurate, misleading, or in violation of the privacy or other rights of the student and that the information or parts thereof are to remain in the student’s educational records, the student shall be notified and given the right to enter a statement in the records setting forth any reason for disagreeing with the decision of the Office of the Provost/Vice President for Academic Affairs. This statement shall be maintained in the records as long as the record or contested portion thereof is maintained, and if the contested educational record or contested portion thereof is disclosed by Auburn University to any party, the student’s explanation shall also be disclosed to that party.

The Secretary of Education has established a review board to receive complaints regarding violation of student’s rights. Students wishing to file a complaint directly to the review board should write to the Family Policy and Regulations Office, Department of Education, Washington, D.C. 20202. Detailed procedures for this complaint procedure are listed under section 99.63 of the regulations issued by the Secretary and will be furnished upon request by the registrar, Auburn University.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act, (34 CFR Part 99), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

**Release of Directory Information**

The university may release directory information without the student’s written consent. Directory information consists of student’s complete name; local address and associated telephone number; place of birth; parent/spouse name, address and associated telephone number; mailing address and associated telephone number; E-mail address; photographs, video or other electronic image; participation in recognized activities and sports; weight and height of members of athletic teams; dates of attendance; enrollment time status (full or part time); degrees and awards received; and most recent previous educational agency or institution attended.

A student may deny the release of directory information by completing an Address Change/Information restriction request form available in the Office of the Registrar, Langdon Hall. Students may also restrict directory information on tigeri.

To deny the release of information regarding participation in recognized activities the student must notify the vice president for Student Affairs and the student’s academic dean in writing. To deny the release of athletic information, the student must notify the director of Athletics in writing. A former student, one who is not in attendance, must contact the appropriate offices to deny the release of information.

**Release of Educational Records**

The university will release a student’s educational record(s) upon the student’s written request. The student must:

1. Specify the records to be disclosed.
2. Include the purpose or purposes of the disclosure.
3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is university policy to furnish single copies of a student’s record at no charge.

The university may release student’s educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Auburn University, and other agents acting on behalf of the university. If university officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest. Auburn University has designated the National Student Clearinghouse as a university official.
2. Officials of another school in which the student intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities,
A course before the posted term census date (15th class day in spring and fall and 5th class day in summer) will have no grade assignment and no record of having attempted the course on the transcript. Students who withdraw after census and on or before the withdrawal deadline will have a grade of W for the course recorded on the transcript. Grades of W are not used in calculating the term or cumulative GPA at Auburn University.

A course may be dropped after the withdrawal deadline only under unusual conditions and with special permission. Requests for medical withdrawals (serious physical and/or psychological illness of the student) must be verified and approved by the Office of Accessibility. A medical withdrawal is appropriate when, by recommendation of a licensed health care provider, a student cannot continue enrollment in one or more of his/her courses because of a serious physical and/or psychological condition. Because serious health conditions usually impact all courses, most requests for a medical withdrawal result in a medical resignation (see Resignation from all courses.) All other requests for withdrawals after the withdrawal deadline, based on extraordinary personal circumstances, must be approved by the student’s associate dean and subsequently by the designated representative from the Office of the Provost. When approval for dropping the course under such circumstances is granted by the Office of Accessibility or the Office of the Provost, a W may be assigned only when the instructor indicates that the student was clearly passing the course on the date of withdrawal. Otherwise, a grade of WF (Withdrawn Failing) is assigned. Grades of WF are used in calculating the term and cumulative GPA and have the same impact as a grade of F. In extraordinary situations, where it can be clearly demonstrated that a failing grade in the
class at the time of withdrawal is directly related to the medical or personal situation leading to the withdrawal, a student may request a withdrawal without grade penalty. The request for withdrawal without grade penalty must be approved by the Office of Accessibility in the case of a medical withdrawal or the student’s associate dean in the case of a personal withdrawal, and finally by the designated representative from the Office of the Provost. The Office of Accessibility or the student’s Associate Dean will notify the student’s professors and ask for any additional information about the student’s progress in the class/ classes—and to determine the student’s grade.

Resignation from all courses. Students are encouraged to contact their advisors and their academic deans before resigning. Resignations can impact financial aid, veteran's benefits, international student standing, eligibility for varsity athletics, and on-campus housing.

Students may resign without grade penalty if they resign no later than mid-semester (mid-term in the summer). As with course withdrawal, a student may resign after mid-semester (mid-term in the summer) only under unusual circumstances, such as serious illness of the student, serious illness or death of a member of the student’s immediate family, or being called to active military service. A medical resignation is appropriate when, by recommendation of a licensed health care provider, a student cannot continue enrollment in his/her courses because of a serious physical and/or psychological illness. All requests for medical resignations (serious physical and/or psychological illness of the student) must be verified and approved by the Office of Accessibility. All other requests for resignations after mid-term, based on extraordinary personal circumstances, must be approved by the student’s associate dean and subsequently by the designated representative from the Office of the Provost. The Office of Accessibility or associate dean will obtain from the student’s instructors the records of the student’s scholastic standing at the time of resignation. In the case of personal resignations after mid-semester, the associate deans will send the information to the designee from the Office of the Provost who will review the request and decide on final approval.

If on the effective date of the resignation after mid-semester (or mid-term in the summer) the student is failing in over half of the total course hours (where total course hours exclude any grades of W previously recorded for the term), the number of hours reported as failing will be assigned grades of WF and will be used in calculation of the student’s term and cumulative GPA. The hours reported as passing will be assigned grades of W and will not be counted in the term or cumulative GPA at Auburn University. If the student is passing half or more of the total course hours (excluding any grades of W previously recorded for the term), the student will receive grades of W on all course hours and these grades will not enter into the calculation of the student’s Auburn GPA. When a student is forced to resign after mid-semester, either for medical reasons or for compelling personal reasons, and when the medical condition or extraordinary personal situation can be determined to be the main factor causing scholastic deficiencies, discretionary power in waiving the scholastic penalty will rest with the Office of Accessibility in the case of medical resignations or with the Office of the Provost in the case of personal resignations. All such decisions must include input from the student’s instructors.

In all cases of resignation, if a student has been placed on academic suspension at the end of the last term in residence before the term of resignation, the student’s dean will review the grades at the time of resignation and determine whether the student will be placed on further academic suspension.

Enrollment in Terms Following a Medical Resignation. Students who plan to enroll in subsequent semesters or summer terms following a medical resignation will be required to submit medical documentation from a licensed health care provider which indicates readiness to return to an academic environment. Additionally, academic units reserve the right to request further documentation and/or other requirements specific to the student’s individual program of study. All documentation will be submitted to the Office of Accessibility and is kept confidential. A hold will be placed on the student’s registration until this documentation is submitted. If the student has already registered for the following semester, the schedule will be dropped if documentation is not submitted by a specified date and/or the student has not contacted the Office of Accessibility.

Retroactive Dating of Withdrawals and Resignations. Retroactive dating refers to establishing an effective date for withdrawal or resignation before the date that one is filling out the form, often, prior to midterm. For retroactive dating to be allowed, there must be a compelling reason that the forms were unable to be filed at the requested effective date.

Retroactive withdrawals/ resignations are most frequently initiated when a student has documentation from a health professional (doctor/ psychologist, etc.) verifying a medical condition, which is confirmed by the Office of Accessibility, and the medical condition prevented the student from withdrawing or resigning on the effective date.

When a student initiates any retroactive withdrawal/ resignation, the student’s associate dean must determine if the retroactive withdrawal/ resignation is based on a medical or non-medical justification/ explanation. If the retroactive withdrawal/ resignation is based upon a medical justification/ explanation, the associate dean will direct the student to the Office of Accessibility. The medical documentation must identify why the student was so impaired that he/she was unable to withdraw/ resign in a timely manner.
If the retroactive withdrawal/resignation is based upon a non-medical justification/explanation, the associate dean follows the procedures for all other (non-medical) withdrawals/resignations, gathering information from the instructors and submitting the documentation to the designee from the Office of the Provost. The Provost’s designee will determine why the student was unable to resign in a timely manner and if an earlier effective date is warranted.

If one or more of the student’s instructors has left Auburn University, the instructor(s) should be contacted by email, by the individual recommending the retroactive withdrawal/resignation, for information. If the faculty member does not respond, the department head/chair should respond on behalf of the faculty member.

Retroactive withdrawals/resignations should not be undertaken if more than two calendar years have passed since the course(s) was/were taken, without the direct review and approval of the Provost.

**Appeals of Suspension**

Undergraduate students who incur Academic Suspension under the rules detailed in this *Bulletin* may appeal the decision to the Academic Appeals Committee if they believe that extraordinary circumstances merit an exception to the rules. To appeal a suspension, students should contact the Office of the Registrar.

**Appeals of Dismissal**

In general, undergraduate students who have been dismissed from the University may appeal their dismissal only after one calendar year has elapsed. In rare instances, students on dismissal who have a minimum grade point average of 1.85, are within 18 credit hours of graduation, and who demonstrate the appropriate changes in attitude necessary to be ready to complete their degree requirements may appeal through the Office of Academic Support to their academic dean for readmission. To appeal a dismissal, students should contact the Office of the Registrar.
Services

- General (p. 138)
- Academic (p. 136)

Academic Services

- Academic Support Services (p. 136)
- Office of Accessibility (p. 136)
- Testing Services (p. 136)
- The Auburn University Career Center (p. 136)
- The First Year Experience Office (p. 136)
- University Undergraduate Advising Services (p. 137)
- Veterans Resource Center (p. 138)

Academic Support Services

The Academic Student Support Office helps Auburn students successfully achieve their academic goals. The Study Partners Program offers free tutoring services to all students enrolled in selected undergraduate subjects. Supplemental Instruction (SI) provides peer-facilitated academic assistance in specific courses. Individual academic coaching and group instruction is provided to students experiencing academic difficulty and to those who desire to improve their study skills. Study Smart, a non-credit course, is also available for students in academic jeopardy. For assistance, visit www.auburn.edu/academicsupport, or call (334) 844-5972.

Office of Accessibility

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires reasonable academic accommodations, assistive technology, or support services, contact the Office of Accessibility (http://accessibility.auburn.edu) for additional information, 1228 Haley Center; 334-844-2096 (Voice/TT).

Testing Services

The Biggio Center offers testing services to Auburn University students, faculty and visitors, including Auburn University academic testing, national proctored exams, and testing for outside universities. Please visit http://wp.auburn.edu/biggio/testing/ or call (334) 844-3151 to learn more.

The Auburn University Career Center

The Auburn University Career Center (http://career.auburn.edu) provides services and resources to help students choose an appropriate major that aligns with their academic abilities, interests, and skills; develop a personal career plan; learn job search skills and find employment. Career counselors/advisors work with students through the career development process by utilizing interest/personality inventories and career resources to help students learn how to maximize their career options through the development of a tailored career plan. Job search assistance is available to help students learn the skills necessary to plan and implement a successful job search. The Career Center also provides employment information through on-line job postings for full-time, part-time and internship positions; on-campus interviews with potential employers; on-line resume referrals; and career events. For assistance, call (334) 844.4744.

The First Year Experience Office

The First Year Experience Office provides programs to help the new student make the transition into Auburn University life. These programs promote intellectual and social development leading to personal and academic success. For assistance, call 334-844-4501 or visit the First Year Experience website at www.auburn.edu/fye.
Camp War Eagle
Camp War Eagle is Auburn's summer orientation experience for incoming freshmen and their parents. Sessions are held throughout the summer and engage the student and parent in the academic and social transition to college life, including meeting with the student’s academic advisor. The student will also register for classes at Camp War Eagle.

Successfully Orientating Students
Successfully Orientating Students (SOS) is a one-day orientation program held for all transfer students and freshmen who do not attend Camp War Eagle during the summer or who enroll in the spring semester. Students will meet with academic advisors as part of their day.

First Year Seminars
First Year Seminar (FYS) courses at Auburn University help new students acclimate to multiple aspects of university life. By taking an FYS course, students can learn about the history and mission of Auburn, academic and personal resources and services, relevant social issues, opportunities for involvement on campus and in the local community, time management, critical thinking skills, study strategies, test preparation, note taking, goal setting, and many other topics and skills vital to college success. Most students in Learning Communities take an FYS course as a part of their fall semester courses, but FYS courses are available to all new students.

Learning Communities
Learning Communities are unique academic opportunities for Auburn freshmen. Each learning community is comprised of a small group of students who are co-enrolled in several core courses surrounding a particular theme or interest. By participating in a learning community, students are involved in an environment that helps them transition to college through faculty interaction, which promotes student retention and academic success. Students are also exposed to a small community of peers with similar academic interests and a supportive network of fellow students, peer educators, and professors. For assistance call 334-844-5721 or visit the Learning Community website at www.auburn.edu/lc.

The Common Book Program
Auburn University’s Common Book program was created to provide incoming freshmen with the common experience of reading the same book along with current students, staff, faculty, and members of the Auburn community. The book is incorporated into freshman convocation, academic classes, and programming through the fall semester including a visit by the book’s author. Students are asked to read the book prior to coming to campus in August so that they will get the most out of discussion of the book both in and out of class. See http://aucommonbook.auburn.edu/ for more information.

University Undergraduate Advising Services
Auburn University strives to provide clear and supportive academic advising to all undergraduates throughout their academic career. In addition, Auburn provides ongoing assessment of the quality of academic advising and provides professional development opportunities throughout the year to ensure that the university’s academic advisors are fully equipped to meet our students’ needs. Auburn advisors frequently receive regional and national awards from NACADA, the professional academic advising association, for the outstanding quality of their work. Students are strongly encouraged to take advantage of the advising services listed below.

College Advising Centers and Information
Every college and school on the campus of Auburn University provides students with academic advising designed to guide students through their academic curricula. Specific information about college-based advising services may be found on the Academic Advising (http://www.auburn.edu/academic/provost/academic_advising/academicAdvising.php) web page.

Exploratory Advising Center
The Exploratory Advising Center provides intensive academic advising and career counseling to incoming freshmen who are still in the process of determining the college or school in which they wish to major. Exploratory students will meet frequently with their advisor and career counselor, will be enrolled in an exploratory first year seminar structured to help them learn about the range of options Auburn provides, and will participate in activities designed to help them find the right major for them. The Exploratory (EXPL) program is open only to first-time freshmen, and by the end of the student's second semester at Auburn, he or she will need to select a college or school in which to continue their studies. The EXPL program does not replace the undeclared options provided by the Colleges of Engineering, Liberal Arts, or Sciences and Mathematics. The center also assists upperclassmen who are experiencing difficulty sustaining minimum academic standards for a specific major, identifying a major or career path, or simply adjusting to college life. The staff of the Center is available to provide students with assistance in developing a personalized academic success plan.
Veterans Resource Center

Veterans’ Assistance

Veteran students and/or their dependents may qualify for Federal VA Education benefits. To determine eligibility, contact the VA Education Center at 1-888-442-4551.

Application Procedures:

1. For veterans or dependents of disabled veterans, apply online at www.ebenefits.va.gov (http://www.ebenefits.va.gov) or www.vets.gov (https://www.vets.gov)

Enrollment Certification for Federal VA Education Benefits

1. Auburn University Veterans Resource Center (VRC) must have all appropriate documents stating student’s eligibility for Federal VA Education benefits. List of required forms is available on the VRC website: veterans.auburn.edu
2. Only courses required for student’s declared major at Auburn University will be certified to the VA.
3. Repeat courses to obtain a better passing grade will not be certified to the VA.
4. Additional electives not required for student’s declared degree plan will be certified to the VA.
5. Minors not required as part of my program of study will not be certified to the VA.
6. Students must attend all classes in which he/she is enrolled. Any change in enrollment (add/drop classes, major changes) will be reported to the VA.
7. Class beginning and ending dates, as well as the number of credit hours registered, have a direct impact on the student’s monthly housing allowance (BAH).
8. If a student wishes to not be certified for a particular semester, students will notify the VRC via email before the beginning of term at veterans@auburn.edu

Federal VA Education Benefits:

# For veterans or dependents of disabled veterans, apply online at www.vets.gov (https://www.vets.gov) or ebenefits.va.gov (https://www.ebenefits.va.gov)

# Chapter 30: Montgomery GI Bill® (MGIB-AD)
# Chapter 31: Vocational Rehabilitation & Employment (VR&E)
# Chapter 33: Post 9/11
# Chapter 35: Dependents Education Assistance (DEA)
# Chapter 1606: Montgomery GI Bill®-Select Reserve (MGIB-SR)

# Members of the Select Reserves and National Guard who enlisted, re-enlisted or exhausted his/her enlistment period of six years after 1 July 1985 may be eligible for this program

Priority Registration:

Priority Registration is given to groups of students who fall under certain categories, including veterans. The priority status must be recognized by the Registrar’s Office when the time tickets are set in order for the student’s special registration status to be activated.

General Services

Office of Accessibility

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires reasonable academic accommodations, assistive technology, or support services, contact the Office of Accessibility (p. 25) for additional information, 1228 Haley Center; 334-844-2096 (Voice/TT).
Career Center
The Auburn University Career Center (http://career.auburn.edu) provides services and resources to help students choose an appropriate major that aligns with their academic abilities, interests, and skills; develop a personal career plan; learn job search skills and find employment. Career counselors/advisors work with students through the career development process by utilizing interest/personality inventories and career resources to help students learn how to maximize their career options through the development of a tailored career plan. Job search assistance is available to help students learn the skills necessary to plan and implement a successful job search. The Career Center also provides employment information through on-line job postings for full-time, part-time and internship positions; on-campus interviews with potential employers; on-line resume referrals; and career events. For assistance, call (334) 844.4744.

Veterans Resource Center
The Auburn University Veterans Resource Center (p. 138) assists veterans, guardsmen, reservists, active duty, and their military dependents receiving VA educational benefits in making a successful transition into the AU community. The center provides timely and comprehensive support with a range of services for current and former military service members, including eligible military dependents, by collaborating with University Faculty and Staff, state VA representatives, the local veteran community, and civilian-advocate organizations.
Undergraduate

Auburn University offers a comprehensive array of programs that lead to a Bachelor’s degree. These programs are administered by the following colleges and schools: the College of Agriculture; the College of Architecture, Design, and Construction; the Raymond J. Harbert College of Business; the College of Education; the Samuel Ginn College of Engineering; the School of Forestry and Wildlife Sciences; the College of Human Sciences; the College of Liberal Arts; the School of Nursing; the College of Sciences and Mathematics; and the University College. The Bulletin contains the academic policies and curricular guidelines that govern a student’s progress toward his or her degree in any of these programs. Students should plan to meet regularly with an advisor to ensure that they are staying on track to graduation and to resolve any questions that may arise about their selected plan of study.

This section of the Bulletin lists the schools and colleges alphabetically and provides information about curricula within them as well as general descriptions of interdepartmental and interdisciplinary curricula and ROTC programs. Information about most college and school undergraduate admission, retention and graduation standards as well as other information about the college or school is also provided here. Each undergraduate academic program offered by a school or college is presented in a curriculum model with required and elective courses listed in a possible semester-by-semester sequence. These models are provided as guides to help students and advisors plan the individual student’s course of study. Students should realize, however, that it might not be possible to schedule every course in the year and semester as presented. Careful planning with the help of an academic advisor is usually necessary if students are to complete their programs in a timely manner and meet all course pre-requisites.

All undergraduate curricula can accommodate six hours of ROTC; military science courses may be taken in place of electives, and in some curricula, with permission, in place of certain required courses.

College of Agriculture

PAUL M. PATTERSON, Dean
AMY N. WRIGHT, Associate Dean

THE COLLEGE OF AGRICULTURE prepares students for a variety of opportunities throughout a global food, agricultural and natural resource system by emphasizing living sciences and providing challenging science-based curricula. Graduates are prepared to become productive global citizens and to address the challenges of providing a safe, affordable food, fiber and renewable bio-energy system while protecting environmental and water resources. Many of the basic science courses taken in the freshman and sophomore years serve as a foundation for additional basic and applied coursework in a specific major during the junior and senior year. The college’s student-focused atmosphere fosters strong academic, engaged learning environments and student development around life-skills and international issues.

Curricula are offered in agricultural business and economics, agricultural communications, agricultural science, agronomy and soils, animal sciences, applied biotechnology, environmental science, fisheries and allied aquacultures, food science, horticulture and poultry science. The College of Agriculture also furnishes the subject matter training in agriculture for the curricula of biosystems engineering and agriscience education.

Employment opportunities for graduates with expertise gained in these majors are forecast to remain strong. A survey of recent baccalaureate graduates from the 2010-11 academic year conducted by 15 colleges of agriculture found the average starting salary was higher than previous years. Possible careers include: agricultural economists, agricultural engineers, agronomists, animal nutritionists, aquaculturalists, biochemists, biological engineers, biometricians, botanists, business managers, cell biologists, climatologists, educators, extension specialists, entomologists, environmental scientists, farm services, fisheries scientists, florists, food systems and safety workers, food scientists, golf course managers, poultry scientists, molecular biologists, plant pathologists, plant physiologists, quality assurance workers, rural sociologists, science writers, soil scientists, toxicologists, turf scientist/specialists, as well as the foundation for entrance to graduate school, law, and health-related professional schools.

Transfer Credits

Transfer credits for agricultural subjects not considered equivalent to those required in the chosen curriculum may be substituted for elective credit; however, duplication of credit will not be allowed. Equivalence of agricultural subjects will be determined by the Dean’s Office; however, students may also obtain transfer credit on the basis of validating examinations. Arrangements for validating examinations must be made with the academic dean of Agriculture in the first term of enrollment in the College of Agriculture at Auburn and the examinations must be completed before the middle of the second term. Transfer credit for courses which are upper-division courses at AU will not be accepted from two-year colleges.
Pre-Veterinary Medicine and Pre-Professional

Curricula within the college enable students to complete requirements for admission to health related professional schools. It is possible to gain admission to colleges of veterinary medicine or other health-related professional schools after a student’s third year of undergraduate studies. If students are admitted to a college of veterinary medicine or other professional program after the completion of their third year, they may obtain a bachelor of science degree in their selected degree program after successful completion of their first year in a college of veterinary medicine or other professional degree program and completion of all major (bolded) courses. The specific graduation requirements may be obtained from a program advisor or academic advisor for the college. The minimum requirements for admission to most colleges of veterinary medicine and other professional programs are incorporated in the first three years of the options listed under the following curricula: animal sciences, fisheries and allied aquacultures and poultry science. (See also the curriculum in Pre-Veterinary Medicine in the College of Science and Mathematics and School of Forestry and Wildlife Sciences).

Majors

• Agricultural Business & Economics (p. 182)
• Agricultural Communications (p. 175)
• Agricultural Science (p. 235)
• Crop and Soil Sciences - Science Option (p. 191)
• Crop and Soil Sciences - Production Option (p. 189)
• Crop and Soil Sciences - Turfgrass Option (p. 193)
• Crop and Soil Sciences - Soil, Water and Land Use Option (p. 192)
• Animal Sciences - Equine Science Option (p. 204)
• Animal Sciences - Meat Science Option (p. 205)
• Animal Sciences - Pre-Professional Option (p. 206)
• Animal Sciences - Animal and Allied Industries Option (p. 202)
• Applied Biotechnology (p. 219)
• Biosystems Engineering (p. 597)
• Biosystems Engineering (Bioprocess Engineering option) (p. 594)
• Biosystems Engineering (Ecological Engineering option) (p. 598)
• Biosystems Engineering (Forest Engineering option) (p. 596)
• Environmental Science (p. 195)
• Fisheries, Aquaculture, and Aquatic Sciences-Professional Medicine Option (p. 230)
• Fisheries, Aquaculture and Aquatic Sciences - Fisheries and Aquaculture Option (p. 227)
• Fisheries, Aquaculture and Aquatic Sciences - Marine Resources Option (p. 228)
• Food Science (p. 247)
• Horticulture - Fruit and Vegetable Production Emphasis (p. 237)
• Horticulture - Landscape Horticulture Emphasis (p. 238)
• Horticulture - Nursery and Greenhouse Science Emphasis (p. 239)
• Horticulture - Pre-Landscape Architecture Emphasis (p. 241)
• Poultry Science - Poultry Production (p. 248)
• Poultry Science - Poultry Science/Pre-Veterinary Medicine (p. 250)

Minors
• Agribusiness (p. 181)
• Agricultural Leadership (p. 251)
• Crop and Soil Sciences (p. 190)
• Animal Sciences (p. 202)
• Entomology (p. 221)
• Fisheries and Allied Aquacultures (p. 231)
• Natural Resources Economics and Environmental Policy (p. 183)
• Plant Pathology (p. 221)
• Poultry Science (p. 251)
• Rural and Community Development (p. 184)
• Stewardship-based Agriculture (p. 196)

Program
• Agricultural Economics - MS, MAg (p. 1333)
• Applied Economics - PhD (p. 1333)
• Crop, Soil, and Environmental Sciences - MS, MAg, PhD (p. 1336)
• Animal Sciences - MS, MAg, PhD (p. 1340)
• Biosystems Engineering - MS, PhD (p. 1348)
• Entomology - MS, MAg, PhD (p. 1442)
• Entomology and Plant Pathology - ABM (p. 1436)
• Fisheries and Allied Aquacultures - MAg, MS, PhD (p. 1446)
• Food Science - ABM, MAg, MS, PhD (p. 1449)
• Horticulture - MS, MAg, PhD (p. 1465)
• Plant Pathology - MAg, MS, PhD (p. 1508)
• Poultry Science - MAg, MS, PhD (p. 1510)
• Rural Sociology - MS (p. 1524)

Agric Economics Courses
AGEC 3010/3013 AGRIBUSINESS MARKETING (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions. May count either AGEC 3010 or AGEC 3013.

AGEC 3050 FARM APPRAISAL (2) LEC. 2. Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.

AGEC 3080 FUTURES AND OPTIONS MARKETING (2) LEC. 2. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

AGEC 3100 COMPUTER APPLICATIONS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. (COMP 1000 or COMP 1003) and (P/C STAT 2010 or P/C STAT 2017 or P/C STAT 2510 or P/C STAT 2513 or P/C STAT 2610). Analytical methods for agricultural economics: for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.

AGEC 3200 QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. MATH 1690 and AGEC 3100. The course covers mathematical and econometric models for the quantitative analysis of problems in food, agricultural, development and resource/environmental economics.

AGEC 3300 AGRICULTURAL POLICIES AND TRADE (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.
AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP (1-3) INT. SU. Departmental approval. Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.

AGEC 3950 CAREERS IN AGRICULTURAL BUSINESS AND ECONOMICS (1) LEC. 1. SU. To develop skills to find a job and learn about career opportunities in agricultural business and economics.

AGEC 4000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2027 or ECON 2023). Economics and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).

AGEC 4040 AGRIBUSINESS FINANCE (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

AGEC 4070 AGRICULTURAL LAW (3) LEC. 3. Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.

AGEC 4100 AGRICULTURAL COOPERATIVES (2) LEC. 2. Principles and problems of organizing and operating farmers' cooperative buying and selling associations.

AGEC 4120 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS (3) LEC. 3. Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.

AGEC 4960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-2) IND. Departmental approval. Individual or group projects with a faculty member in agricultural economics or agribusiness. May include research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.

AGEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Membership in the Honors College required; Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

AGEC 4970 SPECIAL TOPICS IN AGRICULTURAL ECONOMICS (1-3) LEC. SU. Departmental approval. May be repeated with change of topic. Course may be repeated for a maximum of 6 credit hours.

AGEC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and AGEC 3100. ECON 2020 or 2023 or 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610) and (MATH 1690 or MATH 1620 or MATH 1623 or MATH 1627) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 5090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and AGEC 3100 and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.
AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1610) and (ECON 2020 or ECON 2027) and (STAT 2010 or STAT 2510 or STAT 2610) and ACCT 2110 or ACCT 2810 and AGEC 3100. ECON 2020/ECON 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610). Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 6090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3. Pr. (AGEC 6090 and AGEC 3300) or AGEC 6030 or AGEC 4300. Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7010 ADVANCED FARM MANAGEMENT (3) LEC. 3. Pr. AGEC 6010. Advanced theory and application of farm management principles and economic concepts to agriculture. Planning, implementation, and control of various types of farms for optimum utilization of available resources.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3. Pr. AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. Introduction to equilibrium-displacement modeling.

AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3. Pr. ECON 6020. Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3. Pr. AGEC 6090. Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7250 AQUACULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 7200. Application of advanced economic theory and principles of production, marketing, and consumption of aquacultural products. Analysis of comparative role and competitive position of aquaculture in economic development and resource allocation.
AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and STAT 2610. Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroscedasticity, autocorrelation and measurement errors.

AGEC 7690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS I (3) LEC. 3. Pr. AGEC 7590. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. ECON 7130 and AGEC 7590. Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7950 GRADUATE SEMINAR (1) SEM. 1. SU. A forum for sharing research information and interaction on topics and issues of current interest.

AGEC 7960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-3) AAB. Departmental approval required; Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 6 credit hours.

AGEC 7970 SPECIAL TOPICS IN AGRIC ECON (3) LEC. 3. Departmental approval. New topics in agricultural and applied economics.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3. Pr. AGEC 7590 and ECON 6020. Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.

AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3. Pr. AGEC 7080. Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investments.

AGEC 8090 FOOD AND AGRICULTURAL POLICY (3) LEC. 3. Pr. ECON 6020 or ECON 7000 or ECON 7110. The course will cover current issues in the economics and policies associated with food, food production and marketing.

AGEC 8690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 8310. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course. May count either AGEC 8310 or AGEC 8690.

AGEC 8890 TOPICS IN AGRICULTURAL MICROECONOMETRICS (3) LEC. 3. Pr. AGEC 8690. This course is meant to assimilate knowledge acquired throughout core coursework in the Agricultural Economics PHD program.

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Agriculture Courses

AGRI 1000 INTRODUCTION TO AGRICULTURE (2) LEC. 1. LAB. 2. Provide information about the College of Agriculture and Alabama Agriculture. An emphasis will be placed on learning about the different departments in the college.

AGRI 1080 AGRICULTURAL COMMUNICATIONS (3) LEC. 3. Departmental approval. Introduction to agricultural communications and professional development as applied to the ag sector; overviews of common communication methods and possible careers.

AGRI 3000 AGRICULTURAL GENETICS (4) LEC. 3. LAB. 2. Pr. BIOL 1020 or BIOL 1027. Introductory understanding of the applications of genetics to agricultural and natural systems. Theoretical and practical knowledge of qualitative, quantitative, molecular, population, and biotechnological aspects of genetics will be developed.

AGRI 3800 AGRICULTURAL LEADERSHIP DEVELOPMENT (2) LEC. 1. LAB. 2. Programmed sessions and activities designed to enhance self-awareness of leadership skills and enable students to become effective leaders.

AGRI 4000 AGRICULTURE STUDY ABROAD (1-10) AAB/FLD. Departmental approval. Study abroad programs with emphasis on agricultural topics. Credit awarded in consultation with departmental chair. Course may be repeated for a maximum of 10 credit hours.
AGRI 4920 INTERNSHIP IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) INT. Departmental approval. Supervised, closely monitored work experience in agricultural communications or leadership. Course may be repeated for a maximum of 3 credit hours.

AGRI 4940 AGRICULTURAL COMMUNICATIONS CAPSTONE (3) LEC. 3. Pr. AGRI 1080. A capstone experience for the Agricultural Communications major that brings together the agricultural topics and communication techniques that have been developed throughout the course of the student's study.

AGRI 4970 SPECIAL TOPICS IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) LEC. Departmental approval. Directed study in agricultural communications or leadership. Course may be repeated for a maximum of 3 credit hours.

AGRI 5840 ADVANCED AGRICULTURAL LEADERSHIP DEVELOPMENT (3) LEC. 2. LAB. 2. Pr. AGRI 3800. Critical analysis of theory and practice of contemporary leadership processes and principles of learning to lead through service.

AGRI 6840 ADVANCED AGRICULTURAL LEADERSHIP DEVELOPMENT (3) LEC. 2. LAB. 2. Critical analysis of theory and practice of contemporary leadership processes and principles of learning to lead through service.

Animal Sciences Courses

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 INTRODUCTION TO HORSE MANAGEMENT AND TRAINING (3) LEC. 1. LAB. 4. An introduction to the management, training, and enjoyment of horses.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.

ANSC 2650 EQUINE BIOMECHANICS AND SHOEING (3) LEC. 2. LAB. 2. Pr. ANSC 1000 and BIOL 2500. Anatomy, function and care of the horse foot; mechanical forces and joint/tissues health; hoof traits, quality and correction through shoeing.

ANSC 2700 VALUE-BASED ANALYSIS OF MEAT ANIMALS (2) LAB. 4. Pr. ANSC 1000. Comparative evaluation of body composition and application of federal grading standards to determine relative value and price of live animals, carcasses, and wholesale cuts.

ANSC 2710 COMMERCIAL MEAT MANAGEMENT (4) LEC. 3. LAB. 2. The importance of meat in the food service industry, including food safety, purchasing, cooking and meat in the diet. For non-majors only.

ANSC 2720 THE MEAT WE EAT (3) LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2) LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3. Pr. ANSC 1000 and BIOL 3200. The prevention and control of the major diseases of farm animals and the development of heard health programs.

ANSC 3150 EQUINE MARKETING (3) LEC. 2. LAB. 2. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.
ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 6. Pr. ANSC 1000. Development of grading standards and application of federal grades to beef, pork and lamb carcasses. Comparative evaluation of carcasses, primal, and sub-primal cuts.

ANSC 3330 INTRODUCTION TO DAIRY CATTLE JUDGING (2) LAB. 6. Pr. ANSC 1000. Theory and practice in the selection of dairy cattle based on visual appraisal, pedigree, and performance records. The development and presentation of oral reasons also is emphasized.

ANSC 3350 EQUESTRIAN COACHING (3) LEC. 1. LAB. 4. Principles and practices of instructing students on horseback, safety for horse and rider, lesson plans and class management, evaluation of riders, teaching riders with special needs.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3. LAB. 2. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037). Departmental approval. Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.

ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3) LEC. 2. LAB. 1. Pr. ANSC 3410 or ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3550 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3) LEC. 3. Pr. ANSC 1000 and BIOL 2510 and ANSC 3410 or BCHE 3200. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.


ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3) LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.
ANSC 4010 BEEF PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 4030 DAIRY CATTLE PRODUCTION (4) LEC. 3. LAB. 3. Pr. ANSC 3400 and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics, and management for efficient dairy production.

ANSC 4050 HORSE PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics and management techniques for efficient horse production.

ANSC 4070 SWINE PRODUCTION (4) LEC. 3. LAB. 2. Pr. ANSC 3400 and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, and genetics, herd health, reproduction, economics, housing and management techniques for efficient swine production.

ANSC 4090 SHEEP PRODUCTION (4) LEC. 3. LAB. 2. Pr. ANSC 1000. Application and integration of breeding and selection, nutrition, reproduction, health, and marketing to achieve optimum lamb and wool production in the southeastern U.S.

ANSC 4100 FARM ANIMAL BEHAVIOR (2) LEC. 2. Pr. ANSC 3600. Basic information on behavior, its purpose, and measurement. Examination of eating, locomotive, sexual, aggressive, territorial, maternal, and resting behaviors in cattle, horses, swine, and sheep.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LAB. 4. Pr. ANSC 3300. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4. Pr. ANSC 3310. Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and intercollegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4320 ADVANCED ANIMAL EVALUATION AND MARKETING (1) LAB. 4. Pr. ANSC 4300 or ANSC 4310. Live animal and carcass evaluation techniques used in marketing cattle, swine, and sheep.

ANSC 4330 ADVANCED DAIRY CATTLE JUDGING (1) LAB. 4. Pr. ANSC 3330. Advanced course in the selection of dairy cattle and presentation of oral reasons. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (3) LEC. 3. Pr. ANSC 3400 or ANSC 3420. Principles of digestive physiology, nutrition, and metabolic disorders unique to the horse with special emphasis on nutritional needs of the equine athlete.

ANSC 4650 EQUINE REPRODUCTIVE TECHNIQUES (3) LEC. 1. LAB. 4. Pr. ANSC 3600. Reproductive management and application of modern technologies to enhance reproductive efficiency of the domestic horse.

ANSC 4700 MEAT PROCESSING (4) LEC. 3. LAB. 3. Pr. ANSC 3700. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2) LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (5-15) INT. SU. Course may be repeated for a maximum of 15 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.
ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4) IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

ANSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 5700, FDSC 5700, ANSC 6700 or FDSC 6700.

ANSC 5730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC 6730, POUL 5730, POUL 6730.

ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 3200 or BIOL 1037. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 6700, FDSC 6700, ANSC 5700, or FDSC 5700. May count either ANSC 6700 or FDSC 6700.

ANSC 6730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC 6730, POUL 5730, POUL 6730.

ANSC 7010 STOCKER PRODUCTION (3) LEC. 3. Application of principles of animal nutrition, breeding, physiology, health and marketing to the successful production of stocker cattle. Integrates agronomic principles related to grazing systems in terms of forage production and management, animal performance and economic returns.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7420 NUTRITIONAL TOXICOLOGY (3) LEC. 3. General principles of nutrition and toxicology applied toward understanding and managing livestock responses to toxicants in feeds and plants.

ANSC 7500 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7010. Research methods used in the animal sciences for the analysis and interpretation of data. Included are experimental designs and computing techniques.

ANSC 7510 QUANTITATIVE GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and STAT 7010. Departmental approval. Principles of population genetics; gene frequency, biometric relationships between relatives, additive, dominance and epistatic effects, estimation and use of repeatability, heritability, genetic correlations, and breeding values.

ANSC 7600 PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240. Physiological, endocrinological, cellular, and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.
ANSC 7960 SPECIAL PROBLEMS (1-5) LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields: (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5) IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.


ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8500 LINEAR MODEL APPLICATIONS IN ANIMAL BREEDING (4) LEC. 4. Pr. ANSC 7510 and STAT 7010. Selection index and mixed linear model genetic theory for estimation and prediction. Equivalent animal models, properties of solutions, and extension of methods to consider genetic relationships, multiple records, culling bias and multiple trait evaluation. Current literature will also be discussed.

ANSC 8610 MUSCLE PHYSIOLOGY AND BIOCHEMISTRY (3) LEC. 3. Pr. BCHE 7210 and BIOL 6600. Heterogeneity and plasticity of muscle as a tissue, ontogeny, differentiation, growth and regulation of metabolic and molecular properties of muscle fibers by innervation, usage, hormones, and artificial modulation. Evaluation of current literature.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Applied Biotechnology Courses

APBT 1000 INTRODUCTION TO APPLIED BIOTECHNOLOGY (1) LEC. 1. Introduction to the field of biotechnology including key concepts from biology, chemistry, and physics, and career opportunities.

APBT 3100 APPLIED BIOTECHNOLOGY I (4) LEC. 2. LAB. 5. Pr. BIOL 1030 and APBT 1000. This course provides an overview of the basic cellular processes harnessed by biotechnology and an introduction to recombinant DNA and its applications. It combines lectures with labs to provide hands-on experience with molecular techniques, DNA cloning, and heterologous protein expression.

APBT 4100 APPLIED BIOTECHNOLOGY II (4) LEC. 2. LAB. 4. Pr. BIOL 1030 and (BIOL 3000 or AGRI 3000) and APBT 3100. or instructor's approval. Principle and up-to-date advances of genetic modification of organisms; its practices and influences in a broad range of basic and applied sciences which have revolutionized "mean" of sustainable agriculture.

Crop, Soil, Environ Sciences Courses

CSES 1000/1003 BASIC CROP SCIENCE (4) LEC. 3. LAB. 2. Agronomic principles of classification, growth, structure, and soil-plant relationship of field crops, with emphasis on influence of man and environment, and importance of crop production. Credit will not be given for both CSES 1000 and CSES 1003.

CSES 1010 SOILS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Practical applications of important soil properties and their function in everyday life. Connections between soils and human life will be made. topics include food security, sustainable agricultural production, soil and water quality, and waste disposal.

CSES 1020 CROPS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Essential role of crop plants to human life. Topics will include historical development of crop science, impact of crop science on human development, and major issues and problems facing modern crop science and technology.

CSES 2040/2043 BASIC SOIL SCIENCE (4) LEC. 3. LAB. 2. Pr. (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) or (CHEM 1110 and CHEM 1111) or (CHEM 1117 and CHEM 1118). Formation, classification, properties, management, fertility, and conservation of soils in relation to the growth of plants. Fall, Spring.
CSES 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2. Introduction to the commonly used turfgrasses of the southeastern United States including of these turfgrasses for gold courses, athletic fields and home lawns will be included. This course may not be substituted for CSES 3150.

CSES 3100 SOILS IN AGRICULTURAL AND EARTH SYSTEMS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 1007) and CHEM 1010. The role of the soils as key components in changing earth and agricultural systems. Intended for those who will teach earth science at the middle school level. Credit will not be given for CSES 3100 and either CSES 2040 or CSES 3040. Spring, Summer, Fall.

CSES 3120/3123 PRINCIPLES OF WEED SCIENCE (4) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) and (BIOL 1020 or BIOL 1027). Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

CSES 3150/3153 TURFGRASS MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043) and (BIOL 1020 or BIOL 1027). The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of light, traffic, soil fertility and water on its growth. Fall, Spring.

CSES 3200 APPLIED TURF MANAGEMENT (3) LEC. 1. LAB. 4. Pr. (P/C CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Familiarize students with the operation and maintenance of the equipment used for turfgrass maintenance. Effects on turfgrass performance will also be covered.

CSES 3920 INTERNSHIP (3-4) INT. 3-4. Departmental approval. Practical experience under the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science.

CSES 3960 SPECIAL PROBLEMS (2) LAB. 2. Departmental approval. Individual and group problems investigations in crop, soil or weed science. Course may be repeated for a maximum of 4 credit hours.

CSES 3970 SPECIAL TOPICS (3) ST1. 3. New topics in agronomy and soils. Course may be repeated for a maximum of 6 credit hours.

CSES 4200 SOIL JUDGING (2) LEC. 1. LAB. 4. Description, evaluation and interpretation of soil-profile characteristics. Fall. Course may be repeated for a maximum of 8 credit hours.

CSES 4210 ADVANCED SOIL JUDGING (2) LEC. 1. LAB. 2. Pr. CSES 4200 or (AGRN 4200 or AGRN 4203). Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring. Course may be repeated for a maximum of 8 credit hours.

CSES 4950 SENIOR SEMINAR (2) LEC. 2. This course will cover professional presentations, both oral and written, in the area of Agronomy and Soils.

CSES 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

CSES 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

CSES 5000 SOILS & ENVIRONMENTAL QUALITY (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 5010/5013 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 5020/5023 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 5030/5033 ADVANCED CROP SCIENCE (3) LEC. 3. Pr. (CSES 1000 or CSES 1003) or (AGRN 1000 or AGRN 1003 or AGRN 1007) or (AGRN 2040 or AGRN 2043) and (CSES 2040 or CSES 2043) and (BIOL 1030 or BIOL 1037). Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030.
CSES 5060/5063 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 5061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 5060 or P/C CSES 5063) or (P/C AGRN 5060 or P/C AGRN 5063). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 5080/5083 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 5080 Summer. CSES 5083 Fall.

CSES 5100/5103 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 5150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGR 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 5160/5163 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 5180 SPORTS TURF MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (CSES 2040 or CSES 2043) or (AGR 3150 or AGRN 3153) or (AGR 3150 or AGRN 3153). Design, construction and management of sports fields and the turfgrass cover on such fields.

CSES 5200 APPLIED WEED SCIENCE TECHNOLOGY (3) LEC. 3. SU. Pr. (CSES 3120 or CSES 3123) or (AGR 3120 or AGRN 3123). Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 5300/5303 SOIL CHEMISTRY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGR 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 5400/5403 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 5500/5503 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring. May count either CSES 5500 or CSES 5503.

CSES 5590 ENVIRONMENTAL SOIL PHYSICS (4) LEC. 3. LAB. 2. Pr. CSES 2040. This course is designed to make the students understand basic soil physical properties and processes occurring in soils. All concepts are based on sound physical and mathematical principles. May count either CSES 5590 or CSES 6590.

CSES 5960 SPECIAL PROBLEMS (1-3) IND. Work under the direction of a staff member on special problems in crop, soil or weed science. Course may be repeated for a maximum of 6 credit hours.

CSES 6000 SOILS & ENVIRONMENTAL QUALITY (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGR 2040 or AGRN 2043). Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 6010/6016 ANALYSIS OF PLANT, SOIL & ANIMAL DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.
CSES 6020/6026 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 6030/6036 ADVANCED CROP SCIENCE (3) LEC. 3. Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030/CSES 6030 or CSES 5033/CSES 6036.

CSES 6060/6066 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 6061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 6060 or P/C CSES 6066) or (P/C AGRN 6060 or P/C AGRN 6066). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 6080/6086 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 6080 Summer. CSES 6086 Fall.

CSES 6100/6106 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall.

CSES 6150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 6160/6166 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (BIOL 3100 or BIOL 6130) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 6180 SPORTS TURF MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Design, construction and management of sports fields and the turfgrass cover on such fields.

CSES 6200 APPLIED WEED SCIENCE TECH (3) LEC. 3. SU. Pr. (CSES 3120 or CSES 3123) or (AGRN 3120 or AGRN 3123). Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 6300/6306 SOIL CHEMISTRY (4) LEC. 2. LAB. 4. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 6400/6406 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 6500/6506 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Pr., In major or departmental approval. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops and (d) energy crops. May count either CSES 6500 or CSES 6506.

CSES 6590 ENVIRONMENTAL SOIL PHYSICS (4) LEC. 3. LAB. 2. Pr. CSES 2000. Graduate level standing in AGRN, CSES 2040, or departmental approval. This course is designed to make the students understand basic soil physical properties and processes occurring in soils. All concepts are based on sound physical and mathematical principles. May count either CSES 5590 or CSES 6590.

CSES 6906 DIRECTED STUDIES (1-3) DSL. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.
CSES 6936 ADVANCED DIRECTED STUDIES (1-3) DSL. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6960/6966 SPECIAL PROBLEMS (1-3) IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 7016 ENVIRONMENTAL SOIL SCIENCE (3) LEC. 3. Departmental approval. Science of the environment and the role of soil science in the environmental arena. Important chemical, biological, and physical processes that influence compounds.


CSES 7080/7086 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7000. Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

CSES 7120 CYTOLOGY AND CYTOGENETICS (4) LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Cell structure and function with emphasis on cell reproduction and factors contributing to the evolution of organisms. Fall.


CSES 7140/7146 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3. LAB. 2. Pr. CHEM 1040. Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

CSES 7150 SEMINAR IN GENETICS (1) SEM. 1. Pr. BIOL 3000 or BIOL 3003. Reports by students and staff members on current research and literature in the field of genetics. Spring.

CSES 7160/7166 GENETIC DATA ANALYSIS (3) LEC. 3. Pr. (CSES 5100 or CSES 5103) or (CSES 6100 or CSES 6106) and STAT 4020 or (AGRN 5100 or AGRN 5103) or (AGRN 6100 or AGRN 6106). Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

CSES 7170 ADVANCED PLANT BREEDING (3) LEC. 3. Pr. CSES 7160 or (AGRN 7160 or AGRN 7166). Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

CSES 7180 CROP ECOLOGY (3) LEC. 3. Pr. (BIOL 6130 or CSES 7250) or (AGRN 7250 or AGRN 7256) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Analysis of structure and function of crop and pasture farming systems with emphasis on production processes and resource management.

CSES 7190 ADVANCED FORAGE MANAGEMENT AND RESEARCH METHODS (3) LEC. 3. Principles involved in successful establishment, maintenance and management of crops used for grazing, hay and silage, and research methods related to this field. Field trips will be made to research stations and private farms to observe management practices. Spring.

CSES 7250/7256 CROP PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed.

CSES 7276 SOIL MICROBIOLOGY (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soil as a medium for microbial growth, the relation of microbes to important mineral transformations in soil, the importance of biological equilibrium and significance of microbes.

CSES 7286 APPLIED GEOSTATISTICS (3) LEC. 3. Departmental approval. Application of regionalized variable theory to surface and subsurface landlords using semivariograms and kriging.
CSES 7316 ENVIRONMENTAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CHEM 1010 or CHEM 1011) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Study of soil chemical processes (sorption, desorption, ion exchange, precipitation, dissolution, and redox reactions) of nutrients and inorganic and organic contaminants in soils and organic matter.

CSES 7326 WETLANDS SOILS (3) LEC. 3. Departmental approval. Application of regionalized variable theory to surface and landforms using semivariograms and kriging.

CSES 7540/7546 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3. Pr. CSES 6020 or CSES 6026 or (AGRN 6020 or AGRN 6026). Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

CSES 7550 SOIL AND PLANT ANALYSIS (4) LEC. 1. LAB. 6. Pr. CHEM 3050 and (CSES 6020 or CSES 6026) or (AGRN 6020 or AGRN 6026). Principles, methods and techniques of quantitative chemical analysis of soils and plants applicable to soil science. Fall.

CSES 7560 CLAY MINERALOGY (4) LEC. 3. LAB. 2. Crystal structure and properties of the important clay-size minerals of soils and clay deposits combined with identification techniques involving x-ray diffraction and spectroscopy, differential thermal analysis, electron microscopy, specific surface analysis, and infrared absorption.

CSES 7586 SOIL PHYSICS (3) LEC. 3. Pr. PHYS 1500 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043).

CSES 7600/7606 AGROCLIMATOLOGY (3) LEC. 3. The relationships between climatological processes and agriculture, including precipitation, evapotranspiration, meteorological hazards, irrigation and drainage, crop development, climate data acquisition and analysis, crop-weather models, and impacts of global climate change. May count either CSES 7600 pr CSES 7606.

CSES 7676 SPECIAL TOPICS (1-4) DSL. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7950/7956 SEMINAR (1) SEM. 1. SU. Required of all graduate students in Agronomy and Soils. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

CSES 7970/7976 SPECIAL TOPICS (1-4) LEC. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7990/7996 RESEARCH AND THESIS (1-10) MST. Research and thesis on problems in the soil and crop sciences. Course may be repeated with change in topics.

CSES 8570 PHYSICAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CSES 6300 or CSES 6306) and CHEM 6070 or (AGRN 6300 or AGRN 6306). Interpretation of soil properties and chemical reactions in terms of ion exchange, solubility diagrams, solutions equilibria, electrochemistry and electrokinetics of charged particles. Fall.

CSES 8580 FATE AND TRANSPORT OF CHEMICALS IN SOILS (3) LEC. 3. Pr. MATH 1720 and (PHYS 1600 or PHYS 1607) and CSES 7590. Transport phenomena in soils. Physical principles and analysis of the storage and movement of water, solutes, heat, and gases in soils. Spring.

CSES 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in the soil and crop sciences. Course may be repeated with change in topics.

Entomology Courses

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040/2043 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3. Life processes, importance, and occurrence of insects.

ENTM 3040 GENERAL ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Introduction to the biology and diversity of insects. An insect collection is required.

ENTM 4023/4020 ECONOMIC ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Consideration of the biological aspects, life histories and control of insects.
ENTM 4920 ENTOMOLOGY INTERNESHIP (5) INT. 5. SU. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

ENTM 4960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-3) IND. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

ENTM 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ENTM 5010 ENTOMOLOGY FOR EDUCATORS (4) LEC. 4. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Biology and diversity of insects and related arthropods with applications for educators. An insect collection and an entomological exposition are required.

ENTM 5120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and (ENTM 3040 or ENTM 4020) or instructor approval. Students without the prerequisite ENTM course must be approved by the instructor or take ENTM 3040 or ENTM 4020 concurrently with ENTM 5120. Survey of insects, ticks, and mites of medical or veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 5140 AQUATIC INSECTS (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 4010. Biology and ecology of aquatic and semi-aquatic insects. Laboratory sessions focus on identification at the family and generic levels, and experience in collecting and field techniques.

ENTM 5150 ARACHNOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 5220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 5300 SYSTEMATIC ENTOMOLOGY (4) LEC. 3. LAB. 4. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Learn to use the tools of the taxonomist to identify common families of insects. A collection is required. Field trips will be taken.

ENTM 5330 INTEGRATED PEST MANAGEMENT (4) LEC. 3. LAB. 2. Pr. ENTM 3040 or ENTM 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 5360/5363 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 5370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 5440 INSECT MORPHOLOGY (4) LEC. 3. LAB. 4. Pr. ENTM 3040 and ENTM 4020. Departmental approval. Form and function in insects insects and related arthropods emphasizing morphological characteristics used in insect identification.

ENTM 5500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 5600 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6010 ENTOMOLOGY FOR EDUCATORS (4) LEC. 4. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Biology and diversity of insects and related arthropods with applications for educators. An insect collection and an entomological exposition are required.

ENTM 6120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Survey of insects, ticks, and mites of veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 6140 AQUATIC INSECTS (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 4010. Departmental approval. Biology and ecology of aquatic and semi-aquatic insects. Laboratory sessions focus on identification at the family and generic levels, and experience in collecting and field techniques.
ENTM 6150 ARACHNOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 6300 SYSTEMATIC ENTOMOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Principles of systematics and identification of insects through orders, families, genera, and species. Collections are required. Credit will not be given for both ENTM 4300 and ENTM 7300.

ENTM 6330 INTEGRATED PEST MANAGEMENT (4) LEC. 3. LAB. 2. Pr. ENTM 3040 or ENTM 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 6360/6366 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 6500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.


ENTM 7190 PLANT AND ANIMAL INTERACTIONS (3) LEC. 3. Pr. BIOL 3060. Departmental approval. Ecological and evolutionary interrelationships emphasizing pollination biology, seed dispersal and plant-herbivore interactions.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.

ENTM 7330 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 6110. Departmental approval. Insects, mites, and other arthropods of medical or veterinary importance, identification of species, their biology and role as vectors of disease agents.

ENTM 7345 TROPICAL BIOLOGY: AN ECOLOGICAL APPROACH (8) LEC. 4. LAB. 12. Pr. At least 15 credits each with a minimum grade of B in BIOL 7000-7999. Departmental approval. The principles of ecology in the tropics.

ENTM 7900 DIRECTED STUDIES IN ENTOMOLOGY I (1-5) LEC. SU. Discussion groups on specific topics, assigned readings, on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

ENTM 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1. SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.
ENTM 7960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY I (1-5) IND. Departmental approval. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

ENTM 7990 RESEARCH AND THESIS (1-10) MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Admission to the M.S. Program. Course may be repeated with change in topics.

ENTM 8900 DIRECTED STUDIES IN ENTOMOLOGY II (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 8910 TEACHING PRACTICUM (1-3) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

ENTM 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

ENTM 8950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY II (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Admission to the Ph.D. Program. Course may be repeated with change in topics.

Environmental Science Courses

ENVI 1010 INTRODUCTION TO ENVIRONMENTAL SCIENCE (1) LEC. 1. Introduction to the environmental science field and the ENVI major. Course may be repeated for a maximum of 3 credit hours.

ENVI 1020 FUNDAMENTALS OF ENVIRONMENTAL SCIENCE (2) LEC. 2. Preference given to students for whom the course is required. Survey of fundamental concepts, issues, and concerns related to environmental science.

ENVI 2010 ENVIRONMENTAL SCIENCE SEMINAR (1) LEC. 1. Pr. ENGL 1120 or ENGL 1127. ENGL 1120 and departmental approval. Discussion of current issues in environmental science.

ENVI 3000 INTRODUCTION TO STREAM RESTORATION (4) LEC. 2. LAB. 4. Introduction to concepts necessary for stream restoration design, construction, and maintenance and how they relate to the physical, chemical and biological processes of streams. Students will participate in research associated with stream restoration by assessing stream stability and classifying streams.

ENVI 4950 ENVIRONMENTAL SCIENCE SENIOR SEMINAR (2) LEC. 2. Pr. (ENGL 1120 or ENGL 1127) and ENVI 1010 and ENVI 1020. Departmental approval. This course will cover oral and written professional presentations, assessment of students in the ENVI major via standardized testing, and student assessment via exit surveys.

ENVI 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

Fisheries Allied Aqua Courses

FISH 1100 FISHERIES ORIENTATION (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of a future in fisheries.

FISH 1110 DIMENSIONS OF FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1) LEC. 1. Consideration of various aspects of fisheries, aquaculture, and aquatic sciences work, career options as related to individual interests, and career planning. Overview of the different research and extension areas of the School.

FISH 2000 GENERAL BIOLOGY OF FISHES AND AQUATIC ORGANISMS (1) LEC. 1. To introduce students to the anatomy and physiology of fishes, crustaceans, and mollusks to better prepare them to take advanced courses in the School of Fisheries, Aquaculture & Aquatic Sciences.
FISH 2020 GLOBAL AND REGIONAL PERSPECTIVES IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (2) LEC. 2. Overview of socioeconomic and ecological aspects of fisheries, aquaculture, and aquatic sciences. The course will cover human dimensions specific to commercial and recreational fisheries, aquaculture species, and the aquatic environment.

FISH 3950 CAREERS IN FISHERIES (1) LEC. 1. SU. Pr. FISH 2100 or departmental approval. Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning.

FISH 4900 DIRECTED STUDIES IN FISHERIES (1-4) IND. SU. Individualized in depth study on a particular subject under the guidance of a professor. May include directed reading and research. Course may be repeated for a maximum of 4 credit hours.

FISH 4920 INTERNSHIP (1-5) INT. SU. Departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 5 credit hours.

FISH 4960 SPECIAL PROBLEMS (1-4) LEC. Departmental approval. Individual and group problems investigations in fisheries and allied aquacultures. Course may be repeated for a maximum of 4 credit hours.

FISH 4967 HONORS SPECIAL PROBLEMS (1-4) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 4 credit hours.

FISH 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FISH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

FISH 5210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 5215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 5220 WATER SCIENCE (3) LEC. 3. Pr. CHEM 1040 and FISH 2100. Departmental approval. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems. Fall.

FISH 5230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 5240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 5210 or FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 5245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. One year of college-level Biology or departmental consent. Overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. May count either FISH 5245 or FISH 6245.

FISH 5250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Pr. FISH 5210. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 5320 LIMNOLOGY (3) LEC. 3. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037) and BIOL 3060. Limnology is the study of the chemical, physical, and ecological processes that influence the structure and function of freshwater communities.

FISH 5321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and BIOL 3060 and (P/C FISH 5320 or P/C FISH 6320). Limnology is the study of the chemical, physical, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 5380 GENERAL Ichthyology (4) LEC. 3. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 5410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.
FISH 5425 MARINE FISH DISEASES (4) LEC. 7.5. LAB. 6. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3200. Departmental approval. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases. Taught at Dauphin Island Sea Lab.


FISH 5510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 5530 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 5630 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Pr. CHEM 2030 and BIOL 3200. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 5650 FISHERIES AND AQUACULTURES EXTENSION METHODS (2) LEC. 2. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 5710 AQUATIC MICROBIOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 5725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Departmental approval; Admission to the Gulf Coast Research Laboratory.

FISH 5735 PRINCIPLES OF MARINE AQUACULTURE (6) LEC. 6. Pr. At least 16 credits in BIOL 1000-8999. Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Acceptance at GCRL.

FISH 5745 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Departmental approval; Admission to GCRL.

FISH 5970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences. Course may be repeated for a maximum of 4 credit hours.

FISH 6210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 6245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. May count either FISH 5245 or FISH 6245.
FISH 6250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Graduate level standing in FISH or departmental approval. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 6320 LIMNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 6321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (P/C FISH 5320 or P/C FISH 6320). Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 6410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Graduate level standing in FISH or departmental approval. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 6425 MARINE FISH DISEASES (4) LEC. 7.5. LAB. 6. Graduate level standing in FISH or departmental approval. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases.


FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Graduate level standing in FISH or departmental approval. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Graduate level standing in FISH or departmental approval. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 6630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2) LEC. 2. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 6710 AQUATIC MICROBIOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 6725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060 and FISH 6380. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Departmental approval; Admission to Gulf Coast Research Laboratory.

FISH 6735 PRINCIPLES OF MARINE AQUACULTURE (6) LEC. 6. Pr. At least 16 credits each with a minimum grade of B in BIOL 6000-8999. Departmental approval. Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Acceptance at GCRL;

FISH 6745 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Departmental approval; Admission to GCRL.

FISH 6970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences.


FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2) LEC. 2. Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects.
FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4) LEC. 3. LAB. 3. Pr. FISH 5210 or FISH 6210 or departmental approval. General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world.

FISH 7330 RESERVOIR LIMNOLOGY (3) LEC. 2. LAB. 5. Pr. FISH 5320 or FISH 6320. Departmental approval. Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years.

FISH 7340 FISH ECOLOGY (3) LEC. 2. LAB. 3. Graduate level standing in FISH or departmental approval. Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches.

FISH 7350 META-ANALYSIS (2) LEC. 2. Meta-Analysis is a quantitative approach for synthesizing results from diverse research studies that address a similar hypothesis.

FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Role of aquatic vegetation in fish production, its utilization and control.


FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3) LEC. 3. Introduction to molecular biology techniques currently used in disease diagnosis.

FISH 7420 FISH DISEASES (3) LEC. 3. Pr. BIOL 3200. Departmental approval. Viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management.

FISH 7450 FISH PATHOLOGY (3) LEC. 2. LAB. 3. Pr. FISH 5410 or FISH 6410 or FISH 7420. Departmental approval. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years.

FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3) LEC. Pr. FISH 6410 or FISH 7420 or Departmental approval. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control.

FISH 7530 FISH POPULATION DYNAMICS (3) LEC. 2. LAB. 4. Pr. FISH 6510 or FISH 5510 and STAT 7040. Departmental approval. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years.

FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3) LEC. 2. LAB. 4. Pr. FISH 6510 or FISH 5510 and STAT 7000 and STAT 7040. Departmental approval. Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years.

FISH 7550 SEQUENCE-BASED SCIENCE: TECHNOLOGY AND APPLICATION (2) LEC. 2. Pr. BIOL 6230. Technology and application of high-throughput sequencing approaches to scientific research.

FISH 7640 FISH NUTRITION (3) LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

FISH 7641 FISH NUTRITION LABORATORY (2) LAB. 6. Coreq. FISH 7640. Laboratory exercises in analysis of fish feeds and formulation and preparation of fish feeds.

FISH 7650 TRADITIONAL APPROACHES TO FISH GENETIC ENHANCEMENT (2) LEC. 2. Graduate level standing in FISH or departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, selective breeding, genetic management and inheritance.

FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Graduate level standing in FISH or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies.

FISH 7715 ADVANCED MARINE ECOLOGY (2) LEC. 2. Departmental approval. Mechanisms that control distribution of plants and animals at scales ranging from individual organism to ecosystem.

FISH 7725 MARINE BIOGEOCHEMICAL PROCESSES (2) LEC. 2. Departmental approval. Marine biogeochemical cycling of carbon, nitrogen, sulfur, phosphorus and metals, with emphasis on estuarine systems.
FISH 7735 MARINE PLANKTON (3) LEC. 3. Pr. FISH 7755 or BIOL 7575. Taxonomy of phytoplankton, bacterioplankton and zooplankton in estuaries, coastal seas and open oceans. Dauphin Island Sea Lab.

FISH 7745 MARINE MICROBIAL ECOLOGY (3) LEC. 3. Departmental approval. Survey of microorganisms found in marine environment with emphasis on interaction of microorganisms with each other and with their environment.

FISH 7750 BIOTECHNOLOGICAL APPROACHES TO FISH GENETICS (2) LEC. 2. Pr. FISH 7650. Departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, genetic management genetic engineering, genomic manipulation and genetic biotechnology.


FISH 7765 CHEMICAL OCEANOGRAPHY (3) LEC. 3. Departmental approval. In-depth examination of the chemistry of seawater and its relationship with biological, geological and physical processes in the oceans. Dauphin Island Sea Lab.

FISH 7775 FISHERIES OCEANOGRAPHY (2) LEC. 2. Departmental approval. An examination of the relationship between fish life history, recruitment dynamics, harvest potential, and oceanographic processes. Taught at the Dauphin Island Sea Lab.

FISH 7785 PHYSICAL OCEANOGRAPHY (4) LEC. 4. Departmental approval. Describes observed physical setting of the marine environment, and qualitatively explains how and why observed physical phenomena occur.

FISH 7900 DIRECTED STUDIES IN FISHERIES I (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 7920 INTERNSHIP IN FISHERIES AND AQUACULTURE (1-10) INT. SU. Departmental approval. Field experience in aquaculture, fisheries or aquatic resource management on farm or with research, extension or aquatic management agency. Course may be repeated for a maximum of 10 credit hours.

FISH 7930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 7950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

FISH 7960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) LEC. Individual or group project and research in consultation with faculty member on problem in fisheries and allied aquacultures. Course may be repeated for a maximum of 12 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FISH 8900 DIRECTED STUDIES IN FISHERIES II (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 8930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Acquaint students with current research and related activities.

FISH 8960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) LEC. Individualized work and research in consultation with faculty member on problem in fisheries and allied aquacultures. Course may be repeated for a maximum of 12 credit hours.

FISH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Food Science Courses

FDSC 1000 INTRODUCTORY FOOD SCIENCE (3) LEC. 3. Overview of food science discipline including food selection, food composition, food safety and sanitation, food processing, packaging, commodity types, and food laws.

FDSC 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1. Preparing for careers; enhancing computer and communication skills; planning for professional advancement.

FDSC 4910 FOOD SCIENCE PRACTICUM (3) PRA. 3. Practical experience in food industry, governmental laboratories, or other food science sites.
FDSC 4920 FOOD SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the food industry. Course may be repeated for a maximum of 9 credit hours.

FDSC 4960 SPECIAL PROBLEMS IN FOOD SCIENCE (1-3) IND. 2.50 GPA or departmental approval. Individual or group projects with a faculty member in food science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

FDSC 4970 SPECIAL TOPICS (1-4) LEC. Instruction and discussion of current topics associated with food science. Departmental Approval. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

FDSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FDSC 5150/5153 FOOD LAWS AND REGULATIONS (3) LEC. 3. Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both FDSC 5150 and FDSC 6150.

FDSC 5200/5203 DEVELOPING, IMPLEMENTING, AND AUDITING FOOD SAFETY PROGRAMS (3) LEC. 3. Theory and practice of food safety program design and implementation; includes internal and third-party audits. Credit will not be given for both FDSC 5200 and FDSC 6200.

FDSC 5430 FOOD CHEMISTRY (4) LEC. 3. LAB. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Chemistry of food components; chemical and physical changes of food during processing and storage. Credit will not be given for both FDSC 5430 and FDSC 6430. Spring.

FDSC 5450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3. LAB. 3. Pr. FDSC 5430. Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both FDSC 5450 and FDSC 6450.

FDSC 5640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. FDSC 5430. Food product development from concept to market. Credit will not be given for both FDSC 5640 and FDSC 6640. Spring.

FDSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count one of the following: ANSC 5700, ANSC 6700, FDSC 5700, or FDSC 6700.

FDSC 5730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results. May count one of the following: ANSC 5730, ANSC 6730, FDSC 5730, FDSC 6730.

FDSC 5770 FOOD PLANT SANITATION (4) LEC. 3. LAB. 3. Pr. BIOL 3200 or Departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit will not be given for both FDSC 5770 and FDSC 6770. Fall.

FDSC 6150/6156 FOOD LAWS AND REGULATIONS (3) LEC. 3. Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing, and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both FDSC 6150 and FDSC 5150.

FDSC 6200/6206 DEVELOPING, IMPLEMENTING, AND AUDITING FOOD SAFETY PROGRAMS (3) LEC. 3. Theory and practice of food safety program design and implementation; includes internal and third-party audits. Credit will not be given for both FDSC 6200 and FDSC 5200.

FDSC 6430 FOOD CHEMISTRY (4) LEC. 3. LAB. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Chemistry of food components; chemical and physical changes of food during processing and storage. May count either FDSC 5430 or FDSC 6430. Spring.

FDSC 6450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3. LAB. 3. Pr. FDSC 6430. Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both FDSC 6450 and FDSC 5450.
FDSC 6640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. FDSC 6430. Departmental approval. Food product development from concept to market. Credit will not be given for both FDSC 6640 and FDSC 5640. Spring.

FDSC 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, ANSC 6700, or FDSC 6700.

FDSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 5700, FDSC 5700, ANSC 6700, or FDSC 6700.

FDSC 6730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results. May count one of the following: ANSC 5730, ANSC 6730, FDSC 5730, FDSC 6730.

FDSC 6770 FOOD PLANT SANITATION (4) LEC. 3. LAB. 3. Pr. BIOL 3200 or Departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit is not allowed for both FDSC 5770 and FDSC 6770. Fall.

FDSC 7200 CARBOHYDRATE CHEMISTRY AND FUNCTIONALITY IN FOODS (3) LEC. 3. Pr. FDSC 6430. Departmental approval. Chemistry and functionality of sugars, starches and hydrocolloids as applied to food systems.

FDSC 7210 FOOD PROTEINS AND FATS (3) LEC. 3. Pr. FDSC 6430. Departmental approval. Advanced theories and practices of food science in the areas of protein and fat.

FDSC 7930 ADVANCED INDEPENDENT STUDY (1-6) IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

FDSC 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either POUL 7950 or FDSC 7950. Course may be repeated for a maximum of 3 credit hours.

FDSC 7960 SPECIAL PROBLEMS (1-4) IND/ST1. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 8 credit hours.

FDSC 7970 SPECIAL TOPICS IN FOOD SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of current advanced topics associated with food science. Course may be repeated for a maximum of 8 credit hours.

FDSC 7980/7986 NONTHESIS RESEARCH (1-4) RES. Departmental approval. enrolled as FDSG MAg student. Research conducted as part of the Master of Agriculture degree.

FDSC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

FDSC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

Horticulture Courses

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1. Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 3. LAB. 3. Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020/2023 HORTICULTURE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. BIOL 1010 or BIOL 1030 or BIOL 1037. Techniques of plant propagation and cultural methods for successful fruit and vegetable production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3. Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops.

HORT 2040/2043 ORGANIC GARDENING (3) LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.
HORT 2050/2053 FOOD FOR THOUGHT (3) LEC. 3. Study of history of food plants, including their impact on world culture, variety of uses, economic botany, production systems, and impact on societies. Fall.

HORT 2060 HYDROPONICS: PRINCIPLES AND TECHNIQUES OF SOILLESS PLANT PRODUCTION (3) LEC. 3. This course is a survey of the science of hydroponic plant production and is focused on commercial and home vegetable crop production. Specific topics include plant growth and nutrition in hydroponic growing systems, challenges and opportunities, and system design.

HORT 2210 LANDSCAPE GARDENING (4) LEC. 2. LAB. 4. Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts. Summer and Fall.

HORT 2240 PLANT PROPAGATION (3) LEC. 2. LAB. 3. Pr. P/C BIOL 1030 or BIOL 1037. Basic principles and practices involved in the propagation of horticulture plants. Departmental approval. Fall and Spring.

HORT 2250 ART OF FLORAL DESIGN (3) LEC. 2. LAB. 2. Basic art principles and design elements and their use with flowers and foliage; history and utilization of flowers within society.

HORT 2300 GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1030. Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.

HORT 3110 PLANTS AND PEOPLE: A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3. Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history.

HORT 3210 SMALL TREES, SHRUBS AND VINES (4) LEC. 2. LAB. 6. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture and landscape use of small trees, shrubs and vines. Spring and Summer.

HORT 3220 ARBORICULTURE (4) LEC. 2. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Identification, culture and use of ornamental trees in landscape plantings. Departmental approval. Fall.

HORT 3280 LANDSCAPE CONSTRUCTION (4) LEC. 2. LAB. 4. Principles and practices used in the interpretation and implementation of landscape construction and planting plans.

HORT 3800 CAREERS IN HORTICULTURE (1) LEC. 1. SU. Current developments and career opportunities in horticulture. Fall.

HORT 3840 STUDY/TRAVEL IN HORTICULTURE (1-10) AAB/FLD. Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.

HORT 3920 HORTICULTURE INTERNSHIP (4) INT. 4. Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.

HORT 3950 CAREERS IN HORTICULTURE (1) LEC. 1. SU. Current developments and career opportunities in horticulture. Fall.

HORT 4000 PESTICIDE MANAGEMENT IN HORTICULTURE (3) LEC. 3. Pr. ENTM 4020 and (PLPA 3000 or PLPA 3003). Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Fall.

HORT 4100 HERBACEOUS ORNAMENTALS (4) LEC. 2. LAB. 4. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.

HORT 4250 INTERMEDIATE FRUIT & VEG PROD (3) LEC. 3. Pr. (HORT 2040 or HORT 2043) or HORT 2030. Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (4) LEC. 2. LAB. 4. Pr. HORT 3210 or HORT 3220 or HORT 4100. A study of the design principles and elements and technical skills used to create a functional and aesthetically pleasing residential landscape design.

HORT 4300 COMP AIDED PLANTING DESIGN (3) LEC. 3. Coreq. HORT 4270. Graphic concepts relating to spatial visualization and communication and project cost estimation using computer aided drafting and project management software developed for landscape professionals. Spring.
HORT 4930 DIRECTED STUDIES (1-3) AAB/IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 4970 SPECIAL TOPICS (1-3) IND. Principles, methods and techniques for understanding various horticultural disciplines. Course may be repeated for a maximum of 6 credit hours.

HORT 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

HORT 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 5110 TREE FRUIT CULTURE (3) LEC. 2. LAB. 2. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Departmental approval. Summer, odd years. May count either HORT 5110 or HORT 6110.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. HORT 3000. Principles and practices involved in the production and marketing of small fruits and pecans. Departmental approval. May count either HORT 5120 or HORT 6120.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Departmental approval. Spring.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Departmental approval. Spring.

HORT 5150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220 or Departmental approval. The following topics will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. May count either HORT 5150 or HORT 6150.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) and (PLPA 3000 or PLPA 3003). Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and CHEM 1030 and HORT 2240 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Management, culture and economics of commercial greenhouse production. Fall.


HORT 5240/5243 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 2. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens.

HORT 5280 ADVANCED LANDSCAPE DESIGN (3) LEC. 3. Pr. HORT 4270. Departmental approval. Continuation of HORT 4270 with an emphasis on design projects.

HORT 5910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Course may be repeated for a maximum of 8 credit hours.

HORT 6110 TREE FRUIT CULTURE (3) LEC. 2. LAB. 2. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Departmental approval. Summer, odd years. May count either HORT 5110 or HORT 6110.

HORT 6120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Principles and practices involved in the production and marketing of small fruits and pecans. Departmental approval. Spring, even years. May count either HORT 5120 or HORT 6120.


HORT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.
HORT 6150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220. Departmental approval. Topics included: financing, location, design, stocking, selling, personnel management, advertising, and maintaining plants. Graduate students will evaluate garden centers and provide feedback for improvement.

HORT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. (CSES 2040 or CSES 2043) and (PLPA 3000 or PLPA 3003) or (AGRN 2040 or AGRN 2043). Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 6220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and CHEM 1030 and HORT 2240 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Management, culture and economics of commercial greenhouse production. Fall.


HORT 6240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 2. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens.

HORT 6280 ADVANCED LANDSCAPE DESIGN (3) LEC. 5. Pr. HORT 4270. Departmental approval. Continuation of HORT 4270 with an emphasis on design projects.

HORT 6910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Course may be repeated for a maximum of 8 credit hours.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (4) LEC. 2. LAB. 3. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Departmental approval. Fall.

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (HORT 3000 or BIOL 3100) and BIOL 3101. Plant growth and development from seed germination, through maturity and senescence. Summer, even years.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3. LAB. 2. Pr. HORT 3000. Nutritional requirements of horticulture crops and factors affecting these requirements. Departmental approval. Summer, odd years.

HORT 7070 PLANT BIOTECHNOLOGY (4) LEC. 2. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement. Departmental approval. Spring, odd years.

HORT 7080 ENVIRONMENTAL PLANT STRESS (3) LEC. 4. Pr. HORT 3000. Departmental approval. Mechanisms related to adaptation of plants to environmental stresses.

HORT 7840 GRADUATE STUDY/TRAVEL IN HORTICULTURE (1-4) LEC. Departmental approval. Programmed activities to enhance national/international awareness and enable students to understand horticultural practices in diverse areas. Course may be repeated for a maximum of 8 credit hours.

HORT 7850 URBAN FORESTRY SEMINAR (1) LEC. 3. SU. Presentation and discussion of research, scientific papers and issues related to urban forestry establishment, care and planning. Credit will not be given for HORT 7850 and FORY 7850.

HORT 7920 GRADUATE INTERNSHIP (1-4) INT. Departmental approval. Supervised professional experience in horticulture

HORT 7950 SEMINAR (1) SEM. SU. Graduate students are required to attend all seminars. Course may be repeated with change in topics.

HORT 7960 SPECIAL PROBLEMS (1-3) IND. 3. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 7970 SPECIAL TOPICS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.
Plant Pathology Courses

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 3000/3003 GENERAL PLANT PATHOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course credit will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4950 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Senior standing or department approval. Development of professional skills required for modern careers in entomology, plant pathology and applied biotechnology.

PLPA 4960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Assigned readings on topics pertinent to plant pathology or individual student endeavor consisting of directed research and writing of honor's thesis. Course may be repeated for a maximum of 6 credit hours.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Pr. PLPA 3000 or PLPA 3003. Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 6050. Summer.

PLPA 5060 PLANT DISEASE MANAGEMENT (3) LEC. 3. Pr. PLPA 3000 or PLPA 3003. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 5200/5203 MYCOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems including plants, animals, and humans. Credit will only be given to one of the following: PLPA 5200, 5203, 6200, or 6206.

PLPA 5250/5253 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 5300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3. LAB. 2. Pr. BIOL 1030. Department approval. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. May count PLPA 5300 or PLPA 6300 or PLPA 7300.

PLPA 5400 PLANT VIROLOGY (3) LEC. 3. Pr. PLPA 3000 or PLPA 3003. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

PLPA 5500/5503 PLANT NEMATOLOGY (4) LEC. 2. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. May count either PLPA 5500 or PLPA 6500.

PLPA 5600 PHYSIOLOGY OF PLANT HEALTH AND DISEASE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances. Introduces biochemical, molecular and cellular mechanisms by which plants defend/assimilate themselves towards diverse abiotic stress stimuli.

PLPA 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.
PLPA 6060 PLANT DISEASE MANAGEMENT (3) LEC. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 6200/6206 MYCOLOGY (4) LEC. 3. LAB. 2. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems including plants, animals, and humans. Credit will only be given to one of the following: PLPA 5200, PLPA 5203, PLPA 6200 or PLPA 6206.

PLPA 6250/6256 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. Pr. BIOL 3200. or prior approval of the instructor. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 6300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3. LAB. 2. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. May count either PLPA 5300 or PLPA 6300.

PLPA 6400 PLANT VIROLOGY (3) LEC. 3. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

PLPA 6500/6506 PLANT NEMATOLOGY (4) LEC. 2. LAB. 4. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytoneutology. May count either PLPA 5500 or PLPA 6500.

PLPA 6600 PHYSIOLOGY OF PLANT HEALTH AND DISEASE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or Departmental approval. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances, biochemical, molecular and cellular mechanism by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. May count either PLPA 5600 or PLPA 6600.

PLPA 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1. LAB. 6. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7820 RESEARCH PROPOSAL WRITING (4) LEC. 3. Graduate level standing or Department approval. Experience in all aspects of writing and reviewing competitive research proposals through a workshop-format culminating in each student writing a proposal on research topics of their choosing. Fall.

PLPA 7866/7860 PLANT DISEASE EPIDEMIOLOGY (3) LEC. 3. Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination.

PLPA 7861 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4. Coreq. PLPA 7860. Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.


PLPA 7900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

PLPA 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Graduate level standing in PLPA or ENTM or Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

PLPA 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1. SU. Departmental approval. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.
PLPA 7960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

PLPA 7970/7976 SPECIAL TOPICS IN PLANT PATHOLOGY (1-5) ST1. Advanced topics related to plant pathology. Course may be repeated for a maximum of 5 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research and thesis on problems in plant pathology. Course may be repeated with change in topics.

PLPA 8880 MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6200 or PLPA 6206. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Comprehensive coverage of the molecular biology of plant-pathogen interactions.

PLPA 8900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

PLPA 8910 TEACHING PRACTICUM (1-3) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

PLPA 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

PLPA 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Presentations and discussion of scientific literature or dissertation research findings. Required for all Ph.D. candidates. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 8960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated with change in topics.

Poultry Science Courses

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3) LEC. 2. LAB. 2. Introduction to the poultry species and their commercial production, physiology, nutrition and management. Fall.

POUL 2000 POULTRY AND EGG EVALUATION AND SELECTION (1) LAB. 1. A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Spring and Fall. Course may be repeated for a maximum of 4 credit hours.

POUL 2100 PROFESSIONAL DEVELOPMENT FOR ANIMAL AGRICULTURE, PRODUCTION, PROCESSING & FEED INDUSTRIES (1) LEC. 1. Development of professional skills and career preparation for students in animal agriculture.

POUL 3030 COMMERCIAL POULTRY PRODUCTION (4) LEC. 3. LAB. 3. The organization and management principles of the commercial poultry meat and egg production industries. Fall.


POUL 3150 POULTRY PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1020. The physiological principles and characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4100 SUPERVISED INVESTIGATION (1-4) IND. Pr. 2.50 GPA. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 4920 POULTRY SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.
POUL 4960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. 2.5 GPA or departmental approval. Individual or group projects with a faculty member in poultry science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

POUL 4970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Instruction and discussion of selected current topics in poultry science. Departmental approval. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

POUL 5020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 6020 or POUL 5020.

POUL 5030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. Pr. POUL 3030 and POUL 3150 and POUL 5050 and POUL 5110. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry.

POUL 5050 POULTRY FEEDING (3) LEC. 3. Pr. ANSC 3410. The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 and POUL 6050.

POUL 5080/5083 POULTRY HEALTH (3) LEC. 3. Pr. BIOL 3200 and (CHEM 2030 or CHEM 2070 or CHEM 2077). Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080, POUL 5083 and POUL 6080.

POUL 5110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Pr. POUL 3030 and (CHEM 2030 or CHEM 2070) or Departmental approval. The course focuses on poultry processing and related aspects. Students will learn the effects of live production, feed withdrawal and haul on poultry processing and quality as well as pre- and post-harvest food safety, USDA regulations, Halal and Kosher standards. May count either POUL 5110 and POUL 6110.

POUL 5140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. Pr. CHEM 2030 or CHEM 2070. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.

POUL 5160 PRINCIPLES OF FOOD SAFETY (3) LEC. 2. LAB. 3. Pr. BIOL 3200. Identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 6020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 5020 or POUL 6020.

POUL 6050 ADVANCED POULTRY FEEDING (3) LEC. 3. An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 or POUL 6050.

POUL 6080 ADVANCED POULTRY HEALTH (3) LEC. 3. Departmental approval. An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080 and POUL 6080. Fall.

POUL 6110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Students will acquire strong knowledge on each step of poultry processing from hanging to chilling and transportation. The course will cover topics on food safety (pre- and post-harvest), spoilage, antimicrobial interventions, USDA regulations as well as Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 6140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. Pr. CHEM 2030 or CHEM 2070. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. Departmental approval. Credit is not allowed for both POUL 6140 or POUL 5140.
POUL 6160 ADVANCED PRINCIPLES OF FOOD SAFETY (3) LEC. 2. LAB. 3. Departmental approval. An advanced study and literature review of the identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 7100 SUPERVISED INVESTIGATION (1-4) IND. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7950 GRADUATE SEMinar (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either FDSC 7950 or POUL 7950. Course may be repeated for a maximum of 3 credit hours.

POUL 7960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. Departmental approval. Critical analysis of classic and current research in poultry science, including literary research and/or data analysis. Course may be repeated for a maximum of 6 credit hours.

POUL 7970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of current advanced topics associated with poultry science. Course may be repeated for a maximum of 8 credit hours.

POUL 7980 NON-THESIS RESEARCH (1-4) RES. Departmental approval. enrolled as POUL MAg student. Research conducted as part of the Master of Agricultural degree.

POUL 7990 RESEARCH AND THESIS (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

POUL 8100 GI SYSTEMS AND NUTRIENT UTILIZATION (3) LEC. 3. Pr. POUL 5050. Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8150 AVIAN PHYSIOLOGY (3) LEC. 3. Physiology of organ systems of birds with emphasis on domestic fowl. Fall. Students should have completed a course in animal or human physiology.

POUL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 5220 and BIOL 5230. Departmental approval. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both POUL 8160 and CMBL 8160. Odd years. Fall.


POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

Rural Sociology Courses
RSOC 3190 FOOD, AGRICULTURE, AND SOCIETY (3) LEC. 3. Historical development of the agrifood system, a range of outcomes and impacts from this development, and the current trends in agrifood system structure and organization.

RSOC 3560 ENVIRONMENT, SOCIETY, AND JUSTICE (3) LEC. 3. The course focuses on micro and macro structures influencing environmental problems, and possible pathways for their resolution. The course introduces Environmental Sociology through an action-oriented approach to environmental problems.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3. Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.
RSOC 4410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension System is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 4910 DIRECTED FIELD EXPERIENCE (3) LEC. 3. Departmental approval. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

RSOC 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 4960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Departmental approval. Investigation of problems in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 5190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. Key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy). May count either RSOC 5190 or RSOC 6190.

RSOC 5510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society, analysis of anti-poverty programs.

RSOC 5610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.

RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. This is an advanced course that will focus on key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy).

RSOC 6510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty and inequality and their effects on families and society; analysis of anti-poverty programs.

RSOC 6610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; and citizen participation in community affairs.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 7410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension Service is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 7620 SOCIOLOGY OF COMMUNITY (3) LEC. 3. Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.
RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3) LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.


RSOC 7960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Pr., departmental approval. Investigation of a problem in a particular area of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 6 credit hours.

RSOC 7970 SPECIAL TOPICS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (3) LEC. Departmental approval. New topic in the area of rural sociology and community development.

RSOC 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topics.

Agricultural Communications Major

The Agricultural Communications program is designed to produce graduates who possess exceptional communication skills meshed with a strong science-based background in agriculture and natural resources. This degree enables graduates to communicate vital information related to science, agriculture, natural resources, food and the environment to diverse audiences. Agricultural Communications graduates are prepared to work in the public and private sectors—from corporations to government agencies to nonprofits—pursuing a variety of careers including: writers, photographers, graphic designers, Web developers and managers, videographers, electronic/digital media producers, marketing specialists, public relations practitioners, publishers, researchers, distance education specialists, overseas development workers, extension educators and managers and editors of magazines and other printed or online news venues. Graduates work throughout corporate America, institutions of higher learning, government agencies, medical technology operations, lobbyist and advocacy groups, non-profits and research organizations in the public and private sector. This combination of technical subject matter knowledge and communication skills is not found in other curricula. The program also prepares students for graduate and professional schools, including law school.

Curriculum in Agricultural Communications

### Freshman

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<th>Fall</th>
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<td>COMM 1000 Public Speaking</td>
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### Sophomore

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<td>JRNL 1100 Journalism Fundamentals</td>
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<td>COMM 3600 Foundations of Rhetoric and Social Influence</td>
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<td>MDIA 3300 Foundation of Mass Communication</td>
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### Senior

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### Total Hours: 120

1. Students will choose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, UNIV 2710 or UNIV 2720/UNIV 2727.
2. Select from: JRNL 2210, JRNL 2310, JRNL 3220, JRNL 3410, JRNL 3470, JRNL 4230, PRCM 3000, PRCM 3500, PRCM 3280, MDIA 3350, CMJN 3110, ENGL 2010, ENGL 4020, ENGL 4030.
3. Select one Agriculture Elective from Group I, II, and III: (Group I-Animal Sciences): ANSC 1000, POUL 1000 or FISH 2100; (Group II-Plant Sciences): CSES 1000/03, CSES 2040/43, HORT 2100, HORT 2200, HORT 2300, or HORT 2400; (Group III-Diseases & Pests): ENTM 2040/43, ENTM 3040, or PLPA 3000; (Group IV-Food & Environ): FDSC 1000, CSES 1010, or ENVI 1020.
4. Select from courses in the College of Agriculture or COMM, JRNL, MDIA, PRCM, or ENGL. Four hours of CHEM and 3 hours of STAT may be applied.

### Agricultural Economics and Rural Sociology

The curriculum provides broad technical training and a strong liberal arts and business background to prepare students for careers in a wide array of agribusiness and related fields.

Students are encouraged to use professional electives to complete a minor from the College of Agriculture, the College of Business the College of Sciences and Mathematics or the School of Forestry and Wildlife Sciences or in Economics in the College of Liberal Arts. Otherwise, students may follow a general program by selecting from courses at the 3000-level or higher in the College of Agriculture, the College of Business, College of Mathematics and Sciences or the School of Forestry and Wildlife, as well as offerings at the 3000 level or higher in Economics, Sociology, Anthropology, Geography, Political Science, or Statistics. Basic Soil Science (CSES 2040)
may also be counted as a professional elective, as may up to 8 hours of a foreign language, regardless of the level. Students are encouraged to see their advisors to plan their professional electives around an interest area that best meets their career aspirations.

Major
- Agricultural Business & Economics (p. 182)

Minor
- Agribusiness (p. 181)
- Natural Resources Economics and Environmental Policy (p. 183)
- Rural and Community Development (p. 184)

Agric Economics Courses

**AGEC 3010/3013 AGRIBUSINESS MARKETING (3)** LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions. May count either AGEC 3010 or AGEC 3013.

**AGEC 3050 FARM APPRAISAL (2)** LEC. 2. Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.

**AGEC 3080 FUTURES AND OPTIONS MARKETING (2)** LEC. 2. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.

**AGEC 3100 COMPUTER APPLICATIONS IN AGRICULTURAL ECONOMICS (3)** LEC. 3. Pr. (COMP 1000 or COMP 1003) and (P/C STAT 2010 or P/C STAT 2510 or P/C STAT 2513 or P/C STAT 2610). Analytical methods for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.

**AGEC 3200 QUANTITATIVE METHODS IN AGRICULTURAL ECONOMICS (3)** LEC. 3. Pr. MATH 1690 and AGEC 3100. The course covers mathematical and econometric models for the quantitative analysis of problems in food, agricultural, development and resource/environmental economics.

**AGEC 3300 AGRICULTURAL POLICIES AND TRADE (3)** LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.

**AGEC 3920 AGRICULTURAL BUSINESS AND ECONOMICS INTERNSHIP (1-3)** INT. SU. Departmental approval. Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.

**AGEC 3950 CAREERS IN AGRICULTURAL BUSINESS AND ECONOMICS (1)** LEC. 1. SU. To develop skills to find a job and learn about career opportunities in agricultural business and economics.

**AGEC 4000 PRINCIPLES OF AGRIBUSINESS MANAGEMENT (3)** LEC. 3. Pr. (ECON 2020 or ECON 2027 or ECON 2023). Economics and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).

**AGEC 4040 AGRIBUSINESS FINANCE (3)** LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610). ECON 2020 or ECON 2023 or ECON 2027 with minimum grade of C. Economic problems and policies in financing agriculture.

**AGEC 4070 AGRICULTURAL LAW (3)** LEC. 3. Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.

**AGEC 4100 AGRICULTURAL COOPERATIVES (2)** LEC. 2. Principles and problems of organizing and operating farmers' cooperative buying and selling associations.

**AGEC 4120 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS (3)** LEC. 3. Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.
AGEC 4960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-2) IND. Departmental approval. Individual or group projects with a faculty member in agricultural economics or agribusiness. May include research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.

AGEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Membership in the Honors College required; Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.

AGEC 4970 SPECIAL TOPICS IN AGRICULTURAL ECONOMICS (1-3) LEC. SU. Departmental approval. May be repeated with change of topic. Course may be repeated for a maximum of 6 credit hours.

AGEC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and AGEC 3100. ECON 2020 or 2023 or 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610) and (MATH 1690 or MATH 1620 or MATH 1627) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 5090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and AGEC 3100 and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1610) and (ECON 2020 or ECON 2027) and (STAT 2010 or STAT 2510 or STAT 2610) and ACCT 2110 or ACCT 2810 and AGEC 3100. ECON 2020/ECON 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (MATH 1690 or MATH 1620) and (STAT 2010 or STAT 2510 or STAT 2610). Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 6090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.
AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3. Pr. (AGEC 6090 and AGEC 3300) or AGEC 6030 or AGEC 4300. Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7010 ADVANCED FARM MANAGEMENT (3) LEC. 3. Pr. AGEC 6010. Advanced theory and application of farm management principle principles and economic concepts to agriculture. Planning, implementation, and control of various types of farms for optimum utilization of available resources.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3. Pr. AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. Introduction to equilibrium-displacement modeling.

AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3. Pr. ECON 6020. Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3. Pr. AGEC 6090. Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7250 AQUACULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 7200. Application of advanced economic theory and principles of production, marketing, and consumption of aquacultural products. Analysis of comparative role and competitive position of aquaculture in economic development and resource allocation.

AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and STAT 2610. Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroschedasticity, autocorrelation and measurement errors.

AGEC 7690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS I (3) LEC. 3. Pr. AGEC 7590. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. ECON 7130 and AGEC 7590. Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7950 GRADUATE SEMINAR (1) SEM. 1. SU. A forum for sharing research information and interaction on topics and issues of current interest.

AGEC 7960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-3) AAB. Departmental approval required; Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 6 credit hours.

AGEC 7970 SPECIAL TOPICS IN AGRIC ECON (3) LEC. 3. Departmental approval. New topics in agricultural and applied economics.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3. Pr. AGEC 7590 and ECON 6020. Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.
AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3. Pr. AGEC 7080. Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investments.

AGEC 8090 FOOD AND AGRICULTURAL POLICY (3) LEC. 3. Pr. ECON 6020 or ECON 7000 or ECON 7110. The course will cover current issues in the economics and policies associated with food, food production and marketing.

AGEC 8690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 8310. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course. May count either AGEC 8310 or AGEC 8690.

AGEC 8890 TOPICS IN AGRICULTURAL MICROECONOMETRICS (3) LEC. 3. Pr. AGEC 8690. This course is meant to assimilate knowledge acquired throughout core coursework in the Agricultural Economics PHD program.

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Rural Sociology Courses

RSOC 3190 FOOD, AGRICULTURE, AND SOCIETY (3) LEC. 3. Historical development of the agrifood system, a range of outcomes and impacts from this development, and the current trends in agrifood system structure and organization.

RSOC 3560 ENVIRONMENT, SOCIETY, AND JUSTICE (3) LEC. 3. The course focuses on micro and macro structures influencing environmental problems, and possible pathways for their resolution. The course introduces Environmental Sociology through an action-oriented approach to environmental problems.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3. Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.

RSOC 4410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension System is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 4910 DIRECTED FIELD EXPERIENCE (3) LEC. 3. Departmental approval. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

RSOC 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 4960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Departmental approval. Investigation of problems in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 5190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. Key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy). May count either RSOC 5190 or RSOC 6190.

RSOC 5510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society, analysis of anti-poverty programs.

RSOC 5610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.
RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. This is an advanced course that will focus on key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy).

RSOC 6510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty and inequality and their effects on families and society; analysis of anti-poverty programs.

RSOC 6610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; and citizen participation in community affairs.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6660 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 7410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension Service is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 7620 SOCIOLOGY OF COMMUNITY (3) LEC. 3. Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.

RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3) LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.


RSOC 7960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Pr., departmental approval. Investigation of a problem in a particular area of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 6 credit hours.

RSOC 7970 SPECIAL TOPICS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (3) LEC. 3. Departmental approval. New topic in the area of rural sociology and community development.

RSOC 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topics.

Agribusiness Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

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<td>Principles of Agribusiness Management</td>
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<td>AGEC 5010</td>
<td>Farm Management</td>
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<td>AGEC 5100</td>
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Auburn University
Elective Courses - See below course listing below.

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<td>AGEC 3010</td>
<td>Agribusiness Marketing</td>
<td>3</td>
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<tr>
<td>AGEC 3080</td>
<td>Futures and Options Marketing</td>
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<tr>
<td>AGEC 3300</td>
<td>Agricultural Policies and Trade</td>
<td>3</td>
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<td>AGEC 4040</td>
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<tr>
<td>AGEC 4070</td>
<td>Agricultural Law</td>
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<tr>
<td>AGEC 4100</td>
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<tr>
<td>AGEC 5030</td>
<td>Agricultural Prices</td>
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Total Hours: 15

Choose 9 hours to satisfy elective courses

Curriculum in Agricultural Business & Economics

### Freshman

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<tr>
<th>Term</th>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>Fall</td>
<td>ENGL 1100</td>
<td>English Composition I</td>
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<td></td>
<td>HIST 1210</td>
<td>Technology and Civilization I</td>
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<td></td>
<td>SOCY 1000</td>
<td>Sociology: Global Perspective</td>
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<td>Fine Arts Core²</td>
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<td></td>
<td>MATH 1680</td>
<td>Calculus with Business Applications I</td>
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<td>Calculus with Business Applications I</td>
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Total Hours: 16

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<td>Spring</td>
<td>ENGL 1120</td>
<td>English Composition II</td>
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<td>COMP 1000</td>
<td>Personal Computer Applications</td>
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<td></td>
<td>ECON 2020</td>
<td>Principles of Microeconomics</td>
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Total Hours: 14

### Sophomore

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<tbody>
<tr>
<td>Fall</td>
<td>ACCT 2110</td>
<td>Principles of Financial Accounting</td>
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<td>BIOL 1020</td>
<td>Principles of Biology</td>
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<td></td>
<td>BIOL 1021</td>
<td>Principles of Biology Laboratory</td>
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<td></td>
<td>ECON 2030</td>
<td>Principles of Macroeconomics</td>
<td>3</td>
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<td></td>
<td>ENGL 2200</td>
<td>World Literature before 1600</td>
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<td>PHIL 1040</td>
<td>Business Ethics</td>
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Total Hours: 16

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<tr>
<td>Spring</td>
<td>ACCT 2210</td>
<td>Principles of Managerial Accounting</td>
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<td></td>
<td>BIOL 1030</td>
<td>Organismal Biology</td>
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<td>BIOL 1031</td>
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<td>STAT 2610</td>
<td>Statistics for Business and Economics</td>
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<td>COMM 1000</td>
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Total Hours: 15

### Junior

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<tr>
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<td>AGEC 3100</td>
<td>Computer Applications in Agricultural Economics</td>
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<td>AGEC 4040</td>
<td>Agribusiness Finance</td>
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<td>ECON 3020</td>
<td>Intermediate Microeconomics</td>
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<td>ENGL 3080</td>
<td>Business Writing</td>
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Total Hours: 15-16

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<th>Course Title</th>
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<tr>
<td>Spring</td>
<td>AGEC 3010</td>
<td>Agribusiness Marketing</td>
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<td></td>
<td>AGEC 3300</td>
<td>Agricultural Policies and Trade</td>
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<td></td>
<td>AGEC 4010</td>
<td>Careers in Agricultural Business and Economics</td>
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<td>Professional Elective⁶</td>
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<td>Agricultural Elective⁹</td>
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Total Hours: 15
**Senior**

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<tr>
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<tr>
<td>AGEC 4070 Agricultural Law</td>
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<td>AGEC 5010 Farm Management</td>
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<td>AGEC 5090 Environmental and Natural Resource Economics I</td>
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<td>AGEC 5030 Agricultural Prices</td>
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<td>AGEC 5100 Agricultural Business Management</td>
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<td>14</td>
<td>Total Hours:</td>
<td>14</td>
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**Total Hours Required: 120**

“Courses in the major” are in **bold** print and designated (M) (30 credit hours; used to calculate “GPA in the major”)

1. HIST 1010 or 1013 or 1017 & 1020 or 1027 (World History I & II) may be substituted.
2. Select one from: ARCH 2600; ARTS 1710/ARTS 1717, ARTS 1720/ARTS 1727 or ARTS 1730/ARTS 1737; MUSI 2730/MUSI 2737; MDIA 2350 or THEA 2010/THEA 2013/ THEA 2017
3. Select any core literature class (see bulletin)
4. PHIL 1020 or 1023 or 1027 Introduction to Ethics may be substituted.
5. STAT 2510 or 2513 Statistics for Biological and Health Sciences may be substituted.
6. Select one Agriculture Elective from Group I and one from Group II below:
   - (Group I- Animal Sciences) ANSC 1000 or POUL 1000,
   - (Group II- Plant Sciences) CSES 1000, 1003, HORT 2010, HORT 2020, or HORT 2030
7. Select from any course at the 3000-level or higher in the College of Agriculture, the College of Business, College of Sciences and Mathematics or the School of Forestry and Wildlife Sciences, as well as offerings at the 3000 level or better in Sociology, Anthropology, Geography, Political Science, or Statistics (except AGEC 4000 Principles of Agribusiness Management). Basic Soil Science (CSES 2040) may also be counted as a professional elective, as may up to 8 hours of a foreign language, regardless of the level. Any course that is used to complete a minor may also be counted as a professional elective. Students are encouraged to see their advisors to plan their professional electives around an interest area that best meets their career aspirations. No more than three hours of professional electives can come from X9XX courses.
8. SOCY 1100 Current Issues in Race & Ethnicity or NATR 2050 People & the Environment may be substituted.

## Natural Resources Economics and Environmental Policy Minor

15 semester hours in minor (minimum 12 hours at 3000-level or above)

### Group A

Select three of the following:

- AGEC 5090 Environmental and Natural Resource Economics I
- ECON 5200 Urban and Regional Economic Development
- RSOC 5650 Sociology of Natural Resources and the Environment
- GEOG 5830 Geographic Information Systems

**Total Hours 9**

### Group B

Select two of the following:

- AGEC 4120 Environmental and Natural Resource Economics
- AGEC 3300 Agricultural Policies and Trade
- FORY 5310 Environmental Ethics
- FORY 5540/6540 Environmental Law

**Total Hours 6**

**Total Hours 15**
Rural and Community Development Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>RSOC 3620</td>
<td>Community Organization</td>
<td>3</td>
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<tr>
<td>Elective Courses - See advisor for approved course listing.</td>
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<tr>
<td>RSOC 5610</td>
<td>Rural Sociology</td>
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<td>Total Hours</td>
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Choose 9 hours to satisfy elective courses.

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<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>RSOC 3190</td>
<td>Food, Agriculture, and Society</td>
<td>3</td>
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<tr>
<td>RSOC 4910</td>
<td>Directed Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 4930</td>
<td>Directed Studies</td>
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<tr>
<td>RSOC 5640</td>
<td>Sociology of Community Development</td>
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<tr>
<td>RSOC 5650</td>
<td>Sociology of Natural Resources and the Environment</td>
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<tr>
<td>SOCY 3700</td>
<td>Methods of Social Research</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 3560</td>
<td>Environment, Society, and Justice</td>
<td>3</td>
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<tr>
<td>RSOC 5190</td>
<td>Sociology of Sustainable Agrifood Systems</td>
<td>3</td>
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Crop, Soil and Environmental Sciences

The Department of Crop, Soil and Environmental Sciences offers four degree options (production, science, turfgrass, and soil, water, and land use) and administers the interdisciplinary Environmental Sciences major. Degrees are tailored to prepare students in a wide range of careers in the turfgrass industry, agri-life industry (e.g., producers of fertilizers, herbicides and other agricultural products), farm-advisory agencies (e.g., soil-testing laboratories and other private consultants), environmental consulting and regulatory agencies, public farm-advisory agencies e.g., Agricultural Extension System or the Natural Resources Conservation Service), research agencies or corporations, U.S. Department of Agriculture, colleges and universities and Agricultural Experiment Stations, farming, and environmental agencies.

Majors

- Crop and Soil Sciences - Production Option (p. 189)
- Crop and Soil Sciences - Science Option (p. 191)
- Crop and Soil Sciences - Turfgrass Option (p. 193)
- Crop and Soil Sciences - Soil, Water and Land Use Option (p. 192)

Minor

- Crop and Soil Minor
- Stewardship-based Agriculture

Courses

**CSES 1000/1003 BASIC CROP SCIENCE (4)** LEC. 3. LAB. 2. Agronomic principles of classification, growth, structure, and soil-plant relationship of field crops, with emphasis on influence of man and environment, and importance of crop production. Credit will not be given for both CSES 1000 and CSES 1003.

**CSES 1010 SOILS AND LIFE (4)** LEC. 3. LAB. 2. Science Core. Practical applications of important soil properties and their function in everyday life. Connections between soils and human life will be made. topics include food security, sustainable agricultural production, soil and water quality, and waste disposal.

**CSES 1020 CROPS AND LIFE (4)** LEC. 3. LAB. 2. Science Core. Essential role of crop plants to human life. Topics will include historical development of crop science, impact of crop science on human development, and major issues and problems facing modern crop science and technology.
CSES 2040/2043 BASIC SOIL SCIENCE (4) LEC. 3. LAB. 2. Pr. (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) or (CHEM 1110 and CHEM 1111) or (CHEM 1117 and CHEM 1118). Formation, classification, properties, management, fertility and conservation of soils in relation to the growth of plants. Fall, Spring.

CSES 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2. Introduction to the commonly used turfgrasses of the southeastern United States including of these turfgrasses for gold courses, athletic fields and home lawns will be included. This course may not be substituted for CSES 3150.

CSES 3100 SOILS IN AGRICULTURAL AND EARTH SYSTEMS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 1007) and CHEM 1010. The role of the soils as key components in changing earth and agricultural systems. Intended for those who will teach earth science at the middle school level. Credit will not be given for CSES 3100 and either CSES 2040 or CSES 3040. Spring, Summer, Fall.

CSES 3120/3123 PRINCIPLES OF WEED SCIENCE (4) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) and (BIOL 1020 or BIOL 1027). Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

CSES 3150/3153 TURFGRASS MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043) and (BIOL 1020 or BIOL 1027). The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of light, traffic, soil fertility and water on its growth. Fall, Spring.

CSES 3200 APPLIED TURF MANAGEMENT (3) LEC. 1. LAB. 4. Pr. (P/C CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Familiarize students with the operation and maintenance of the equipment used for turfgrass maintenance. Effects on turfgrass performance will also be covered.

CSES 3920 INTERNSHIP (3-4) INT. 3-4. Departmental approval. Practical experience under the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science.

CSES 3960 SPECIAL PROBLEMS (2) LAB. 2. Departmental approval. Individual and group problems investigations in crop, soil or weed science. Course may be repeated for a maximum of 4 credit hours.

CSES 3970 SPECIAL TOPICS (3) ST1. 3. New topics in agronomy and soils. Course may be repeated for a maximum of 6 credit hours.

CSES 4200 SOIL JUDGING (2) LEC. 1. LAB. 4. Description, evaluation and interpretation of soil-profile characteristics. Fall. Course may be repeated for a maximum of 8 credit hours.

CSES 4210 ADVANCED SOIL JUDGING (2) LEC. 1. LAB. 2. Pr. CSES 4200 or (AGRN 4200 or AGRN 4203). Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring. Course may be repeated for a maximum of 8 credit hours.

CSES 4950 SENIOR SEMINAR (2) LEC. 2. This course will cover professional presentations, both oral and written, in the area of Agronomy and Soils.

CSES 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

CSES 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

CSES 5000 SOILS & ENVIRONMENTAL QUALITY (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 5010/5013 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 5020/5023 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.
CSES 5030/5033 ADVANCED CROP SCIENCE (3) LEC. 3. Pr. (CSES 1000 or CSES 1003) or (AGRN 1000 or AGRN 1003 or AGRN 1007) or (AGRN 2040 or AGRN 2043) and (CSES 2040 or CSES 2043) and (BIOL 1030 or BIOL 1037). Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030.

CSES 5060/5063 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 5061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 5060 or P/C CSES 5063) or (P/C AGRN 5060 or P/C AGRN 5063). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 5080/5083 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 5080 Summer. CSES 5083 Fall.

CSES 5100/5103 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 5150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 5160/5163 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 5180 SPORTS TURF MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) or (AGRN 3150 or AGRN 3153). Design, construction and management of sports fields and the turfgrass cover on such fields.

CSES 5200 APPLIED WEED SCIENCE TECHNOLOGY (3) LEC. 3. SU. Pr. (CSES 3120 or CSES 3123) or (AGRN 3120 or AGRN 3123). Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 5300/5303 SOIL CHEMISTRY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 5400/5403 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 5500/5503 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring. May count either CSES 5500 or CSES 5503.

CSES 5590 ENVIRONMENTAL SOIL PHYSICS (4) LEC. 3. LAB. 2. Pr. CSES 2040. This course is designed to make the students understand basic soil physical properties and processes occurring in soils. All concepts are based on sound physical and mathematical principles. May count either CSES 5590 or CSES 6590.

CSES 5960 SPECIAL PROBLEMS (1-3) IND. Work under the direction of a staff member on special problems in crop, soil or weed science. Course may be repeated for a maximum of 6 credit hours.

CSES 6000 SOILS & ENVIRONMENTAL QUALITY (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.
CSES 6010/6016 ANALY PLANT, SOIL & ANI DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 6020/6026 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 6030/6036 ADVANCED CROP SCIENCE (3) LEC. 3. Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030/CSES 6030 or CSES 5033/CSES 6036.

CSES 6060/6066 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 6061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 6060 or P/C CSES 6066) or (P/C AGRN 6060 or P/C AGRN 6066). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 6080/6086 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 6080 Summer. CSES 6086 Fall.

CSES 6100/6106 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall.

CSES 6150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 6160/6166 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (BIOL 3100 or BIOL 6130) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 6180 SPORTS TURF MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) or (AGRN 3150 or AGRN 3153). Design, construction and management of sports fields and the turfgrass cover on such fields.

CSES 6200 APPLIED WEED SCIENCE TECH (3) LEC. 3. SU. Pr. (CSES 3120 or CSES 3123) or (AGRN 3120 or AGRN 3123). Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 6300/6306 SOIL CHEMISTRY (4) LEC. 2. LAB. 4. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 6400/6406 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 6500/6506 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Pr., In major or departmental approval. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops and (d) energy crops. May count either CSES 6500 or CSES 6506.

CSES 6590 ENVIRONMENTAL SOIL PHYSICS (4) LEC. 3. LAB. 2. Pr. CSES 2000. Graduate level standing in AGRN, CSES 2040, or departmental approval. This course is designed to make the students understand basic soil physical properties and processes occurring in soils. All concepts are based on sound physical and mathematical principles. May count either CSES 5590 or CSES 6590.
CSES 6906 DIRECTED STUDIES (1-3) DSL. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6936 ADVANCED DIRECTED STUDIES (1-3) DSL. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6960/6966 SPECIAL PROBLEMS (1-3) IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 7016 ENVIRONMENTAL SOIL SCIENCE (3) LEC. 3. Departmental approval. Science of the environment and the role of soil science in the environmental arena. Important chemical, biological, and physical processes that influence compounds.


CSES 7080/7086 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7000. Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

CSES 7120 CYTOLOGY AND CYTOGENETICS (4) LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Cell structure and function with emphasis on cell reproduction and factors contributing to the evolution of organisms. Fall.


CSES 7140/7146 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3. LAB. 2. Pr. CHEM 1040. Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

CSES 7150 SEMINAR IN GENETICS (1) SEM. 1. Pr. BIOL 3000 or BIOL 3003. Reports by students and staff members on current research and literature in the field of genetics. Spring.

CSES 7160/7166 GENETIC DATA ANALYSIS (3) LEC. 3. Pr. (CSES 5100 or CSES 5103) or (CSES 6100 or CSES 6106) and STAT 4020 or (AGRN 5100 or AGRN 5103) or (AGRN 6100 or AGRN 6106). Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

CSES 7170 ADVANCED PLANT BREEDING (3) LEC. 3. Pr. CSES 7160 or (AGRN 7160 or AGRN 7166). Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

CSES 7180 CROP ECOLOGY (3) LEC. 3. Pr. (BIOL 6130 or CSES 7250) or (AGRN 7250 or AGRN 7256) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Analysis of structure and function of crop and pasture farming systems with emphasis on production processes and resource management.

CSES 7190 ADVANCED FORAGE MANAGEMENT AND RESEARCH METHODS (3) LEC. 3. Principles involved in successful establishment, maintenance and management of crops used for grazing, hay and silage, and research methods related to this field. Field trips will be made to research stations and private farms to observe management practices. Spring.

CSES 7250/7256 CROP PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed.

CSES 7276 SOIL MICROBIOLOGY (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soil as a medium for microbial growth, the relation of microbes to important mineral transformations in soil, the importance of biological equilibrium and significance of microbes.
CSES 7286 APPLIED GEOSTATISTICS (3) LEC. 3. Departmental approval. Application of regionalized variable theory to surface and subsurface landlords using semivariograms and kriging.

CSES 7316 ENVIRONMENTAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CHEM 1010 or CHEM 1011) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Study of soil chemical processes (sorption, desorption, ion exchange, precipitation, dissolution, and redox reactions) of nutrients and inorganic and organic contaminants in soils and organic matter.

CSES 7326 WETLANDS SOILS (3) LEC. 3. Departmental approval. Application of regionalized variable theory to surface and landforms using semivariograms and kriging.

CSES 7540/7546 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3. Pr. CSES 6020 or CSES 6026 or (AGRN 6020 or AGRN 6026). Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

CSES 7550 SOIL AND PLANT ANALYSIS (4) LEC. 1. LAB. 6. Pr. CHEM 3050 and (CSES 6020 or CSES 6026) or (AGRN 6020 or AGRN 6026). Principles, methods and techniques of quantitative chemical analysis of soils and plants applicable to soil science. Fall.

CSES 7560 CLAY MINERALOGY (4) LEC. 3. LAB. 2. Crystal structure and properties of the important clay-size minerals of soils and clay deposits combined with identification techniques involving x-ray diffraction and spectroscopy, differential thermal analysis, electron microscopy, specific surface analysis, and infrared absorption.

CSES 7586 SOIL PHYSICS (3) LEC. 3. Pr. PHYS 1500 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043).

CSES 7600/7606 AGROCLIMATOLOGY (3) LEC. 3. The relationships between climatological processes and agriculture, including precipitation, evapotranspiration, meteorological hazards, irrigation and drainage, crop development, climate data acquisition and analysis, crop-weather models, and impacts of global climate change. May count either CSES 7600 pr CSES 7606.

Crop and Soil Sciences - Production Option

Freshman

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
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<th>Hours</th>
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<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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<td>CHEM 1040 Fundamental Chemistry II &amp; CHEM 1041 Fundamental Chemistry II Laboratory</td>
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### Crop and Soil Sciences Minor

17 semester hours in minor (minimum 9 hours at 3000-level or above)

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<tr>
<th>Course</th>
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<tr>
<td><strong>Sophomore</strong></td>
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<tr>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>Core Social Science</td>
<td>3</td>
<td>Core History II</td>
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<td>ACCT 2810 Fundamentals Of Accounting</td>
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<td>Core Humanities (Literature)</td>
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<td>Core History I</td>
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<td>CSES 2040 Basic Soil Science</td>
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<tr>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<td>Core Humanities (Fine Arts)</td>
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<tr>
<td><strong>Junior</strong></td>
<td>15</td>
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<tr>
<td>CSES 3120 Principles of Weed Science</td>
<td>4</td>
<td>PLPA 3000 General Plant Pathology</td>
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<td>CSES 3150 Turfgrass Management</td>
<td>4</td>
<td>CSES 5020 Nutrient Management</td>
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<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>CSES 5030 Advanced Crop Science</td>
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<tr>
<td>BIOL 3100 Plant Biology</td>
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<td>CSES 5150 Soil Morphology</td>
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<td>AGEC 4000 Principles of Agribusiness Management</td>
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<td>CSES 5000 Soils &amp; Environmental Quality</td>
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<tr>
<td><strong>CSES 5080 Soil Resources and Conservation</strong></td>
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<tr>
<td>CSES 5100 Plant Genetics and Crop Improvement</td>
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<td>CSES 5500 Forage Production and Utilization</td>
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<td>ENTM 4020 Economic Entomology</td>
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<td>UNIV 4AA0 University Graduation</td>
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1. Courses in boldface type are major courses and require a 2.0 minimum GPA for graduation.
2. Six credits of advanced ROTC can be substituted for free electives and 3 credits of required courses not in the required Core or Major (boldface courses).
3. Select one course from the Other Social Sciences section of the Core Curriculum (Examples include: ANTH 1000, GEOG 1010, PSYC 2010, SOCY 1000, UNIV 2720 or honors equivalent).
4. Select COMM 1000 and one additional course from the Other Humanities Choices section of the Core Curriculum. PHIL 1020 is suggested.
Crop and Soil Sciences – Science Option

**Freshman**

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<tr>
<th>Fall</th>
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<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<tr>
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<td>ENGL 1100 English Composition I</td>
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<td>CSES 1000 Basic Crop Science</td>
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<td>CHEM 1030 Fundamentals Chemistry I &amp; CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>MATH 1610 Calculus I</td>
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**Sophomore**

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<tr>
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<tr>
<td>ENGL 1120 English Composition II</td>
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<td>Core Social Science</td>
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<td>CHEM 2070 Organic Chemistry I</td>
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<td>CHEM 3050 Analytical Chemistry</td>
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<td>CHEM 3051 Analytical Chemistry Laboratory</td>
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**Junior**

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<tbody>
<tr>
<td>CSES 3120 Principles of Weed Science</td>
<td>4</td>
<td>PLPA 3000 General Plant Pathology</td>
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<td>ECON 2020 Principles of Microeconomics</td>
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<td>BIOL 3000 Genetics</td>
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<td>BIOL 3100 Plant Biology</td>
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<td>CSES 5150 Soil Morphology or BIOL 5120 Systematic Botany</td>
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<td>Core Humanities (Other)</td>
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<td>PHYS 1500 General Physics I</td>
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**Senior**

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<tr>
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<tr>
<td>BIOL 3200 General Microbiology</td>
<td>4</td>
<td>CSES 5500 Forage Production and Utilization or 5030 Advanced Crop Science</td>
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<td>Core Humanities (Fine Arts)</td>
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<td>CSES 5020 Nutrient Management</td>
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<td>ENTM 4020 Economic Entomology</td>
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<td>CSES 5000 Soils &amp; Environmental Quality</td>
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<td>Free Electives</td>
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<td>CSES 4950 Senior Seminar</td>
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Crop and Soil Sciences – Soil, Water and Land Use Option

**Freshman**

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<tr>
<th>Fall</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<td>CSES 1000 Basic Crop Science</td>
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<td>MATH 1610 Calculus I</td>
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<tr>
<td>MATH 1130 Pre-Calculus Trigonometry</td>
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<td><strong>Total Hours:</strong></td>
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**Sophomore**

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<tr>
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<tr>
<td>GEOL 1100 Dynamic Earth</td>
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<td>Core History II</td>
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<td>ENGL 1120 English Composition II</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<td>CHEM 3050 Analytical Chemistry &amp; CHEM 3051 Analytical Chemistry Laboratory</td>
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**Junior**

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<th>Hours</th>
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<tr>
<td>Core Humanities (Other)</td>
<td>3</td>
<td>CSES 5020 Nutrient Management</td>
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### ECON 2020 Principles of Microeconomics
- 3 GEOL 2100 Environmental Geology

### CSES 5300 Soil Chemistry
- 4 CSES 5150 Soil Morphology

### Free Electives
- 3 PHYS 1500 General Physics I

### Core Humanities (Literature)
- 3

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<tr>
<th>Senior</th>
<th>Hours</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<td></td>
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<td>Core Humanities (Fine Arts)</td>
<td>3 CSES 4950 Senior Seminar</td>
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<td></td>
<td>GEOL 5100 Hydrogeology (or)</td>
<td>3 CSES 5060 Soil Microbiology Lecture</td>
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<td>FISH 5220 Water Science</td>
<td>CSES 5061 Soil Microbiology Lab</td>
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<td>CSES 5590 Environmental Soil Physics</td>
<td>4 GEG 5830 Geographic Information Systems</td>
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### Option Course
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- 3
- 4
- 5

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<td></td>
<td>16</td>
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### Total Hours: 121

- Courses in boldface type are major courses and require a 2.0 minimum GPA for graduation.
- Six credits of advanced ROTC can be substituted for free electives and 3 credits of required courses not in the required Core or Major (boldface courses).
- Select one course from the Other Social Sciences section of the Core Curriculum (Examples include: ANTH 1000, GEOG 1010, PSYC 2010, SOCY 1000, UNIV 2720 or honors equivalent).
- Select COMM 1000 and one additional course from the Other Humanities Choices section of the Core Curriculum. PHIL 1020 is suggested.
- Option course to be taken from courses approved by advisor (list below).

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<th>Option Courses</th>
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<tbody>
<tr>
<td>CSES 4200 Soil Judging</td>
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<td>CSES 4210 Advanced Soil Judging</td>
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<td>CSES 5000 Soils &amp; Environmental Quality</td>
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<tr>
<td>CSES 5080 Soil Resources and Conservation</td>
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<tr>
<td>CSES 5400 Bioenergy and the Environment</td>
</tr>
<tr>
<td>CSES 5960 Special Problems</td>
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<td>FISH 5220 Water Science</td>
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<tr>
<td>GEOL 5100 Hydrogeology</td>
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<tr>
<td>BIOL 3060 Ecology</td>
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<td>BIOL 5120 Systematic Botany</td>
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## Crop and Soil Sciences – Turfgrass Option

### Freshman

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<th>Hours</th>
<th>Summer</th>
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<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>4 BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
<td>4 ENGL 1120 English Composition II</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I &amp; CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>4 CSES 2040 Basic Soil Science</td>
<td>4 FLSP 1010 Elementary Spanish I</td>
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<td>CSES 3120 Principles of Weed Science</td>
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<td>HORT 3000 Growth and Development of Horticultural Plants or BIOL 3100 Plant Biology</td>
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<td>CSES 3200 Applied Turf Management</td>
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<td>Core History II</td>
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<td>ECON 2020 Principles of Microeconomics</td>
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1. Courses in boldface type are major courses and require a 2.0 minimum GPA for graduation.
2. Six credits of advanced ROTC can be substituted for free electives and 3 credits of required courses not in the required Core or Major (boldface courses).
Select COMM 1000 and one additional course from the Other Humanities Choices section of the Core Curriculum. PHIL 1020 is suggested.

Select one course from the Other Social Sciences section of the Core Curriculum (Examples include: ANTH 1000, GEOG 1010, PSYC 2010, SOCY 1000, UNIV 2720 or honors equivalent).

Plant/Soils Electives (substitutions to this list must be approved by advisor and be at or above 3000-level):
- HORT 3210 Small Trees, Shrubs and Vines
- HORT 3220 Arboriculture
- HORT 5210 Landscape Bidding, Installation and Maintenance
- HORT 3280 Landscape Construction
- CSES 5030 Advanced Crop Science
- CSES 5500 Forage Production and Utilization
- CSES 5000 Soils & Environmental Quality
- CSES 5150 Soil Morphology
- CSES 5080 Soil Resources and Conservation

Curriculum in Environmental Sciences

The Environmental Science program, like the rather broad field of environmental science, is by its very nature highly interdisciplinary. Although the College of Agriculture administers the program through the Department of Crop, Soil, and Environmental Sciences, the Samuel Ginn College of Engineering and the College of Sciences and Mathematics are partners in developing the curriculum, guiding student development and providing instruction.

Environmental quality issues are often complex and significant expertise in physics, chemistry, biology, soil science and geology is needed to understand specific problems. Moreover, formulating solutions often requires mathematical expertise as well as specific knowledge of the air, water, and soil environments. Thus, the program is structured to educate environmental scientists broadly, but with considerable depth.

The program is specifically tailored to produce graduates who can enter and have a reasonable expectation of success in a field that is continually changing. The principal educational goals are to provide each student with a broad-based general education, a solid background in mathematics, physical science, and biological science, breadth of exposure to the environmental science field, and depth of knowledge in a specific area of environmental science of choice.

The curriculum is organized around a core set of courses that are required of all students. Students desiring to specialize may select from courses, called professional track electives, that emphasize environmental applications of biological science, physical science, soil science, or engineering science.

Freshman

<table>
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<th>Fall</th>
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<td>ENGL 1120 English Composition II</td>
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<td>CHEM 1030 Fundamentals Chemistry I &amp; CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>4 ENVI 1020 Fundamentals of Environmental Science</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>MATH 1610 Calculus I</td>
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15 16
### Minor in Stewardship-based Agriculture

**Required Courses for All Students**

<table>
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<tr>
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<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>CSES 3920</td>
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<tr>
<td>CSES 1000/1003</td>
<td>Basic Crop Science (Will not count in the Minor for students in CSES - major course)</td>
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**Lower Division Courses**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<td>CSES majors - take 6 hours from this group</td>
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<tr>
<td>All other students - take 3 hours from this group</td>
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<td>CSES 2040/2043</td>
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<tr>
<td>POUL 1000</td>
<td>Introductory Poultry Science (Will not count for students in POUL - major course)</td>
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</tbody>
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1. Courses in boldface type are major courses and require a 2.0 minimum GPA for graduation.
2. Professional Track - see adviser for approved course listing.
3. Student will choose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720/UNIV 2727.
**Animal Sciences**

The department offers four curriculum options. The Pre-Vet/Pre-Professional option (ANPV) provides students with a foundation in the biological and physical sciences for careers in emerging areas of animal biotechnology while satisfying requirements for application to Auburn’s College of Veterinary Medicine, other professional schools, or graduate school. The Production Management option (ANPM) offers greater breadth in animal production management and agribusiness while retaining more elective hours for additional curriculum flexibility. The Equine Science option (ANEQ) allows students to focus on the sciences and practical skills required for a successful career in the horse industry, and by choosing, appropriate elective courses, will prepare students to apply to Auburn’s College of Veterinary Medicine. The Muscle Foods option (ANMF) prepares students for quality assurance and for research and development careers in the food industry. Students may use electives to develop expertise in fields such as animal breeding, nutrition, reproduction, growth, behavior, equine science, and companion animals.

**Majors**

- Animal Sciences - Equine Science Option (p. 204)
- Animal Sciences - Meat Science Option (p. 205)
- Animal Sciences - Pre-Vet · Pre-Professional Option (p. 206)
- Animal Sciences - Animal and Allied Industries Option (p. 202)

**Minor**

- Animal Sciences (p. 202)
Courses

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 INTRODUCTION TO HORSE MANAGEMENT AND TRAINING (3) LEC. 1. LAB. 4. An introduction to the management, training, and enjoyment of horses.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.

ANSC 2650 EQUINE BIOMECHANICS AND SHOEING (3) LEC. 2. LAB. 2. Pr. ANSC 1000 and BIOL 2500. Anatomy, function and care of the horse foot; mechanical forces and joint/tissues health; hoof traits, quality and correction through shoeing.

ANSC 2700 VALUE-BASED ANALYSIS OF MEAT ANIMALS (2) LAB. 4. Pr. ANSC 1000. Comparative evaluation of body composition and application of federal grading standards to determine relative value and price of live animals, carcasses, and wholesale cuts.

ANSC 2710 COMMERCIAL MEAT MANAGEMENT (4) LEC. 3. LAB. 2. The importance of meat in the food service industry, including food safety, purchasing, cooking and meat in the diet. For non-majors only.

ANSC 2720 THE MEAT WE EAT (3) LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2) LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3. Pr. ANSC 1000 and BIOL 3200. The prevention and control of the major diseases of farm animals and the development of health programs.

ANSC 3150 EQUINE MARKETING (3) LEC. 2. LAB. 2. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

ANSC 3300 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 6. Pr. ANSC 1000. Development of grading standards and application of federal grades to beef, pork and lamb carcasses. Comparative evaluation of carcasses, primal, and sub-primal cuts.

ANSC 3330 INTRODUCTION TO DAIRY CATTLE JUDGING (2) LAB. 6. Pr. ANSC 1000. Theory and practice in the selection of dairy cattle based on visual appraisal, pedigree, and performance records. The development and presentation of oral reasons also is emphasized.

ANSC 3350 EQUESTRIAN COACHING (3) LEC. 1. LAB. 4. Principles and practices of instructing students on horseback, safety for horse and rider, lesson plans and class management, evaluation of riders, teaching riders with special needs.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3. LAB. 2. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037). Departmental approval. Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.
ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3) LEC. 2. LAB. 1. Pr. ANSC 3410 or ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3) LEC. 3. Pr. ANSC 1000 and BIOL 2510 and ANSC 3410 or BCHE 3200. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.


ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3) LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

ANSC 4010 BEEF PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 4030 DAIRY CATTLE PRODUCTION (4) LEC. 3. LAB. 3. Pr. ANSC 3400 and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics, and management for efficient dairy production.

ANSC 4050 HORSE PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics and management for efficient horse production.

ANSC 4070 SWINE PRODUCTION (4) LEC. 3. LAB. 2. Pr. ANSC 3400 and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, and genetics, herd health, reproduction, economics, housing and management techniques for efficient swine production.

ANSC 4090 SHEEP PRODUCTION (4) LEC. 3. LAB. 2. Pr. ANSC 1000. Application and integration of breeding and selection, nutrition, reproduction, health, and marketing to achieve optimum lamb and wool production in the southeastern U. S.
ANSC 4100 FARM ANIMAL BEHAVIOR (2) LEC. 2. Pr. ANSC 3600. Basic information on behavior, its purpose, and measurement. Examination of eating, locomotive, sexual, aggressive, territorial, maternal, and resting behaviors in cattle, horses, swine, and sheep.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LAB. 4. Pr. ANSC 3300. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4. Pr. ANSC 3310. Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and intercollegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4320 ADVANCED ANIMAL EVALUATION AND MARKETING (1) LAB. 4. Pr. ANSC 4300 or ANSC 4310. Live animal and carcass evaluation techniques used in marketing cattle, swine, and sheep.

ANSC 4330 ADVANCED DAIRY CATTLE JUDGING (1) LAB. 4. Pr. ANSC 3330. Advanced course in the selection of dairy cattle and presentation of oral reasons. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (3) LEC. 3. Pr. ANSC 3400 or ANSC 3420. Principles of digestive physiology, nutrition, and metabolic disorders unique to the horse with special emphasis on nutritional needs of the equine athlete.

ANSC 4650 EQUINE REPRODUCTIVE TECHNIQUES (3) LEC. 1. LAB. 4. Pr. ANSC 3600. Reproductive management and application of modern technologies to enhance reproductive efficiency of the domestic horse.

ANSC 4700 MEAT PROCESSING (4) LEC. 3. LAB. 3. Pr. ANSC 3700. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2) LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (5-15) INT. SU. Course may be repeated for a maximum of 15 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4) IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

ANSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 5700, FDSC 5700, ANSC 6700 or FDSC 6700.

ANSC 5730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC, 6730, POUL 5730, POUL 6730.
ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 3200 or BIOL 1037. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 6700, FDSC 6700, ANSC 5700, or FDSC 5700. May count either ANSC 6700 or FDSC 6700.

ANSC 6730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC 6730, POUL 5730, POUL 6730.

ANSC 7010 STOCKER PRODUCTION (3) LEC. 3. Application of principles of animal nutrition, breeding, physiology, health and marketing to the successful production of stocker cattle. Integrates agronomic principles related to grazing systems in terms of forage production and management, animal performance and economic returns.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7420 NUTRITIONAL TOXICOLOGY (3) LEC. 3. General principles of nutrition and toxicology applied toward understanding and managing livestock responses to toxicants in feeds and plants.

ANSC 7500 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7010. Research methods used in the animal sciences for the analysis and interpretation of data. Included are experimental designs and computing techniques.

ANSC 7510 QUANTITATIVE GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and STAT 7010. Departmental approval. Principles of population genetics; gene frequency, biometric relationships between relatives, additive, dominance and epistatic effects, estimation and use of repeatability, heritability, genetic correlations, and breeding values.

ANSC 7600 PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240. Physiological, endocrinological, cellular, and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 7960 SPECIAL PROBLEMS (1-5) LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields: (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5) IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.

ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8500 LINEAR MODEL APPLICATIONS IN ANIMAL BREEDING (4) LEC. 4. Pr. ANSC 7510 and STAT 7010. Selection index and mixed linear model genetic theory for estimation and prediction. Equivalent animal models, properties of solutions, and extension of methods to consider genetic relationships, multiple records, culling bias and multiple trait evaluation. Current literature will also be discussed.

ANSC 8610 MUSCLE PHYSIOLOGY AND BIOCHEMISTRY (3) LEC. 3. Pr. BCHE 7210 and BIOL 6600. Heterogeneity and plasticity of muscle as a tissue, ontogeny, differentiation, growth and regulation of metabolic and molecular properties of muscle fibers by innervation, usage, hormones, and artificial modulation. Evaluation of current literature.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Animal Sciences Minor

The Animal Sciences minor requires a total of 16 hours of approved course work (minimum of 9 hours at 3000-level or above) from the following:

Required Course (4 hours):
ANSC 1000 Introduction to Animal Sciences 4

Select one from the following (3 hours):
ANSC 2000 Companion Animal Management 3
ANSC 2010 Animals and Society 3
ANSC 2050 Introduction to Horse Management and Training 3
ANSC 2720 The Meat We Eat 3

Select minimum of 9 hours from the following:
ANSC 3000 Herd Health Management 3
ANSC 3150 Equine Marketing 3
ANSC 3300 Introductory Livestock Evaluation and Marketing 2
ANSC 3400 Animal Nutrition 4
ANSC 3500 Animal Breeding 3
ANSC 3600 Reproductive Physiology 4
ANSC 3610 Animal Growth and Development 4
ANSC 3650 Physiology of Equine Athlete 3
ANSC 3700 Muscle Foods 4
ANSC 3760 Value Based Marketing of Livestock 3
ANSC 4000 Modern Livestock Systems 4
ANSC 4010 Beef Production 4
ANSC 4050 Horse Production 4
ANSC 4300 Advanced Livestock Judging 1
ANSC 4450 Equine Nutrition 3
ANSC 4700 Meat Processing 4
ANSC 4800 Issues in Animal Agriculture 2
ANSC 4810 Professional Discourse in Agriculture 1
ANSC 5700 Microbiology of Meats and Other Foods 4
ANSC 5730 Sensory Evaluation 3

Total required: 16 hours

Curriculum in Animal Sciences - Animal and Allied Industries Option
**Freshman**

**Fall**

<table>
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<th>Hours</th>
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<td>1</td>
<td>ANSC 1000 Introduction to Animal Sciences</td>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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Total: 15

**Sophomore**

**Fall**

<table>
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<tr>
<th>Course Details</th>
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<tr>
<td>ANSC 2720 The Meat We Eat</td>
<td>3</td>
<td>BIOL 2510 Human Anatomy and Physiology II</td>
<td>4</td>
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<tr>
<td>BIOL 2500 Human Anatomy and Physiology I</td>
<td>4</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
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<td>3</td>
<td>STAT 2510 Statistics for Biological and Health</td>
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<tr>
<td>Core History 1</td>
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Total: 16

**Junior**

**Fall**

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<td>AGE 4000 Principles of Agribusiness Management</td>
<td>3</td>
<td>ANSC 3420 Applied Animal Feeding and Nutrition</td>
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<td>ANSC 3410 Animal Metabolism and Nutrition</td>
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<td>ANSC 3600 Reproductive Physiology</td>
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<td>ANSC 3800 Careers in Animal Science</td>
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<td>AGRI 3000 Agricultural Genetics (OR BIOL 3000 &amp; 3001)</td>
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<td>Directed Elective II</td>
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Total: 14

**Senior**

**Fall**

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<td>BIOL 3201 General Microbiology Laboratory</td>
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<td>CSES 5500 Forage Production and Utilization</td>
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<td>Core Fine Arts</td>
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<td>2nd Directed Elective II</td>
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Total Hours: 120

**Bolded** courses constitute the major (38 hrs; 2.0 GPA required for these courses).
### Curriculum in Animal Sciences - Equine Science Option

#### Freshman

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ANSC 1100 Orientation to Animal Sciences</td>
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<td>BIOL 1020 Principles of Biology</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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#### Sophomore

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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<td>ANSC 2050 Introduction to Horse Management and Training</td>
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<td>Core History 1</td>
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#### Junior

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<tr>
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<td>ANSC 3600 Reproductive Physiology</td>
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<tr>
<td>Core Literature</td>
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<tr>
<td>AGRI 3000 Agricultural Genetics (OR BIOL 3000 &amp; 3001)</td>
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<tr>
<td>Core Social Science</td>
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#### Senior

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<tr>
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<tr>
<td>BIOL 3200 General Microbiology</td>
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<td>CSES 5500 Forage Production and Utilization</td>
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<td>ANSC 4050 Horse Production</td>
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¹ Directed Elective I (choose one of the following):
- ANSC 3700
- ANSC 4000
- ANSC 4010
- ANSC 4050
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**Bolded** courses constitute the ANEQ major (38 hrs; 2.0 GPA required for these courses).

1. Directed Electives:
   - ANSC 3150 Equine Marketing
   - ANSC 3650 Physiology of Equine Athlete
   - ANSC 4450 Equine Nutrition

2. High Impact Experience (2 hours):
   - ANSC 3840 Study/Travel in ANSC
   - ANSC 4920 Internship
   - ANSC 4980 Undergraduate Research
   - AGRI 4000 Agriculture Study Abroad
   - ANSC 4960 Dairy U/Dairy Goat U/Horse U Special Problems

### Curriculum in Animal Sciences - Meat Science Option

#### Freshman

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<tr>
<td>ANSC 1100 Orientation to Animal Sciences</td>
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<td>ANSC 1000 Introduction to Animal Sciences</td>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1030 Organismal Biology</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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<th>Course</th>
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#### Sophomore

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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>ANSC 2720 The Meat We Eat</td>
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<td>ANSC 3760 Value Based Marketing of Livestock</td>
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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>Core Literature</td>
<td>3</td>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<td>Core History 1</td>
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<td>Core History 2</td>
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<tr>
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#### Junior

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<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>ANSC 3410 Animal Metabolism and Nutrition</td>
<td>3</td>
<td>ANSC 3610 Animal Growth and Development</td>
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<td>BCHE 3200 Principles of Biochemistry</td>
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<td>ANSC 3700 Muscle Foods</td>
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<table>
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<tr>
<td>Course Description</td>
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<tr>
<td>AGRI 3000 Agricultural Genetics (OR BIOL 3000 &amp; BIOL 3001)</td>
<td>1</td>
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<tr>
<td>Core Fine Arts</td>
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<td>Core Humanity</td>
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<td>ANSC 3800 Careers in Animal Science</td>
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<tr>
<td>Meat Science Support Course&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>Core Social Science</td>
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<td>Core Humanity</td>
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<td>Core Fine Arts</td>
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### Senior

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<td>COMM 1000 Public Speaking</td>
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<td>ANSC Core&lt;sup&gt;2&lt;/sup&gt;</td>
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**Note:** A minimum of 120 hours is required.

**Bolded** courses constitute the meat science major (38 hrs; 2.0 GPA required for these courses).

<sup>1</sup> Meat Science Support courses (any 6-8 hours) of the following:
- AGE 4000
- ANSC 4800
- ANSC 5700
- ANSC 5730
- BSEN 5450
- BSEN 5550
- MKTG 3310
- FDSC 5150
- FDSC 5430
- FDSC 5640
- FDSC 5700
- FDSC 5730
- FDSC 5770
- POUL 5140
- POUL 5160

<sup>2</sup> ANSC Core choose one of the following courses: ANSC 3420, ANSC 3500 or ANSC 3600.

<sup>3</sup> High Impact Experience (2 hours):
- ANSC 3840 Study/Travel in ANSC
- ANSC 4920 Internship
- ANSC 4980 Undergraduate Research
- AGRI 4000 Agriculture Study Abroad

### Curriculum in Animal Sciences Pre-Vet - Pre-Professional Option

**Freshman**

<table>
<thead>
<tr>
<th>Course Description</th>
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<tbody>
<tr>
<td>ANSC 1100 Orientation to Animal Sciences</td>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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**Sophomore**

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<tr>
<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td>4 BIOL 2510 Human Anatomy and Physiology II</td>
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### Core Courses
- Core Fine Art: 3
- Core History 1: 3
- Core History 2: 3
- Core Literature: 3

### Junior
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<td>BCHE 3200 Principles of Biochemistry</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<tr>
<td>ANSC 3420 Applied Animal Feeding and Nutrition</td>
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<td>Directed Elective II</td>
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### Senior
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<th>Course</th>
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<td>AGRI 3000 Agricultural Genetics (OR BIOL 3000 &amp; 3001)</td>
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#### Spring
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### Total Hours: 118-122

**Note:** A minimum of 120 hours is required.

**Bolded** courses constitute the ANPV major (35 hrs; 2.0 GPA required for these courses).

1. Directed Elective I (choose one of the following):
   - ANSC 3700, ANSC 4000, ANSC 4010, ANSC 4050,

2. Directed Elective II (choose one of the following):
   - ANSC 3610, ANSC 4450, BIOL 3010, BIOL 3500, BIOL 4000, BIOL 4100, BIOL 5110, BIOL 5220, BIOL 5230, PHYS 1510

### Biosystems Engineering

Biosystems Engineers ensure that we have the necessities of life: healthy food to eat, clean water to drink, renewable fuel and energy sources, and a healthy environment in which to live. Therefore, the mission of the Department of Biosystems Engineering at Auburn University is to develop and disseminate engineering knowledge to solve problems in biological systems, natural resources, and the environment. It meets the resident instruction portion of that mission through the offering of a degree program which leads to a Bachelor of Biosystems Engineering. Options in Bioprocess Engineering, Options in Ecological Engineering and Forest Engineering are also available under the Biosystems Engineering degree program.

### Biosystems Engineering

The Department of Biosystems Engineering offers the only accredited degree in Biosystems Engineering in Alabama. It is committed to preparing students for productive professional careers in the biosystems industries and related natural resource and environmental systems sectors. Specific program educational objectives of the Biosystems Engineering degree program can be found at:

http://www.eng.auburn.edu/programs/bsen/programs/undergraduate/educational-objectives.html
The Biosystems Engineering program curriculum is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the Pre-Biosystems Engineering program.

**Bioprocess Engineering Option**

The focus of the Bioprocess Engineering option is to produce engineers that seamlessly combine engineering and natural sciences to designing and developing systems, processes and equipment that convert biological and agricultural materials to value-added products such as food, nutraceuticals, polymers and pharmaceuticals. Bioprocess engineers provide a bridge between the research lab and the economic, large-scale implementation of technologies used to convert these biological materials to value-added products. The bioprocess engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the Bioprocess Engineering option portion of the Pre-Biosystems Engineering program.

**Ecological Engineering Option**

The Department of Biosystems Engineering offers an option in Ecological Engineering as part of the Bachelor of Biosystems Engineering degree. This option prepares students to solve environmental problems by applying engineering knowledge to natural ecological and biological systems. Ecological engineering combines basic and applied science from engineering, ecology, economics, and natural sciences to design, construct, and manage sustainable ecosystems that have value to both humans and the natural environment. The ecological engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the Ecological Engineering option portion of the Pre-Biosystems Engineering program.

**Forest Engineering Option**

The Department of Biosystems Engineering in conjunction with the Samuel Ginn College of Engineering and School of Forestry and Wildlife Sciences offers an option in Forest Engineering as part of the Bachelor of Biosystems Engineering degree. This option prepares students for productive professional careers in the forest products industry and related natural resource and environmental systems sector.

The Forest Engineering option is coordinated by the Samuel Ginn College of Engineering and the School of Forestry and Wildlife Sciences, and is administered by the Department of Biosystems Engineering. Students can become registered foresters upon completion of a minor in forest resources. Beginning students should apply to the Samuel Ginn College of Engineering and complete the Forest Engineering option portion of the Pre-Biosystems Engineering program. Students pursuing the Forest Engineering option must meet School of Forestry and Wildlife Sciences requirements for admission to the Forestry Summer Field Practicum.

**Major**

- Biosystems Engineering (p. 597)
- Biosystems Engineering (Bioprocess Engineering option) (p. 594)
- Biosystems Engineering (Ecological Engineering option) (p. 598)
- Biosystems Engineering (Forest Engineering option) (p. 596)

**Bio Ag Technology Management Courses**

**BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3)** LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

**BATM 2110 SOLVING TECHNOLOGY PROBLEMS (3)** LEC. 2. LAB. 3. Pr. BATM 1110. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

**BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3)** LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

**BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3)** LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculture principles and technology.

**BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3)** LEC. 3. Pr. MATH 1130 or MATH 1133. Fundamental requirements for the design and operation of agricultural production and processing facilities.
BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6110 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

Biosystems Engineering Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. ELEC 3810 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1130 or MATH 1133. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.
BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4240 BULK BIOLOGICAL SOLIDS BEHAVIOR AND PROCESSING (3) LEC. 2. LAB. 3. Pr. BIOL 1020 and (STAT 2510 or STAT 3010 or BSEN 3310). The course is designed to enable students to develop fundamental understanding of the properties of bulk biological solids and how these properties influence the behavior and processability of bulk solids.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. BSEN 3230 and ENGR 2070 or Departmental approval. This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 and BIOL 3200 and P/C BSEN 3230. Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and CHEM 1040. Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.
BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 5450 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 5510. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. CHEM 1040 and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1007) or PHYS 1500 or (PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 or CHEM 1041. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. This course introduces the concept of life cycle assessment (LCA) in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6450 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.
BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 7016 QUANTITATIVE AGRICULTURAL REMOTE SENSING (3) LEC. 3. Departmental approval. Theory and application of remote sensing to quantifying soil and vegetation characteristics, with emphasis on agriculture but also relevant to natural biosystems.

BSEN 7020/7026 SITE-SPECIFIC TECHNOLOGIES FOR AGRICULTURE AND FORESTRY SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Introduction to advanced concepts of off-highway vehicle equipment for use in agricultural and forestry production with emphasis on site-specific management (Precision Agriculture/Forestry). The course will overview new concepts and technologies for equipment usage and technologies applied for site-specific crop management.

BSEN 7050 SOIL DYNAMICS OF TILLAGE AND TRACTION (3) LEC. 3. Pr. CIVL 4300 and CSES 7590. Departmental approval. Analyses and measurements of soil reactions as affected by physical properties of soil when subjected to forces imposed by tillage implements and traction devices.

BSEN 7110/7116 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7120 STOCHASTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. Pr. CIVL 3020. Departmental approval. Solving problems in biosystems engineering and related fields by modeling data with probability distributions, spatial statistics, autoregressive models, Monte-Carlo simulation, and reliability methods.

BSEN 7136 GIS APPLICATIONS IN PRECISION AGRICULTURE (1) LEC. 1. Departmental approval. Exploration of geographic information systems (GIS) and its applications in precision agriculture. Topics include file structure and formatting, interfacing with precision agriculture equipment, georeferencing maps, merging and clipping farm data, data field calculations, designing management zones, variable rate prescriptions, and basic data analysis.

BSEN 7216 BIOMASS TO RENEWABLE ENERGY PROCESSES (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2080 or CHEM 2087) or CHEM 5180 and BIOL 3200. Departmental approval. This will introduce fundamental principles and practical applications of biomass-torenewable energy processes

BSEN 7220 RENEWABLE ENERGY SYSTEMS DESIGN, ANALYSIS AND APPLICATIONS (3) LEC. 3. Understanding of the basic principles, applications, modeling, energetic and economic analysis of renewable energy resources namely solar, biomass, wind, hydropower and geothermal. Design of renewable energy systems.

BSEN 7240 BULK SOLIDS STORAGE, HANDLING AND TRANSPORTATION (3) LEC. 3. Sampling of particulate materials, bulk solids characterization, flow properties, particle and bulk solid flow, dynamics of fluid/solids systems, hydraulic and pneumatic conveyor design, storage bin and hopper design and geometry, safety issues.

BSEN 7260 ADVANCED UNIT OPERATIONS IN BIOSYSTEMS ENGINEERING (3) LEC. 2. LAB. 3. The course is an advance analysis of the unit operations used to process and enhance the value of biological materials.

BSEN 7280 FOOD THERMAL PROCESSING (3) LEC. 2. LAB. 3. Departmental approval. Insight of technologies and approaches used in food thermal processing for commercial purposes. Application of fundamentals of heat transfer, thermo-bacteriology, physical and chemical kinetics of food, and plant layout.
BSEN 7310 NONPOINT SOURCE POLLUTION (3) LEC. 3. Departmental approval. Non-point source (NPS) transport of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Basic concepts of pollutant transport through soils and with overland flow. Evaluation, management, and prevention of non-point pollution of surface and groundwater.

BSEN 7320 NON-POINT SOURCE POLLUTION MODELING (3) LEC. 3. Pr. BSEN 7310 or Departmental approval. Non-point source (NPS) modeling of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Underlying processes (climate, hydrology, nutrients and pesticides, erosion, channel), land cover/plants best management practices. Sensitivity and uncertainty analyses

BSEN 7330 SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN (3) LEC. 3. Study of systems that incorporate plant uptake of nutrients and/or heavy metals for remediation of soil-based contaminants. Design applications of environmental remediation include constructed wetlands, drip irrigation of wastewater effluent, disposal of municipal sludge, and phytoremediation of contaminants in shallow groundwater.

BSEN 7350 ENGINEERING ANALYSIS OF LAKES AND RESERVOIRS (3) LEC. 3. Departmental approval. Knowledge and understanding of the causes, impacts, and methods of restoring water quality impairments, with emphasis placed on impounded water bodies and perennial streams.

BSEN 7366 INTEGRATING AUTOCAD CIVIL3D & GIS (3) LEC. 3. Departmental approval. Accessing and importing GIS data into C3D. Exporting C3D objects to GIS for subsequent manipulation and display. Emphasis on applications in environmental engineering projects such as stream restoration and wetland design.


BSEN 7516 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7526 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7536 DRAINMOD (3) LEC. 3. Pr. BSEN 3230. This course presents the principles of water movement and fate in shallow water table systems and application of the drainage water management model DRAINMOD to a wide variety of problems.

BSEN 7616 AGRICULTURAL WASTE MANAGEMENT (3) LEC. 3. This course covers principles of managing, handling, treating and applying animal and poultry manures and organic byproducts from an engineering perspective. Departmental approval

BSEN 7626 STORMWATER BMP DESIGN (3) LEC. 3. Pr. BSEN 3230. Departmental approval. This course is designed to introduce students to several innovative stormwater practices including stormwater wetlands, bioretention, green roofs, permeable pavement, cisterns, and others.

BSEN 7636 STREAM RESTORATION STRUCTURE RISK AND FAILURE ASSESS (1) LEC. 1. Pr. BSEN 3230. Departmental approval. Critical thinking about the use of various stream restoration structures an providing the tools needed to investigate further into failure analysis and risk assessment.

BSEN 7646 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. BSEN 3310. Departmental approval. Theory and application of hydraulics in open channels with an emphasis on natural systems (natural streams and rivers).

BSEN 7666 WETLANDS DESIGN AND RESTORATION (3) LEC. 3. Departmental approval. Fundamental understanding of hydrology, soils and ecology of natural wetland systems to serve as the basis of designing wetland systems for water treatment and restoring degraded natural wetlands.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.
BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Entomology and Plant Pathology

Entomology and Plant Pathology enjoys a rich tradition in teaching, research and outreach activities as part of a land grant institution in Alabama. From the hiring of its first entomologist in 1896 and its first plant pathologist in 1903, the entomology and plant pathology program at AU has grown to its present faculty of entomologists and plant pathologists with teaching, research and extension responsibilities.

As a part of the College of Agriculture, the Entomology and Plant Pathology Department offers a broad range of both basic and applied courses at the undergraduate and graduate levels, providing a sound background for students considering careers in entomology, plant pathology, and related pest management areas. The curriculum is complemented by a diversity of courses in agricultural and biological sciences offered through departments in the University. The department offers undergraduate minors in Entomology and Plant Pathology. It also offers thesis and non-thesis master's degrees and doctoral programs in these disciplinary areas.

Majors

- Applied Biotechnology (p. 219)

Minors

- Entomology (p. 221)
- Plant Pathology (p. 221)

Applied Biotechnology Courses

APBT 1000 INTRODUCTION TO APPLIED BIOTECHNOLOGY (1) LEC. 1. Introduction to the field of biotechnology including key concepts from biology, chemistry, and physics, and career opportunities.

APBT 3100 APPLIED BIOTECHNOLOGY I (4) LEC. 2. LAB. 5. Pr. BIOL 1030 and APBT 1000. This course provides an overview of the basic cellular processes harnessed by biotechnology and an introduction to recombinant DNA and its applications. It combines lectures with labs to provide hands-on experience with molecular techniques, DNA cloning, and heterologous protein expression.

APBT 4100 APPLIED BIOTECHNOLOGY II (4) LEC. 2. LAB. 4. Pr. BIOL 1030 and (BIOL 3000 or AGRI 3000) and APBT 3100. or instructor's approval. Principle and up-to-date advances of genetic modification of organisms; its practices and influences in a broad range of basic and applied sciences which have revolutionized "mean" of sustainable agriculture.

Entomology Courses

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040/2043 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3. Life processes, importance, and occurrence of insects.

ENTM 3040 GENERAL ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Introduction to the biology and diversity of insects. An insect collection is required.

ENTM 4023/4020 ECONOMIC ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Consideration of the biological aspects, life histories and control of insects.

ENTM 4920 ENTOMOLOGY INTERNSHIP (5) INT. 5. SU. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

ENTM 4960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-3) IND. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 3 credit hours.
ENTM 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ENTM 5010 ENTOMOLOGY FOR EDUCATORS (4) LEC. 4. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Biology and diversity of insects and related arthropods with applications for educators. An insect collection and an entomological exposition are required.

ENTM 5120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and (ENTM 3040 or ENTM 4020). or instructor approval. Students without the prerequisite ENTM course must be approved by the instructor or take ENTM 3040 or ENTM 4020 concurrently with ENTM 5120. Survey of insects, ticks, and mites of medical or veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 5140 AQUATIC INSECTS (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 4010. Biology and ecology of aquatic and semi-aquatic insects. Laboratory sessions focus on identification at the family and generic levels, and experience in collecting and field techniques.

ENTM 5150 ARACHNOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 5220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 5300 SYSTEMATIC ENTOMOLOGY (4) LEC. 3. LAB. 4. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Learn to use the tools of the taxonomist to identify common families of insects. A collection is required. Field trips will be taken.

ENTM 5330 INTEGRATED PEST MANAGEMENT (4) LEC. 3. LAB. 2. Pr. ENTM 3040 or ENTM 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 5360/5363 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 5370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 5440 INSECT MORPHOLOGY (4) LEC. 3. LAB. 4. Pr. ENTM 3040 and ENTM 4020. Departmental approval. Form and function in insects insects and related arthropods emphasizing morphological characteristics used in insect identification.

ENTM 5500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 6010 ENTOMOLOGY FOR EDUCATORS (4) LEC. 4. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Biology and diversity of insects and related arthropods with applications for educators. An insect collection and an entomological exposition are required.

ENTM 6120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Survey of insects, ticks, and mites of veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 6140 AQUATIC INSECTS (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 4010. Departmental approval. Biology and ecology of aquatic and semi-aquatic insects. Laboratory sessions focus on identification at the family and generic levels, and experience in collecting and field techniques.

ENTM 6150 ARACHNOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.
ENTM 6300 SYSTEMATIC ENTOMOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Principles of systematics and identification of insects through orders, families, genera, and species. Collections are required. Credit will not be given for both ENTM 4300 and ENTM 7300.

ENTM 6330 INTEGRATED PEST MANAGEMENT (4) LEC. 3. LAB. 2. Pr. ENTM 3040 or ENTM 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 6360/6366 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 6500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.


ENTM 7190 PLANT AND ANIMAL INTERACTIONS (3) LEC. 3. Pr. BIOL 3060. Departmental approval. Ecological and evolutionary interrelationships emphasizing pollination biology, seed dispersal and plant-herbivore interactions.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.

ENTM 7330 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 6110. Departmental approval. Insects, mites, and other arthropods of medical or veterinary importance, identification of species, their biology and role as vectors of disease agents.

ENTM 7345 TROPICAL BIOLOGY: AN ECOLOGICAL APPROACH (8) LEC. 4. LAB. 12. Pr. At least 15 credits each with a minimum grade of B in BIOL 7000-7999. Departmental approval. The principles of ecology in the tropics.

ENTM 7900 DIRECTED STUDIES IN ENTOMOLOGY I (1-5) LEC. SU. Discussion groups on specific topics, assigned readings, on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

ENTM 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1. SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.

ENTM 7960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY I (1-5) IND. Departmental approval. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

ENTM 7990 RESEARCH AND THESIS (1-10) MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Admission to the M.S. Program. Course may be repeated with change in topics.
ENTM 8900 DIRECTED STUDIES IN ENTOMOLOGY II (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 8910 TEACHING PRACTICUM (1-3) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

ENTM 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

ENTM 8950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY II (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Admission to the Ph.D. Program. Course may be repeated with change in topics.

Plant Pathology Courses

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 3000/3003 GENERAL PLANT PATHOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course credit will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4950 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Senior standing or department approval. Development of professional skills required for modern careers in entomology, plant pathology and applied biotechnology.

PLPA 4960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Assigned readings on topics pertinent to plant pathology or individual student endeavor consisting of directed research and writing of honor’s thesis. Course may be repeated for a maximum of 6 credit hours.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Pr. PLPA 3000 or PLPA 3003. Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 6050. Summer.

PLPA 5060 PLANT DISEASE MANAGEMENT (3) LEC. 3. Pr. PLPA 3000 or PLPA 3003. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 5200/5203 MYCOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems including plants, animals, and humans. Credit will only be given to one of the following: PLPA 5200, 5203, 6200, or 6206.

PLPA 5250/5253 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 5300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3. LAB. 2. Pr. BIOL 1030. Department approval. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. May count PLPA 5300 or PLPA 6300 or PLPA 7300.
PLPA 5400 PLANT VIROLOGY (3) LEC. 3. Pr. PLPA 3000 or PLPA 3003. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

PLPA 5500/5503 PLANT NEMATOLOGY (4) LEC. 2. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. May count either PLPA 5500 or PLPA 6500.

PLPA 5600 PHYSIOLOGY OF PLANT HEALTH AND DISEASE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances. Introduces biochemical, molecular and cellular mechanisms by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli.

PLPA 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.

PLPA 6060 PLANT DISEASE MANAGEMENT (3) LEC. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 6200/6206 MYCOLOGY (4) LEC. 3. LAB. 2. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems including plants, animals, and humans. Credit will only be given to one of the following: PLPA 5200, PLPA 5203, PLPA 6200 or PLPA 6206.

PLPA 6250/6256 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. Pr. BIOL 3200. or prior approval of the instructor. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 6300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3. LAB. 2. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. May count either PLPA 5300 or PLPA 6300.

PLPA 6400 PLANT VIROLOGY (3) LEC. 3. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

PLPA 6500/6506 PLANT NEMATOLOGY (4) LEC. 2. LAB. 4. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. May count either PLPA 5500 or PLPA 6500.

PLPA 6600 PHYSIOLOGY OF PLANT HEALTH AND DISEASE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or Departmental approval. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances, biochemical, molecular and cellular mechanism by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli. May count either PLPA 5600 or PLPA 6600.

PLPA 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1. LAB. 6. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7820 RESEARCH PROPOSAL WRITING (4) LEC. 3. Graduate level standing or Department approval. Experience in all aspects of writing and reviewing competitive research proposals through a workshop-format culminating in each student writing a proposal on research topics of their choosing. Fall.

PLPA 7860 PLANT DISEASE EPIDEMIOLOGY (3) LEC. 3. Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination.
PLPA 7861 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4. Coreq. PLPA 7860. Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.


PLPA 7900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

PLPA 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Graduate level standing in PLPA or ENTM or Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

PLPA 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1. SU. Departmental approval. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 7960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

PLPA 7970/7976 SPECIAL TOPICS IN PLANT PATHOLOGY (1-5) ST1. Advanced topics related to plant pathology. Course may be repeated for a maximum of 5 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research and thesis on problems in plant pathology. Course may be repeated with change in topics.

PLPA 8880 MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6200 or PLPA 6206. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval Comprehensive coverage of the molecular biology of plant-pathogen interactions.

PLPA 8900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

PLPA 8910 TEACHING PRACTICUM (1-3) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

PLPA 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

PLPA 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Presentations and discussion of scientific literature or dissertation research findings. Required for all Ph.D. candidates. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 8960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated with change in topics.

BS - Applied Biotechnology

The applied biotechnology major requires 122 semester hours of course work, including 41 semester hours of the university core curriculum. All courses and related activities required for the major cover general biological and chemical sciences, theory and methodology of biotechnology, bioinformatics, microbiology, molecular biology, genetics/genomics, general plant pathology and physiology, general entomology and insect/plant physiology, pesticide toxicology, genetics, medical entomology, and cell biology. The minimum number of hours required for an undergraduate major is 30 hours of course work in the discipline or a closely allied field. Of
these hours, a minimum of 16 must be taken in upper-division (numbered 3000 or above) courses in the major area. The curriculum is the combination of laboratory skills, applied coursework and the biotechnology internship experience which complete an approved academic program for earning a B.S. degree in Applied Biotechnology.

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<th>Freshman</th>
<th>Fall</th>
<th>Hours</th>
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<tr>
<td>MATH 1130 Pre-Calculus Trigonometry</td>
<td>3</td>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<td>ENGL 1120 English Composition II</td>
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<td>APBT 1000 Introduction to Applied Biotechnology</td>
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<td>Core Fine Arts</td>
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<td>COMM 1000 Public Speaking</td>
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<tr>
<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
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<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<td>CSES 2040 Basic Soil Science, ENTM 2000 Pests, Pathogens, Parasites, and People, or PLPA 2000 Pests, Pathogens, Parasites, and People</td>
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<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>PHYS 1000 Foundations of Physics</td>
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<td>Core History I</td>
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<th>Junior</th>
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<th>Hours</th>
<th>Summer</th>
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<tr>
<td>Select 4 credits of the following:</td>
<td>4</td>
<td>PLPA 3000 General Plant Pathology, ENTM 3040 General Entomology, or CSES 3120 Principles of Weed Science</td>
<td>4</td>
<td>ENTM 5920 Internship or PLPA 5920 Internship</td>
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<tr>
<td>BIOL 3020 Genomic Biology</td>
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<td>ANSC 3400 Animal Nutrition or 3610 Animal Growth and Development</td>
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<td>BIOL 3100 Plant Biology</td>
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<td>APBT 3100 Applied Biotechnology I</td>
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<td>BIOL 3200 General Microbiology &amp; BIOL 3201 General Microbiology Laboratory</td>
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<td>Core Humanities</td>
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AGRI 3000 Agricultural Genetics 4
BCHE 3200 Principles of Biochemistry 3
Core History II 3
Free Electives 2

16

Senior
Fall Hours Spring Hours
APBT 4100 Applied Biotechnology II 4 Plant or Animal Science core electives¹ 10
Plant or Animal Science core electives¹ 11 Core Social Science 3
PLPA 4950 Professional Development 1
UNIV 4AA0 University Graduation 0

15

Total Hours: 121-122

Six credits of advanced ROTC can be substituted for free electives.
CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041.

¹ CSES 5100 and BIOL 3020 may not both be taken for credit.
1 See advisor or DegreeWorks for approved list

Entomology Minor
15 semester hours in minor (minimum 9 hours at 3000-level or above)
ENTM 3040 General Entomology 4
Elective Courses - See advisor for approved course listing. 11
Total Hours 15

Plant Pathology Minor
15 semester hours in minor
PLPA 3000 General Plant Pathology 4
Elective Courses - See advisor for approved course listing. 11
Total Hours 15

School of Fisheries, Aquaculture and Aquatic Sciences
Fisheries science combines a general foundation in chemistry, mathematics and biological sciences with applied courses in the principles needed to manage fresh and saltwater aquatic resources. The degree is intended to equip students with a broad understanding of fundamental scientific principles needed to develop solutions for the increasing pressures on our aquatic resources and the need to provide safe, reliable food through aquaculture production. Through a sequence of courses, students specialize in emphasis areas of aquatic ecology, fisheries management, marine resources or aquaculture. The FISH Pre-Vet/Pre-Professional area of emphasis provides students with a broad base of scientific knowledge necessary for success in the College of Veterinary Medicine, other professional schools, or graduate school. Careers for graduates include work in environmental management, fisheries resource management, extension, and commercial aquaculture production, processing, and marketing.
Majors
- Fisheries, Aquaculture, and Aquatic Sciences (p. 229)
- Fisheries, Aquaculture, and Aquatic Sciences - Pre Veterinary Medicine Option (p. 230)
- Fisheries, Aquaculture and Aquatic Sciences - Fisheries and Aquaculture Option (p. 227)
- Fisheries, Aquaculture and Aquatic Sciences - Marine Resources Option (p. 228)

Minor
- Fisheries and Allied Aquacultures (p. 231)

Courses
FISH 1100 FISHERIES ORIENTATION (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of a future in fisheries.

FISH 1110 DIMENSIONS OF FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1) LEC. 1. Consideration of various aspects of fisheries, aquaculture, and aquatic sciences work, career options as related to individual interests, and career planning. Overview of the different research and extension areas of the School.

FISH 2000 GENERAL BIOLOGY OF FISHES AND AQUATIC ORGANISMS (1) LEC. 1. To introduce students to the anatomy and physiology of fishes, crustaceans, and mollusks to better prepare them to take advanced courses in the School of Fisheries, Aquaculture & Aquatic Sciences.

FISH 2020 GLOBAL AND REGIONAL PERSPECTIVES IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (2) LEC. 2. Overview of socioeconomic and ecological aspects of fisheries, aquaculture, and aquatic sciences. The course will cover human dimensions specific to commercial and recreational fisheries, aquaculture species, and the aquatic environment.

FISH 3950 CAREERS IN FISHERIES (1) LEC. 1. SU. Pr. FISH 2100 or departmental approval. Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning.

FISH 4900 DIRECTED STUDIES IN FISHERIES (1-4) IND. SU. Individualized in depth study on a particular subject under the guidance of a professor. May include directed reading and research. Course may be repeated for a maximum of 4 credit hours.

FISH 4920 INTERNSHIP (1-5) INT. SU. Departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 5 credit hours.

FISH 4960 SPECIAL PROBLEMS (1-4) LEC. Departmental approval. Individual and group problems investigations in fisheries and allied aquacultures. Course may be repeated for a maximum of 4 credit hours.

FISH 4967 HONORS SPECIAL PROBLEMS (1-4) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 4 credit hours.

FISH 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FISH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

FISH 5210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 5215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 5220 WATER SCIENCE (3) LEC. 3. Pr. CHEM 1040 and FISH 2100. Departmental approval. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems. Fall.
FISH 5230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 5240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 5210 or FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 5245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. One year of college-level Biology or departmental consent. Overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. May count either FISH 5245 or FISH 6245.

FISH 5250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Pr. FISH 5210. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.

FISH 5320 LIMNOLOGY (3) LEC. 3. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037) and BIOL 3060. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 5321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and BIOL 3060 and (P/C FISH 5320 or P/C FISH 6320). Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 5410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 5425 MARINE FISH DISEASES (4) LEC. 7.5. LAB. 6. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3200. Departmental approval. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases. Taught at Dauphin Island Sea Lab.


FISH 5510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 5630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 5650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Pr. CHEM 2030 and BIOL 3200. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 5670 FISHERIES AND AQUACULTURES EXTENSION METHODS (2) LEC. 2. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 5710 AQUATIC MICROBIOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 5725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Departmental approval; Admission to the Gulf Coast Research Laboratory.
FISH 5735 PRINCIPLES OF MARINE AQUACULTURE (6) LEC. 6. Pr. At least 16 credits in BIOL 1000-8999. Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Acceptance at GCRL.

FISH 5745 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Departmental approval; Admission to GCRL.

FISH 5970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences. Course may be repeated for a maximum of 4 credit hours.

FISH 6210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 6215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 6220 WATER SCIENCE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 6230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 6240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 6245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. May count either FISH 5245 or FISH 6245.

FISH 6250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Graduate level standing in FISH or departmental approval. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly culturre species. Production techniques for commercially important finfish are discussed.

FISH 6320 LIMNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 6321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (P/C FISH 5320 or P/C FISH 6320). Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 6410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Graduate level standing in FISH or departmental approval. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 6425 MARINE FISH DISEASES (4) LEC. 7.5. LAB. 6. Graduate level standing in FISH or departmental approval. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases.


FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Graduate level standing in FISH or departmental approval. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Graduate level standing in FISH or departmental approval. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.
FISH 6630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2) LEC. 2. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 6710 AQUATIC MICROBIOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 6725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060 and FISH 6380. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Departmental approval; Admission to Gulf Coast Research Laboratory.

FISH 6735 PRINCIPLES OF MARINE AQUACULTURE (6) LEC. 6. Pr. At least 16 credits each with a minimum grade of B in BIOL 6000-8999. Departmental approval. Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Acceptance at GCRL.

FISH 6745 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Departmental approval; Admission to GCRL.

FISH 6970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences.


FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2) LEC. 2. Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects.

FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4) LEC. 3. LAB. 3. Pr. FISH 5210 or FISH 6210 or departmental approval. General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world.

FISH 7330 RESERVOIR LIMNOLOGY (3) LEC. 2. LAB. 5. Pr. FISH 5320 or FISH 6320. Departmental approval. Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years.

FISH 7340 FISH ECOLOGY (3) LEC. 2. LAB. 3. Graduate level standing in FISH or departmental approval. Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches.

FISH 7350 META-ANALYSIS (2) LEC. 2. Meta-Analysis is a quantitative approach for synthesizing results from diverse research studies that address a similar hypothesis.

FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Role of aquatic vegetation in fish production, its utilization and control.


FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3) LEC. 3. Introduction to molecular biology techniques currently used in disease diagnosis.

FISH 7420 FISH DISEASES (3) LEC. 3. Pr. BIOL 3200. Departmental approval. Viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management.

FISH 7450 FISH PATHOLOGY (3) LEC. 2. LAB. 3. Pr. FISH 5410 or FISH 6410 or FISH 7420. Departmental approval. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years.

FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3) LEC. Pr. FISH 6410 or FISH 7420 or Departmental approval. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control.
FISH 7530 FISH POPULATION DYNAMICS (3) LEC. 2. LAB. 4. Pr. FISH 6510 or FISH 5510 and STAT 7040. Departmental approval. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years.

FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3) LEC. 2. LAB. 4. Pr. FISH 6510 or FISH 5510 and STAT 7000 and STAT 7040. Departmental approval. Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years.

FISH 7550 SEQUENCE-BASED SCIENCE: TECHNOLOGY AND APPLICATION (2) LEC. 2. Pr. BIOL 6230. Technology and application of high-throughput sequencing approaches to scientific research.

FISH 7640 FISH NUTRITION (3) LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

FISH 7641 FISH NUTRITION LABORATORY (2) LAB. 6. Coreq. FISH 7640. Laboratory exercises in analysis of fish feeds and formulation and preparation of fish feeds.

FISH 7650 TRADITIONAL APPROACHES TO FISH GENETIC ENHANCEMENT (2) LEC. 2. Graduate level standing in FISH or departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, selective breeding, genetic management and inheritance.

FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Graduate level standing in FISH or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies.

FISH 7715 ADVANCED MARINE ECOLOGY (2) LEC. 2. Departmental approval. Mechanisms that control distribution of plants and animals at scales ranging from individual organism to ecosystem

FISH 7725 MARINE BIOGEOCHEMICAL PROCESSES (2) LEC. 2. Departmental approval. Marine biogeochemical cycling of carbon, nitrogen, sulfur, phosphorus and metals, with emphasis on estuarine systems.

FISH 7735 MARINE PLANKTON (3) LEC. 3. Pr. FISH 7755 or BIOL 7575. Taxonomy of phytoplankton, bacterioplankton and zooplankton in estuaries, coastal seas and open oceans. Dauphin Island Sea Lab.

FISH 7745 MARINE MICROBIAL ECOLOGY (3) LEC. 3. Departmental approval. Survey of microorganisms found in marine environment with emphasis on interaction of microorganisms with each other and with their environment.

FISH 7750 BIOTECHNOLOGICAL APPROACHES TO FISH GENETICS (2) LEC. 2. Pr. FISH 7650. Departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, genetic management genetic engineering, genomic manipulation and genetic biotechnology.


FISH 7765 CHEMICAL OCEANOGRAPHY (3) LEC. 3. Departmental approval. In-depth examination of the chemistry of seawater and its relationship with biological, geological and physical processes in the oceans. Dauphin Island Sea Lab.

FISH 7775 FISHERIES OCEANOGRAPHY (2) LEC. 2. Departmental approval. An examination of the relationship between fish life history, recruitment dynamics, harvest potential, and oceanographic processes. Taught at the Dauphin Island Sea Lab.

FISH 7785 PHYSICAL OCEANOGRAPHY (4) LEC. 4. Departmental approval. Describes observed physical setting of the marine environment, and qualitatively explains how and why observed physical phenomena occur.

FISH 7900 DIRECTED STUDIES IN FISHERIES I (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 7920 INTERNSHIP IN FISHERIES AND AQUACULTURE (1-10) INT. SU. Departmental approval. Field experience in aquaculture, fisheries or aquatic resource management on farm or with research, extension or aquatic management agency. Course may be repeated for a maximum of 10 credit hours.

FISH 7930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.
FISH 7950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

FISH 7960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) LEC. Individual or group project and research in consultation with faculty member on problem in fisheries and allied aquacultures. Course may be repeated for a maximum of 12 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FISH 8900 DIRECTED STUDIES IN FISHERIES II (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 8930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Acquaint students with current research and related activities.

FISH 8960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) LEC. Individualized work and research in consultation with faculty member on problem in fisheries and allied aquacultures. Course may be repeated for a maximum of 12 credit hours.

FISH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Fisheries, Aquaculture and Aquatic Sciences - Fisheries & Aquatic Resources and Aquaculture Option

Freshman

Fall
ENGL 1100 English Composition I 3
Core History I 3
BIOL 1020 Principles of Biology* 3
BIOL 1021 Principles of Biology Laboratory 1
MATH 1130 Pre-Calculus Trigonometry 3
FISH 1100 Fisheries Orientation* 1

Spring
ENGL 1120 English Composition II 3
Core History II 3
BIO 1030 Organismal Biology* 3
BIOL 1031 Organismal Biology Laboratory 1
PHYS 1000 Foundations of Physics 4
FISH 1110 Dimensions of Fisheries, Aquaculture, and Aquatic Sciences 1

Sophomore

Fall
Core Literature 3
Humanities Core 3
CHEM 1030 Fundamentals Chemistry I 3
CHEM 1031 Fundamental Chemistry I Laboratory 1
COMM 1000 Public Speaking 3
FISH 2000 Fish Biology 1

Spring
BIO 3060 Ecology* 4
Core Fine Arts 3
CHEM 1040 Fundamental Chemistry II 3
CHEM 1041 Fundamental Chemistry II Laboratory 1
ECON 2020 Principles of Microeconomics 3
FISH 2020 Global Perspectives in Fisheries 2

Junior

Fall
FISH 5220 Water Science 3
AGRI 3000 Agricultural Genetics 4
STAT 2510 Statistics for Biological and Health Sciences 3

Spring
FISH 5320 Limnology 3
FISH 5321 Limnology Laboratory 1
CHEM 2030 Survey of Organic Chemistry 3
### Fisheries, Aquaculture and Aquatic Sciences - Marine Resources Option

#### Senior

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<tr>
<th>Course</th>
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* Required Courses in Fisheries Major (courses in bold used to calculate GPA in major)
1 Student must take both courses in a sequence.
2 Student will choose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720/UNIV 2727.
3 Directed Science Electives: ANSC 3400, BIOL 3010, BIOL 3100, BIOL 3200 or Advisor approval.

### Fisheries, Aquaculture and Aquatic Sciences - Marine Resources Option

#### Freshman

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#### Sophomore

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<td>COMM 1000 Public Speaking</td>
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### Curriculum in Fisheries, Aquaculture, and Aquatic Sciences

#### Freshman

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#### Sophomore

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### Pre-Professional Option

#### Freshman

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#### Junior

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Senior

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Total Hours: 120

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1. Student must take both courses in a sequence.
2. Student will choose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720/UNIV 2727.
3. Direct Science Electives: ANSC 3400, BIOL 3010, BIOL 3100, BIOL 3200 or advisor approval.
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<td>FISH 5220 Water Science</td>
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Total Hours: 120

1. Student must take both courses in a sequence.
2. Student will choose from the following: ANTH 1000, GEOG 1010/GEOG 1017, PSYC 2010, SOCY 1000/SOCY 1007, or UNIV 2720/UNIV 2727.

**Fisheries and Allied Aquacultures Minor**

Junior (03) classification is required.
15 semester hours in minor (minimum 12 hours at 4000-level or above)

Select from the following courses:

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<td>FISH 3950</td>
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Careers in Fisheries
FISH 5210  Principles of Aquaculture
FISH 5220  Water Science
FISH 5240  Hatchery Management
FISH 5250  Aquaculture Production
FISH 5320  Limnology
FISH 5440  Fish Anatomy and Physiology
FISH 5630  Facilities for Aquaculture
FISH 5380  General Ichthyology
FISH 5410  Introduction to Fish Health
FISH 5510  Fisheries Biology and Management
FISH 5520  Small Impoundment Management
FISH 5670  Fisheries and Aquacultures Extension Methods
FISH 5970  Topics in Fisheries and Allied Aquacultures

Total Hours 15

Horticulture

Courses prepare Horticulture graduates for the following careers: nursery manager, landscape designer, landscape installer, landscape maintenance, interior landscaping, plant propagator, city or state horticulturist, extension horticulturist, horticulture writer, horticulture teacher, florist shop manager, greenhouse manager, vegetable producer, orchard manager, chemical company representative, seed company representative or retail garden center manager.

Four undergraduate tracks are available to students in horticulture: landscape horticulture, nursery and greenhouse science, pre-landscape architecture, and fruit and vegetable production. Horticulture offers masters’ and doctoral degrees, which lead to professional positions.

Majors
- Agricultural Science (p. 235)
- Horticulture - Fruit and Vegetable Production Emphasis (p. 237)
- Horticulture - Landscape Horticulture Emphasis (p. 238)
- Horticulture - Nursery and Greenhouse Science Emphasis (p. 239)
- Horticulture - Pre-Landscape Architecture Emphasis (p. 241)

Courses

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1. Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 3. LAB. 3. Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020/2023 HORTICULTURE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. BIOL 1010 or BIOL 1030 or BIOL 1037. Techniques of plant propagation and cultural methods for successful fruit and vegetable production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3. Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops.

HORT 2040/2043 ORGANIC GARDENING (3) LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.

HORT 2050/2053 FOOD FOR THOUGHT (3) LEC. 3. Study of history of food plants, including their impact on world culture, variety of uses, economic botany, production systems, and impact on societies. Fall.

HORT 2060 HYDROPONICS: PRINCIPLES AND TECHNIQUES OF SOILLESS PLANT PRODUCTION (3) LEC. 3. This course is a survey of the science of hydroponic plant production and is focused on commercial and home vegetable crop production. Specific topics include plant growth and nutrition in hydroponic growing systems, challenges and opportunities, and system design.
HORT 2210 LANDSCAPE GARDENING (4) LEC. 2. LAB. 4. Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts. Summer and Fall.

HORT 2240 PLANT PROPAGATION (3) LEC. 2. LAB. 3. Pr. P/C BIOL 1030 or BIOL 1037. Basic principles and practices involved in the propagation of horticulture plants. Departmental approval. Fall and Spring.

HORT 2250 ART OF FLORAL DESIGN (3) LEC. 2. LAB. 2. Basic art principles and design elements and their use with flowers and foliage; history and utilization of flowers within society.

HORT 3000 GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1030. Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.

HORT 3110 PLANTS AND PEOPLE: A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3. Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history.

HORT 3210 SMALL TREES, SHRUBS AND VINES (4) LEC. 2. LAB. 6. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture and landscape use of small trees, shrubs and vines. Spring and Summer.

HORT 3220 ARBORICULTURE (4) LEC. 2. LAB. 6. Pr. BIOL 1030 or BIOL 1037. Identification, culture and use of ornamental trees in landscape plantings. Departmental approval. Fall.

HORT 3280 LANDSCAPE CONSTRUCTION (4) LEC. 2. LAB. 4. Principles and practices used in the interpretation and implementation of landscape construction and planting plans.

HORT 3800 CAREERS IN HORTICULTURE (1) LEC. 1. SU. Current developments and career opportunities in horticulture. Fall.

HORT 3840 STUDY/TRAVEL IN HORTICULTURE (1-10) AAB/FLD. Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.

HORT 3920 HORTICULTURE INTERNSHIP (4) INT. 4. Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.

HORT 4000 PESTICIDE MANAGEMENT IN HORTICULTURE (3) LEC. 3. Pr. ENTM 4020 and (PLPA 3000 or PLPA 3003). Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Fall.

HORT 4100 HERBACEOUS ORNAMENTALS (4) LEC. 2. LAB. 4. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.

HORT 4250 INTERMEDIATE FRUIT & VEG PROD (3) LEC. 3. Pr. (HORT 2040 or HORT 2043) or HORT 2030. Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.

HORT 4270 INTERMEDIATE LANDSCAPE DESIGN (4) LEC. 2. LAB. 4. Pr. HORT 3210 or HORT 3220 or HORT 4100. A study of the design principles and elements and technical skills used to create a functional and aesthetically pleasing residential landscape design.

HORT 4300 COMP AIDED PLANTING DESIGN (3) LEC. 3. Coreq. HORT 4270. Graphic concepts relating to spatial visualization and communication and project cost estimation using computer aided drafting and project management software developed for landscape professionals. Spring.

HORT 4930 DIRECTED STUDIES (1-3) AAB/IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.
HORT 4970 SPECIAL TOPICS (1-3) IND. Principles, methods and techniques for understanding various horticultural disciplines. Course may be repeated for a maximum of 6 credit hours.

HORT 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

HORT 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 5110 TREE FRUIT CULTURE (3) LEC. 2. LAB. 2. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Departmental approval. Summer, odd years. May count either HORT 5110 or HORT 6110.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. HORT 3000. Principles and practices involved in the production and marketing of small fruits and pecans. Departmental approval. May count either HORT 5120 or HORT 6120.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Departmental approval. Spring.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Departmental approval. Spring.

HORT 5150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220 or Departmental approval. The following topics will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. May count either HORT 5150 or HORT 6150.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) and (PLPA 3000 or PLPA 3003). Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and CHEM 1030 and HORT 2240 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Management, culture and economics of commercial greenhouse production. Fall.


HORT 5240/5243 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 2. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens.

HORT 5280 ADVANCED LANDSCAPE DESIGN (3) LEC. 3. Pr. HORT 4270. Departmental approval. Continuation of HORT 4270 with an emphasis on design projects.

HORT 5910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Course may be repeated for a maximum of 8 credit hours.

HORT 6110 TREE FRUIT CULTURE (3) LEC. 2. LAB. 2. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Departmental approval. Summer, odd years. May count either HORT 5110 or HORT 6110.

HORT 6120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Principles and practices involved in the production and marketing of small fruits and pecans. Departmental approval. Spring, even years. May count either HORT 5120 or HORT 6120.


HORT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.

HORT 6150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220. Departmental approval. Topics included: financing, location, design, stocking, selling, personnel management, advertising, and maintaining plants. Graduate students will evaluate garden centers and provide feedback for improvement.
HORT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. (CSES 2040 or CSES 2043) and (PLPA 3000 or PLPA 3003) or (AGRN 2040 or AGRN 2043). Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 6220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and CHEM 1030 and HORT 2240 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Management, culture and economics of commercial greenhouse production. Fall.


HORT 6240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 2. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens.

HORT 6280 ADVANCED LANDSCAPE DESIGN (3) LEC. 5. Pr. HORT 4270. Departmental approval. Continuation of HORT 4270 with an emphasis on design projects.

HORT 6910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Course may be repeated for a maximum of 8 credit hours.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (4) LEC. 2. LAB. 3. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Departmental approval. Fall.

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (HORT 3000 or BIOL 3100) and BIOL 3101. Plant growth and development from seed germination, through maturity and senescence. Summer, even years.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3. LAB. 2. Pr. HORT 3000. Nutritional requirements of horticulture crops and factors affecting these requirements. Departmental approval. Summer, odd years.

HORT 7070 PLANT BIOTECHNOLOGY (4) LEC. 2. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement. Departmental approval. Spring, odd years.

HORT 7080 ENVIRONMENTAL PLANT STRESS (3) LEC. 4. Pr. HORT 3000. Departmental approval. Mechanisms related to adaptation of plants to environmental stresses.

HORT 7840 GRADUATE STUDY/TRAVEL IN HORTICULTURE (1-4) LEC. Departmental approval. Programmed activities to enhance national/international awareness and enable students to understand horticultural practices in diverse areas. Course may be repeated for a maximum of 8 credit hours.

HORT 7850 URBAN FORESTRY SEMINAR (1) LEC. 3. SU. Presentation and discussion of research, scientific papers and issues related to urban forestry establishment, care and planning. Credit will not be given for HORT 7850 and FORY 7850.

HORT 7920 GRADUATE INTERNESHIP (1-4) INT. Departmental approval. Supervised professional experience in horticulture

HORT 7950 SEMINAR (1) SEM. SU. Graduate students are required to attend all seminars. Course may be repeated with change in topics.

HORT 7960 SPECIAL PROBLEMS (1-3) IND. 3. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 7970 SPECIAL TOPICS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Agricultural Science
### Freshman

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<td>Core Literature I¹</td>
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<td>CSES 1000 Basic Crop Science or 1003 Basic Crop Science</td>
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### Junior

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<td>CTCT 2100 Power Equipment Technology</td>
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<td>AGEC 3010 Agribusiness Marketing or 4000 Principles of Agribusiness Management²</td>
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<td>CTCT 4140 Agricultural Structure and Metal Fabrication Technology</td>
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Total Hours: 120

¹ All students must complete at least one literature course and a history sequence or a literature sequence and one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.
² Only offered Fall term.
Approved directed science electives: BIOL 3010, BIOL 3100, BIOL 3200; CHEM 1040/CHEM 1041, CHEM 2030, CHEM 2070; BCHE 3200; 6 hours of ROTC.

FISH 5520 is only offered Summer term.

### Curriculum in Fruit and Vegetable Production Emphasis

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<th>Hours</th>
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<td>ENGL 1120 English Composition II</td>
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Senior

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Total Hours: 120

A minimum of 120 hours is required.

1. Any core MATH course, except MATH 1100 may be chosen.
2. Course may be 3 or 4 hours.
3. All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.
4. Even years only.
5. Odd years only.
6. Group 1 (Business Emphasis): FLSP 1010 Elementary Spanish I (4); HORT 2210 Landscape Gardening (4); ACCT 2810 Fundamentals of Accounting (3) or ACCT 2110 Principles of Financial Accounting (3); AGEC 3010 Agribusiness Marketing (3); CSES 3150 Turfgrass Management (4); MKTG 3310 Principles of Marketing (3); FINC 3610 Principles of Business Finance (3); HORT 3920 Horticulture Internship (4); AGEC 4000 Principles of Agribusiness Management (3); AGEC 4070 Agricultural Law (3); HORT 4250 Intermediate Fruit and Vegetable Production (3); HORT 5150 Retail Garden Center Management (4); HORT 5230 Nursery Management (4); HORT 5240 Public Gardens Management (3).

Group 2 (Science Emphasis): PHYS 1500 General Physics (4); PHYS 1510 General Physics II (4); MATH 1610 Calculus I (4); MATH 1620 Calculus II (4); CHEM 2070 & 2071 Organic Chemistry I & Lab (4); CHEM 2080 & 2081 Organic Chemistry II & Lab (4); STAT 2510 Statistics for Biological and Health Sciences (3); STAT 2710 Statistical Computing (1); BIOL 3000 Genetics (3); CHEM 3050 & 3051 Analytical Chemistry & Lab (4); CSES 3120 Principles of Weed Science (4); HORT 4930 Directed Study (3); HORT 4970 Special Topics (3); CSES 5010 Analysis of Plant, Soil, and Animal Data (3); CHEM 5180 & 5181 Biochemistry I & Lab (4); CHEM 5190 & 5191 Biochemistry II & Lab (4); HORT 5910 Horticulture Practicum (3).

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Curriculum in Horticulture- Landscape Horticulture Emphasis

Freshman

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<tr>
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<td>HORT 2240 Plant Propagation</td>
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<td>HORT 3210 Small Trees, Shrubs and Vines</td>
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<tr>
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<td>Group 1(^2,4)</td>
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<tr>
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<td>HORT 5210 Landscape Bidding, Installation and Maintenance</td>
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Note: A minimum of 120 hours is required.

1. Any core MATH course, except MATH 1100 may be chosen.
2. Course may be 3 or 4 hours.
3. All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.
4. **Group 1:** HORT 3110 People and Plants: A History of Gardens in the Cultural Context (3); HORT 3280 Landscape Construction (4); HORT 4000 Pesticide Management in Horticulture (3); HORT 4300 Computer Aided Planting Design (3); HORT 5150 Retail Garden Center Management (3); HORT 5220 Greenhouse Management Science (4); HORT 5230 Nursery Management (4); HORT 5240 Public Gardens Management (3); HORT 5280 Advanced Landscape Design (3); BSEN 3560 Turf Systems Irrigation Design (3); CSES 5160 Advanced Turfgrass Management (3).

**Group 2:** STAT 2510 Statistics for Biological and Health Sciences (3); ACCT 2810 Fundamentals of Accounting (3); HORT 3920 Horticulture Internship (4); HORT 4930 Directed Study (3); HORT 5120 Small Fruit and Pecan Culture (4); HORT 5110 Tree Fruit Culture (3); HORT 5130 Sustainable Vegetable Crop Production (3); HORT 5910 Horticulture Practicum (3); CSES 3120 Principles of Weed Science (4); CTCT 2100 Power Equipment Technology (3); PLPA 5060 Plant Disease Management (4); FLSP 1010 Elementary Spanish I (4).

**Curriculum in Horticulture-- Nursery and Greenhouse Science Emphasis**
### Freshman

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<td>BIOL 1020 Principles of Biology</td>
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### Sophomore

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### Junior

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Total Hours: 120

Note: A minimum of 120 hours is required.

1. Any core MATH course, except MATH 1100 may be chosen.
2. Course may be 3 or 4 hours.
3. All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.
**Group 1:** HORT 2010 Fruit and Nut Production (4); HORT 2060 Hydroponics: Principles and Techniques of Soilless Plant Production (3); HORT 2210 Landscape Gardening (4); HORT 3310 People and Plants: A History of Gardens in the Cultural Context (3); BSEN 3560 Turf Systems Irrigation Design (3); HORT 4270 Intermediate Landscape Design (4); HORT 5150 Retail Garden Center Management (3); 5210 Landscape Bidding, Installation and Maintenance (4); HORT 5240 Public Gardens Management (3).

**Group 2:** FLSP 1010 Elementary Spanish I (4); CTCT 2100 Power Equipment Technology (3); STAT 2510 Statistics for Biological and Health Sciences (3); ACCT 2810 Fundamentals of Accounting (3) or ACCT 2110 Fundamentals of Financial Accounting (3); CSES 3120 Principles of Weed Science (4); HORT 3920 Horticulture Internship (4); HORT 4930 Directed Study (3); PLPA 5060 Plant Disease Management (4); HORT 5110 Tree Fruit Culture (3); HORT 5120 Small Fruit and Pecan Culture (4); HORT 5130 Sustainable Vegetable Production (3); FORY 5650 Urban Forestry (3); HORT 5910 Horticulture Practicum (3).

**Curriculum in Pre-Landscape Architecture Emphasis**

Students who have successfully completed the first three years of the Pre-Landscape Architecture Emphasis and who have a minimum 2.8 cumulative GPA are eligible to apply to the Landscape Architecture Summer Design Studio. Students who have successfully completed the Summer Design Studio and who are approved by the Landscape Architecture Faculty Admissions Committee are eligible to make application to the Graduate School for the Master of Landscape Architecture Program upon the completion of the fourth year. Please see the Office of Academic Affairs in the College of Agriculture for further information.

**Pre-Landscape Architecture Emphasis**

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<th>Spring Hours</th>
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<tr>
<td>LAND 5230 Studio II</td>
<td>4</td>
<td>5 HORT 5210 Landscape Bidding, Installation and Maintenance</td>
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<td>LAND 5231 Field Studies II</td>
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<td>1 LAND 5330 Studio III</td>
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<td>LAND 5240 History II: Landscape Timelines</td>
<td>4</td>
<td>3 LAND 5331 Field Studies III</td>
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<td>LAND 5250 Construction II</td>
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<td>2 LAND 5340 Urban Studies I: American Urban Landscapes</td>
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<tr>
<td>LAND 5260 Graphic Studies III</td>
<td>4</td>
<td>3 LAND 5360 Dynamic Systems I: Urban Ecologies</td>
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<td>LAND 5270 Plant Spatiality</td>
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Total Hours: 133

1. Any core MATH course, except MATH 1100 may be chosen.
2. Course may be 3 or 4 hours.
3. All students must complete at least one literature course and a history sequence OR a literature sequence and at least one history course for a total of 12 hours in Humanities and 12 hours in Social Sciences.

## Poultry Science

Students within the Department of Poultry Science learn about the food system from poultry production on the farm to the conceptualization and manufacturing of food products for the consumer. The department houses two formal undergraduate degree programs: the B.S. degree in Poultry Science and B.S. degree in Food Science. Within Poultry Science, two curriculum options are available: 1) Poultry Production and 2) Poultry Science/Pre-Veterinary Medicine. Each option leads to the B.S. degree in Poultry Science. Enrollment in an internship, usually during the summer, is required for both B.S. degrees. The B.S. degree in Food Science is recognized as an approved program by the Institute of Food Technologists.

### Majors

- Food Science (p. 247)
- Poultry Science - Poultry Production (p. 248)
- Poultry Science - Pre-Veterinary Medicine Option (p. 250)

### Minor

- Poultry Science (p. 251)
Food Science Courses

FDSC 1000 INTRODUCTORY FOOD SCIENCE (3) LEC. 3. Overview of food science discipline including food selection, food composition, food safety and sanitation, food processing, packaging, commodity types, and food laws.

FDSC 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1. Preparing for careers; enhancing computer and communication skills; planning for professional advancement.

FDSC 4910 FOOD SCIENCE PRACTICUM (3) PRA. 3. Practical experience in food industry, governmental laboratories, or other food science sites.

FDSC 4920 FOOD SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the food industry. Course may be repeated for a maximum of 9 credit hours.

FDSC 4960 SPECIAL PROBLEMS IN FOOD SCIENCE (1-3) IND. 2.50 GPA or departmental approval. Individual or group projects with a faculty member in food science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

FDSC 4970 SPECIAL TOPICS (1-4) LEC. Instruction and discussion of current topics associated with food science. Departmental Approval. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

FDSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FDSC 5150/5153 FOOD LAWS AND REGULATIONS (3) LEC. 3. Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both FDSC 5150 and FDSC 6150.

FDSC 5200/5203 DEVELOPING, IMPLEMENTING, AND AUDITING FOOD SAFETY PROGRAMS (3) LEC. 3. Theory and practice of food safety program design and implementation; includes internal and third-party audits. Credit will not be given for both FDSC 5200 and FDSC 6200.

FDSC 5430 FOOD CHEMISTRY (4) LEC. 3. LAB. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Chemistry of food components; chemical and physical changes of food during processing and storage. Credit will not be given for both FDSC 5430 and FDSC 6430. Spring.

FDSC 5450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3. LAB. 3. Pr. FDSC 5430. Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both FDSC 5450 and FDSC 6450.

FDSC 5640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. FDSC 5430. Food product development from concept to market. Credit will not be given for both FDSC 5640 and FDSC 6640. Spring.

FDSC 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques May count either ANSC 5700, FDSC 5700, ANSC 6700, or FDSC 6700.

FDSC 5730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results. May count one of the following: ANSC 5730, ANSC 6730, FDSC 5730, FDSC 6730.

FDSC 5770 FOOD PLANT SANITATION (4) LEC. 3. LAB. 3. Pr. BIOL 3200 or Departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit will not be given for both FDSC 5770 and FDSC 6770. Fall.

FDSC 6150/6156 FOOD LAWS AND REGULATIONS (3) LEC. 3. Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing, and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both FDSC 6150 and FDSC 5150.
FDSC 6200/6206 DEVELOPING, IMPLEMENTING, AND AUDITING FOOD SAFETY PROGRAMS (3) LEC. 3. Theory and practice of food safety program design and implementation; includes internal and third-party audits. Credit will not be given for both FDSC 6200 and FDSC 5200.

FDSC 6430 FOOD CHEMISTRY (4) LEC. 3. LAB. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Chemistry of food components; chemical and physical changes of food during processing and storage. May count either FDSC 5430 or FDSC 6430. Spring.

FDSC 6450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3. LAB. 3. Pr. FDSC 6430. Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both FDSC 6450 and FDSC 5450.

FDSC 6640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. FDSC 6430. Departmental approval. Food product development from concept to market. Credit will not be given for both FDSC 6640 and FDSC 5640. Spring.

FDSC 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 5700, FDSC 5700, ANSC 6700, or FDSC 6700.

FDSC 6730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results. May count one of the following: ANSC 5730, ANSC 6730, FDSC 5730, FDSC 6730.

FDSC 6770 FOOD PLANT SANITATION (4) LEC. 3. LAB. 3. Pr. BIOL 3200 or Departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit is not allowed for both FDSC 5770 and FDSC 6770. Fall.

FDSC 7200 CARBOHYDRATE CHEMISTRY AND FUNCTIONALITY IN FOODS (3) LEC. 3. Pr. FDSC 6430. Departmental approval. Chemistry and functionality of sugars, starches and hydrocolloids as applied to food systems.

FDSC 7210 FOOD PROTEINS AND FATS (3) LEC. 3. Pr. FDSC 6430. Departmental approval. Advanced theories and practices of food science in the areas of protein and fat.

FDSC 7930 ADVANCED INDEPENDENT STUDY (1-6) IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

FDSC 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either POUL 7950 or FDSC 7950. Course may be repeated for a maximum of 3 credit hours.

FDSC 7960 SPECIAL PROBLEMS (1-4) IND/ST1. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 8 credit hours.

FDSC 7970 SPECIAL TOPICS IN FOOD SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of current advanced topics associated with food science. Course may be repeated for a maximum of 8 credit hours.

FDSC 7980/7986 NONTHESIS RESEARCH (1-4) RES. Departmental approval. enrolled as FDSG MAg student. Research conducted as part of the Master of Agriculture degree.

FDSC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

FDSC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

Poultry Science Courses

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3) LEC. 2. LAB. 2. Introduction to the poultry species and their commercial production, physiology, nutrition and management. Fall.
POUL 2000 Poultry and Egg Evaluation and Selection (1) Lab. 1. A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Spring and Fall. Course may be repeated for a maximum of 4 credit hours.

POUL 2100 Professional Development for Animal Agriculture, Production, Processing & Feed Industries (1) Lec. 1. Development of professional skills and career preparation for students in animal agriculture.

POUL 3030 Commercial Poultry Production (4) Lec. 3. Lab. 3. The organization and management principles of the commercial poultry meat and egg production industries. Fall.


POUL 3150 Poultry Physiology (4) Lec. 3. Lab. 2. Pr. BIOL 1020. The physiological principles and characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4100 Supervised Investigation (1-4) Ind. Pr. 2.50 GPA. Departmental approval. Advanced independent investigation in a major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 4920 Poultry Science Internship (3) Int. 3. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.

POUL 4960 Special Problems in Poultry Science (1-3) Ind. 2.5 GPA or departmental approval. Individual or group projects with a faculty member in poultry science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

POUL 4970 Special Topics in Poultry Science (1-4) Lec. Instruction and discussion of selected current topics in poultry science. Departmental approval. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4980 Undergraduate Research (2-4) Ind. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

POUL 5020 Principles of Animal Feed Manufacturing (3) Lec. 2. Lab. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 6020 or POUL 5020.

POUL 5030 Advanced Commercial Poultry Production (3) Lec. 3. Pr. POUL 3030 and POUL 3150 and POUL 5050 and POUL 5110. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry.

POUL 5050 Poultry Feeding (3) Lec. 3. Pr. ANSC 3410. The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 and POUL 6050.

POUL 5080/5083 Poultry Health (3) Lec. 3. Pr. BIOL 3200 and (CHEM 2030 or CHEM 2070 or CHEM 2077). Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080, POUL 5083 and POUL 6080.

POUL 5110 Poultry Processing (3) Lec. 2. Lab. 3. Pr. POUL 3030 and (CHEM 2030 or CHEM 2070) or Departmental approval. The course focuses on poultry processing and related aspects. Students will learn the effects of live production, feed withdrawal and haul on poultry processing and quality as well as pre- and post-harvest food safety, USDA regulations, Halal and Kosher standards. May count either POUL 5110 and POUL 6110.

POUL 5140 Poultry Further Processing and Products (3) Lec. 2. Lab. 3. Pr. CHEM 2030 or CHEM 2070. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.
POUL 5160 PRINCIPLES OF FOOD SAFETY (3) LEC. 2. LAB. 3. Pr. BIOL 3200. Identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 6020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 5020 or POUL 6020.

POUL 6050 ADVANCED POULTRY FEEDING (3) LEC. 3. An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 or POUL 6050.

POUL 6080 ADVANCED POULTRY HEALTH (3) LEC. 3. Departmental approval. An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080 and POUL 6080. Fall.

POUL 6110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Students will acquire strong knowledge on each step of poultry processing from hanging to chilling and transportation. The course will cover topics on food safety (pre- and post-harvest), spoilage, antimicrobial interventions, USDA regulations as well as Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 6140 POULTRY FURTHER PROCESSING AND PRODUCTS (3) LEC. 2. LAB. 3. Pr. CHEM 2030 or CHEM 2070. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. Departmental approval. Credit is not allowed for both POUL 6140 or POUL 5140.

POUL 6160 ADVANCED PRINCIPLES OF FOOD SAFETY (3) LEC. 2. LAB. 3. Departmental approval. An advanced study and literature review of the identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 7100 SUPERVISED INVESTIGATION (1-4) IND. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either FDSC 7950 or POUL 7950. Course may be repeated for a maximum of 3 credit hours.

POUL 7960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. Departmental approval. Critical analysis of classic and current research in poultry science, including literary research and/or data analysis. Course may be repeated for a maximum of 6 credit hours.

POUL 7970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of current advanced topics associated with poultry science. Course may be repeated for a maximum of 8 credit hours.

POUL 7980 NON-THESIS RESEARCH (1-4) RES. Departmental approval. enrolled as POUL MAg student. Research conducted as part of the Master of Agricultural degree.

POUL 7990 RESEARCH AND THESIS (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

POUL 8100 GI SYSTEMS AND NUTRIENT UTILIZATION (3) LEC. 3. Pr. POUL 5050. Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8150 AVIAN PHYSIOLOGY (3) LEC. 3. Physiology of organ systems of birds with emphasis on domestic fowl. Fall. Students should have completed a course in animal or human physiology.

POUL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 5220 and BIOL 5230. Departmental approval. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both POUL 8160 and CMBL 8160. Odd years. Fall.


POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

Curriculum in Food Science

The B.S. degree in Food Science is designed to develop technical, analytical, and communication skills, as well as provide a broad scientific foundation to prepare students for employment within the food industry or admittance into graduate school. Upper-level food science courses address the chemical, physical, and biological properties of foods and how these properties influence food processing, quality, and safety. This undergraduate food science program is formally approved by the Institute of Food Technologists. Graduates in food science find employment in quality assurance, product development, food safety, and technical sales.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>NTRI 2000 Nutrition And Health</td>
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<td>PHYS 1000 Foundations of Physics</td>
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<td>COMM 1000 Public Speaking</td>
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<td>BIOL 3201 General Microbiology Laboratory</td>
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<td>Core History 2</td>
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<td>Core Humanity</td>
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<td>FDSC 5430 Food Chemistry</td>
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<td>FDSC 5660 Food Microbiology</td>
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Curriculum in Poultry Production

This option is designed to develop technical, analytical, communication, business, and management skills needed for advancement to leadership positions in poultry production and allied agricultural industries. Graduates will be able to apply their knowledge of science, economics, business, and ethics to identify, analyze and responsibly address challenges associated with modern poultry production. Relevant courses in poultry processing, products, and business are also included in this curriculum option.

Poultry Production Option

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<tr>
<td>CHEM 1030 Fundamentals of Chemistry I</td>
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<td><strong>POUL 1000 Introductory Poultry Science</strong></td>
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<td>FDSC 1000 Introductory Food Science</td>
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<td>ENGL 1100 English Composition I</td>
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<td><strong>Hours Spring</strong></td>
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<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>ECON 2020 Principles of Microeconomics</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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The Food Science B.S. requires 124 total hours.

1 Must include one of the following: POUL 1000, CSES 1000, ANSC 1000, or ANSC 2720. For remaining food science electives, see advisor or DegreeWorks for approved list.

2 POUL 5140 (3 credit, Spring semester) or ANSC 4700 (4 credit, Fall semester).

Processing Course 2

| 3-4 |
| FDSC 5450 Food Analysis and Quality Control |
| 4 |
| BCHE 3200 Principles of Biochemistry or 3180 Nutritional Biochemistry |
| 3 |
| FDSC 5730 Sensory Evaluation |
| 3 |
| Core Social Science |
| 3 |
| Food Science Electives 1 |
| 4 |

Senior

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<td>FDSC 5770 Food Plant Sanitation</td>
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<td>FDSC 5640 Food Product Development</td>
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<td>POUL 5160 Principles of Food Safety</td>
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<td>BSEN 5550 Principles of Food Engineering Technology</td>
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Total Hours: 123-125

The Food Science B.S. requires 124 total hours.

1 Must include one of the following: POUL 1000, CSES 1000, ANSC 1000, or ANSC 2720. For remaining food science electives, see advisor or DegreeWorks for approved list.

2 POUL 5140 (3 credit, Spring semester) or ANSC 4700 (4 credit, Fall semester).

Curriculum in Poultry Production

This option is designed to develop technical, analytical, communication, business, and management skills needed for advancement to leadership positions in poultry production and allied agricultural industries. Graduates will be able to apply their knowledge of science, economics, business, and ethics to identify, analyze and responsibly address challenges associated with modern poultry production. Relevant courses in poultry processing, products, and business are also included in this curriculum option.
### Sophomore

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<th>Course</th>
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<td>Core Literature</td>
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<td>CHEM 2030 Survey of Organic Chemistry</td>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>POUL 3150 Poultry Physiology</td>
<td>4</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
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<tr>
<td>ACCT 2810 Fundamentals Of Accounting</td>
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<td>Core History 1</td>
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<tr>
<td>POUL 3030 Commercial Poultry Production</td>
<td>4</td>
<td>Core Fine Arts</td>
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<tr>
<td>POUL 2100 Professional Development for Animal Agriculture, Production, Processing &amp; Feed Industries</td>
<td>1</td>
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### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
<th>Hours</th>
<th>Summer</th>
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<tbody>
<tr>
<td>BIOL 3200 General Microbiology</td>
<td>3</td>
<td>POUL 3060 Poultry Breeding, Fertility, and Hatchability</td>
<td>3 POUL 4920 Poultry Science Internship</td>
<td>3</td>
<td>POUL 4920 Poultry Science Internship</td>
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<td>BIOL 3201 General Microbiology Laboratory</td>
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<td>POUL 5140 Poultry Further Processing and Products</td>
<td>3</td>
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<td>ANSC 3410 Animal Metabolism and Nutrition</td>
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<td>POUL 5020 Principles of Animal Feed Manufacturing</td>
<td>3</td>
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<td>POUL 5110 Poultry Processing</td>
<td>3</td>
<td>COMM 2410 Small Group Communication</td>
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<td>Core History 2</td>
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<td>AGEC 3010 Agribusiness Marketing</td>
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<td>Core Humanity</td>
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### Senior

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<tr>
<th>Course</th>
<th>Hours</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>POUL 5050 Poultry Feeding</td>
<td>3</td>
<td>POUL 5160 Principles of Food Safety</td>
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<tr>
<td>POUL 5080 Poultry Health</td>
<td>3</td>
<td>POUL 5030 Advanced Commercial Poultry Production</td>
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<tr>
<td>BSEN 5450 Commercial Poultry &amp; Livestock Housing</td>
<td>3</td>
<td>General Elective or ROTC</td>
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<td>AGEC 4000 Principles of Agribusiness Management</td>
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<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td>AGEC 4040 Agribusiness Finance</td>
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<td><strong>Total</strong></td>
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</table>
Curriculum in Poultry Science/Pre-Veterinary Medicine

This option is designed to develop the technical, analytical, and communication skills, as well as provide the broad scientific foundation, needed for success in post-graduate degree programs, such as the Doctor of Veterinary Medicine, Master of Science, Doctor of Philosophy or other post-graduate professional degrees. Completion of this option will also prepare graduates for technical and research positions in the poultry and allied industries. Courses listed for the first six semesters satisfy requirements for admission to the College of Veterinary Medicine. Completion of the remaining requirements entitles the student to a B.S. degree in poultry science.

Poultry Science/Pre-Veterinary Medicine Option

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Fall</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td>POUL 1000 Introductory Poultry Science</td>
<td>3</td>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td>MATH 1610 Calculus I</td>
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<td>Core Fine Arts</td>
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<td></td>
<td></td>
<td>Core Social Science</td>
<td>3</td>
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<td>15</td>
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<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>CHEM 2070 Organic Chemistry I</td>
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<td>CHEM 2071 Organic Chemistry I Laboratory</td>
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<td>CHEM 2081 Organic Chemistry II Laboratory</td>
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<td>POUL 3030 Commercial Poultry Production</td>
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<td>POUL 3150 Poultry Physiology</td>
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<tr>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
<td>ECON 2020 Principles of Microeconomics</td>
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<td>POUL 2100 Professional Development for Animal Agriculture, Production, Processing &amp; Feed Industries</td>
<td>1</td>
<td>COMM 1000 Public Speaking</td>
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<tr>
<td>Core History 1</td>
<td>3</td>
<td>Core History 2</td>
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<td></td>
<td>15</td>
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<tr>
<th>Junior</th>
<th>Hours</th>
<th>Fall</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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<tbody>
<tr>
<td>AGRI 3000 Agricultural Genetics</td>
<td>4</td>
<td>BIOL 3200 General Microbiology</td>
<td>3</td>
<td>POUL 4920 Poultry Science Internship</td>
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<tr>
<td>BCHE 3200 Principles of Biochemistry</td>
<td>3</td>
<td>BIOL 3201 General Microbiology Laboratory</td>
<td>1</td>
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<tr>
<td>ANSC 3410 Animal Metabolism and Nutrition</td>
<td>3</td>
<td>BIOL 4100 Cell Biology</td>
<td>3</td>
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<td>Core Literature</td>
<td>3</td>
<td>PHYS 1500 General Physics I</td>
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## Poultry Science Minor

17 semester hours in minor (minimum 13 hours at 3000-level or above)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>POUL 1000</td>
<td>Introductory Poultry Science</td>
<td>3</td>
</tr>
<tr>
<td>POUL 3030</td>
<td>Commercial Poultry Production</td>
<td>4</td>
</tr>
<tr>
<td>POUL 2100</td>
<td>Professional Development for Animal Agriculture, Production, Processing &amp; Feed Industries</td>
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<tr>
<td></td>
<td>3 Elective Courses - See advisor for approved course listing.</td>
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</table>

Total Hours: 17

## Agricultural Leadership Studies Minor

18 semester hours in minor (minimum 9 hours at 3000-level or above)

<table>
<thead>
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<td>AGRI 3800</td>
<td>Agricultural Leadership Development</td>
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<tr>
<td>AGRI 5840</td>
<td>Advanced Agricultural Leadership Development</td>
<td>3</td>
</tr>
<tr>
<td>ANSC 4800</td>
<td>Issues in Animal Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>POLI 2100</td>
<td>State and Local Government</td>
<td>3</td>
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<tr>
<td></td>
<td>Elective Courses - See advisor for approved course listing.</td>
<td>8</td>
</tr>
</tbody>
</table>

Total Hours: 18

## College of Architecture, Design, and Construction

**VINI NATHAN, Dean**  
**KAREN L. ROGERS, Associate Dean for Graduate Studies and Research**  
**C. BEN FARROW, Associate Dean for Academic Affairs and International Programs**

THE COLLEGE OF ARCHITECTURE, DESIGN AND CONSTRUCTION (CADC) is committed to preparing professionals in the design and construction industries through professional undergraduate programs in the academic areas of Architecture, Building Science, Environmental Design, Graphic Design, Industrial Design and Interior Architecture and through graduate professional programs in Building Science, Industrial Design, Landscape Architecture, and Real Estate Development. Collaboration, community engagement, innovation, global connection and critical practice are core values intertwined in all of the programs at the College of Architecture, Design and Construction. Whether working with nationally respected corporations in the Department of Industrial and Graphic Design,
associating with major construction companies in the McWhorter School of Building Science, or building facilities to accommodate the needs of some of the state’s underserved citizens at the School of Architecture, Planning, and Landscape Architecture’s Rural Studio, CADC students learn in unique and flexible settings from innovative faculty and through progressive pedagogical models.

The College of Architecture, Design and Construction maintains the right to limit enrollment in all programs and may retain student work for exhibition or for records and accreditation purposes. CADC students in the professional programs are required to pay the CADC Professional Fee during each semester of the professional curriculum.

Minors

- Environmental Design (p. 288)
- Industrial and Graphic Design Processes (p. 278)
- History of Architecture and the Built Environment (p. 309)

Graduate Program

- Building Science - MBC (p. 1349)
- Industrial Design - MID (p. 1469)
- Landscape Architecture - MLA (p. 1478)
- Real Estate Development - MRED (p. 1522)

Architecture Courses

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1) LEC. 1, LST. 1. Introduction to the environmental design and construction professions and the curricula in the chosen field.

ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN I (5) LEC/STU. 12. Coreq. ARCH 1060. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (6) LEC. 1, LST. 12. Pr. ARCH 1010 and ARCH 1000 and ARCH 1060. Coreq. ARCH 1420. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1060 VISUAL COMMUNICATION (2) LEC. 2, LEC/STU. 2. Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (3) LEC. 3, LST. 0. Pr. ARCH 1060. Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10. Pr. ARCH 1020 and ARCH 1420. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10. Pr. ARCH 2010. Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 HISTORY OF WORLD ARCHITECTURE I (3) LEC. 3. Pr. ARCH 1020. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2117 HONORS ARCHITECTURAL HISTORY I: HISTORY OF THE BUILT ENVIRONMENT (3) LEC. 3. Pr. Honors College. ARCH 1010. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2210 ENVIRONMENTAL CONTROLS I (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2220 ENVIRONMENTAL CONTROLS II (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3. The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, readings, and essays.
ARCH 3010 STUDIO III (6) LEC. 2, LST. 10. Pr. ARCH 2020 and ARCH 3110. Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investigation. The physical, social, ethical contexts that inform the design of every building.

ARCH 3020 STUDIO IV (6) LEC. 2, AAB/LST. 10. Pr. ARCH 3010 or ARIA 3020. Builds on ARCH 3010 and adds an emphasis on the integration of construction tectonics in the development of architectural form.

ARCH 3110 HISTORY OF WORLD ARCHITECTURE II (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117. Introduction to key European buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.

ARCH 3120 HISTORY OF MODERN ARCHITECTURE (3) LEC. 3. Pr. ARCH 3110. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3220 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3. Pr. ARCH 1020. The properties and potential design function of materials used in contemporary construction, with an emphasis on foundation systems, wood, and masonry.

ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3. Explorations in the art of representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture, Planning and Landscape Architecture Course may be repeated for a maximum of 9 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3. Pr. ARCH 2020. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3. Pr. ARCH 2020. Investigation of significant topics that present opportunities and constraints to architectural thought and practice. Course may be repeated for a maximum of 9 credit hours.

ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3. Pr. ARCH 2010. Investigation of theories, schools or periods to examine the potential and limitations of architecture. Descriptions of specific seminars available from School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3710 SEMINAR IN HISTORICAL PERSPECTIVES (3) LEC. 3.

ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3. Pr. ARCH 2020. Study of aspects of architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 4010 STUDIO V (6) LEC. 2, LST. 10. Pr. ARCH 3010 or ARIA 3020 and BSCI 3440. The comprehensive design of buildings, building complexes, and spaces in an urban context. Lectures emphasize urban issues, research methods. Programming and analysis will parallel studio projects of increasing complexity.

ARCH 4020 STUDIO VI (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4010 or ARIA 4020. The design of buildings, building complexes, and spaces with emphasis on the integration of building systems and tectonic development.

ARCH 4110 HISTORY OF URBAN ARCHITECTURE (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117 and ARCH 3110. The course surveys the history of the physical and formal manifestations of the urban environment from its inception to our days.

ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION II (3) LEC. 3. Pr. ARCH 3320. Properties and potential design applications of materials used in contemporary construction, with an emphasis on steel and concrete, roofing, glass and glazing, cladding, and interior finishes.

ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. ARCH 3020 or ARIA 3020. Architects' legal responsibilities, frameworks of professional practice, office organization, business planning, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 DIRECTED STUDIES (1-6) AAB. Development of an area of special interest through independent study. Evaluation of the work may be by faculty jury. School approval. Course may be repeated for a maximum of 6 credit hours.

ARCH 4910 RURAL STUDIO COMPLETION (0) LEC. Completion of construction project for ARCH 4120 Elective Studio. This studio is based in the School's remote facilities in Newbern, AL.

ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. Special problems Course may be repeated for a maximum of 6 credit hours.
ARCH 4997 HONORS THESIS (1-6) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.


ARCH 5020 THESIS STUDIO (7) LEC. 3, AAB/LST. 10. Pr. ARCH 5010 and ARCH 5990. Exploration and development of an architectural project under the direction of a faculty member.

ARCH 5100 TEACHING METHODS (1) LEC. 1.

ARCH 5240 BEING THERE (1) LEC. 1. Course may be repeated for a maximum of 2 credit hours.

ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3.

ARCH 5990 INTRODUCTION TO THESIS RESEARCH (2) LEC. 2. The tools, techniques, and strategies required to select, develop, refine, write, and present a thesis argument.

ARCH 5991 THESIS RESEARCH (1) LEC. 1. Pr. ARCH 5990. Expansion on the individual thesis argument and research begun in ARCH 5990 in parallel with the development of their thesis design project in ARCH 5020.

ARCH 7010 STUDIO I: PROJECT INITIATION (6) STU. 12. Coreq. ARCH 7210 and ARCH 7110. This is the first of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a schematic, client-driven architectural proposal.

ARCH 7020 STUDIO II: PROJECT DEVELOPMENT (6) STU. 12. Pr. ARCH 7010 and ARCH 7110 and ARCH 7210. Coreq. ARCH 7220 and ARCH 7120. This is the second of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7030 STUDIO III: PROJECT COMPLETION (6) STU. 12. Pr. ARCH 7020 and ARCH 7120 and ARCH 7220. Coreq. ARCH 7130. This is the third of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7110 SEMINAR IN COLLABORATIVE DESIGN METHODS AND PROCESS (3) SEM. 3. Pr. ARCH 7010 and ARCH 7210. Coreq. ARCH 7210 and ARCH 7010. Introduction to the core theories of collaboration within interdisciplinary design and construction project teams teams and community-based client groups. Students develop an understanding of the fundamentals of collaborative process design, principles negotiation, communication across disciplines, and conflict resolution.

ARCH 7120 SEMINAR IN DESIGN TECTONICS (3) SEM. 3. Pr. ARCH 7010 and ARCH 7110 and ARCH 7210. Coreq. ARCH 7020 and ARCH 7220. Co-requisite adjunct to Project Development Studio. Taught as a series of workshops, this course provides the disciplinary framework necessary to apply technical research methods when evaluating options and reconciling the implications of design development decisions across systems and scales.

ARCH 7130 SEMINAR IN PROJECT COMMUNICATIONS (3) SEM. 3. Pr. ARCH 7020 and ARCH 7120 and ARCH 7220. Coreq. ARCH 7030. This course is delivered as a co-requisite adjunct to Project Completion Studio (Studio III). This course provides the disciplinary framework necessary to develop all project documentation required for project construction, delivery, record keeping, as well as future research and analysis.

ARCH 7210 EXECUTIVE ISSUES I (3) SEM. 3. Coreq. ARCH 7010 and ARCH 7110. Co-requisite adjunct to Project Initiation Studio (Studio I). Taught as a series "overlay" lectures and workshops. Provides the disciplinary framework to apply case study research methods when evaluating options and reconciling the implications of schematic design decisions across systems/scales.

ARCH 7220 EXECUTIVE ISSUES II (3) SEM. 3. Coreq. ARCH 7020 and ARCH 7120. Taught as a series "overlay" lectures and workshops. Provides the disciplinary framework necessary to apply case study research methods when evaluating options and reconciling the implications of design development decisions across systems/scales.

Building Science Courses

BSCI 1100 INTRODUCTION TO CONSTRUCTION (3) LEC. 3. Introduction to construction industry and education, current issues, and career opportunities.
BSCI 2200 CONSTRUCTION DOCUMENTS (3) LEC. 2. LAB. 3. Pr. BSCI 2300. Reading and interpreting working drawings, specifications, shop drawings, and digital 3D models for use in estimating and administrating various types of construction projects.

BSCI 2300 CONSTRUCTION METHODS AND MATERIALS (3) LEC. 3. Materials, methods and construction equipment used in the construction of buildings.

BSCI 2400 STRUCTURES OF BUILDINGS I (3) LEC. 3. Pr. (PHYS 1500 or PHYS 1600) and (MATH 1610 or MATH 1150). Principles of mechanics and materials behavior related to building structures. Includes force systems, frame analysis, gravity load tracing, wind and seismic resistance for concrete and steel buildings.

BSCI 3200 CONSTRUCTION COMMUNICATION (3) LEC. 3. Overview of communication skills and tools required to succeed as a construction manager. Oral communication, written communication, ethics, visual literacy, and video capture in the context of construction risk management.

BSCI 3300 FIELD SURVEYING (2) LEC. 1. LAB. 6. Surveying techniques, construction layout, use of equipment, and dimensional controls for buildings. Surveying camp, a concentrated, 10 working day course held during breaks.

BSCI 3400 STRUCTURES FOR ARCHITECTS II (3) LEC. 3. Pr. BSCI 2400. Primary and secondary member design, connection design, temporary bracing/shoring, and steel shop drawing review.

BSCI 3440 STRUCTURES OF BUILDINGS II (3) LEC. 3. Pr. BSCI 2400. Principles of static equilibrium and materials behavior related to building structures. Includes force systems, frame analysis, section properties, stress, basic design of structural elements in buildings.

BSCI 3450 STRUCTURES FOR ARCHITECTS III (3) LEC. 3. Pr. BSCI 3400. Introduction to the design of reinforced concrete and related formwork including beams, columns, slabs, footings, retaining walls, and pre-stressed members.

BSCI 3500 CONSTRUCTION AND INFORMATION TECHNOLOGY I (3) LEC. 2. LAB. 2. To explore, discover and create applications of information communication technology (ICT) for Construction Processes.

BSCI 3600 ESTIMATING AND COSTING (4) LEC. 3. LAB. 3. BSCI Major. Introduction to construction estimating for CSI Divisions 1-33. Students perform quantity take-of (QTO), pricing, and preparation for a commercial construction project using computer-based techniques.

BSCI 3660 PRECONSTRUCTION AND PROJECT MANAGEMENT (4) LEC. 3. LAB. 2. Pr. BSCI 3600. Project(s) simulation as a context to discuss, negotiated procurement, pre-construction services in the alternative delivery environment and construction phase management procedures.

BSCI 3700 CONSTRUCTION SAFETY (3) LEC. 3. Construction safety, including OSHA guidelines, accident investigation, and the creating of construction safety plans and worker training program.

BSCI 3800 CONTRACTING BUSINESS (4) LEC. 4. Pr. BSCI 3600. Construction-specific look at the business functions associated with the industry; includes organizational structures, construction finance, risk analysis, construction contracts, project delivery, and associated documents with these functions.

BSCI 3910 EXPERIMENTAL LEARNING (3) LEC. 3. SU. Departmental approval. Requires daily log and employer certification.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3. Provides an overview of residential construction and development practices and professional issues including: local ordinances and codes, land use law, financing practices, architect-builder relationship, spec homes vs. custom homes, etc.

BSCI 4300 COMBINED ESTIMATING AND SCHEDULING FOR DESIGNERS (3) LEC. 3. Provides an overview of estimating and project planning practices and techniques which relate to interactions between the architect and constructor. Includes: sources of project costs, conceptual estimating, value engineering, CPM scheduling, cost of acceleration and delays, change order, etc.

BSCI 4350 CONSTRUCTION PROJECT ANALYSIS (3) LEC. 3. Pr. BSCI 3660. Analysis of methods, materials and equipment used to construct projects. Methods used to assure the quality of construction projects.

BSCI 4360 CONSTRUCTION FIELD LAB (2) LAB. 4. Pr. BSCI 3700 and BSCI 3660. Students conduct a service learning project to integrate all components of the construction process.
BSCI 4410 PROBLEMS IN CONSTRUCTION MEANS AND METHODS (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Solving challenging problems encountered in construction processes, including form work, scaffolding, framing, steel erection, rigging, lifting, safety, and site management.

BSCI 4420 MANAGEMENT FOR CONSTRUCTION SUPERINTENDENTS (3) LEC. 1. LAB. 4. Pr. BSCI 3660. Senior Standing in Building Science. Development of expanded management strategies for construction superintendents including field conditions analysis, direction of tradesmen, communication skills, and project hoisting and equipment.

BSCI 4500 INFORMATION AND COMMUNICATION TECHNOLOGY FOR CONSTRUCTION II (3) LEC. 2. LAB. 2. To recognize, experiment and practice the applications of advanced information and communication technology (ICT) for Construction Processes.

BSCI 4610 SCHEDULING AND FIELD OPERATIONS (4) LEC. 4. Pr. BSCI 3660. The third of a sequence of three project controls classes (BSCI 3600 and BSCI 3660); an in-depth study of construction project sequencing and scheduling, jobsite cost control measures, construction cash flow analysis, and a variety of leadership and management issues associated with field operations.

BSCI 4700 MECHANICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500 and BSCI 3600. Overview of the plumbing and mechanical systems of buildings. Basic design, sustainability concepts, systems, installation and testing are covered.

BSCI 4710 MECHANICAL CONSTRUCTION ESTIMATING AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 4700. Advance study of mechanical construction industry. Study and application of design principles, estimating and management techniques used in the industry.

BSCI 4750 ELECTRICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500. Electrical systems commonly used in buildings; basic theory and design concepts, with emphasis on lighting and electrical distribution equipment and its installation.

BSCI 4850 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages, and dispute resolution.

BSCI 4860 ADVANCED CONSTRUCTION INFORMATION TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Exploration and creation of advanced applications of Information and Communication Technology (ICT) for planning, decision making, projects monitoring, and controls.

BSCI 4870 CONSTRUCTION HISTORY (3) LEC. 3. Survey of historic construction projects to analyze how and why buildings and structures were constructed in the way they were.

BSCI 4880 CONSTRUCTION EQUIPMENT MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction equipment management and ownership. Equipment acquisition and disposition options, production costs and productivity, cost analysis and control, management staffing and responsibilities.

BSCI 4890 LEAN CONSTRUCTION PRINCIPLES AND PRACTICES (3) LEC. 3. Pr. BSCI 3660. This course provides an understanding of lean construction principles involving lean design, assembly, supply, production and work processes.

BSCI 4960 SPECIAL PROBLEMS (1-5) IND. Special problems in construction topics. Course may be repeated for a maximum of 5 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12. Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to a theoretical construction company and project. Requires a written thesis and oral defense of work.

BSCI 5450 BUILDING GREAT STRUCTURES (3) LEC. 3. Departmental approval. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 5460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. Departmental approval. May count either BSCI 5460 or BSCI 6460.

BSCI 5470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 45. Departmental consent. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.
BSCI 5830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCTION (3) LEC. 3.

BSCI 5960 SPECIAL PROBLEMS (1-5) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 5 credit hours.

BSCI 5970 SPECIAL PROBLEMS (1-5) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 15 credit hours.

BSCI 6450 BUILDING GREAT STRUCTURES (3) LEC. 3. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 6460/6466 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. Departmental approval. May count either BSCI 5460 or BSCI 6460.

BSCI 6470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 6830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3.

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (1-5) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours.

BSCI 6970 SPECIAL PROBLEMS IN CONSTRUCTION (1-3) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3. Departmental approval. Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project.

BSCI 7020/7026 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

BSCI 7030/7036 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

BSCI 7040/7046 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

BSCI 7050/7056 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3. Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3. A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.

BSCI 7100/7106 GRADUATE ELECTIVE IN PROJECT MANAGEMENT: PROJECT MANAGEMENT AND SCHEDULING (3) LEC. 3. This course develops advanced student knowledge and skills in construction business facets such as delivery, contracts and financial management; and develops tactile skills in producing advanced construction schedules in current software applications. Credit will not be given for both BSCI 7100 and BSCI 7106. Course may be repeated with change in topics.

BSCI 7126 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages and dispute resolution. Admission to Certificate in Construction Management.


BSCI 7156 HEAVY CIVIL CONSTRUCTION (3) LEC. 3. Students must be admitted to the Executive Integrated Processes Certificate in Construction Management. Principles of heavy civil construction including budget, planning, excavation, haul, equipment, temporary structures and types of projects involved.

BSCI 7200 ELECTIVES IN CONSTRUCTION LABOR (3) LEC. 3. Departmental approval. Special course offerings related to construction labor topics. Course may be repeated with change in topic.

BSCI 7300 ELECTIVES IN INFORMATION TECHNOLOGY AND INNOVATION (3) LEC. 3. Departmental approval. Special course offerings related to information technology, innovation, and robotics in construction. Course may be repeated with change in topic.

BSCI 7900 DIRECTED READING IN CONST (1-3) IND. Departmental approval. Individually proposed exploration of a construction industry related topic not covered in existing course offerings. Students must prepare a written proposal of the topic. Course may be repeated for a maximum of 3 credit hours.

BSCI 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

BSCI 7980/7986 CAPSTONE PROJECT (3) LAB. 6. Departmental approval. Independent exploration of an approved topic with final written report of findings and an oral defense of the work. Specific capstone project requirements are established by the supervising committee and vary based on the chosen topic.

Environmental Design Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Pr. ARCH 1000 or INDD 1120 or BSCI 1100. Or ENVD major. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.


ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.
ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.

ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) SEM. 3. Pr. ENVD 2100. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and hands-on instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3, AAB. 0. Pr. MKTG 3310 or MKTG 3317. Topics include: digital production, portfolio making and design thinking.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

Graphic Design Courses

GDES 1110 FOUNDATION DRAWING (4) STU. 8. Coreq. GDES 1210. PGDE majors only; school approval. Representational drawing with various media. Emphasis on accurate observation, pictorial organization, depiction of space as well as on concept development and creativity.

GDES 1210 FOUNDATION DESIGN I (4) LEC. 1, STU. 6. Coreq. GDES 1110. PGDE majors only; school approval. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

GDES 1220 FOUNDATION DESIGN II (4) LEC. 1, STU. 6. Pr. GDES 1210. Elements and principles of design with emphasis on basic three dimensional design. Emphasis on spatial organization, color, and media exploration, planning and craft.


GDES 2220 TYPOGRAPHICS I (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2210. Historical development and practical applications of typography for design, layout, and other contemporary formats. School approval.

GDES 2230 INTRODUCTION TO GRAPHIC DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Design, layout, and image-making procedures for creative problem-solving in graphic design, with emphasis on presentation, creativity, and visualization. School approval. Portfolio review required.

GDES 3210 PHOTO DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Traditional black and white film photography that covers technical aspects of the 35mm camera and film and basic darkroom procedures for black and white film and and basic darkroom procedures for black and white film and an awareness of the aesthetics and semantics associated with photographic imagery.

GDES 3220 PHOTO COMMUNICATIONS (4) STU. 8. Photography as applied communication such as advertising, editorial photography, and annual report photography. Emphasis on advanced technological and studio techniques.
GDES 3230 LETTERPRESS IMAGING (4) LEC. 1, LST. 3. Pr. GDES 2230. Experimental imaging using letterpress equipment to develop new techniques appropriate to today's communications industry. Emphasis on individual creativity, experimentation and initiative.


GDES 3250 TYPOGRAPHICS II (4) STU. 8. Pr. GDES 2230. Experimental application of typography for design and layout, exploring contemporary techniques. Historical understanding expected. Emphasis on presentation and visualization of concepts.

GDES 3260 KINETIC TYPOGRAPHY (4) LEC. 4. Pr. GDES 2230. Focuses on how motion affects meaning and how new meaning can be developed through time, space, and sound.

GDES 3270 GRAPHIC DESIGN HISTORY (4) LEC. 4. Pr. GDES 2230. Coreq. GDES 3240. History of graphic design, with emphasis on social and cultural contexts, symbolic application, formal characteristics, and significant movements.

GDES 3910 GRAPHIC DESIGN INTERNSHIP PRACTICUM (2) LEC. 2. Pr. GDES 2210 and GDES 2220. Acceptance into the GDES program. Focuses on the professional practices of Graphic Design through portfolio creation and presentation, resume and cover letter writing and the tactics of searching for an internship.

GDES 3920 GRAPHIC DESIGN INTERNSHIP (4) INT. 4. Pr. GDES 2230. a fifteen-week period working full time as a staff member with an approved internship sponsor under the direction of a supervising art director.

GDES 4240 GRAPHIC DESIGN I (4) STU. 8. Pr. GDES 3710. Application of communicative procedures and skills necessary to convey messages by means of graphic presentation: problem solving in corporate identity, advertising design, self promotion, etc. Development of student's individual style.

GDES 4250 GRAPHIC DESIGN II (4) STU. 8. Pr. GDES 4240. Development of individual style in communication via graphic graphic presentation, with emphasis on problem-solving in publication design, self-promotion, large-format design, and layout.

GDES 4260 MAGAZINE DESIGN (4) STU. 8. Pr. GDES 2230. Concepts of graphic design are explored; specifically an understanding of grid, message-making and qualities of design in the magazine format.

GDES 4270 ADVANCED INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 3710. Focuses on the principles and methodologies used throughout the interactive design industry for creating screen-based dynamic media. Students develop a conceptual framework for real world applications, exploring industrial, social and cultural issues.

GDES 4640 IMAGE I (4) STU. 8. Pr. GDES 2230. Application of illustration techniques and concepts to various graphic formats. Development of personal skills and individual style.

GDES 4650 IMAGE III (4) STU. 8. Pr. GDES 2230. Exploration of two dimensional and three dimensional imaging techniques and concepts. Development of personal skills and an individual style.

GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr. GDES 2210 and GDES 2220. Directed Studies in Graphic Design focuses on individualized study in Graphic Design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (4) LEC. 1, LST/ST1. 6. Pr. GDES 2230 and GDES 3710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES GDES course curriculum. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (5) STU. 10. Pr. GDES 4250. Coreq. GDES 4991. A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Must be taken in student’s final semester.

GDES 4991 RESEARCH, WRITING AND PRESENTATION (1) LEC. 1. Pr. GDES 4250. Coreq. GDES 4990. Addresses research, writing and presentation requirement associated with the student's terminal studio project. Must be taken in student's final semester.
Industrial Design Courses

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10) LEC. 3, LST. 12. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, and presentation.

INDD 1320 PROTOTYPE FABRICATION (3) LEC. 2. LAB. 2. Coreq. INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.

INDD 1400 CAREERS IN INDUSTRIAL DESIGN (2) LEC. 2. Survey of careers in the field of industrial design demonstrated through case studies, product examples and biographies.

INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, LST. 10. Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3) LEC. 2. LAB. 2. Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.

INDD 2130 PRESENTATION RENDERING (3) LEC. 2. LAB. 2. Concept development using drawing and rendering skills with different media for ideas communication and presentation.

INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, AAB/LST. 10. Pr. INDD 2110. Analysis of design fundamentals through three dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

INDD 2220 ANTHROPOMETRY (3) LEC. 3. Pr. INDD 2110. Body measurements, movements and human capacity in relation to design with introduction to ergonomy and human physiology as it relates to design. School approval.

INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3) LEC. 3. Pr. INDD 2110. Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

INDD 3110 EXHIBIT AND PACKAGING (6) LEC. 1, LST. 8. Pr. INDD 2210. Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.


INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2210. Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

INDD 3210 PRODUCT DESIGN (6) LEC. 2, LST. 10. Pr. INDD 3110. Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

INDD 3220 MATERIALS AND TECHNOLOGY (3) LEC. 3. Pr. INDD 3120. Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2120. Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

INDD 4110 ADVANCED PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3120 and INDD 3210. Design or redesign of products and systems of advanced complexity.

INDD 4120 ADVANCED COMPUTER AIDED DESIGN II (3) LEC. 3. Pr. INDD 3230. This course builds on concepts learned in INDD 3230, with emphasis on form creation, modeling and troubleshooting and the use of digital techniques to produce three dimensional models.

INDD 4210 INDUSTRIAL DESIGN THESIS (6) LEC. 2, AAB/LST. 10. Pr. INDD 4110. Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.
INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

INDD 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

INDD 5010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind’s production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 5030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussion. Focus on the socio-cultural relevancy of the artifacts.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Design and development of a portfolio and promotional material presenting the student’s work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind’s production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3. Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3. Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3) LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3) LEC. 3. Detailed study of the industrial design project management and development with emphasis on the interrelational management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3) LEC. 3. Theoretical and empirical examination of human factors (Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybernetics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3) LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics, and consumer product safety.

INDD 7650 DESIGN THEORIES (3) LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3) LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis, and evaluation in comprehensive design problems.

INDD 7670 SYSTEMS DESIGN (3) LEC. 3. Systems approach and interdisciplinary team work to design problems inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7910 INDUSTRY PRACTICUM (5) AAB/STU. 5. This course will demand the application of acquired skill to the resolution of product design based issues within an industry collaboration studio over the period of one semester.
INDD 7980 NON-THESIS DESIGN (3) STU. 3. Synthesizing studies in research, analysis and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7990 DESIGN THESIS (1-5) AAB/RES. Credit to be arranged. Course may be repeated with a change in topic.

**Interior Architecture Courses**


ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.


ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 3020 and ARCH 3320 and (ARCH 2110 or ARCH 2117) and BSCI 3400. Parallels Architecture Studio 6, with emphasis on the development of interior architecture and spaces within an urban context. Consideration will be given to adaptive reuse.

ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10. Pr. ARCH 4020. Coreq. ARIA 4080. Interior design project of the student's choice, under the direction of a faculty member.

ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2. Pr. ARCH 4020. Research and writing of thesis documents, to include programming, site, and case studies.

ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2. Pr. ARCH 4020. Prepares student to enter professional office with an understanding of the skills, concepts and technical knowledge expected.

ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3. Pr. ARCH 4020. The theory and history of interior spaces, their social, material, and aesthetic development and their artifacts.

**Landscape Architecture Courses**

LAND 5030 LANDSCAPE DESIGN METHODS (3) LEC. 9. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 5040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 9. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 5110 BASIC LANDSCAPE ARCHITECTURAL DESIGN (6) STU. 12. Landscape architectural design studio emphasizing research, planning and design problems at neighborhood to community scales.

LAND 5130 STUDIO I: FOUNDATION STUDIO (5) STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 5131 FIELDWORK I (1) FLD. 1. Field studies and travel related to studio. May count either LAND 5131 or LAND 6131.

LAND 5140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5150 CONSTRUCTION I: LANDFORM & HYDROLOGY (2-3) LEC. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management. Course may be repeated for a maximum of 3 credit hours.

LAND 5160 GRAPHIC STUDIES I (2-3) LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 5210 URBAN HOUSING STUDIO (6) STU. 12. Spatial/formal qualities of multi-unit housing utilizing the wealth of housing typologies erected in North America.
LAND 5230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May count either LAND 5230 or 6230.

LAND 5231 FIELDWORK II (1) FLD. 1. Field studies and travel related to studio. Departmental approval. May count either LAND 5231 or LAND 6231.

LAND 5240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 5250 CONSTRUCTION II: MATERIALS & DETAILING (2-3) LEC. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 5260 GRAPHIC STUDIES III (3) SEM. 3. Pr. LAND 5150. Departmental approval. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 5270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiability. Departmental approval. May count either LAND 5270 or 6270.

LAND 5280 LANDSCAPE ELEMENTS: EARTH, FIRE AND WATER (3) LEC. 3. Introduces students to the basic elements used in the design of the built landscape.

LAND 5290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 5310 INDEPENDENT STUDY THESIS (6) STU. 12. Departmental approval. Extensive exploration and development of a landscape architecture issue of the students choice beyond the level associated with entry to the profession. Level-III standing;

LAND 5330 STUDIO III (5) LEC. 5. Pr. (LAND 5230 or LAND 6230) or (P/C LAND 5331 or P/C LAND 6331). Departmental approval. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 5350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 5360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5240. Departmental approval. An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.
LAND 5500 LAND ETHICS AND ENVIRONMENTAL RESPONSIBILITY (3) LEC. 3. Explores the ethical relationship of man and nature.

LAND 5510 ENVIRONMENTAL PLANNING STUDIO (6) STU. 12. Natural systems analysis as a basis for site planning and large scale facilities design. Level-II standing.

LAND 5520 LANDSCAPE ARCHITECTURE DESIGN STUDIO (6) STU. 12. Pr. LAND 5110. A continuation of the basic design studio emphasizing research, planning, and design problems at community to regional scales.

LAND 5540 HISTORY OF LANDSCAPE ARCHITECTURE II (3) LEC. 3. Explores the built landscape from the 17th Century to the present including designs in America, Europe and Asia.

LAND 5590 INDEPENDENT STUDY THESIS (6) STU. 12. A major integrative investigation of a focused problem area, defined and pursued by the student under the direction of a faculty member.

LAND 6030 LANDSCAPE DESIGN METHODS (3) LEC. 3. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 6040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 3. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 6130 STUDIO I: FOUNDATION STUDIO (5) AAB/STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 6131 FIELDWORK I (1) AAB/FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) AAB/SEM. 3. Pr. LAND 5230 or LAND 6230. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 6150 CONSTRUCTION I: LANDFORM & HYDROLOGY (2-3) AAB/LEC. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 6160 GRAPHIC STUDIES I (2-3) AAB/LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 6170 GRAPHIC STUDIES II (3) LEC. 3. Departmental approval. Graphic and communication theories and skills in a variety of media. Photoshop, Illustrator, InDesign and AutoCAD.

LAND 6230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May either LAND 5230 or 6230.

LAND 6231 FIELDWORK II (1) FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 6250 CONSTRUCTION II: MATERIALS & DETAILING (2-3) LEC. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 6270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 6290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 6330 STUDIO III (5) LEC. 5. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 6331 and LAND 5331. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.
LAND 6331 FIELD STUDIES III (1) FLD. 1. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 6330 and LAND 5330. Field studies and travel related to studio.

LAND 6340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 6240. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture. Departmental approval.

LAND 6350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. This course emphasizes stormwater research, planning, and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 6360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 6370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 6380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, strata, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 6410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 6430 URBAN THEORY (3) LEC. 3. An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.

LAND 7130 STUDIO IV (5) AAB/STU. 5. Departmental approval. Investigates design strategies and techniques for generating new resilient cultural and environmental practices within complex dynamic conditions.


LAND 7140 URBAN STUDIES II: GLOBAL URBANISM (3) LEC. 3. Departmental approval. Examines the major global drivers of urban change, contemporary theories of international urban design, geography and cultural theory.

LAND 7170 PLANTS II (2-3) AAB/LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant ephemerality, functionality, and phenology. Course may be repeated for a maximum of 3 credit hours.

LAND 7190 RESEARCH BY DESIGN: FRAMEWORKS, METHODS, AND STRATEGIES (3) SEM. 3. Design is not just about solving problems, but figuring out which questions to ask in the first place. This course guides students through the iterative process of situating, identifying, framing, and testing a student-chosen trend, topic, or question.

LAND 7230 STUDIO V: COMPREHENSIVE STUDIO (5) STU. 5. Pr. LAND 5230. The first part of a two-semester research studio which involves creating a new body of work within a theoretical context and then critically appraising this work and its theoretical framework.

LAND 7231 FIELDWORK V (1) FLD. 1. Coreq. LAND 7230. Course is directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Emphasizes first-hand experiences of the landscape where careful observation and analysis occur; and introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7232 STUDIO V: TERMINAL (6) STU. 6. Pr. LAND 5230. Departmental approval. This is a directed studio that will ask students to look at a large site within a city and design an individual intervention that reflects the goals and objectives of that studio.

LAND 7240 THEORIES AND PRACTICES (3) SEM. 3. Departmental approval. This is a reading, writing, and discussion seminar that examines the idea that the development of a democratic, civic, diverse social ecology can create more resilient and sustainable communities.
LAND 7250 CONTEMPORARY ISSUES IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Pr. LAND 5230. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7270 CONSTRUCTION III: REGENERATIVE TECHNOLOGIES (2-3) LEC. Introduces issues of land contamination and explores remediative and regenerative technologies as design strategies towards new productive futures. Course may be repeated for a maximum of 3 credit hours.

LAND 7280 DYNAMIC SYSTEMS II: REGIONAL ECOLOGIES (3) LEC. 3. This lecture/field laboratory course examines conditions of regional ecologies at multiple scales and explores possible public and private responses to these issues.

LAND 7290 GRAPHIC STUDIES III (3) SEM. 3. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 7330 STUDIO VI: COMPREHENSIVE STUDIO (5) STU. 12. Pr. LAND 5230 or LAND 6230. A culmination of a design research project that ends in a public review and exhibition.

LAND 7331 FIELDWORK VI (1) FLD. 15. Coreq. LAND 7330. Directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Gets students out of the classroom and emphasizes first-hand experiences of the landscape where careful observation and analysis occur. Introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7332 STUDIO VI: TERMINAL (6) STU. 6. Pr. LAND 5230 or LAND 6230. Departmental approval. A directed studio that will ask students to look at a large site within a city and design an individual intervention that reflects the goals and objectives of that studio.

LAND 7340 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course surveys the development and ethics of the profession of landscape architecture and presents an overview of the business and practice of the profession.

LAND 7350 LANDSCAPE COMPUTER MODELING (2) LEC. 2. Departmental approval. Three dimensional and dynamic systems modeling.

LAND 7410 SEMINAR ON HISTORY AND THEORY (3) LEC. 3. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7420 SEMINAR ON COMMUNITY OUTREACH (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7430 SEMINAR ON HYDROLOGY (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7440 SEMINAR ON LANDSCAPE COMMUNICATION (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7450 SEMINAR ON LANDSCAPE RESEARCH (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7470 LANDSCAPE ARCHITECTURE INTERNSHIP (3) PRA. 3. By approval of Chair of Landscape Architecture. A practical, professional, full-time, curriculum-related work experience in the industry of landscape architecture. Under joint supervision of employer and university. Course may be repeated for a maximum of 9 credit hours.

LAND 7530 DESIGN BUILD FELLOWSHIP (3-6) LEC/PRA. Pr. LAND 5230. Departmental approval. The design investigation and construction/installation of a landscape proposal. Course may be repeated for a maximum of 6 credit hours.

LAND 7900 DIRECTED STUDIES (1-3) AAB. An individual student can pursue an area of research beyond the required curriculum. Departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.
LAND 7960 SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7970 SPECIAL TOPICS (1-6) AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours. ADDITIONAL PREREQUISITES: Departmental approval; MLA I standing.

LAND 7990 DESIGN THESIS I (6) LEC. 6.
LAND 7991 DESIGN THESIS II (8) LEC. 8.
LAND 7992 RESEARCH SUMMARY (1) LEC. 1.

Real Estate Development Courses
RDEV 7126 FIELD STUDIES (1) DR1/DR2. 1. This course provides students with the opportunity to visit real estate development firms and ongoing projects. Course may be repeated for a maximum of 6 credit hours.

RDEV 7136 PRINCIPLES OF REAL ESTATE DEVELOPMENT (3) DR1/DR2. 3. An introduction to theory and practice as applied to fundamental topics in real property law, real estate markets, valuation, investment analysis and property financing as they effect various topics in real estate development.

RDEV 7146 REAL PROPERTY ANALYSIS (3) DR1/DR2. 3. This is a case study course, providing an overview of key concepts in real estate development and real property analysis.

RDEV 7236 REAL ESTATE MARKET ANALYSIS (3) DR1/DR2. 3. This class will provide concentrated study in real estate markets. Critical components of the course will include the study of the link between the Property and Asset Markets.

RDEV 7246 BUILDING DESIGN AND CONSTRUCTION PRINCIPLES (3) DR1/DR2. 3. This course will illustrate some of the building design and construction principles that real estate development professions engage in their practice every Day.

RDEV 7346 SITE PLANNING AND INFRASTRUCTURE DEVELOPMENT (3) DR1/DR2. 3. This course examines the role that site selection and infrastructure development play in the sustainable conceptualization, feasibility, and implementation of a real estate development project.

RDEV 7356 REAL ESTATE INVESTMENT ANALYSIS (3) DR1/DR2. 3. This class will provide concentration study in real estate investment.

RDEV 7436 REAL ESTATE PROJECT MANAGEMENT (3) DR1/DR2. 3. This course examines the real estate development process from conceptualization to actualization.

RDEV 7446 REAL ESTATE CONTRACT NEGOTIATIONS (1) DR1/DR2. 1. This course will teach the basic skills necessary to become an effective negotiator. The course will include planning and preparing necessary elements for contract negotiation. Additionally, the communications skills necessary to forward the negotiation agenda will be addressed.

RDEV 7536 REAL ESTATE SECURITIZATION (3) DR1/DR2. 3. This class will provide an in-depth look at the fundamental principles and practices as applied to the financing of residential and commercial real estate.

RDEV 7546 REAL ESTATE DEVELOPMENT LAW (3) DR1/DR2. 3. This course examines the legal issues related to acquisition, planning, design, entitlement, construction, development financing, property management, accounting, taxation, reversion, and estate planning.

RDEV 7636 REAL ESTATE DEVELOPMENT CAPSTONE PROJECT (5) DR1/DR2. 5. This Capstone Project seeks to develop an appreciation of real estate development process and the critical roles played by the design, planning, and construction industries.

School of Industrial and Graphic Design
Graphic Design Academic Standards
Students pursuing the bachelor of fine arts degree (BFA) in graphic design (GDES) will enroll in the College of Architecture, Design and Construction as Pre-Graphic Design (PGDE) majors for the first year level curriculum.
Acceptance and Progression into the Professional Graphic Design Program

The program maintains the right to limit freshmen and transfer enrollment. Admission into the BFA in graphic design is selective, is limited, and is based on a multiple step process.

1. **Application for Pre-Graphic Design**: Once accepted to Auburn University, students will be designated as Pre-Graphic Design (PGDE) for the first year of the curriculum. Entering freshmen admitted to Auburn who are admitted as PGDE to the major must begin their program of study in the fall or spring term of the academic year after they are admitted, or they will be held to the same admission requirements as transfer students. Entering freshmen who are not admitted into Pre-Graphic Design may consider other programs in the college and should communicate with the CADC Office of Student Services to discuss options.

2. **PGDE to GDES second year level Courses**: After completing the first year level Pre-Graphic Design curriculum, an admission process based on GPA ranking admits qualified students into the Graphic Design second year level program for the GDES 2210 and GDES 2220 courses. Once accepted into the second year level Graphic Design major, the students will be classified as GDES and be considered probationary. The admissions process into the second level GDES program is as follows: Pre-Graphic Design students must complete at least 28 semester hours of credit including: GDES 1110 Foundation Drawing; GDES 1210 Foundation Design I; GDES 1220 Foundation Design II; ARTS 2100 and ARTS 2150; and at least 6 hours of coursework counting toward the University Core Curriculum. The GPA for entrance to the second level of Graphic Design will be calculated on the above listed courses only. (The two highest Core grades will be utilized.) [Grades received at other institutions in courses that have been accepted by Auburn, as Core or fundamental art course requirements, will be included in the GPA.] Following completion of the above listed courses, PGDE students will submit an Application to BFA in Graphic Design Degree Program to the CADC Office of Student Services. Students will be ranked by GPA and the top students will be selected. These students will be notified and then registered in the next level courses – GDES 2210 Graphic Processes and GDES 2220 Typographics I, by CADC Office of Student Services. Students who are not accepted can reapply in following semesters.

3. **B.F.A in Graphic Design Entrance Review**: All probationary second-year level GDES students who have achieved a minimum 2.50 GPA in GDES 2210 and GDES 2220 are eligible to apply through a portfolio review process for GDES 2230. The Graphic Design Review Committee will conduct an entrance review twice per academic year, at the end of fall semester and at the end of spring semester. To advance to GDES 2230, it is required that students submit an unofficial transcript showing the required GPA, a portfolio of work from GDES 2210 and GDES 2220, and a one page typewritten statement of intent. The portfolio will consist of 6 projects from the two courses (no more than four projects from one course). The statement of intent should include reasons for choosing the Graphic Design major and address career goals. The Graphic Design Review Committee will evaluate the student’s portfolio and written statement in terms of the individual student’s skills, artistic perception, conceptualization, and professionalism. Upon successful admission by portfolio review, the student will be required to purchase a laptop computer that meets minimum specifications and will be allowed to register for 3000-level courses.

Continuation in the Program

All required coursework must be completed with a grade of C or better. In the event a grade of D or F is received in any required course in the major, a review is required for continuance in the program. Based on the outcome of this review, a student may be required to repeat the course or may not be allowed to continue in the program. Students receiving a second D or F will be reviewed for continuance in the program. Similarly, a student receiving two or more grades of C in required classes may be reviewed for continuance in the program.

Transfer Students for Graphic Design

The Graphic Design (GDES) program maintains the right to limit transfer enrollment based on available resources. On and off-campus transfer students must file a GDES Transfer Student Admission Application and meet criteria listed in the application with the CADC Office of Student Services no later than the posted deadline.

A student must have a minimum cumulative unadjusted GPA of 2.8 (on a 4.0 scale) on all collegiate work attempted and will be accepted on a space-available basis as determined by the School Head.

On and off campus transfer applicants must meet criteria listed in the “Academic Policies” section of the Auburn University Bulletin. The application packet includes an application form, statement of intent, and official transcripts from all schools attended. A portfolio is required for consideration of transfer credit for any studio classes taken. Applicants must be admitted to Auburn University at the time of application. Screening of applications for fall admission begins in March with applicants notified by e-mail. Screening of applications for Spring admission begins in October with applicants notified by e-mail. Students admitted MUST begin the program the following term. Course work in the major must be taken in sequence; transfer students should anticipate that additional semesters of study may be required to complete the program.
Industrial Design Academic Standards

The required INDD First Year Studio summer sequence is offered to students in good standing who meet the following criteria: completion of 24 credit hours of university work or with approval of the School Head. Students are not required to have completed the INDD freshman model curriculum before enrolling in the summer semester INDD First Year Studio. The First Year Studio sequence is only offered in the summer semester.

Acceptance and Progression in the Professional Industrial Design Program

The department maintains the right to select the most highly qualified students for admission to and for continuation in the INDD professional program. Enrollment is restricted in upper-level professional INDD studios (second, third, and fourth year) and based on INDD GPA. Students not admitted into an upper level professional INDD studio may retake the summer studio sequence in subsequent years and are re-ranked against new applicants and available resources in that year level. The department reserves the right to retain original work accomplished as part of course instruction.

After a student is accepted into the summer semester First Year Studio, the student must make at least a grade of C or higher in studio courses in order to be considered for progression in the program. Grades below C in studio courses 1310 through 4210 must be repeated. Design courses must be taken in sequence unless otherwise approved by the school head. A portfolio and presentation at a high school are required for graduation.

Special Opportunities for Qualified Students

The School of Industrial and Graphic Design Study Abroad programs are design experiences, with students sharing studios and workshops at colleges and universities in England, Ireland, Northern Ireland, Scotland, Taiwan, and Hong Kong.

Transfer Students for Industrial Design

Please contact the School Head of Industrial and Graphic Design for information on transferring into Industrial Design.

Majors

- Graphic Design (p. 275)
- Industrial Design (p. 276)
- Post-Baccalaureate Environmental Design (p. 277)

Minors

- Industrial and Graphic Design Processes (p. 278)

Environmental Design Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Pr. ARCH 1000 or INDD 1120 or BSCI 1100. Or ENVD major. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.


ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.
ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.

ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) SEM. 3. Pr. ENVD 2100. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and hands-on instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3, AAB. 0. Pr. MKTG 3310 or MKTG 3317. Topics include: digital production, portfolio making and design thinking.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

**Graphic Design Courses**

GDES 1110 FOUNDATION DRAWING (4) STU. 8. Coreq. GDES 1210. PGDE majors only; school approval. Representational drawing with various media. Emphasis on accurate observation, pictorial organization, depiction of space as well as on concept development and creativity.

GDES 1210 FOUNDATION DESIGN I (4) LEC. 1, STU. 6. Coreq. GDES 1110. PGDE majors only; school approval. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

GDES 1220 FOUNDATION DESIGN II (4) LEC. 1, STU. 6. Pr. GDES 1210. Elements and principles of design with emphasis on basic three dimensional design. Emphasis on spatial organization, color, and media exploration, planning and craft.


GDES 2220 TYPOGRAPHICS I (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2210. Historical development and practical applications of typography for design, layout, and other contemporary formats. School approval.

GDES 2230 INTRODUCTION TO GRAPHIC DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Design, layout, and image-making procedures for creative problem-solving in graphic design, with emphasis on presentation, creativity, and visualization. School approval. Portfolio review required.

GDES 3210 PHOTO DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Traditional black and white film photography that covers technical aspects of the 35mm camera and film and basic darkroom procedures for black and white film and and basic darkroom procedures for black and white film and an awareness of the aesthetics and semantics associated with photographic imagery.

GDES 3220 PHOTO COMMUNICATIONS (4) STU. 8. Photography as applied communication such as advertising, editorial photography, and annual report photography. Emphasis on advanced technological and studio techniques.
GDES 3230 LETTERPRESS IMAGING (4) LEC. 1, LST. 3. Pr. GDES 2230. Experimental imaging using letterpress equipment to develop new techniques appropriate to today's communications industry. Emphasis on individual creativity, experimentation and initiative.


GDES 3250 TYPOGRAPHICS II (4) STU. 8. Pr. GDES 2230. Experimental application of typography for design and layout, exploring contemporary techniques. Historical understanding expected. Emphasis on presentation and visualization of concepts.

GDES 3260 KINETIC TYPOGRAPHY (4) LEC. 4. Pr. GDES 2230. Focuses on how motion affects meaning and how new meaning can be developed through time, space, and sound.

GDES 3710 GRAPHIC DESIGN HISTORY (4) LEC. 4. Pr. GDES 2230. Coreq. GDES 3240. History of graphic design, with emphasis on social and cultural contexts, symbolic application, formal characteristics, and significant movements.

GDES 3910 GRAPHIC DESIGN INTERNSHIP PRACTICUM (2) LEC. 2. Pr. GDES 2210 and GDES 2220. Acceptance into the GDES program. Focuses on the professional practices of Graphic Design through portfolio creation and presentation, resume and cover letter writing and the tactics of searching for an internship.

GDES 3920 GRAPHIC DESIGN INTERNSHIP (4) INT. 4. Pr. GDES 2230. a fifteen-week period working full time as a staff member with an approved internship sponsor under the direction of a supervising art director.

GDES 4240 GRAPHIC DESIGN I (4) STU. 8. Pr. GDES 3710. Application of communicative procedures and skills necessary to convey messages by means of graphic presentation: problem solving in corporate identity, advertising design, self promotion, etc. Development of student's individual style.

GDES 4250 GRAPHIC DESIGN II (4) STU. 8. Pr. GDES 4240. Development of individual style in communication via graphic graphic presentation, with emphasis on problem-solving in publication design, self-promotion, large-format design, and layout.

GDES 4260 MAGAZINE DESIGN (4) STU. 8. Pr. GDES 2230. Concepts of graphic design are explored; specifically an understanding of grid, message-making and qualities of design in the magazine format.

GDES 4270 ADVANCED INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 3240. Focuses on the principles and methodologies used throughout the interactive design industry for creating screen-based dynamic media. Students develop a conceptual framework for real world applications, exploring industrial, social and cultural issues.

GDES 4640 IMAGE I (4) STU. 8. Pr. GDES 2230. Application of illustration techniques and concepts to various graphic formats. Development of personal skills and individual style.

GDES 4650 IMAGE III (4) STU. 8. Pr. GDES 2230. Exploration of two dimensional and three dimensional imaging techniques and concepts. Development of personal skills and an individual style.

GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr. GDES 2210 and GDES 2220. Directed Studies in Graphic Design focuses on individualized study in Graphic Design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (4) LEC. 1, LST/ST1. 6. Pr. GDES 2230 and GDES 3710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES GDES course curriculum. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (5) STU. 10. Pr. GDES 4250. Coreq. GDES 4991. A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Must be taken in student's final semester.

GDES 4991 RESEARCH, WRITING AND PRESENTATION (1) LEC. 1. Pr. GDES 4250. Coreq. GDES 4990. Addresses research, writing and presentation requirement associated with the student's terminal studio project. Must be taken in student's final semester.
### Industrial Design Courses

**INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3)** LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

**INDD 1310 SYNTHESIS OF DRAWING (10)** LEC. 3, LST. 12. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, and presentation.

**INDD 1320 PROTOTYPE FABRICATION (3)** LEC. 2. LAB. 2. Coreq. INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.

**INDD 1400 CAREERS IN INDUSTRIAL DESIGN (2)** LEC. 2. Survey of careers in the field of industrial design demonstrated through case studies, product examples and biographies.

**INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6)** LEC. 2, LST. 10. Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

**INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3)** LEC. 2. LAB. 2. Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.

**INDD 2130 PRESENTATION RENDERING (3)** LEC. 2. LAB. 2. Concept development using drawing and rendering skills with different media for ideas communication and presentation.

**INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6)** LEC. 2, AAB/LST. 10. Pr. INDD 2110. Analysis of design fundamentals through three dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

**INDD 2220 ANTHROPOMETRY (3)** LEC. 3. Pr. INDD 2110. Body measurements, movements and human capacity in relation to design with introduction to ergonomics and human physiology as it relates to design. School approval.

**INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3)** LEC. 3. Pr. INDD 2110. Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

**INDD 3110 EXHIBIT AND PACKAGING (6)** LEC. 1, LST. 8. Pr. INDD 2210. Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.


**INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3)** LEC. 2. LAB. 2. Pr. INDD 2210. Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

**INDD 3210 PRODUCT DESIGN (6)** LEC. 2, LST. 10. Pr. INDD 3110. Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

**INDD 3220 MATERIALS AND TECHNOLOGY (3)** LEC. 3. Pr. INDD 3120. Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

**INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3)** LEC. 2. LAB. 2. Pr. INDD 2120. Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

**INDD 4110 ADVANCED PRODUCT DESIGN (6)** LEC. 2, AAB/LST. 10. Pr. INDD 3120 and INDD 3210. Design or redesign of products and systems of advanced complexity.

**INDD 4120 ADVANCED COMPUTER AIDED DESIGN II (3)** LEC. 3. Pr. INDD 3230. This course builds on concepts learned in INDD 3230, with emphasis on form creation, modeling and troubleshooting and the use of digital techniques to produce three-dimensional models.

**INDD 4210 INDUSTRIAL DESIGN THESIS (6)** LEC. 2, AAB/LST. 10. Pr. INDD 4110. Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.
INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

INDD 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

INDD 5010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 5030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussion. Focus on the socio-cultural relevancy of the artifacts.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Design and development of a portfolio and promotional material presenting the student's work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3. Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3. Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3) LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3) LEC. 3. Detailed study of the industrial design project management and development with emphasis on the interrelational management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3) LEC. 3. Theoretical and empirical examination of human factors ( Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybernetics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3) LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics, and consumer product safety.

INDD 7650 DESIGN THEORIES (3) LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3) LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis, and evaluation in comprehensive design problems.

INDD 7670 SYSTEMS DESIGN (3) LEC. 3. Systems approach and interdisciplinary team work to design problems inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7910 INDUSTRY PRACTICUM (5) AAB/STU. 5. This course will demand the application of acquired skill to the resolution of product design based issues within an industry collaboration studio over the period of one semester.
INDD 7980 NON-THESIS DESIGN (3) STU. 3. Synthesizing studies in research, analysis and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7990 DESIGN THESIS (1-5) AAB/RES. Credit to be arranged. Course may be repeated with a change in topic.

**Curriculum in Graphic Design**

The Graphic Design program in the School of Industrial and Graphic Design prepares students to practice visual communication in a competitive global environment. Graphic Design students follow a curriculum that provides variety and depth in all aspects of the field, supported by Fine Arts electives. Varied career opportunities range from the development of strategies to implement large-scale communications campaigns, to the design of effective communication products such as magazines, logo and identity development, interactive media, web design, packaging, exhibitions, illustration, and environmental graphics. Graphic design students have excellent opportunities for internship and cooperative education experiences as a result of well established relationships with regional, national and international companies and firms.

**Curriculum in Graphic Design**

Please see CADC advisors in the Office of Student Services for the most current 2012-2013 GDES curriculum model.

**Freshman**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>GDES 1110 Foundation Drawing</td>
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<td>Core Science</td>
<td>5</td>
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<td>GDES 1210 Foundation Design I</td>
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<td>GDES 1220 Foundation Design II</td>
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<td>ARTS 2100 Foundation of Art History I</td>
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<td>ARTS 2150 Foundation of Art History II</td>
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**Sophomore**

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<td>Core Literature I (Humanities)</td>
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<td>Core Social Science</td>
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<tr>
<td>GDES 2210 Graphic Processes</td>
<td>4</td>
<td>GDES 2230 Introduction to Graphic Design</td>
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<tr>
<td>GDES 2220 Typographics I</td>
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<td>Art History/Art/Design Elective</td>
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<td>3000-Level Art History</td>
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**Junior**

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<tr>
<td>Core Math</td>
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<td>Core History (Core Social Science)</td>
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<tr>
<td>Core Science II</td>
<td>4</td>
<td>GDES 3210 Photo Design, 4640 Image I, or 4650 Image III</td>
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<tr>
<td>GDES 3240 Interactive Media</td>
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<td>GDES 4240 Graphic Design I</td>
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<td>GDES 3710 Graphic Design History</td>
<td>4</td>
<td>Art History/Art/Design Elective</td>
<td>3</td>
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<td></td>
<td>Art History/Art/Design Elective</td>
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**Senior**

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<tbody>
<tr>
<td>Core Social Science</td>
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<td>Core Humanities (Philosophy)</td>
<td>3</td>
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<tr>
<td>Core Fine Arts (Humanities)</td>
<td>3</td>
<td>GDES 4990 Senior Project for Graphic Des</td>
<td>5</td>
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</tbody>
</table>
Curriculum in Industrial Design

Students of Industrial Design learn the basic principles of design, engineering, human factors, marketing and sociology. They acquire such technical skills as computer-aided design and drafting, prototype fabrication, photography, sketching and graphics techniques. Students are introduced to design methods, color theory, product planning, visual statistics, materials, manufacturing methods, consumer psychology and environmental studies.

The four and a half year (nine semester) curriculum, which is accredited by the National Association of Schools of Art and Design, leads to the professional degree of bachelor of industrial design. Graduates will qualify for positions in industrial design consultant offices and in various industries. Motivated students will be considered for admission to the Graduate Program in industrial design. The Cooperative Education Program is offered at the completion of the second year of studio. A one semester internship experience is recommended before enrollment in the fourth year studio sequence.

Curriculum in Industrial Design

### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>INDD 1310 Synthesis of Drawing</td>
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<tr>
<td>HIST 1210/1217 Technology and Civilization I</td>
<td>3</td>
<td>HIST 1220/1227 Technology And Civilization II</td>
<td>3</td>
<td>INDD 1320 Prototype Fabrication</td>
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<tr>
<td>Core Mathematics</td>
<td>3</td>
<td>Core Science</td>
<td>3</td>
<td>INDD 1400 Careers in Industrial Design</td>
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<tr>
<td>INDD 1120 Industrial Design in Modern Society</td>
<td>3</td>
<td>Core Fine Arts (Humanities)</td>
<td></td>
<td>After successful completion of this studio sequence, the top 45 students, based on grade point averages accumulated during the summer semester, are allowed to proceed into the fall semester industrial design professional program.</td>
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Free Elective                                | 1     | 13                             |       | 15                              |
### Sophomore

<table>
<thead>
<tr>
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<tr>
<td>Core Science</td>
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<td>INDD 2110 Two Dimensional Industrial Design Principles</td>
<td>6</td>
<td>INDD 2210 Three Dimensional Industrial Design Principles</td>
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<tr>
<td>INDD 2120 Computer and Design Communications</td>
<td>3</td>
<td>INDD 2220 Anthropometry</td>
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<tr>
<td>INDD 2130 Presentation Rendering</td>
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<td>INDD 2230 History of Industrial Design</td>
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### Junior

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<tr>
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<th>Fall Hours</th>
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</thead>
<tbody>
<tr>
<td>Core Humanities</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>INDD 3110 Exhibit and Packaging</td>
<td>6</td>
<td>INDD 3210 Product Design</td>
</tr>
<tr>
<td>INDD 3120 Industrial Design Methods</td>
<td>3</td>
<td>INDD 3220 Materials and Technology</td>
</tr>
<tr>
<td>INDD 3130 Basic Photography for Industrial Design</td>
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<td>INDD 3230 Advanced Computer Aided Design</td>
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### Senior

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<th>Fall Hours</th>
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<tbody>
<tr>
<td>Core Literature (Humanities)</td>
<td>3</td>
<td>Core Humanities (Philosophy)</td>
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<tr>
<td>INDD 4110 Advanced Product Design</td>
<td>6</td>
<td>INDD 4210 Industrial Design Thesis</td>
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<td>INDD 5120 Professional Portfolio</td>
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<td>INDD 4220 Professional Practice</td>
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<tr>
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<td>UNIV 4AA0 University Graduation</td>
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</table>

**Total Hours: 126**

1. For Core students must complete the approved sequence, HIST 1210/HIST 1217 and HIST 1220/HIST 1227.
2. Satisfies SLO 3 (PHIL 1100, PHIL 1010, PHIL 1020, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090 or comparable Honors course or HONR 1007, HONR 1017)
3. Any Core Social Science course may be selected. See the 2015-16 Bulletin or an advisor for a list of approved choices
4. Any Core Humanities course may be selected. See the 2015-16 Bulletin or an advisor for a list of approved choices
5. Students must complete a sequence of Science courses
6. Satisfies SLO 7, Oral Communication

### Curriculum in Industrial Design - Post-Baccalaureate Industrial Design Studies

The bachelor of science in Industrial Design Studies – post baccalaureate industrial design (IDSS-Post Bacc) is a NASAD accredited 43 hour program and is required for admission to the industrial design master’s program by students who do not hold a bachelor’s degree in industrial design. Students holding a previous bachelor’s degree with a 2.5 GPA or above are eligible to apply for the post baccalaureate degree. At the end of the bachelor of science in Industrial Design Studies – post baccalaureate industrial design course students who choose not to pursue or who do not pass the Post Baccalaureate Review for admission to the master of industrial design program, can be awarded the bachelor of science in Industrial Design Studies but must pursue careers elsewhere. Bachelor of science in Industrial Design Studies – post baccalaureate students seeking admission to the master of industrial design must maintain a 3.0 in all Industrial Design courses, and apply to the Graduate School during the first weeks of spring semester. During
the last week of spring semester bachelor of science in Industrial Design Studies – post baccalaureate students who are master of industrial design candidates must prepare for the Post Baccalaureate Review (display of representative work from all Industrial Design classes taken). Students who fail the review are given additional course requirements to be completed before a second and last review can be scheduled. Once the Post Baccalaureate Review is successfully completed and the bachelor of science in Industrial Design Studies – post baccalaureate degree awarded, students can proceed with their application to the Graduate School.

**Curriculum in Industrial Design Studies – Post-Baccalaureate Industrial Design**

If a bachelor of science in Industrial Design Studies degree is/was received, a graduate must apply for re-admission to be a candidate for any other degree offered by the college. Please contact the CADC Office of Student Services for more information on this degree option and curriculum.

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Summer Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDD 2110 Two Dimensional Industrial Design Principles</td>
<td>6</td>
<td>INDD 3210 Product Design</td>
<td>6 INDD 1310 Synthesis of Drawing</td>
</tr>
<tr>
<td>INDD 2120 Computer and Design Communications</td>
<td>3</td>
<td>INDD 3220 Materials and Technology</td>
<td>3 INDD 1320 Prototype Fabrication</td>
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<tr>
<td>INDD 2130 Presentation Rendering</td>
<td>3</td>
<td>INDD 2220 Anthropometry</td>
<td>3 INDD 1400 Careers in Industrial Design</td>
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<tr>
<td>INDD 3120 Industrial Design Methods</td>
<td>3</td>
<td>INDD 5960 Special Problems</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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</tbody>
</table>

Total Hours: 43

### Minor in Industrial and Graphic Design Processes

15 credit hours

Professionals in today’s economy are frequently required to implement design innovation as a part of creating and sustaining a competitive advantage. The minor in Industrial and Graphic Design Processes equips students from diverse disciplines to work more effectively to advance design innovation within an organization. Through this program, students learn how to participate in the creative problem-solving process, explore multiple modes of visual communication, examine the roles that design plays in shaping modern culture, and better recognize opportunities to employ design as an innovation catalyst within industry.

Any student not enrolled as an INDD or GDES major may earn a minor in Industrial and Graphic Design Processes by completing designated classes within the School of Industrial and Graphic Design (SIGD). Students must have a cumulative GPA of 2.0 or higher in these courses to earn the minor. Students must first consult with an academic advisor from the College of Architecture, Design and Construction (CADC) to declare their intention of pursuing the minor of Industrial and Graphic Design Processes prior to enrolling in any INDD or GDES courses.

Fall or Spring Prerequisite: The following course is required to begin a minor in Industrial and Graphic Design Processes: (3 credit hours)

INDD 1120 Industrial Design in Modern Society 3

Summer Coursework: Following the completion of INDD1120, students may select a minimum of 12 credit hours from the courses listed below:

<table>
<thead>
<tr>
<th>Coursename</th>
<th>Course Description</th>
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<tbody>
<tr>
<td>INDD 2230</td>
<td>History of Industrial Design</td>
</tr>
<tr>
<td>INDD 3130</td>
<td>Basic Photography for Industrial Design</td>
</tr>
<tr>
<td>INDD 3120</td>
<td>Industrial Design Methods</td>
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<tr>
<td>INDD 3220</td>
<td>Materials and Technology</td>
</tr>
<tr>
<td>INDD 4220</td>
<td>Professional Practice</td>
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<td>INDD 5960</td>
<td>Special Problems</td>
</tr>
<tr>
<td>GDES 3230</td>
<td>Letterpress Imaging</td>
</tr>
</tbody>
</table>
McWhorter School of Building Science

Students in the Building Science program learn the basic principles of science, architecture, engineering, business and construction. The four-year curriculum leads to the bachelor of science in building construction, accredited by the American Council for Construction Education. Graduates qualify for positions in all areas of the construction industry.

Students must maintain professional standards of behavior, as outlined in the Student Policy eHandbook, at all times while on university property and while participating in school-sponsored trips, events, and activities. Failure to do so may be grounds for dismissal from the program.

The Cooperative Education Program is offered after completing all requirements for the Professional Program.

Non-majors will be accepted in BSCI classes on a space-available basis.

Building Science is a multi-disciplinary program which combines a significant technical education with a broad background in business management related to construction. Auburn’s construction program is unique due to its leading edge information technology applications emphasis. This combination provides graduates a comprehensive foundation for success.

Entering Freshmen who meet the general admission requirements of Auburn University will be admitted to the Pre-Building Science program. Transfer students (external) may enter the Pre-Building Science program during fall, spring or summer semester during the first five class days of the semester and will be accepted on a space-available basis as determined by the school head. Minimum grade point average of 2.60 is required in 30 semester hours including English, History, Math (Calculus I), and a Natural Science with a lab (Trig-based Physics with lab) required in the first year of the model curriculum. Internal transfer students must be in good academic standing. A minimum grade point average of 2.60 is required for internal transfer students.

Building Science Academic Standards and Policies

To be considered for admission into the professional Building Science program (BSCI), the student must have completed all Pre-Building Science course work shown in the first two years of the BSCI curriculum model, and must have successfully completed a minimum of 60 semester hours. The school reserves the right to limit enrollment in the professional program (BSCI) based on calculated GPA and on available resources. It is possible to have less than the available number of positions filled if applicants do not have a 2.60 formula GPA.

For the fall and summer semesters, thirty students are chosen in rank order based upon the formula GPA calculation described in the Building Science Academic Standards and based upon a minimum 2.60 formula GPA. Exceptions to this minimum GPA are only available through the school head, and shall be only considered with extenuating circumstances. Please see a CADC advisor for a full copy of the BSCI Academic Standards. For the spring semester, sixty students are chosen in rank order based upon the formula GPA calculation described in the Building Science Academic Standards and based upon a minimum 2.60 formula GPA. No preference will be given to either first-time or repeat applicants.

After being admitted into the professional program, any student receiving a grade below C in any 3000- or 4000-level BSCI course, or any student whose cumulative GPA falls below 2.50, will be reviewed by the School Academic Standards Committee for approval to continue in the program. Any student who is reviewed may be required to repeat a course or to withdraw from the program.

Major

- Building Science (p. 284)

Building Science Courses

**BSCI 1100 INTRODUCTION TO CONSTRUCTION (3)** LEC. 3. Introduction to construction industry and education, current issues, and career opportunities.

**BSCI 2200 CONSTRUCTION DOCUMENTS (3)** LEC. 2. LAB. 3. Pr. BSCI 2300. Reading and interpreting working drawings, specifications, shop drawings, and digital 3D models for use in estimating and administrating various types of construction projects.
BSCI 2300 CONSTRUCTION METHODS AND MATERIALS (3) LEC. 3. Materials, methods and construction equipment used in the construction of buildings.

BSCI 2400 STRUCTURES OF BUILDINGS I (3) LEC. 3. Pr. (PHYS 1500 or PHYS 1600) and (MATH 1610 or MATH 1150). Principles of mechanics and materials behavior related to building structures. Includes force systems, frame analysis, gravity load tracing, wind and seismic resistance for concrete and steel buildings.

BSCI 3200 CONSTRUCTION COMMUNICATION (3) LEC. 3. Overview of communication skills and tools required to succeed as a construction manager. Oral communication, written communication, ethics, visual literacy, and video capture in the context of construction risk management.

BSCI 3300 FIELD SURVEYING (2) LEC. 1. LAB. 6. Surveying techniques, construction layout, use of equipment, and dimensional controls for buildings. Surveying camp, a concentrated, 10 working day course held during breaks.

BSCI 3400 STRUCTURES FOR ARCHITECTS II (3) LEC. 3. Pr. BSCI 2400. Primary and secondary member design, connection design, temporary bracing/shoring, and steel shop drawing review.

BSCI 3440 STRUCTURES OF BUILDINGS II (3) LEC. 3. Pr. BSCI 2400. Principles of static equilibrium and materials behavior related to building structures. Includes force systems, frame analysis, section properties, stress, basic design of structural elements in buildings.

BSCI 3450 STRUCTURES FOR ARCHITECTS III (3) LEC. 3. Pr. BSCI 3400. Introduction to the design of reinforced concrete and related formwork including beams, columns, slabs, footings, retaining walls, and pre-stressed members.

BSCI 3500 CONSTRUCTION AND INFORMATION TECHNOLOGY I (3) LEC. 2. LAB. 2. To explore, discover and create applications of information communication technology (ICT) for Construction Processes.

BSCI 3600 ESTIMATING AND COSTING (4) LEC. 3. LAB. 3. BSCI Major. Introduction to construction estimating for CSI Divisions 1-33. Students perform quantity take-of (QTO), pricing, and preparation for a commercial construction project using computer-based techniques.

BSCI 3660 PRECONSTRUCTION AND PROJECT MANAGEMENT (4) LEC. 3. LAB. 2. Pr. BSCI 3600. Project(s) simulation as a context to discuss, negotiated procurement, pre-construction services in the alternative delivery environment and construction phase management procedures.

BSCI 3700 CONSTRUCTION SAFETY (3) LEC. 3. Construction safety, including OSHA guidelines, accident investigation, and the creating of construction safety plans and worker training program.

BSCI 3800 CONTRACTING BUSINESS (4) LEC. 4. Pr. BSCI 3600. Construction-specific look at the business functions associated with the industry; includes organizational structures, construction finance, risk analysis, construction contracts, project delivery, and associated documents with these functions.

BSCI 3910 EXPERIMENTAL LEARNING (3) LEC. 3. SU. Departmental approval. Requires daily log and employer certification.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3. Provides an overview of residential construction and development practices and professional issues including: local ordinances and codes, land use law, financing practices, architect-builder relationship, spec homes vs. custom homes, etc.

BSCI 4300 COMBINED ESTIMATING AND SCHEDULING FOR DESIGNERS (3) LEC. 3. Provides an overview of estimating and project planning practices and techniques which relate to interactions between the architect and constructor. Includes: sources of project costs, conceptual estimating, value engineering, CPM scheduling, cost of acceleration and delays, change order, etc.

BSCI 4350 CONSTRUCTION PROJECT ANALYSIS (3) LEC. 3. Pr. BSCI 3660. Analysis of methods, materials and equipment used to construct projects. Methods used to assure the quality of construction projects.

BSCI 4360 CONSTRUCTION FIELD LAB (2) LAB. 4. Pr. BSCI 3700 and BSCI 3660. Students conduct a service learning project to integrate all components of the construction process.

BSCI 4410 PROBLEMS IN CONSTRUCTION MEANS AND METHODS (3) LEC. 2. LAB. 2. Pr. BSCI 3600. Solving challenging problems encountered in construction processes, including form work, scaffolding, framing, steel erection, rigging, lifting, safety, and site management.
BSCI 4420 MANAGEMENT FOR CONSTRUCTION SUPERINTENDENTS (3) LEC. 1. LAB. 4. Pr. BSCI 3660. Senior Standing in Building Science. Development of expanded management strategies for construction superintendents including field conditions analysis, direction of tradesmen, communication skills, and project hoisting and equipment.

BSCI 4500 INFORMATION AND COMMUNICATION TECHNOLOGY FOR CONSTRUCTION II (3) LEC. 2. LAB. 2. To recognize, experiment and practice the applications of advanced information and communication technology (ICT) for Construction Processes.

BSCI 4610 SCHEDULING AND FIELD OPERATIONS (4) LEC. 4. Pr. BSCI 3660. The third of a sequence of three project controls classes (BSCI 3600 and BSCI 3660); an in-depth study of construction project sequencing and scheduling, jobsite cost control measures, construction cash flow analysis, and a variety of leadership and management issues associated with field operations.

BSCI 4700 MECHANICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500 and BSCI 3600. Overview of the plumbing and mechanical systems of buildings. Basic design, sustainability concepts, systems, installation and testing are covered.

BSCI 4710 MECHANICAL CONSTRUCTION ESTIMATING AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 4700. Advance study of mechanical construction industry. Study and application of design principles, estimating and management techniques used in the industry.

BSCI 4750 ELECTRICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500. Electrical systems commonly used in buildings; basic theory and design concepts, with emphasis on lighting and electrical distribution equipment and its installation.

BSCI 4850 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages, and dispute resolution.

BSCI 4860 ADVANCED CONSTRUCTION INFORMATION TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Exploration and creation of advanced applications of Information and Communication Technology (ICT) for planning, decision making, projects monitoring, and controls.

BSCI 4870 CONSTRUCTION HISTORY (3) LEC. 3. Survey of historic construction projects to analyze how and why buildings and structures were constructed in the way they were.

BSCI 4880 CONSTRUCTION EQUIPMENT MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction equipment management and ownership. Equipment acquisition and disposition options, production costs and productivity, cost analysis and control, management staffing and responsibilities.

BSCI 4890 LEAN CONSTRUCTION PRINCIPLES AND PRACTICES (3) LEC. 3. Pr. BSCI 3660. This course provides an understanding of lean construction principles involving lean design, assembly, supply, production and work processes.

BSCI 4960 SPECIAL PROBLEMS (1-5) IND. Special problems in construction topics. Course may be repeated for a maximum of 5 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12. Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to a theoretical construction company and project. Requires a written thesis and oral defense of work.

BSCI 5450 BUILDING GREAT STRUCTURES (3) LEC. 3. Departmental approval. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 5460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. Departmental approval. May count either BSCI 5460 or BSCI 6460.

BSCI 5470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 45. Departmental consent. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 5830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCTION (3) LEC. 3.
BSCI 5960 SPECIAL PROBLEMS (1-5) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 5 credit hours.

BSCI 5970 SPECIAL PROBLEMS (1-5) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 15 credit hours.

BSCI 6450 BUILDING GREAT STRUCTURES (3) LEC. 3. Conceptual Analysis of a variety of structural systems using observation and modeling of the world’s greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 6460/6466 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. Departmental approval. May count either BSCI 5460 or BSCI 6460.

BSCI 6470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 6830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3.

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (1-5) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours.

BSCI 6970 SPECIAL PROBLEMS IN CONSTRUCTION (1-3) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3. Departmental approval. Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project.

BSCI 7020/7026 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner’s perspective, the financial parameters, and the speculative demand driving project viability.

BSCI 7030/7036 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

BSCI 7040/7046 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

BSCI 7050/7056 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3. Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3. A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.

BSCI 7100/7106 GRADUATE ELECTIVE IN PROJECT MANAGEMENT: PROJECT MANAGEMENT AND SCHEDULING (3) LEC. 3. This course develops advanced student knowledge and skills in construction business facets such as delivery, contracts and financial management; and develops tactile skills in producing advanced construction schedules in current software applications. Credit will not be given for both BSCI 7100 and BSCI 7106. Course may be repeated with change in topics.

BSCI 7126 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages and dispute resolution. Admission to Certificate in Construction Management.


BSCI 7156 HEAVY CIVIL CONSTRUCTION (3) LEC. 3. Students must be admitted to the Executive Integrated Processes Certificate in Construction Management. Principles of heavy civil construction including budget, planning, excavation, haul, equipment, temporary structures and types of projects involved.

BSCI 7200 ELECTIVES IN CONSTRUCTION LABOR (3) LEC. 3. Departmental approval. Special course offerings related to construction labor topics. Course may be repeated with change in topic.

BSCI 7300 ELECTIVES IN INFORMATION TECHNOLOGY AND INNOVATION (3) LEC. 3. Departmental approval. Special course offerings related to information technology, innovation, and robotics in construction. Course may be repeated with change in topic.

BSCI 7900 DIRECTED READING IN CONST (1-3) IND. Departmental approval. Individually proposed exploration of a construction industry related topic not covered in existing course offerings Students must prepare a written proposal of the topic. Course may be repeated for a maximum of 3 credit hours.

BSCI 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

BSCI 7980/7986 CAPSTONE PROJECT (3) LAB. 6. Departmental approval. Independent exploration of an approved topic with final written report of findings and an oral defense of the work. Specific capstone project requirements are established by the supervising committee and vary based on the chosen topic.

Design Build Courses

DBLD 5620 DESIGN CONSTRUCTION STUDIO (6) LEC. 6. Pr. ARCH 4020. Second of three-studio progression. Skills associated with formation and schematic design phases of architectural project, with emphasis on rigorous design research methods, program development, and interdisciplinary team collaboration. Project initiated in 5620/6620 continues in subsequent semester.

DBLD 5640 SUSTAINABILITY FOR INTEGRATED PROJECT DELIVERY (3) LEC. 3. Departmental approval. Principles, terminology, and methods of sustainable design and construction, with emphasis on role of interdisciplinary design collaboration.

DBLD 6620 DESIGN CONSTRUCTION STUDIO (6) LEC. 6. Pr. DBLD 6610. Second of three-studio progression. Skills associated with formation and schematic design phases of architectural project, with emphasis on rigorous design research methods, program development, and interdisciplinary team collaboration. Project initiated in 5620/6620 continues in subsequent semester.

DBLD 6640 SUSTAINABILITY FOR INTEGRATED PROJECT DELIVERY (3) LEC. 3. Departmental approval. Principles, terminology, and methods of sustainable design and construction, with emphasis on role of interdisciplinary design collaboration.

DBLD 7020 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

DBLD 7030 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

DBLD 7040 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.
DBLD 7550 COLLABOR PROCESS DES CONSTRU (3) LEC. 3. Coreq. DBLD 7551 and DBLD 6620. Current integrated delivery models and decision-making strategies related to interface of design and construction disciplines from professional, contractual, and technological perspectives. Emphasis on risk quantification between parties involved in integrated delivery.

DBLD 7551 COLLABORATIVE PRACTICE LAB (1) LAB. 4. Pr. DBLD 6620. Coreq., DBLD 6620 (students in design track). Problemsolving exercises related to effective pre-construction practices employed by design and construction professionals.

DBLD 7630 DESIGN CONSTRUCTION SUMMARY COMPREHENSIVE STUDIO (7) LEC. 7. Pr. DBLD 6620 or (DBLD 7550 or DBLD 7551) or (BSCI 7550 or BSCI 7556). Third of three-studio progression. Development of design and construction for architectural project in interdisciplinary teams, including analysis of constructability, projected construction cost, and scheduling.

DBLD 7650 EXECUTIVE ISSUES (3) LAB. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables.

DBLD 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

Curriculum in Building Science

Freshman

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Sophomore

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Junior

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BSCI 3700 Construction Safety 3

Senior
Fall Hours Spring Hours
BSCI 4350 Construction Project Analysis 3 BSCI 4850 Construction Law and Risk Management 3
BSCI 4360 Construction Field Lab 2 BSCI 4990 Building Science Thesis 4
BSCI 4500 Construction and Information Technology II 3 Construction Elective\(^1\) 3
BSCI 4610 Scheduling and Field Operations 4 Construction Elective\(^1\) 3
MNGT 3810 Management Foundations\(^2\) 3 UNIV 4AA0 University Graduation 0

15 13

Total Hours: 120

\(^1\) Construction Elective:
Students can choose from: BSCI 4410, BSCI 4420, BSCI 4710, BSCI 4860, BSCI 4870, BSCI 4880, BSCI 4890, BSCI 4960, BSCI 5450, BSCI 5460, BSCI 5470, BSCI 5830, BSCI 5840, BSCI 5960, BSCI 5970

\(^2\) MNGT 3100 Principles of Management may be substituted for MNGT 3810 Management Foundations.

\(^3\) BSCI 3300 Field Surveying is required for all students accepted to the Professional Program (Fall, Spring, and Summer). For students accepted for the Fall and Spring semesters, the course will be taken during the break between Spring and Summer semesters. For students accepted for the Summer semester, the course will be taken during the Summer Semesters. All students MUST take the course during the designated time.

Curriculum in Environmental Design - Pre-Landscape Architecture Track

The bachelor of science in environmental design pre-landscape architecture track is preparation for the Master of Landscape Architecture graduate program. Pre-landscape architecture students begin taking the first three semesters of the Master of Landscape Architecture program in the summer after their third year of undergraduate study. Successful performance in the coursework leads to advanced placement in the Master of Landscape Architecture program.

See Advisor for current curriculum model.

Freshman

Fall Hours Spring Hours
ENGL 1100 English Composition I 3 ENGL 1120 English Composition II 3
Core Science \(^1\) 4 Core Science \(^2\) 4
Core Math 3 Core Fine Arts (Humanities) 3
ARCH 1000 Careers in Design and Construction 1 Directed Elective 1 3
Core Social Science\(^2\) 3

14 13
### Sophomore

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### Junior

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<td>LAND 5240 History, Theory, and Practice II: Landscape Architecture and Contemporary Culture</td>
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<td>LAND 5140/6140 History, Theory, and Practice I: Landscape Architecture and Contemporary Urbanism</td>
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<td>ENVD 4010 Elements of Design Thinking and Communication</td>
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<td>ENVD 4970 Special Topics in Environmental Design</td>
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If a student successfully completes the Pre-Landscape Architecture summer program, then the student progresses into the remainder of the Pre-Land curriculum. Otherwise, the student will return to the basic ENVD degree plan.

### Senior

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th></th>
<th>Spring Hours</th>
<th></th>
<th>Hours</th>
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<tbody>
<tr>
<td>LAND 5230 Studio II</td>
<td>5</td>
<td>LAND 5330 Studio III</td>
<td>5</td>
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<tr>
<td>LAND 5231 Fieldwork II</td>
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<td>LAND 5331 Fieldwork III</td>
<td>1</td>
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<tr>
<td>LAND 5250 Construction II: Materials &amp; Detailing</td>
<td>2-3</td>
<td>LAND 5340 History, Theory, and Practice III: Pre-Modern Landscapes</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>LAND 5270/6270 Plant Spatiality</td>
<td>2</td>
<td>LAND 5250 Construction II: Materials &amp; Detailing</td>
<td>2-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 5830/6830 Geographic Information Systems</td>
<td>4</td>
<td>LAND 5370 Plant Ephemerality</td>
<td>2</td>
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</tr>
</tbody>
</table>
Curriculum in Environmental Design

Bachelor of Science in Environmental Design

The bachelor of science in environmental design is a flexible multi-disciplinary degree. It emphasizes the blend of sustainable practices from local and global context with comprehensive design and systems thinking. The degree content includes environmental design courses, directed electives (electives within CADC) and free electives. Students are encouraged to utilize the free electives to earn minor, and therefore customize their educational experience. Two summers of coursework are required for the environmental design workshop course series. While this degree is a good option for students who are interested in pursuing graduate studies in design, planning and construction related programs, it also enables students to seek employment opportunities in a variety of different fields upon graduation.

Students who pursue the environmental design degree will learn core knowledge of design and construction disciplines and business practices related to human-designed environments, including awareness of national and global perspectives. Exposure to national/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, and sustainability are key aspects of the curriculum. A two part workshop course series allows students to focus on developing a general technical skill set for environmental design foundations. Digital media introduction, structure and fabrication techniques, design communication development are included. A capstone workshop requires students to initiate and complete a community engagement environmental design project using principles of collaboration, leadership and effectiveness training, hands-on experience, civic engagement and design communication skills. Minimum GPA for transfer students is 2.5.

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>History Core I¹</td>
<td>3</td>
<td>History Core II¹</td>
<td>3</td>
</tr>
<tr>
<td>Directed Elective 1#</td>
<td>3</td>
<td>Core Science I⁴</td>
<td>4</td>
</tr>
<tr>
<td>Free Elective</td>
<td>3</td>
<td>Free Elective</td>
<td>3</td>
</tr>
<tr>
<td>Core Math</td>
<td>3</td>
<td></td>
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<tr>
<td></td>
<td>15</td>
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<td>13</td>
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</table>

### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Hours</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature (Humanities)¹</td>
<td>3</td>
<td>Core Humanities (Philosophy)</td>
<td>3</td>
<td>ENVD 2100 Environmental Design Workshop I</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Core Science II²</td>
<td>4</td>
<td>Directed Elective 2</td>
<td>3</td>
<td>Directed Elective 3</td>
<td>3</td>
<td></td>
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<tr>
<td>ENVD 2040 Design, Invention and Society or ARCH 2600 The Art of Architecture, Place, and Culture</td>
<td>3</td>
<td>Core Science II²</td>
<td>3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### Minor in Environmental Design

15 semester hours required for minor.

The ENVD minor allows students from non-design disciplines to enrich and broaden their education through the understanding and application of design and design thinking methods. In an increasingly complex and interconnected world, design and design thinking methods are becoming appropriated by businesses and different organizations as tools that help them with problem-solving in a creative and effective manner. Education in design and design thinking provides a framework for a quick and effective problem-solving embedded in understanding of human activities.

Students who acquire an ENVD minor will be able to demonstrate nimbleness and adaptability in the real world, the ability to approach issues from many different angles, and offer constructive and effective methods for human-centric problem-solving. These skills will enable them to offer a well-rounded, competitive portfolio, regardless of their major. The ENVD minor will enable them to be more

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**Free Elective**

<table>
<thead>
<tr>
<th></th>
<th>ENVD 2000 Environmental Design Concepts and Practices I</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENVD 2010 Introduction to Design and Design Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>ENVD 3000 Environmental Design Concepts and Practices II</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVD 3100 Civic Engagement and Research Methods</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENVD 5030 Studies in Design Thinking and Entrepreneurship (Studies in Design Thinking and Praxis)</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>ENVD 4010 Elements of Design Thinking and Communication</th>
<th>3</th>
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<tbody>
<tr>
<td>ENVD 4970 Special Topics in Environmental Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENVD 3300 Systems in Built Environment II</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>ENVD 4000 Elements of Urban Design</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVD 4500 Professional Practice</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 120

1. For Core students must complete one approved sequence, either in Literature or History; ARCH/ARIA require a History sequence and one Literature course.
2. Any Core Social Science course may be selected. See the 2015-16 Bulletin or an advisor for a list of approved choices
3. Any Core Humanities course may be selected. See the 2015-16 Bulletin or an advisor for a list of approved choices
4. Students must complete a sequence of Science courses
5. Satisfies SLO 7, Oral Communication

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competitive candidates for positions in both the public and the private sectors and in design professions as well as in other disciplines such as engineering, business, the sciences, education, and others.

Students will be able to:

- understand the social, cultural and economic forces that shape design proposals;
- engage in and understand a basic design process;
- develop the ability to engage in and create opportunities for inter-disciplinary collaborations;
- understand applicability and benefits of design thinking as a creative problem solving approach in non-design disciplines.

Minimum GPA to apply is 2.5.

**Lower Level Courses (maximum 6 credit hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>ENVD 2100</td>
<td>Environmental Design Workshop I (or)</td>
</tr>
<tr>
<td>ENVD 2000 &amp; ENVD 2200</td>
<td>Environmental Design Concepts and Practices I and Readings in Landscape Architecture</td>
</tr>
</tbody>
</table>

**Upper Level Courses (at least 9 credit hours form these courses):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVD 3000</td>
<td>Environmental Design Concepts and Practices II</td>
</tr>
<tr>
<td>ENVD 4010</td>
<td>Elements of Design Thinking and Communication</td>
</tr>
<tr>
<td>ENVD 4970 or ENVD 5030</td>
<td>Special Topics in Environmental Design or Studies in Design Thinking and Entrepreneurship</td>
</tr>
</tbody>
</table>

Total Hours: 15

**School of Architecture, Planning, and Landscape Architecture**

The Bachelor of Architecture degree is awarded upon the completion of the five-year curriculum. Qualified students may elect to pursue concurrently a second bachelor of interior architecture degree.

In the United States, most state registration boards require a degree from an accredited professional degree program as a pre-requisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a six, three or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, that when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree. Auburn's next accreditation visit for the architecture program is in 2018.

Auburn University, School of Architecture, Planning, and Landscape Architecture offers the following NAAB-accredited degree program: Bachelor of Architecture (159 credits). The four-year pre-professional Bachelor of Science in Environmental Design is not a professionally accredited degree.

Auburn University is a member of the Association of Collegiate Schools of Architecture.

Students are encouraged to work at an architect's office, on a construction site or in another approved professional endeavor prior to their fourth year.

The bachelor of interior architecture degree program offers a holistic approach to design that focuses on the relationship between interior and exterior space. Interior Architecture students develop enhanced critical thinking abilities in relation to the construction of space, progressive materiality, sustainability, and representation. Auburn has integrated Interior Architecture and Architecture in this unique program resulting in the granting of two degrees upon completion of the fifth year of study. It is not possible to get the undergraduate degree in interior architecture without the dual Architecture professional degree. Architecture students must apply separately to the Interior Architecture Program through a competitive application process. The graduate who receives a bachelor of interior architecture degree and a bachelor of architecture degree is a person trained in interior architecture and architecture who
is qualified to sit for an Architectural License Exam after completing IDP and then sit for the NCDIQ Exam for Interiors, based on a transcript review. See advisor for details.

**Architecture Academic Standards and Policies**

Enrollment in the second year studios is limited and eligibility for acceptance to Architecture and Interior Architecture is based on performance in courses in the first year of the model curriculum. The Architecture Program offers two options for completing the Pre-Architecture first year of the model curriculum: the Foundation Unit Studio sequence and the Summer Design Studio sequence. Placement of Pre-Architecture students into either of these entry sequences is determined by an Architecture Program committee. Information regarding the entry sequence placement process will be mailed to all Pre-Architecture students who have been admitted to Auburn on or before a date in early February 1 preceding fall term entry. Students not participating in the Foundation Unit Studio have the opportunity to be selected to enter the design studio sequence in the summer term after their first year of enrollment. Placement in the Foundation Unit Studio Sequence will be communicated prior to Camp War Eagle. Pre-Architecture students must receive an “S” in ARCH 1000, ARCH 1010, and ARCH 1060 prior to being admitted to the ARCH 1020/ARCH 1420 course sequence. Students accepted into the Foundation Unit Studio sequence may not defer their acceptance to another academic year. Students that fail to successfully complete the fall semester studio sequence, or students not accepted into the Second Year Studio sequence at the end of the spring semester, will not be readmitted to the Foundation Unit Program. These students may elect to participate in the following Summer Design Studio session and will be required to participate in the entire summer program. Eligibility is dependent upon Summer Design criteria.

Auburn University students who successfully complete 27 hours, pass ARCH 1000, General Physics I, and Calculus I or Pre-Calculus, Algebra, Trigonometry, and achieve a minimum cumulative institutional GPA of 2.80 are eligible to be accepted into Summer Design. In the event that all available Summer Design seats are not filled based on the stated criteria, the committee may opt to fill the remaining seats based on academic performance of the applicants. Summer Design Studio sequence is divided into two sessions. During the course of the first session each student's work is periodically ranked relative to her/his peers. At the end of the first session the students with the highest rank-in-class are accepted into Session Two, subject to available space. Students not accepted to the Second Year Studio may elect to retake the entire sequence of courses during the following Summer Design Session if they meet the admission criteria or they may elect to change majors.

Admission to the Second Year Studio sequence is predicated on the receipt of a grade of C or better in both ARCH 1020 and ARCH 1420. The Grade Adjustment Policy may not be used to progress to Second Year Studio.

In the event a grade of D or F is received in any required course in the major, a review is required for continuance in the program. Based on the outcome of this review, a student may be required to repeat the course or, in the case of design studios, the entire studio sequence for that respective year-level. Students receiving a second D when repeating a required course will be reviewed for continuance in the program. Similarly, a student receiving a majority of grades of C or poorer may be reviewed for continuance in the program.

Students must maintain professional standards of behavior, as outlined in the Student Policy eHandbook (http://www.auburn.edu/student_info/student_policies), at all times while on university property and while participating in school sponsored trips, events, and activities. Failure to do so may be grounds for dismissal from the program.

To proceed to the beginning sequence of design studio at third, fourth, or fifth year levels, the student must have completed all required prerequisite courses for that respective year-level, as indicated in the model curriculum. Enrollment in 3000-level BSCI courses will be limited to those students with a GPA of 2.50 or above and second-year standing in design studio.

**Architecture Transfer Students**

Transfer students in Architecture must meet the minimum requirements as set by Auburn University to be admitted to the College of Architecture, Design and Construction. They will be advised to begin with the Summer Design Studio Sequence. Transfer students must also meet the minimum qualifications for admission to Summer Design. Transfer students should contact CADC Student Services no later than January to request a space in the Summer Design Studio.

Foundation Unit Studio placement for transfer candidates is determined each year by the school head, the Architecture program chair, the First-Year Program coordinator and a representative from the Office of Student Services. Up to 20 percent of Foundation Unit Studio positions may be reserved for transfers each year; however, the positions will only be filled if the transferring student’s academic performance is competitive with the Foundation Unit Studio top tier ranking students from that academic year freshman admission round. It is possible to have a Foundation Unit Studio with no transfer students. Transfers accepted into the Foundation Unit Studio Sequence may not defer their acceptance to another academic year.
Transfer students from NAAB-accredited architecture programs, in addition to meeting the minimum requirements as set by Auburn University, will be required to present a portfolio of their work to the Academic Review Committee (ARC) for evaluation. The ARC will determine the level of placement in the professional architecture design studio sequence or in the pre-architecture program.

**Special Opportunities for Qualified Architecture and Interior Architecture Students**

During the third year of design studio students may participate in at least one of a variety of field studies opportunities aimed at enriching students' learning experience and preparing students for professional life. These opportunities include both an international studies program with a variety of options for study abroad as well as the possibility of participation in the Rural Studio - a program based in rural west Alabama where students engage local communities via hands-on service-learning projects to help meet needs of shelter and improved quality-of-life or Urban Studies - program based in Birmingham, Alabama where students engage in problems unique to the urban surroundings. In addition to the required third year opportunities, students may have additional opportunities during their fifth year of study to participate in the Rural Studio or the Auburn Center for Architecture and Urban Studies - a design center in downtown Birmingham where upper-level students and faculty engage in community-centered, service-learning activities. Participation in each of these programs is limited, and students may be allowed to participate based on academic standing, available resources, and a competitive selection process.

Professional internships with practicing architects are recommended prior to the last year of study.

**Architecture/Interior Architecture (ARIA) Academic Standards and Admission Policy**

Participation in the Interior Architecture (ARIA) program is highly selective. Students are eligible to apply for the Interior Architecture program in the spring of their second year of the Architecture Program. This policy allows for a summer ARIA thesis class size based on yearly available faculty resources.

**Spring semester applications (2nd year students)**

The Interior Architecture faculty will make a selection of second year students at the end of Spring semester. Class size is based on available faculty resources and may vary each year. These students will initially participate in the ARIA-designated Third Year Fall Semester Studio. Selection of students is based primarily on the ARIA faculty-comprised Admission Board’s assessment of submitted design work. The assessment will be based on the students’ statements of intent and on three projects that demonstrate a high quality of design ability. A high quality of design ability is considered to be an indication of an applicant’s capability to take on the extra degree requirements of the ARIA degree. Additionally, it is required that accepted students have completed their appropriate studio coursework and maintain a minimum 3.0 GPA for conditional acceptance into the ARIA dual degree program. The students must maintain a minimum of a 3.0 GPA in their studio coursework during the third and fourth year to proceed into the ARIA Summer Thesis semester. If a 3.0 studio GPA is not maintained, a review by the ARIA Admissions Board will be required to determine a student’s eligibility to continue in the program.

**Major**

- Architecture
  - Architecture (Foundation Unit) (p. 302)
  - Architecture (Summer Design) (p. 303)
- Architecture/Interior Architecture
  - Architecture/Interior Architecture (Foundation Unit) (p. 305)
  - Architecture/Interior Architecture (Summer Design) (p. 307)
- Environmental Design-Pre-Landscape Architecture (p. 285)
- Environmental Design (p. 288)
- Industrial and Graphic Design Processes (p. 278)
- History of Architecture and the Built Environment (p. 309)

**Architecture Courses**

**ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1)** LEC. 1, LST. 1. Introduction to the environmental design and construction professions and the curricula in the chosen field.

**ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN I (5)** LEC/STU. 12. Coreq. ARCH 1060. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.
ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (6) LEC. 1, LST. 12. Pr. ARCH 1010 and ARCH 1000 and ARCH 1060. Coreq. ARCH 1420. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1060 VISUAL COMMUNICATION (2) LEC. 2, LEC/STU. 2. Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (3) LEC. 3, LST. 0. Pr. ARCH 1060. Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10. Pr. ARCH 1020 and ARCH 1420. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10. Pr. ARCH 2010. Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 HISTORY OF WORLD ARCHITECTURE I (3) LEC. 3. Pr. ARCH 1020. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2117 HONORS ARCHITECTURAL HISTORY I: HISTORY OF THE BUILT ENVIRONMENT (3) LEC. 3. Pr. Honors College. ARCH 1010. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2210 ENVIRONMENTAL CONTROLS I (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2220 ENVIRONMENTAL CONTROLS II (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite an architect in the design of environmentally responsive buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3. The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, readings, and essays.

ARCH 3010 STUDIO III (6) LEC. 2, LST. 10. Pr. ARCH 2020 and ARCH 3110. Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investigation. The physical, social, ethical contexts that inform the design of every building.

ARCH 3020 STUDIO IV (6) LEC. 2, AAB/LST. 10. Pr. ARCH 3010 or ARIA 3020. Builds on ARCH 3010 and adds an emphasis on the integration of construction tectonics in the development of architectural form.

ARCH 3110 HISTORY OF WORLD ARCHITECTURE II (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117. Introduction to key European buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.

ARCH 3120 HISTORY OF MODERN ARCHITECTURE (3) LEC. 3. Pr. ARCH 3110. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3320 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3. Pr. ARCH 1020. The properties and potential design function of materials used in contemporary construction, with an emphasis on foundation systems, wood, and masonry.

ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3. Explorations in the art of representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture, Planning and Landscape Architecture Course may be repeated for a maximum of 9 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3. Pr. ARCH 2020. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3. Pr. ARCH 2020. Investigation of significant topics that present opportunities and constraints to architectural thought and practice. Course may be repeated for a maximum of 9 credit hours.

ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3. Pr. ARCH 2010. Investigation of theories, schools or periods to examine the potential and limitations of architecture. Descriptions of specific seminars available from School of Architecture. Course may be repeated for a maximum of 9 credit hours.
ARCH 3710 SEMINAR IN HISTORICAL PERSPECTIVES (3) LEC. 3.

ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3. Pr. ARCH 2020. Study of aspects of architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 4010 STUDIO V (6) LEC. 2, LST. 10. Pr. ARCH 3010 or ARIA 3020 and BSCI 3440. The comprehensive design of buildings, building complexes, and spaces in an urban context. Lectures emphasize urban issues, research methods. Programming and analysis will parallel studio projects of increasing complexity.

ARCH 4020 STUDIO VI (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4010 or ARIA 4020. The design of buildings, building complexes, and spaces with emphasis on the integration of building systems and tectonic development.

ARCH 4110 HISTORY OF URBAN ARCHITECTURE (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117 and ARCH 3110. The course surveys the history of the physical and formal manifestations of the urban environment from its inception to our days.

ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION II (3) LEC. 3. Pr. ARCH 3320. Properties and potential design applications of materials used in contemporary construction, with an emphasis on steel and concrete, roofing, glass and glazing, cladding, and interior finishes.

ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. ARCH 3020 or ARIA 3020. Architects' legal responsibilities, frameworks of professional practice, office organization, business planning, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 DIRECTED STUDIES (1-6) AAB. Development of an area of special interest through independent study. Evaluation of the work may be by faculty jury. School approval. Course may be repeated for a maximum of 6 credit hours.

ARCH 4910 RURAL STUDIO COMPLETION (0) LEC. Completion of construction project for ARCH 4120 Elective Studio. This studio is based in the School's remote facilities in Newbern, AL.

ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. Special problems Course may be repeated for a maximum of 6 credit hours.

ARCH 4997 HONORS THESIS (1-6) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.


ARCH 5020 THESIS STUDIO (7) LEC. 3, AAB/LST. 10. Pr. ARCH 5010 and ARCH 5990. Exploration and development of an architectural project under the direction of a faculty member.

ARCH 5100 TEACHING METHODS (1) LEC. 1.

ARCH 5240 BEING THERE (1) LEC. 1. Course may be repeated for a maximum of 2 credit hours.

ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3.

ARCH 5990 INTRODUCTION TO THESIS RESEARCH (2) LEC. 2. The tools, techniques, and strategies required to select, develop, refine, write, and present a thesis argument.

ARCH 5991 THESIS RESEARCH (1) LEC. 1. Pr. ARCH 5990. Expansion on the individual thesis argument and research begun in ARCH 5990 in parallel with the development of their thesis design project in ARCH 5020.

ARCH 7010 STUDIO I: PROJECT INITIATION (6) STU. 12. Coreq. ARCH 7210 and ARCH 7110. This is the first of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a schematic, client-driven architectural proposal.

ARCH 7020 STUDIO II: PROJECT DEVELOPMENT (6) STU. 12. Pr. ARCH 7010 and ARCH 7110 and ARCH 7210. Coreq. ARCH 7220 and ARCH 7120. This is the second of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.
ARCH 7030 STUDIO III: PROJECT COMPLETION (6) STU. 12. Pr. ARCH 7020 and ARCH 7120 and ARCH 7210. Coreq. ARCH 7130. This is the third of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7110 SEMINAR IN COLLABORATIVE DESIGN METHODS AND PROCESS (3) SEM. 3. Pr. ARCH 7010 and ARCH 7210. Coreq. ARCH 7210 and ARCH 7010. Introduction to the core theories of collaboration within interdisciplinary design and construction project teams and community-based client groups. Students develop an understanding of the fundamentals of collaborative process design, principles negotiation, communication across disciplines, and conflict resolution.

ARCH 7120 SEMINAR IN DESIGN TECTONICS (3) SEM. 3. Pr. ARCH 7010 and ARCH 7110 and ARCH 7210. Coreq. ARCH 7020 and ARCH 7220. Co-requisite adjunct to Project Development Studio. Taught as a series of workshops, this course provides the disciplinary framework necessary to apply technical research methods when evaluating options and reconciling the implications of design development decisions across systems and scales.

ARCH 7130 SEMINAR IN PROJECT COMMUNICATIONS (3) SEM. 3. Pr. ARCH 7020 and ARCH 7120 and ARCH 7220. Coreq. ARCH 7030. This course is delivered as a co-requisite adjunct to Project Completion Studio (Studio III). This course provides the disciplinary framework necessary to develop all project documentation required for project construction, delivery, record keeping, as well as future research and analysis.

ARCH 7210 EXECUTIVE ISSUES I (3) SEM. 3. Coreq. ARCH 7010 and ARCH 7110. Co-requisite adjunct to Project Initiation Studio (Studio I). Taught as a series “overlay” lectures and workshops. Provides the disciplinary framework to apply case study research methods when evaluating options and reconciling the implications of schematic design decisions across systems/scales.

ARCH 7220 EXECUTIVE ISSUES II (3) SEM. 3. Coreq. ARCH 7020 and ARCH 7120. Taught as a series “overlay” lectures and workshops. Provides the disciplinary framework necessary to apply case study research methods when evaluating options and reconciling the implications of design development decisions across systems/scales.

Community Planning Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 5020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.
CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5120 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 5450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.
CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner's role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7800 SYNTHESIS PROJECT (6) AAB/STU. 12. Departmental approval. Demonstration of competence in community planning and design through production of an original, comprehensive project that integrates knowledge and experience in addressing a complex planning and design problem.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.

Environmental Design Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Pr. ARCH 1000 or INDD 1120 or BSCI 1100. Or ENVD major. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.


ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.

ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.
ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) SEM. 3. Pr. ENVD 2100. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and hands-on instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3, AAB. 0. Pr. MKTG 3310 or MKTG 3317. Topics include: digital production, portfolio making and design thinking.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

Interior Architecture Courses

ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.


ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 3020 and ARCH 3320 and (ARCH 2110 or ARCH 2117) and BSCI 3400. Parallels Architecture Studio 6, with emphasis on the development of interior architecture and spaces within an urban context. Consideration will be given to adaptive reuse.

ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10. Pr. ARCH 4020. Coreq. ARIA 4080. Interior design project of the student's choice, under the direction of a faculty member.

ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2. Pr. ARCH 4020. Research and writing of thesis documents, to include programming, site, and case studies.

ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2. Pr. ARCH 4020. Prepares student to enter professional office with an understanding of the skills, concepts and technical knowledge expected.

ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3. Pr. ARCH 4020. The theory and history of interior spaces, their social, material, and aesthetic development and their artifacts.

Landscape Architecture Courses
LAND 5030 LANDSCAPE DESIGN METHODS (3) LEC. 9. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 5040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 9. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.
LAND 5110 BASIC LANDSCAPE ARCHITECTURAL DESIGN (6) STU. 12. Landscape architectural design studio emphasizing research, planning and design problems at neighborhood to community scales.

LAND 5130 STUDIO I: FOUNDATION STUDIO (5) STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 5131 FIELDWORK I (1) FLD. 1. Field studies and travel related to studio. May count either LAND 5131 or LAND 6131.

LAND 5140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 5150 CONSTRUCTION I: LANDFORM & HYDROLOGY (2-3) LEC. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management. Course may be repeated for a maximum of 3 credit hours.

LAND 5160 GRAPHIC STUDIES I (2-3) LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 5170 URBAN HOUSING STUDIO (6) STU. 12. Spatial/formal qualities of multi-unit housing utilizing the wealth of housing typologies erected in North America.

LAND 5210 URBAN HOUSING STUDIO (6) STU. 12. Spatial/formal qualities of multi-unit housing utilizing the wealth of housing typologies erected in North America.

LAND 5220 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May count either LAND 5230 or 6230.

LAND 5231 FIELDWORK II (1) FLD. 1. Field studies and travel related to studio. Departmental approval. May count either LAND 5231 or LAND 6231.

LAND 5240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 5250 CONSTRUCTION II: MATERIALS & DETAILING (2-3) LEC. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 5260 GRAPHIC STUDIES III (3) SEM. 3. Pr. LAND 5150. Departmental approval. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 5270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 5280 LANDSCAPE ELEMENTS: EARTH, FIRE AND WATER (3) LEC. 3. Introduces students to the basic elements used in the design of the built landscape.

LAND 5290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 5310 INDEPENDENT STUDY THESIS (6) STU. 12. Departmental approval. Extensive exploration and development of a landscape architecture issue of the students choice beyond the level associated with entry to the profession. Level-III standing;

LAND 5330 STUDIO III (5) LEC. 5. Pr. (LAND 5230 or LAND 6230) or (P/C LAND 5331 or P/C LAND 6331). Departmental approval. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 5331 FIELDWORK III (1) FLD. 1. SU. Pr. (LAND 6230 or LAND 5230) or (P/C LAND 5330 or P/C LAND 6330). Departmental approval. Field studies and travel related to studio.

LAND 5340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 5240. Departmental approval. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture.
LAND 5350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 5360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 5380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, starts, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 5410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 5430 URBAN THEORY (3) LEC. 3. An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.

LAND 5500 LAND ETHICS AND ENVIRONMENTAL RESPONSIBILITY (3) LEC. 3. Explores the ethical relationship of man and nature.

LAND 5510 ENVIRONMENTAL PLANNING STUDIO (6) STU. 12. Natural systems analysis as a basis for site planning and large scale facilities design. Level-II standing.

LAND 5520 LANDSCAPE ARCHITECTURE DESIGN STUDIO (6) STU. 12. Pr. LAND 5110. A continuation of the basic design studio emphasizing research, planning, and design problems at community to regional scales.

LAND 5540 HISTORY OF LANDSCAPE ARCHITECTURE II (3) LEC. 3. Explores the built landscape from the 17th Century to the present including designs in America, Europe and Asia.

LAND 5590 INDEPENDENT STUDY THESIS (6) STU. 12. A major integrative investigation of a focused problem area, defined and pursued by the student under the direction of a faculty member.

LAND 6030 LANDSCAPE DESIGN METHODS (3) LEC. 3. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 6040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 3. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 6130 STUDIO I: FOUNDATION STUDIO (5) AAB/STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 6131 FIELDWORK I (1) AAB/FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) AAB/SEM. 3. Pr. LAND 5230 or LAND 6230. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 6150 CONSTRUCTION I: LANDFORM & HYDROLOGY (2-3) AAB/LEC. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 6160 GRAPHIC STUDIES I (2-3) AAB/LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 6170 GRAPHIC STUDIES II (3) LEC. 3. Departmental approval. Graphic and communication theories and skills in a variety of media. Photoshop, Illustrator, InDesign and AutoCAD.
LAND 6230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May either LAND 5230 or 6230.

LAND 6231 FIELDWORK II (1) FLDS. 1. Departmental approval. Field studies and travel related to studio.

LAND 6240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 6250 CONSTRUCTION II: MATERIALS & DETAILING (2-3) LEC. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 6270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 6290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 6330 STUDIO III (5) LEC. 5. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 6331 and LAND 5331. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 6331 FIELD STUDIES III (1) FLDS. 1. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 6330 and LAND 5330. Field studies and travel related to studio.

LAND 6340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 6240. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture. Departmental approval

LAND 6350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 6360 DYNAMIC SYSTEMS I: URBAN ECOSYSTEMS (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 6370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 6380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, strata, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 6410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 6430 URBAN THEORY (3) LEC. 3. An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.

LAND 7130 STUDIO IV (5) AAB/STU. 5. Departmental approval. Investigates design strategies and techniques for generating new resilient cultural and environmental practices within complex dynamic conditions.


LAND 7140 URBAN STUDIES II: GLOBAL URBANISM (3) LEC. 3. Departmental approval. Examines the major global drivers of urban change, contemporary theories of international urban design, geography and cultural theory.

LAND 7170 PLANTS II (2-3) AAB/LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant ephemerality, functionality, and phenology. Course may be repeated for a maximum of 3 credit hours.
LAND 7190 RESEARCH BY DESIGN: FRAMEWORKS, METHODS, AND STRATEGIES (3) SEM. 3. Design is not just about solving problems, but figuring out which questions to ask in the first place. This course guides students through the iterative process of situating, identifying, framing, and testing a student-chosen trend, topic, or question.

LAND 7230 STUDIO V: COMPREHENSIVE STUDIO (5) STU. 5. Pr. LAND 5230. The first part of a two-semester research studio which involves creating a new body of work within a theoretical context and then critically appraising this work and its theoretical framework.

LAND 7231 FIELDWORK V (1) FLD. 1. Coreq. LAND 7230. Course is directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Emphasizes first-hand experiences of the landscape where careful observation and analysis occur; and introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7232 STUDIO V: TERMINAL (6) STU. 6. Pr. LAND 5230. Departmental approval. This is a directed studio that will ask students to look at a large site within a city and design an individual intervention that reflects the goals and objectives of that studio.

LAND 7240 THEORIES AND PRACTICES (3) SEM. 3. Departmental approval. This is a reading, writing, and discussion seminar that examines the idea that the development of a democratic, civic, diverse social ecology can create more resilient and sustainable communities.

LAND 7250 CONTEMPORARY ISSUES IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Pr. LAND 5230. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7270 CONSTRUCTION III: REGENERATIVE TECHNOLOGIES (2-3) LEC. Introduces issues of land contamination and explores remediative and regenerative technologies as design strategies towards new productive futures. Course may be repeated for a maximum of 3 credit hours.

LAND 7280 DYNAMIC SYSTEMS II: REGIONAL ECOLOGIES (3) LEC. 3. This lecture/field laboratory course examines conditions of regional ecologies at multiple scales and explores possible public and private responses to these issues.

LAND 7290 GRAPHIC STUDIES III (3) SEM. 3. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 7330 STUDIO VI: COMPREHENSIVE STUDIO (5) STU. 12. Pr. LAND 5230 or LAND 6230. A culmination of a design research project that ends in a public review and exhibition.

LAND 7331 FIELDWORK VI (1) FLD. 15. Coreq. LAND 7330. Directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Gets students out of the classroom and emphasizes first-hand experiences of the landscape where careful observation and analysis occur. Introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7332 STUDIO VI: TERMINAL (6) STU. 6. Pr. LAND 5230 or LAND 6230. Departmental approval. A directed studio that will ask students to look at a large site within a city and design an individual intervention that reflects the goals and objectives of that studio.

LAND 7340 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course surveys the development and ethics of the profession of landscape architecture and presents an overview of the business and practice of the profession.

LAND 7350 LANDSCAPE COMPUTER MODELING (2) LEC. 2. Departmental approval. Three dimensional and dynamic systems modeling.

LAND 7410 SEMINAR ON HISTORY AND THEORY (3) LEC. 3. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7420 SEMINAR ON COMMUNITY OUTREACH (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.
LAND 7430 SEMINAR ON HYDROLOGY (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7440 SEMINAR ON LANDSCAPE COMMUNICATION (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7450 SEMINAR ON LANDSCAPE RESEARCH (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7470 LANDSCAPE ARCHITECTURE INTERNSHIP (3) PRA. 3. By approval of Chair of Landscape Architecture. A practical, professional, full-time, curriculum-related work experience in the industry of landscape architecture. Under joint supervision of employer and university. Course may be repeated for a maximum of 9 credit hours.

LAND 7530 DESIGN BUILD FELLOWSHIP (3-6) LEC/PRA. Pr. LAND 5230. Departmental approval. The design investigation and construction/installation of a landscape proposal. Course may be repeated for a maximum of 6 credit hours.

LAND 7900 DIRECTED STUDIES (1-3) AAB. An individual student can pursue an area of research beyond the required curriculum. Departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.

LAND 7960 SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7970 SPECIAL TOPICS (1-6) AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours. ADDITIONAL PREREQUISITES: Departmental approval; MLA I standing.

LAND 7990 DESIGN THESIS I (6) LEC. 6.

LAND 7991 DESIGN THESIS II (8) LEC. 8.

LAND 7992 RESEARCH SUMMARY (1) LEC. 1.

Curriculum in Architecture (Foundation Unit)

<table>
<thead>
<tr>
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<td>PHYS 1500 General Physics I</td>
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<td>ARCH 1000 Careers in Design and Construction</td>
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<td>ARCH 1060 Visual Communication</td>
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<td>Core Social Science$^2$</td>
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<td></td>
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<td>ARCH 3110 History of World Architecture II</td>
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To proceed to the beginning sequence of a design studio at third, fourth and fifth year levels, students must have completed all courses prior to that level or have the approval of the Academic Review Committee. [reference CADC Auburn University Bulletin entry]

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<thead>
<tr>
<th>Junior</th>
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<td>ARCH 3700 Seminar in History and Theory</td>
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<td>ARCH 3410 Design Electives</td>
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<td>Urban &amp; Rural Studio -- Optional</td>
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<td>ABROAD &amp; Rural Studio -- Optional</td>
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<tr>
<th>Senior</th>
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<td>Core Humanities</td>
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<td>ARCH 2220 Environmental Controls II</td>
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<td>3</td>
<td>ARCH 3120 History of Modern Architecture</td>
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<tr>
<td>ARCH 4010 Studio V</td>
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<td>6</td>
<td>ARCH 4020 Studio VI</td>
<td>1</td>
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<td>ARCH 4500 Professional Practice</td>
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<td>HIST 1010 World History I</td>
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<td>Core Humanities Core (Philosophy)</td>
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<td>ARCH 5010 Studio VII</td>
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<td>6</td>
<td>ARCH 5991 Thesis Research</td>
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<td>ARCH 5990 Introduction to Thesis Research</td>
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<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td>Urban Studio &amp; Rural Studio -- Optional, by application</td>
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<td></td>
<td>Urban Studio &amp; Rural Studio -- Optional, by application</td>
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<td>Total Hours: 159</td>
<td>17</td>
<td>14</td>
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</table>

1. ARCH students may not take ARCH 2600 for Fine Arts credit
2. For Core, students must complete one approved sequence, either in Literature or History; ARCH/ARIA require a History sequence and one Literature course.
3. Any Core Social Science course may be selected. See the 2015-2016 Bulletin or an advisor for a list of approved choices
4. Any Core Humanities course may be selected. See the 2015-2016 Bulletin or an advisor for a list of approved choices
5. Students must complete a sequence of Core Science courses
6. See advisor for a list of approved courses.

Curriculum in Architecture (Summer Design)
### Freshman

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I 3</td>
<td>ENGL 1120 English Composition II 3</td>
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<tr>
<td>HIST 1010 World History I 3</td>
<td>HIST 1020 World History II 3</td>
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<tr>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry or 1610 Calculus I 4</td>
<td>PHYS 1500 General Physics 5</td>
</tr>
<tr>
<td>Core Fine Arts (Humanities) 3</td>
<td>Free Elective 3</td>
</tr>
</tbody>
</table>

3 To qualify for summer design, students must meet the following 5 criteria: a minimum of 27 credit hours of university credit, successful completion of ARCH 1000, MATH 1150 Pre-Cal Algebra Trig OR MATH 1610 Calculus I, and PHYS 1500 General Physics I (Trig, based) and a minimum 2.80 GPA. Students who meet all but the GPA requirement may be considered for acceptance to the Summer Design sequence if space is available in the program.

<table>
<thead>
<tr>
<th>Hours</th>
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<tr>
<td>14</td>
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### Sophomore

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ARCH 2010 Studio I 6,8 6</td>
<td>BSCI 2400 Structures of Buildings I 3</td>
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<td>ARCH 2110 History of World Architecture I 3</td>
<td>ARCH 4320 Materials and Methods of Construction II 3</td>
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<td>ARCH 3320 Materials and Methods of Construction I 3</td>
<td>ARCH 2020 Studio II 6,8 6</td>
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### Junior

<table>
<thead>
<tr>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>Core Literature (Humanities) 2 3</td>
<td>ARCH Seminar (see advisor for approved ARCH seminars) 3</td>
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<td>ARCH 3010 Studio III 6</td>
<td>ARCH 3020 Studio IV 6</td>
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<tr>
<td>BSCI 3440 Structures of Buildings II 3</td>
<td>ARCH 3410 Dessein Electives 3</td>
</tr>
<tr>
<td>ARCH 3700 Seminar in History and Theory 3</td>
<td>ABROAD &amp; Rural Studio -- Optional 3</td>
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<table>
<thead>
<tr>
<th>Hours</th>
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<td>15</td>
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## Senior

### Fall

<table>
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<tr>
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<tr>
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<td>Core Humanities&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>ARCH 2220 Environmental Controls II</td>
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<td>ARCH 4020 Studio VI</td>
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<td>ARCH 4110 History of Urban Architecture</td>
<td>3</td>
<td>ARCH 3120 History of Modern Architecture</td>
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<td>ARCH 4500 Professional Practice</td>
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### Fifth Year

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Interdisciplinary Prof. Elective or ROTC</td>
<td>3</td>
<td>Core Social Science&lt;sup&gt;4&lt;/sup&gt;</td>
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</tr>
<tr>
<td>Core Social Science&lt;sup&gt;4&lt;/sup&gt;</td>
<td>3</td>
<td>Core Humanities (Philosophy)&lt;sup&gt;3&lt;/sup&gt;</td>
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<tr>
<td>PHYS 1510 General Physics II&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>ARCH 5010 Studio VII</td>
<td>6</td>
<td>ARCH 5991 Thesis Research</td>
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<tr>
<td>ARCH 5990 Introduction to Thesis Research</td>
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<td>UNIV 4AA0 University Graduation</td>
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<td>Urban Studio &amp; Rural Studio -- Optional, by application</td>
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<td>Urban Studio &amp; Rural Studio --</td>
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<tr>
<td></td>
<td>18</td>
<td>Optional, by application</td>
<td>14</td>
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</tbody>
</table>

Total Hours: 159

1. ARCH students may not take ARCH 2600 for Fine Arts credit
2. For Core, students must complete one approved sequence, either in Literature or History; ARCH/ARIA require a History sequence and one Literature course.
3. Any Core Social Science course may be selected. See the 2015-16 Bulletin or an advisor for a list of approved choices
4. Any Core Humanities course may be selected. See the 2015-16 Bulletin or an advisor for a list of approved choices
5. Students must complete a sequence of Core Science courses.
6. Satisfies SLO 7, Oral Communications skills.
8. See advisor for approved list of courses.

## Curriculum in Architecture/Interior Architecture (Foundation Unit)

### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ARCH 1010 Introduction to Architecture Design I</td>
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<td>ARCH 1000 Careers in Design and Construction</td>
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<td>ARCH 1420 Introduction to Digital Media</td>
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<td>ARCH 1060 Visual Communication</td>
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<td>MATH 1150 Pre-Calculus Algebra and Trigonometry or 1610 Calculus I</td>
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15 16
### Sophomore

<table>
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<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<td>ARCH 2010 Studio I</td>
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<td>ARCH 2020 Studio II</td>
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<td>ARCH 2110 History of World Architecture I</td>
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<td>ARCH 3110 History of World Architecture II</td>
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<td>ARCH 2210 Environmental Controls I</td>
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<td>ARCH 4320 Materials and Methods of Construction II</td>
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<tr>
<td>ARCH 3320 Materials and Methods of Construction I</td>
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<td>BSCI 2400 Structures of Buildings I</td>
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</table>

To proceed to the beginning sequence of a design studio at third, fourth and fifth year levels, students must have completed all courses prior to that level or have the approval of the Academic Review Committee. [refer to the CADC Auburn University Bulletin entry]

| Core Social Science | 4 |

### Junior

<table>
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<th>Fall</th>
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<th>Hours</th>
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<td>ARCH 3410 Dessein Electives</td>
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<tr>
<td>ARIA 2150 Elements of Interior Architecture</td>
<td>3</td>
<td>PHYS 1510 General Physics II</td>
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| Abroad or Rural Studio - Optional by Application | 15 |
| Abroad or Rural Studio - Optional by Application | 16 |

### Senior

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<tr>
<th>Fall</th>
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<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
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<td>ARCH 4010 Studio V</td>
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<td>ARIA 4020 Studio 6A Interior Architecture</td>
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<td>ARIA 4030 Interior Architecture Thesis</td>
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<td>ARCH 3120 History of Modern Architecture</td>
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<td>ARIA 4080 Interior Architecture Thesis Research</td>
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<td>ARCH 4500 Professional Practice</td>
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<td>ARIA 2160 Elements of Interior Architecture II</td>
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### Fifth Year

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<td>Core Humanities (Philosophy)</td>
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<tr>
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<td>UNIV 4AA0 University Graduation</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours: 172**

1. ARCH students may not take ARCH 2600 for Fine Arts credit.
2. For Core students must complete one approved sequence, either in Literature or History; ARCH/ARIA require a History sequence and one Literature course.
3. Satisfies SLO3 (PHIL 1100, PHIL 1010, PHIL 1020, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090 or comparable Honors course or HONR 1007, HONR 1017)
4. Any Core Social Science course may be selected. See the 2012-13 Bulletin or an advisor for a list of approved choices.
5. Any Core Humanities course may be selected. See the 2012-13 Bulletin or an advisor for a list of approved choices.
6. Students must complete a sequence of Science courses.
7. Satisfies SLO7, Oral Communication.

### Curriculum in Architecture/Interior Architecture (Summer Design)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring Hours</th>
<th>Summer Hours</th>
<th>Total Hours</th>
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<td>HIST 1010 World History I (Core Social Science)</td>
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</tr>
<tr>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry or 1610 Calculus I</td>
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<td>2</td>
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</tr>
<tr>
<td>Core Fine Arts (Humanities)</td>
<td>3</td>
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<td>3</td>
<td></td>
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</tbody>
</table>

**Total Hours: 172**
To qualify for summer design, students must meet the following 5 criteria: a minimum of 27 credit hours of university credit, successful completion of ARCH 1000, MATH 1150 Pre-CalAlgebra & Trig OR MATH 1610 Calculus 1, and PHYS 1500 General Physics I (Trig. based) and a minimum 2.80 GPA. Students who meet all but the GPA requirement may be considered for acceptance to the Summer Design sequence if space is available in the program.

### Sophomore

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Fall Spring</th>
<th>Hours</th>
<th>Spring Hours</th>
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<td>3 ARCH 2010 Studio I</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>3 ARCH 2010 Studio I</td>
<td>6 ARCH 3110 History of World Architecture II</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3 ARCH 2110 History of World Architecture I</td>
<td>3 ARCH 4320 Materials and Methods of Construction II</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3 ARCH 3320 Materials and Methods of Construction I</td>
<td>3 BSCI 2400 Structures of Buildings I</td>
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</tbody>
</table>

To proceed to the beginning sequence of a design studio at third, fourth and fifth year levels, students must have completed all courses prior to that level or have the approval of the Academic Review Committee. [reference CADC Auburn University Bulletin entry]

### Junior

<table>
<thead>
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<th>Fall Spring</th>
<th>Hours</th>
<th>Spring Hours</th>
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<tr>
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<td>3 BSCI 3440 Structures of Buildings II</td>
<td>3 ARCH 3020 Studio IV</td>
<td>6</td>
<td>6</td>
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<td>3 ARIA 2150 Elements of Interior Arch I</td>
<td>3 ARCH 3410 Design Electives</td>
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<td>3</td>
</tr>
<tr>
<td>3 ARIA 3020 Studio 4A Interior Architecture</td>
<td>6 ABROAD &amp; Rural Studio -- Optional</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

ABROAD & Rural Studio -- Optional
### History of Architecture and the Built Environment - Minor

#### Program Requirements and Description

The Minor in the History of Architecture and the Built Environment is composed of a series of established courses taught in the School of Architecture, Planning and Landscape Architecture (APLA) and the Departments of History and Art History. The Minor is mainly housed in APLA, with the History Department as a primary partner. As a unique program to both the state and larger region, the Minor will offer students the opportunity to study the history of the built environment within a National Architectural Accrediting Board (NAAB) accredited School of Architecture.

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>ARCH 3700 Seminar in History and Theory</td>
<td>3</td>
<td>Core Humanities&lt;sup&gt;5&lt;/sup&gt;</td>
<td></td>
<td>ARIA 4030 Interior Architecture Thesis</td>
<td>6</td>
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<tr>
<td></td>
<td>ARCH 2220 Environmental Controls II</td>
<td>3</td>
<td>ARCH 3120 History of Modern Architecture</td>
<td></td>
<td>ARIA 4080 Interior Architecture Thesis</td>
<td>2</td>
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<tr>
<td></td>
<td>ARCH 4010 Studio V</td>
<td>6</td>
<td>ARIA 4020 Studio 6A Interior Architecture</td>
<td></td>
<td>ARIA 4450 Interior Architecture Professional Practice</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ARCH 4110 History of Urban Architecture</td>
<td>3</td>
<td>ARCH 4500 Professional Practice</td>
<td></td>
<td>ARIA 4680 History and Theory of Interior Architecture</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARIA 2160 Elements of Interior Architecture II</td>
<td></td>
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<tr>
<td>Fourth Year</td>
<td>Fall</td>
<td>Hours</td>
<td>Spring</td>
<td>Hours</td>
<td>Summer</td>
<td>Hours</td>
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</table>

Fifth Year

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1510 General Physics II&lt;sup&gt;6&lt;/sup&gt;</td>
<td>4</td>
<td>Core Social Science&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
<td>ARCH 5020 Thesis Studio</td>
<td>7</td>
</tr>
<tr>
<td>ARCH 5010 Studio VII</td>
<td>6</td>
<td>ARCH 5991 Thesis Research</td>
<td></td>
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<tr>
<td>ARCH 5990 Introduction to Thesis Research</td>
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</tr>
<tr>
<td>Urban Studio &amp; Rural Studio -- Optional, by application</td>
<td>3</td>
<td>Core Humanities (Philosophy)&lt;sup&gt;3&lt;/sup&gt;</td>
<td></td>
<td>UNIV 4AA0 University Graduation</td>
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</tbody>
</table>

**Total Hours: 172**

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1. ARCH students may not take ARCH 2600 for Fine Arts credit
2. For Core students must complete one approved sequence, either in Literature or History; ARCH/ARIA require a History sequence and one Literature course.
3. Satisfies SLO 3 (PHIL 1100, PHIL 1010, PHIL 1020, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090 or comparable Honors course or HONR 1007, HONR 1017)
4. Any Core Social Science course may be selected. See the 2012-13 Bulletin or an advisor for a list of approved choices
5. Any Core Humanities course may be selected. See the 2012-13 Bulletin or an advisor for a list of approved choices
6. Students must complete a sequence of Science courses
7. Satisfies SLO7, Oral Communication
The Minor requires a minimum of 15 credit hours above the core requirement. There are two paths for the Minor and both paths require at least 12 hours at the 3000-level or above. Students will be instructed to make an appointment with the department advisor to discuss or complete the Minor.

**Path A is for students outside of APLA:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 2110</td>
<td>History of World Architecture I</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 3110</td>
<td>History of World Architecture II</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 3120</td>
<td>History of Modern Architecture</td>
<td>3</td>
</tr>
<tr>
<td>or ARCH 4110</td>
<td>History of Urban Architecture</td>
<td></td>
</tr>
<tr>
<td>ARTS or HIST 3000+ elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ARCH 3000+ approved elective (e.g. ARCH 3700 Seminar in History &amp; Theory or ARCH 4900)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours** 15

**Path B is for students within APLA’s Bachelor of Architecture (B.Arch) program. Students within the B.Arch are already required to take ARCH 2110, ARCH 3110, ARCH 3120, ARCH 3700, and ARCH 4110. Therefore, the B.Arch students will need to complete the following courses to satisfy the requirements for the Minor:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 1610</td>
<td>Introduction to Art History</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 3000+ elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>HIST 3000+ elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CADC 3000, approved elective within Architecture, Landscape Architecture, or Building Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARCH 4900 Directed studies or similar integrative capstone project</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours** 15

All required hours for the Minor must be completed at Auburn.

**Raymond J. Harbert College of Business**

ANNETTE RANFT, Dean  
NORMAN H. GODWIN, Associate Dean for Academic Affairs  
STANLEY G. HARRIS, Associate Dean for Graduate and International Programs  
JOE B. HANNA, Associate Dean for Research and Outreach

THE RAYMOND J. HARBERT COLLEGE OF BUSINESS prepares students to become effective and socially responsible managers of business, industrial organizations, and government agencies and responsible citizens and leaders of society. To achieve this goal, the Harbert College offers undergraduate programs leading to the bachelor of science in business administration. In addition, it offers graduate work for the degrees of master of business administration (MBA), master of science in business administration (MSBA) with a concentration in finance, master of science in management information systems (MSIS), master of accountancy (MAC), and the doctor of philosophy (PhD) in business. The Harbert College of Business and the School of Accountancy are accredited at the undergraduate and graduate levels by the Association to Advance Collegiate Schools of Business (AACSB International). Detailed information on graduate programs may be found in the Graduate School section in this *Bulletin*.

**Curriculum**

The undergraduate curriculum includes a two-year Pre-Business curriculum required of all students and a two-year Major curriculum selected by the student. These two curricula provide a balanced course of study for all students, with approximately one-half of the hours in business courses and one-half in courses offered outside the college. The courses required have been selected so that all students will have access to the “common body of knowledge” as designated by the College’s accrediting agency, AACSB International.

The **Pre-Business curriculum**, followed by all business students in their freshman and sophomore years, provides a sound foundation of work in the arts and sciences, including courses in mathematics, humanities, social sciences and natural sciences. This lower division curriculum also includes some of the introductory business courses. Students must satisfactorily complete specific portions of the pre-business curriculum prior to moving on to the major curriculum. See the Office of Academic Advising for details.

The **Major curriculum** allows each student to concentrate or major in an area of interest during the junior and senior years. Currently offered majors are listed at the bottom of this page.
Through these curricula, the Harbert College seeks to develop in its students the analytical, decision-making and communication skills required of managers who lead modern organizations.

**Admission to the College**

Students entering the pre-business curriculum directly from high school or another university, in addition to meeting Auburn University’s admission requirements, should have competence in the mathematics taught in second year algebra.

Incoming freshmen and external transfer students are admitted directly to the Harbert College of Business. Current non-business students who are interested in transferring into the Harbert College should refer to the “Transfer Guide” on the College’s advising web page.

**Graduation Requirements**

To graduate, business students must meet the hours and subject matter requirements of their curricula, must have an overall GPA of at least 2.0 on all courses attempted at Auburn University, must have an overall GPA of at least 2.0 in all courses required for the major, and must meet all other university requirements. At least 50 percent of the business credit hours required for the business degree must be taken at Auburn University.

**Student Services**

The Harbert College’s Office of Academic Advising is responsible for orienting all new students to the college and for advising business students on their academic matriculation. Incoming freshmen in their first semester and students on academic warning are required to meet with their academic advisor prior to registration to have their academic plan approved. All other students are strongly encouraged to meet with their academic advisor each semester as well.

The College’s Office of Professional and Career Development is available to all business students for professional development and career guidance. Some of the services provided include career coaching, resume writing assistance, mentoring, mock interviews, and employer engagement.

**Undergraduate Certificates**

- Undergraduate Certificate in Accountancy (p. 341)

**Minors**

For departmental minors, business courses must be at the 3000-level or above, with the exception of Aviation Management minor, and from an approved list.

- Accountancy (p. 340)
- Business (p. 336)
- Business Analytics (p. 373)
- Business-Engineering-Technology (p. 373)
- Entrepreneurship and Family Business (p. 358)
- Finance (p. 347)
- Human Resource Management (p. 358)
- Information Assurance (p. 379)
- International Business (p. 348)
- Information Systems Management (p. 380)
- Marketing (p. 362)
- Organizational Development and Change (p. 358)
- Supply Chain Management (p. 380)

**Program**

- Accountancy (p. 1480)
- Aviation and Supply Chain Management - MSIS, PhD (p. 1344)
- Business Administration - MBA, MS, PhD (p. 1352)
- Finance - MSBA (p. 1444)
Accounting Courses

ACCT 2110/2113 PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and ACCT 2810. Sophomore standing.


ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. Emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Sophomore standing.


ACCT 2700/2703 BUSINESS LAW (3) LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2707 HONORS BUSINESS LAW (3) LEC. 3. Pr. Honors College. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 3110/3113 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. Accounting principles and theory including accounting for current assets, liabilities, and investments. Junior standing applies to ACCT 3110. ACCT 3113 is limited to students accepted to online accounting program.

ACCT 3120/3123 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Grade of C or better. Continuation of ACCT 3110, with emphasis on fixed assets, capital structure, and cash flows. Junior standing applies to ACCT 3120. ACCT 3123 is limited to students accepted to online accounting program.

ACCT 3210/3213 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 3210. ACCT 3213 is limited to students accepted to online accounting program.

ACCT 3310/3313 BUSINESS PROCESSES AND INTERNAL CONTROLS (3) LEC. 3. Pr. P/C ACCT 3110 or P/C ACCT 3113. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment. Junior standing applies to ACCT 3310. ACCT 3313 is limited to students accepted to online accounting program.

ACCT 3510/3513 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools. Junior standing applies to ACCT 3510. ACCT 3513 is limited to students accepted to online accounting program.

ACCT 3810 PROFESSIONAL DEVELOPMENT IN ACCOUNTANCY (1) LEC. 1. SU. Pr. (ACCT 3110 or ACCT 3113) and BUSI 2010. Career planning and preparation for transition from university student to accounting professional.

ACCT 4140/4143 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. A study of current issues in accounting theory and practice. Topics include regulations and economic and technological developments. ACCT 4143 is limited to students accepted to online accounting program.

ACCT 4310/4313 AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 and ACCT 3310 or ACCT 3313. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports. ACCT 4313 is limited to students accepted to online accounting program.

ACCT 4410/4413 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Principles of federal taxation as it applies to individuals and property transactions. ACCT 4413 is limited to students accepted to online accounting program.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 4900</td>
<td>DIRECTED STUDIES (1-3)</td>
<td>IND. SU.</td>
<td>Advanced individual research and</td>
<td>Course may be repeated for a maximum of 6 credit hours.</td>
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<td></td>
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<td>study in accounting under the</td>
<td>альный рост и разработка курсов по учету и финансовым направлениям.</td>
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<td>direction of a faculty member.</td>
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<tr>
<td>ACCT 4920</td>
<td>ACCOUNTING INTERNSHIP (1-6)</td>
<td>LEC. SU.</td>
<td>Internship opportunity with an</td>
<td>Course may be repeated for a maximum of 6 credit hours.</td>
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<td></td>
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<td>accounting firm, corporation, or</td>
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<td></td>
<td>governmental entity.</td>
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<tr>
<td>ACCT 4967</td>
<td>HONORS SPECIAL PROBLEMS (1-3)</td>
<td>IND.</td>
<td>Pr. Honors College. Departmental</td>
<td>Course may be repeated for a maximum of 3 credit hours.</td>
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<td>approval.</td>
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<tr>
<td>ACCT 4997</td>
<td>HONORS THESIS (1-3)</td>
<td>IND.</td>
<td>Pr. Honors College. Departmental</td>
<td>Course may be repeated for a maximum of 3 credit hours.</td>
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<td>approval.</td>
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<tr>
<td>ACCT 5130/5133</td>
<td>ADVANCED ACCOUNTING TOPICS (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 3120 or ACCT 3123.</td>
<td>Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics. ACCT 5133 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 5310/5313</td>
<td>ADVANCED AUDITING AND ASSURANCE SERVICES (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 4310 or ACCT 4313.</td>
<td>Advanced topics in auditing and assurance services. Departmental Approval. ACCT 5313 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 5420/5423</td>
<td>INCOME TAX II (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 4410 or ACCT 4413.</td>
<td>Tax accounting for individuals, partnerships, corporations, estates, and trusts. Extensive use of a tax-service program. ACCT 5423 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 5610/5613</td>
<td>GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 3120 or ACCT 3123.</td>
<td>Accounting for governmental and not-for-profit entities. Focus on effective use of resources. ACCT 5613 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 5700/5703</td>
<td>ADVANCED BUSINESS LAW (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 2700.</td>
<td>Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 5703 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 6130/6136</td>
<td>ADVANCED ACCOUNTING TOPICS (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 3120 or ACCT 3123.</td>
<td>Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics. ACCT 6136 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 6310/6316</td>
<td>ADVANCED AUDITING AND ASSURANCE SERVICES (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 4310 or ACCT 4313.</td>
<td>Advanced topics in auditing and assurance services.</td>
</tr>
<tr>
<td>ACCT 6420/6426</td>
<td>INCOME TAX II (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 4410 or ACCT 4413.</td>
<td>Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.</td>
</tr>
<tr>
<td>ACCT 6610/6616</td>
<td>GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 3120 or ACCT 3123.</td>
<td>Accounting for governmental and not-for-profit entities. Focus on effective use of resources. ACCT 6616 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 6700/6706</td>
<td>ADVANCED BUSINESS LAW (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 2700.</td>
<td>Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 6706 is limited to students accepted to online accounting program.</td>
</tr>
<tr>
<td>ACCT 7110/7116</td>
<td>RESEARCH IN ACCOUNTING (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136.</td>
<td>Departmental approval. An evaluation, critique, and application of financial accounting theory to current reporting problems using current research tools and resources.</td>
</tr>
<tr>
<td>ACCT 7120/7126</td>
<td>INTERNATIONAL ACCOUNTING (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136.</td>
<td>Departmental approval. Accounting issues unique to international business activity.</td>
</tr>
<tr>
<td>ACCT 7130/7136</td>
<td>FINANCIAL ANALYSIS &amp; VALUATION (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 3120 or ACCT 3123.</td>
<td>Financial analysis to support managerial, investor, and creditor decision-making, forecasting financial statements and earnings, and applying valuation models to accounting measurement and investment decisions.</td>
</tr>
<tr>
<td>ACCT 7210/7216</td>
<td>ACCOUNTING FOR DECISION MAKING AND CONTROL (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 3210 or ACCT 3213.</td>
<td>Departmental approval. Relationship between management accounting and information systems and analysis of costs.</td>
</tr>
<tr>
<td>ACCT 7310/7316</td>
<td>RISK ANALYSIS AND CONTROL (3)</td>
<td>LEC. 3</td>
<td>Pr. ACCT 4310 or ACCT 4313.</td>
<td>Departmental approval. Analysis of strategic and business process risks and design of effective financial controls.</td>
</tr>
</tbody>
</table>
ACCT 7320/7326 FRAUD EXAMINATION (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Learning how and why occupational fraud is committed and how fraudulent conduct is deterred, investigated, and resolved.

ACCT 7410/7416 FEDERAL TAX RESEARCH (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Departmental approval. Sources of authority used in federal tax research and survey of tax policy issues.

ACCT 7420/7426 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3. Pr. (ACCT 5420 or ACCT 5423) or (ACCT 6420 or ACCT 6426). Tax issues involving corporations and partnership.

ACCT 7430/7436 TAXES AND DECISION MAKING (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Departmental approval. Emphasis on identifying, understanding, and evaluating tax planning opportunities.

ACCT 7510/7516 INTEGRATED ACCOUNTING APPLICATIONS (3) LEC. 3. Pr. ACCT 3510 or ACCT 3513. Departmental approval. Design and analysis of accounting information systems and relational databases.


ACCT 7710 GRADUATION REQUIREMENT (0) IND. Last spring semester of program, or departmental approval. Program residency required for graduation.

ACCT 7810/7816 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 7970/7976 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Departmental Approval. Industry issues in accounting.

**Aviation Management Courses**

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.


AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. SU. AVMG, AVMF, AVMN, and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, operation, and typical problems.


AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Junior Standing or Departmental Approval. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.
AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Junior Standing or Departmental Approval. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Junior Standing or Departmental Approval. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or Departmental Approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090/6096 AVIATION LAW AND POLICY (3) LEC. 3. Departmental approval. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170/6176 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180/6186 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

AVMG 6970/6976 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930/7936 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.

Business Admin Courses

BUSI 1010 PROFESSIONAL DEVELOPMENT IN BUSINESS I (1) LEC. 1. Exposure to various topics relative to business administration. For Business majors, should be taken during student's first academic year.
BUSI 2010/2013 PROFESSIONAL DEVELOPMENT IN BUSINESS II (1) LEC. 1. Orientation to business administration. Business majors should take during student's second academic year.

BUSI 2100/2103 ORAL COMMUNICATION FOR BUSINESS (1) LEC. 1. Theories and techniques of strong oral communication skills, with real-world applications for business.

BUSI 2900 DIRECTED STUDIES (1-3) IND. SU. Independent study option for freshmen and sophomores in the College of Business for students who seek general or free elective credit. Course may be repeated for a maximum of 3 credit hours.


BUSI 3510 INTRODUCTION TO BUSINESS AND ENGINEERING (3) LEC. 3. Principles of business and engineering issues in new product and business development.

BUSI 3520 INTEGRATING BUSINESS AND ENGINEERING THEORIES WITH PRACTICE (3) LEC. 2. LAB. 3. Case study problems from business and engineering practice.

BUSI 3550 CROSS-FUNCTIONAL TEAMWORK (1) LEC. 1. Development of skills needed to perform well in cross-functional teams. Admission to the B-E-T program.

BUSI 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

BUSI 4010 PROFESSIONAL DEVELOPMENT IN BUSINESS IV (1) LEC. 1. Preparation for transition from college student to career professional. Lecture and case discussion format to discuss issues faced as a new professional. Senior Standing.

BUSI 4920 BUSINESS INTERNSHIP (1-3) AAB/INT. SU. Internship option for students to gain work experience who seek general or free elective credit. Approval of instructor prior to internship, and completion of or current enrollment in two or more of the following: ACCT 2110, ECON 2020, ECON 2030, FINC 3610, MNGT 3100, or MKTG 3310. Course may be repeated for a maximum of 3 credit hours.

BUSI 5540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (BUSI 3510 or ENGR 3510) and (BUSI 3520 or ENGR 3520). Acceptance into the BET minor program. Develop student skills for starting a new business and making strategic decisions concerning technology.

BUSI 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be enrolled in BET minor. Processes to develop and present design proposal for cooperating industry.

BUSI 5560 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 1. LAB. 6. Pr. (BUSI 5970 or ENGR 5970) and (ENGR 5540 or BUSI 5540). Must be admitted to BET minor. Cross-functional team design projects for sponsoring industry.

BUSI 6540/6546 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Develop student skills for starting a new business and making strategic decisions concerning technology. May count either BUSI 5540 or BUSI 6540.

BUSI 6556 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Develop student skills for starting a new business and making strategic decisions concerning technology.

BUSI 6560 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 3. Pr. (BUSI 5540 or ENGR 6540) and (BUSI 5550 or ENGR 6550). Cross-functional team design projects for sponsoring industry.

BUSI 7110/7116 FINANCIAL ANALYSIS (3) LEC. 3. Departmental approval. Integrated course combining financial accounting and corporate finance for MBA students.

BUSI 7120/7126 QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS (3) LEC. 3. Departmental approval. Integrated course in statistical methods and management science for MBA students.

BUSI 7130/7136 STRATEGIC ANALYSIS AND THE COMPETITIVE ENVIRONMENT (3) LEC. 3. Departmental approval. Integrated course covering business strategy and the external environment in a global context.
BUSI 7140/7146 ORGANIZATIONAL LEADERSHIP, ETHICS AND CHANGE (3) LEC. 3. Departmental approval. Integrated course covering individual and group behavior in organizations, effective team building, motivation, and communications, ethical behavior, and leading organizations through change. May count either BUSI 7140 or BUSI 7146.

BUSI 7150/7156 OPERATIONAL EXCELLENCE THROUGH SUPPLY CHAIN AND QUALITY MANAGEMENT (3) LEC. 3. An examination of the strategic roles of supply chain and quality management in the creation of outstanding product and service operations. Departmental approval. May count either BUSI 7150 or BUSI 7156.

BUSI 7160 ADVANCED PROFESSIONAL DEVELOPMENT (1) LEC. 1. Departmental approval. This course prepares students for career success by focusing on self-assessment, industry/job/company research, personal brand identification, resumes and cover letters, interviewing, career and company research, presentation skills, and benefits and negotiation. Course may be repeated for a maximum of 3 credit hours.

BUSI 7210/7216 MARKETING AND CONSUMER THEORY (3) LEC. 3. Departmental approval. Combines elements of the economics of demand theory and marketing management. Includes advanced pricing topics and the competitive environment.

BUSI 7220/7226 INFORMATION TECHNOLOGY FOR COMPETITIVE ADVANTAGE (3) LEC. 3. Examines the strategic role information technology plays in influencing competitive advantage. Departmental approval. May count either BUSI 7220 or BUSI 7226.

BUSI 7230/7236 COST ANALYSIS AND SYSTEMS (3) LEC. 3. Departmental approval. Integrates production and cost theory from economics with managerial and cost accounting theory and systems for MBA.

BUSI 7250/7256 GLOBAL BUSINESS EXPERIENCE (1-3) LLB. Departmental approval. Examines the economic, financial, legal, political, social and cultural factors impacting global business operations. A study abroad experience is included to provide hands-on experience and awareness. Course may be repeated for a maximum of 3 credit hours.

BUSI 7310/7316 INTEGRATED BUSINESS PROJECT AND CASE ANALYSIS (3) LEC. 3. Integrates knowledge gained from MBA classes and applies that knowledge to address actual business problems. Departmental approval. May count either BUSI 7310 or BUSI 7316.

BUSI 7920/7926 MBA INTERNSHIP (0-6) INT. SU. Departmental approval. Internship for MBA students in business organizations. Course may be repeated for a maximum of 6 credit hours.

BUSI 7970/7976 SPECIAL TOPICS IN BUSINESS ADMINISTRATION (1-3) AAB. Departmental approval. Specialized topics in business administration not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

Business Analytics Courses

BUAL 2600/2603 BUSINESS ANALYTICS I (3) LEC. 3. Pr. (MATH 1610 or MATH 1617 or MATH 1680 or MATH 1683). Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results.

BUAL 2650/2653 BUSINESS ANALYTICS II (3) LEC. 3. Pr. BUAL 2600 or STAT 2610 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 3010 or STAT 2513. A second course in quantitative analysis in business including statistical inference, classification analysis, predictive modeling, forecasting, introduction to data mining.

BUAL 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS ANALYTICS (1) LEC. 1. SU. Pr. P/C BUAL 2650 and P/C BUSI 2010. Career planning and preparation for employment as an analytics professional.

BUAL 4910 PRACTICUM (1-3) PRA. SU. Supervised practical application of business analytics theory and methods. Course may be repeated for a maximum of 3 credit hours.

BUAL 4920 BUSINESS ANALYTICS INTERNSHIP (1-6) INT. SU. The internship program represents an opportunity for students to be exposed to analytics environments first-hand and to integrate this experience with their formal education. The practical nature of the internship facilitates the educational process and provides valuable work experience. Course may be repeated for a maximum of 6 credit hours.

BUAL 5600 PREDICTIVE MODELING I (3) LEC. 3. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.
BUAL 5610 PREDICTIVE MODELING II (3) LEC. 3. Pr. (BUAL 5600 or BUAL 6600 or BUAL 6606). or equivalent. Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

BUAL 5650 BIG DATA I (3) LEC. 3. Pr. BUAL 2650. or equivalent. Managing, governing, extracting, merging, and preparing large data sets for analysis.

BUAL 5660 BIG DATA II (3) LEC. 3. Pr. BUAL 5650. Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.

BUAL 5700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650. Advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6706.

BUAL 5860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 5610 and BUAL 5660. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6600/6606 PREDICTIVE MODELING I (3) LEC. 3. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 6610/6616 PREDICTIVE MODELING II (3) LEC. 3. Pr. (BUAL 5600 or BUAL 6600 or BUAL 6606). Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. May count either BUAL 5610 or BUAL 6610/6616.

BUAL 6650/6656 BIG DATA I (3) LEC. 3. or equivalent. Managing, governing, extracting, merging, and preparing large data sets for analysis.

BUAL 6660/6666 BIG DATA II (3) LEC. 3. Pr. (BUAL 5650 or BUAL 6650 or BUAL 6656). Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.

BUAL 6700/6706 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650 or ISMN 6650 or ISMN 6656. This course covers advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6.

BUAL 6860/6866 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 6610 or BUAL 6616. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6900/6906 DIRECTED STUDIES (1-3) IND. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 6960/6966 SPECIAL PROBLEMS (3) IND. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

Entrepreneurship Family Bus Courses

ENFB 3140 ESSENTIALS OF ENTREPRENEURSHIP (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. The application of basic business principles to the entrepreneurial environment. May count either ENFB 3140 or ENFB 4140.
ENFB 4160 FAMILY BUSINESS MANAGEMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation.

ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Study of aspects of managing and marketing concepts and processes that can be utilized to launch new ventures or a new division within an existing business.

ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Study of the important aspects of starting and managing a franchise business.

ENFB 4190 NEW VENTURE CREATION (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Analysis of industrial, competitive, market and financial aspects of starting a business.

ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Application of entire business education and experience to a practical, hands-on project.

ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140) and ENFB 4190. Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization.

ENFB 4920 INTERNSHIP (1-6) INT. SU. Pr. 2.50 GPA. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

ENFB 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 5960 SPECIAL PROBLEMS (1-3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Finance Courses

FINC 2400 PERSONAL FINANCE (3) LEC. 3. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money.

FINC 3010 PROFESSIONAL DEVELOPMENT IN FINANCE (1) LEC. 1. SU. Pr. (P/C FINC 3610 or FINC 3613 or FINC 3617) and P/C BUSI 2010. Career planning and preparation for employment in the finance industry.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3. COB academic standards. Export management skills, including basic global supply chain management and trade finance. Junior standing.

FINC 3200 RISK AND INSURANCE (3) LEC. 3. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Junior standing.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Junior standing.
FINC 3610/3613 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117 or ACCT 2810 or ACCT 3110 or ACCT 3113. Corporate finance from the perspective of a financial manager. Topics include time value of money, valuation, and capital budgeting. May count either FINC 3610 or FINC 3810.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. Honors College. ACCT 2117. Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting, cash budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Junior standing.

FINC 3620/3623 SMALL BUSINESS FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630/3633 ADVANCED BUSINESS FINANCE (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2610 or STAT 3010 or STAT 3610). C or better in FINC 3610. In-depth analysis of financial concepts including valuation, capital budgeting, cost of capital, leasing, financial analysis, and capital structure.

FINC 3640 INVESTMENTS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 3750 FINANCIAL MODELING (3) LEC. 45. Pr. P/C FINC 3630 and P/C FINC 3640. Application of financial management and investments concepts through Excel modeling. Topics include capital budgeting, capital asset pricing, cost of capital, stock and bond valuation. Advanced topics include DCF modeling, portfolio optimization and VBA.

FINC 3810 FOUNDATIONS OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2810 or ACCT 2110 or ACCT 2117. Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Junior standing. May count either FINC 3610 or FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3. Pr. FINC 3200. Commercial risks and the insurance contracts used to address these risks.

FINC 4220 LIFE INSURANCE (3) LEC. 3. Pr. FINC 3200. Departmental approval. Individual life, health, annuity contracts and other investments, with a focus on financial planning, estate planning, and business continuation arrangements.

FINC 4250 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and FINC 3250. Analysis and evaluation of real estate investments including cash flow measurement for both residential and commercial investment projects.

FINC 4520 INTERNATIONAL FINANCIAL MARKETS (3) LEC. 3. Pr. FINC 5510. Departmental approval.

FINC 4630 FINANCIAL STRATEGY (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113) and (FINC 3630 or FINC 3633). The advanced application of corporate finance through case analysis, company analysis, and current topics.

FINC 4650/4653 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113) and (FINC 3630 or FINC 3633) and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.

FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3. Pr. FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. Departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours.
FINC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 5670 MERGERS, ACQUISITIONS, AND RESTRUCTURING (3) LEC. 3. Pr. FINC 3630 or FINC 3633. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. May count either FINC 5670 or FINC 6670/FINC 6676.

FINC 5680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 3630 or FINC 3633 or FINC 3640 or FINC 3700. Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk.

FINC 5740 ADVANCED FINANCIAL ANALYSIS (3) LEC. 3. Pr. (FINC 3630 or FINC 3633) and P/C FINC 3640 and (P/C ACCT 3110 or P/C ACCT 3113). Departmental approval. Issues surrounding and methods for financial analysis of investments/firms, including: ethics, qualitative methods, economics, financial reporting/analysis, and portfolio management. May count FINC 5740 or FINC 6740.

FINC 6510/6516 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 6670/6676 MERGERS, ACQUISITIONS AND RESTRUCTURING (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. Departmental approval. May count either FINC 6670 or FINC 6676.

FINC 6680/6686 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 6740 ADVANCED FINANCIAL ANALYSIS (3) LEC. 3. Pr. (BUSI 7110 or BUSI 7116). Departmental approval. Issues surrounding and methods for financial analysis of investments/firms, including: ethics, qualitative methods, economics, financial reporting/analysis, and portfolio management. May count FINC 5740 or 6740.

FINC 7410/7416 BUSINESS RISK MANAGEMENT (3) LEC. 3. Departmental approval. An analysis of business risk and the risk management methods, including loss control, insurance, and other forms of risk financing, used to handle these risks.

FINC 7600/7606 ADVANCED CORPORATE FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Departmental approval. Intensive study of theory and problems in corporate finance from an internal decision making point of view.

FINC 7620/7626 ADVANCED REAL ESTATE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Study of real estate markets including regulatory and legal issues, valuation of income producing property, financing sources, corporate real estate, investment performance measurement.

FINC 7630/7636 HEALTH CARE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. Techniques and analysis of financial management in a health care setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace.

FINC 7640/7646 ADVANCED INVESTMENTS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.

FINC 7650/7656 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110. Departmental approval. The integration of financial theory with practice through spreadsheets, case analysis, company analysis, and current topics in finance.

FINC 7660/7666 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies.

FINC 7690/7696 ADVANCED FINANCIAL SYSTEMS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.
FINC 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours.

FINC 7970/7976 SPECIAL TOPICS (1-3) IND. Departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FINC 8620 THEORY OF FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Choice under certainty and uncertainty, time-state preference models, stochastic dominance, the mean-variance criterion, and asset pricing models Miller-Modigliani propositions would be developed.

FINC 8640 INVESTMENTS (3) SEM. 3. Pr. FINC 8620. This course focuses on current literature in Investments. Students should develop the insights necessary to identify problems and conduct research in Investments.

FINC 8650 SEMINAR IN CORPORATE FINANCE (3) SEM. 3. Pr. FINC 86250. This course focuses on current literature in Corporate Finance. Students should develop the insights necessary to identify problems and conduct research in Corporate Finance.

FINC 8690 FINANCIAL MARKETS AND INTERMEDIATION (3) LEC. 3. Pr. FINC 8620. This course focuses on current literature in financial markets and intermediation. Students should develop the insights necessary to identify problems and conduct research in this area.

FINC 8700 SPECIAL TOPICS IN FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Varies according to faculty and students interests. This could be a course like Options, Futures and Derivatives, or a course with several participating faculty members discussing their own research.

FINC 8880 SEMINAR (1) SEM. 1. Admission to the Ph.D. in Business with a Concentration in Finance. Seminar presentations by visiting scholars, Finance Faculty and Ph.D. students.

FINC 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course may be repeated for a maximum of 60 credit hours.

Flight Education Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 2. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and airplane flight time. Special fee.


AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2150 or Departmental approval. Dual and solo flight instruction and discussion to prepare for first solo in a single-engine airplane. Special fee.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2171 or Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certificatione. Special fee. Requires at least a valid FAA 3rd Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA).

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2230. Flight instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating – Airplane Practical Test. Special fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2250 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX).

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2241. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating – Airplane Practical Test. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.
AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special Fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests.


AVMF 4320 PRINCIPLES OF PROFESSIONAL FLIGHT (3) LEC. 3. Pr. AVMF 2230. Multi-engine transport aircraft systems and operating procedures (normal, abnormal, and emergency). Includes hydraulic, electric, pneumatic, air conditioning and pressurization, auxiliary power unit (APU), landing gear, and flight control systems. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 6. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Special fees.


AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1000 or PHYS 1007. Private Pilot Certificate, or Departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affecting lift, thrust, drag, in-air performance, stability and flight control.

Human Resource Mngt Courses

HRMN 3420/3423 HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation.

HRMN 4430 LABOR RELATIONS (3) LEC. 3. General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions.

HRMN 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

HRMN 4950 SEMINAR IN HUMAN RESOURCE MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

HRMN 5460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 5470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

HRMN 5480 LABOR RELATIONS LAW (3) LEC. 3. Legal principles and issues under the Labor Management Relations Act and related laws. Case problem analysis.
HRMN 5510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice and design of managerial systems in these functions.

HRMN 5520 HUMAN RESOURCES AND ORGANIZATIONAL RESEARCH (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Human resource problems studied through a project involving data collection, analysis and a research report.

HRMN 5540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 5550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 5550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5960 SPECIAL PROBLEMS (1-3) IND. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 6460/6466 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 6470/6476 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

HRMN 6480/6486 LABOR RELATIONS LAW (3) LEC. 3. Study of legal principles under the Labor Management Relations Act and related labor laws. Case problems and current legal issues are analyzed.

HRMN 6510/6516 HR PLANNING DEV & APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice, and design of managerial systems and these functions.

HRMN 6520/6526 HUMAN RESOURCE AND ORGANIZATIONAL RESEARCH (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Study of human resource problems through a primary research project involving data collection, analysis, and written research report.

HRMN 6540/6546 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 6550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

HRMN 6960/6966 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

HRMN 7080/7086 ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Advanced study of the role of personnel and human resource management. Topics include employee selection, performance appraisal, compensation, training, and development.


HRMN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research on thesis or research project. Course may be repeated with change in topics.

Information Systems Management Courses

ISMN 3010 PROFESSIONAL DEVELOPMENT IN INFORMATION SYSTEMS (1) LEC. 1. SU. Pr. P/C ISMN 3140 and P/C BUSI 2010. Career planning and preparation for employment as an information systems management professional.
ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management.

ISMN 3070 BUSINESS SYSTEM LOGIC AND MODELING (3) LEC. 3. Concepts, techniques, and tools for discovering, specifying, and modeling business logic are introduced, explored, and applied.

ISMN 3080 PROGRAMMING AND COMPUTER APPLICATIONS (3) LEC. 3. Visual and object-oriented business programming languages are introduced and explored.

ISMN 3140/3143 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems.

ISMN 3140/3143 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3840 ANALYSIS OF BUSINESS SYSTEMS (3) LEC. 3. The study and application of tools, techniques, and methodologies to analyze, understand, and model business systems.

ISMN 4090 DIGITAL BUSINESS DESIGN (3) LEC. 3. Pr. ISMN 3830 or MNGT 3830 or MNGT 3833. Students bring together knowledge of digital technologies and their skills in business design and development to create innovative, leading-edge processes, products, and services for today’s modern organizations.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3. Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies.

ISMN 4870 DATABASE SERVER FUNDAMENTALS (3) LEC. 3. Pr. ISMN 3830. Database servers as core components of developing n-Tier information technology are discussed. Practical exercises used to demonstrate the process of using QSQL to manage database through data manipulation language and data definition language. Advanced database objects are introduced.

ISMN 4880 MGT INFO SYSTEMS PROJECTS (3) LEC. 3. Pr. ISMN 4090. Coreq. ISMN 3830. Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on-projects.

ISMN 4920 INTERNSHIP (3) AAB/INT. 3. SU. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

ISMN 4950 SEMINAR IN INFORMATION SYSTEMS MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

ISMN 5040 ADVANCED BUSINESS DATA COMMUNICATIONS (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 5270 CURRENT ISSUES IN IS FOR ORGS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 5290/5293 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Pr. BUAL 5650 or BUAL 5600. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/9293.

ISMN 5360/5363 APPLICATION OF GEOSPATIAL INFORMATION SYSTEMS FOR BUSINESS (3) LEC. 3. GIS involves the use of GIS and desktop mapping technology to aid in processes such as disaster recovery, facility planning and management, market segmentation, and community growth. The student will learn how to strategically use GIS to facilitate organizational performance. Credit will not be given for both ISMN 5360/5363 and ISMN 6360/6366.

ISMN 5370/5373 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.
ISMN 5380/5383 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as an tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 5390/5393 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both ISMN 5390/5393 and ISMN 6390/6396.

ISMN 5620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Overview of business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 5630 CLIENTSIDE INTERNET PGM (3) LEC. 3. Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 5640 SERVERSIDE INTERNET PGM (3) LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 5650 APPLICATION DEVELOPMENT WITH EMERGING TECHNOLOGIES (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 5680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 5690 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 5720/5723 ELECTRONIC COMMERCE (3) LEC. 3. A managerial and interdisciplinary investigation into the many different business activities done on the Internet including buying and selling products and services, servicing customers, collaborating with stakeholders inside and outside the organization, social networking, and learning, among others. Students will come away with a broad knowledge of electronic commerce and its implications to modern business life and social life. Credit will not be given for both ISMN 5720/5723 and ISMN 6720/6726.

ISMN 5730/5733 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 5740/5743 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 5750/5753 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. Pr. (ISMN 5730 or ISMN 5670). This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. Credit will not be given for both ISMN 5750/5753 and ISMN 6750/6756.

ISMN 5770 INFORMATION SYSTEMS ETHICS (3) LEC. 3. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1040) and (ISMN 3140 or ISMN 3143). Information systems ethics, including: fundamentals; professional and user standards; and issues related to privacy, freedom of expression, intellectual property, and software development. Credit will not be given for both ISMN 5770 and ISMN 6770/6776.

ISMN 5870 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) IND. 3. Independent study investigating current literature in information systems management. Course may be repeated for a maximum of 6 credit hours.


**ISMN 6040/6046 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3.** Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

**ISMN 6270/6276 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3.** This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

**ISMN 6286 INFORMATION SYSTEMS ARCHITECTURE IN THE SMALL LAND MEDIUM-SIZE ENTERPRISE (3) LEC. 3.** Pr. ISMN 3040 and ISMN 3070. This course is an expose’ into the current business applications of open source software. The course consists of 1) A research component focusing on current trends and practices within the culture of Open Source Software as well as the current and potential impact on business and 2) a hands-on laboratory component in which students explore the application of Open Source Software as a business tool. Equivalent courses at the graduate level. Credit will not be given for both ISMN 5280 and ISMN 6280/6286.

**ISMN 6290/6296 ADVANCED PROGRAMMING APPLICATION DEVELOPMENT (3) LEC. 3.** Department approval. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/9293.

**ISMN 6370/6376 PROJECT MANAGEMENT (3) LEC. 3.** Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

**ISMN 6380/6386 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3.** Learn how to use social media as a tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

**ISMN 6390/6396 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3.** Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both ISMN 5390/5393 and ISMN 6390/6396.

**ISMN 6620/6626 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3.** Evaluates business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

**ISMN 6630/6636 CLIENTSIDE INTERNET PROGRAMMING (3) LEC. 3.** Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

**ISMN 6640/6646 SERVERSIDE INTERNET PGM (3) LEC. 3.** Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

**ISMN 6650/6656 APPLIED DEVELOPMENT WITH EMERGING TECHNOLOGIES (3) LEC. 3.** Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

**ISMN 6670/6676 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3.** This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

**ISMN 6680/6686 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3.** Pr. ISMN 3830 or ISMN 7830 or ISMN 7836. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

**ISMN 6690/6696 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3.** Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.
ISMN 6710/6716 INFORMATION RISK ANALYSIS (3) LEC. 3. Departmental approval. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions.

ISMN 6720/6726 ELECTRONIC COMMERCE (3) LEC. 3. A managerial and interdisciplinary investigation into the many different business activities done on the Internet including buying and selling products and services, servicing customers, collaborating with stakeholders inside and outside the organization, social networking, and learning, among others. Students will come away with a broad knowledge of electronic commerce and its implications to modern business life and social life. Credit will not be given for both ISMN 5720/5723 and ISMN 6720/6726.

ISMN 6730/6736 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 6740/6746 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 6750/6756 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. May count either ISMN 5750 or ISMN 6750.

ISMN 6770/6776 INFORMATION SYSTEMS ETHICS (3) LEC. 3. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1040) and (ISMN 3140 or ISMN 3143). Information systems ethics, including: fundamentals; professional and user standards; and issues related to privacy, freedom of expression, intellectual property, and software development. Credit will not be given for both ISMN 5770 and ISMN 6770/6776.

ISMN 6870/6876 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 9 credit hours.

ISMN 6960/6966 SPECIAL PROBLEMS (3) IND. 3. General information systems management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 9 credit hours.

ISMN 7020/7026 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3. Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7140/7146 MANAGING END USER COMPUTING (3) LEC. 3. Studies MIS from user’s perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

ISMN 7360/7366 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3. A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7380/7386 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660/7666 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7670/7676 ELECTRONIC COMMERCE (3) LEC. 3. The tools, skills, technologies, and business and social implications of the emergence of electronic commerce in cyberspace.

ISMN 7730/7736 MANAGEMENT OF INNOVATION (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760/7766 QUANT METHODS IN OPS MNGT (3) LEC. 3.

ISMN 7810/7816 STRUCTURED DECISION MAKING (3) LEC. 3. Introduction to business decision structuring and aiding, including multiple criteria and group-decision making methodology.
ISMN 7830/7836 ADVANCED DATABASE MANAGEMENT SYSTEMS PROJECTS (3) LEC. 3. Database management systems using database methodologies to support business applications, including requirements for distributed databases.

ISMN 7870/7876 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880/7886 ADV MNGT OF INFO SYS (3) LEC. 3. In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890/7896 INFORMATION RESOURCE MNGT (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7980/7986 MMIS PROJECT (1-10) IND. SU. Departmental approval. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 10 credit hours.

ISMN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research on thesis or research project. Course may be repeated with change in topics.

ISMN 8010 IS MANAGEMENT RESEARCH SEM. I (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation MIS research.

ISMN 8020 IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.

ISMN 8030 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH I (3) SEM. 3. Research methodologies used in conducting research with emphasis on empirical research methods.

ISMN 8040 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH II (3) SEM. 3. Research methodologies used in conducting research with emphasis on conceptual and empirical research methods.

ISMN 8500 ADVANCED IS MANAGEMENT RESEARCH SEMINAR I (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research.

ISMN 8660 ADVANCED IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals.

ISMN 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Must be degree seeking PhD student in the Business with concentration in IS program.

Management Courses

MNGT 3010 PROFESSIONAL DEVELOPMENT IN MANAGEMENT (1) LEC. 1. SU. Pr. (P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107) and P/C BUSI 2010. Career planning and preparation for employment in a management position.


MNGT 3460/3463 ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 3810 MANAGEMENT FOUNDATIONS (3) LEC. 3. Management Foundations is a broad based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Junior standing. May count either MNGT 3100 or MNGT 3810.
MNGT 3970 GLOBAL PERSPECTIVES IN BUSINESS IN SPAIN (6) LEC. 6. The objective of the course is to learn about business in Spain by immersing the student totally into the Spain language and culture. Course may be repeated for a maximum of 12 credit hours.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Issues unique to managing operations in the global business environment.

MNGT 4400 ORGANIZATIONAL CHANGE (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. The complexities involved in implementing change in organizations.

MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3) LEC. 3. Field analysis team projects with local or multinational organizations in a foreign county. Course will be taught in conjunction with COB International Studies Programs.

MNGT 4690 ETHICAL ISSUES IN MANAGEMENT (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). The course is designed to help students gain a better understanding of how ethical dilemmas can impact managerial decisions.

MNGT 4800/4803 STRATEGIC MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization. College of Business Information Technology requirement.

MNGT 4807 HONORS STRATEGIC MANAGEMENT (3) LEC. 3. Pr. Honors College. Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization.

MNGT 4890 STRATEGIC ENVIRONMENTAL MANAGEMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Course will examine the continuous relationship between the natural environment, strategy, and competitive advantage from both domestic and international perspectives.

MNGT 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. MNGT 3100. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

MNGT 4950 SEMINAR IN MANAGEMENT (1-10) AAB/SEM. Course may be repeated for a maximum of 10 credit hours.

MNGT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

MNGT 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

MNGT 5560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 5960 SPECIAL PROBLEMS IN MANAGEMENT (1-3) AAB/IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 6300/6306 THE BUSINESS OF SPORTS (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107 or MNGT 3810) and (ECON 2020 or ECON 2023 or ECON 2027) and (BUSI 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Business aspects of sports teams including sources of revenue, labor market, revenue sharing, salary cap and free agency.

MNGT 6350/6356 COMPETITIVE SERVICE ENTERPRISES (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Provides MBA students with a working model of service operations and lets them explore how information technology can be used to re-engineer the service process.

MNGT 6560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.
MNGT 6960/6966 SPECIAL PROBLEMS (1-3) AAB/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

MNGT 7150/7156 MANAGING ORGANIZATIONAL CHANGE (3) LEC. 3. Departmental approval. Advanced study of organizational behavior in individual and group interactions within the environment of business organizations.

MNGT 7160/7166 STRATEGIC MANAGEMENT OF INNOVATION AND TECHNOLOGY (3) LEC. 3. Development of competitive advantages in high-technology businesses. Examines product/service innovation and technology development and commercialization strategies, and related issues and processes.

MNGT 7420/7426 SEMINAR IN ORGANIZATION CHANGE (3) SEM. 3. Pr. MNGT 7150 or MNGT 7156. The diagnostic and evaluation issues in organizational change.

MNGT 7720/7726 OPERATIONS AND TECHNOLOGY STRATEGY (3) LEC. 3. Pr. P/C BUSI 7220 or P/C BUSI 7226. Development of upper management decision skills for developing and implementing manufacturing and technology strategies through case analyses and a field project.

MNGT 7906 SPECIAL PROBLEMS (1-3) DSL. SU. Course may be repeated for a maximum of 3 credit hours.

MNGT 7970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Departmental approval. Current topics in management.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT I (3) LEC. 3. Pr. MNGT 8400. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8040 RESEARCH METHODS IN MANAGEMENT III (3) LEC. 3. Pr. MNGT 8030. Development of research skills and experience in writing an empirical research article based on research proposal developed in MNGT 8030.

MNGT 8300 SEMINAR IN ADVANCED ORGANIZATION THEORY (3) LEC. 3. Departmental approval. Advanced study of theories and research in organization theory.

MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Departmental approval. Advanced study of theories and research in organizational behavior. Overarching organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (4) LEC. 3. LAB. 1. Pr. STAT 7000. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. STAT 7000 or approved equivalent.

MNGT 8410 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT II (3) LEC. 3. Pr. MNGT 8400. Departmental approval. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVA, Discriminate Analysis & Polytomous Logistic Regression.

MNGT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7000 and MNGT 8400 and MNGT 8410. or equivalents. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

MNGT 8700 SEMINAR IN ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Departmental approval. Examination of empirical issues and technical considerations pertaining to the human resource management function in organizations.

MNGT 8740 COMPENSATION THEORY (3) LEC. 3. An examination of compensation theory, design technology, and research methodologies used in developing and analyzing compensation systems.
MNGT 8800 APPRAISAL AND DEVELOPMENT OF HUMAN RESOURCES (3) LEC. 3. Departmental approval. Examination of empirical issues pertaining to the performance appraisal and human resource development functions of organizations.

MNGT 8820 ORGANIZATIONAL CHANGE RESEARCH METHODS (3) LEC. 3. Pr. MNGT 7150 or MNGT 7156. The study and application of research methods to conduct organizational diagnoses and to assess organizational effectiveness. Special emphasis is placed on qualitative methods.

MNGT 8850 ADVANCED HUMAN RESOURCE SELECTION (3) LEC. 3. Pr. MNGT 7080 or HRMN 7080 or HRMN 7086. Study of the technical considerations involved in the implementation of employee selection programs. Departmental approval; graduate statistics course.

MNGT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Marketing Courses

MKTG 3010 PROFESSIONAL DEVELOPMENT IN MARKETING (1) LEC. 1. SU. Pr. P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317 and P/C BUSI 2010. Career planning and preparation for employment in the marketing industry.

MKTG 3310/3313 PRINCIPLES OF MARKETING (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3810. Junior standing.

MKTG 3317 HONORS PRINCIPLES OF MARKETING (3) LEC. 3. Pr. Honors College. ECON 2027 or ECON 2020. Study of functions, institutions, and basic problems of marketing goods and services in a global economy. Junior standing.

MKTG 4050 MISPLACED MARKETING & CONSUMERS' INTERESTS (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Management decision making serving consumers' interests in public policy environment when a marketing perspective is lost, misapplied or abused.

MKTG 4057 HONORS MISPLACED MARKETING & CONSUMERS' INTERESTS (3) LEC. 3. Pr. Honors College. MKTG 3310 or MKTG 3317. Marketing decision making serving consumers' interests in public policy environment, with case perspectives of when a marketing perspective is lost, misapplied or abused.

MKTG 4310 SPORTS AND ENTERTAINMENT MARKETING (3) LEC. 3. Pr. MKTG 3310. Grade "C" or better in MKTG 3310. Application of marketing theory and practice to the sports and entertainment business.

MKTG 4320 ADVERTISING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of promotional objectives, strategy and tactics in marketing.

MKTG 4330/4333 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control. Credit will not be given for more than one of the following: MKTG 4330, CAHS 5610, and CAHS 6610.

MKTG 4340 MARKETING AND NEW PRODUCT DEVELOPMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Marketing based analysis of profitable new products and brand extensions involving the invention, development and product launch plus sustaining market success.

MKTG 4350 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 4360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (BUAL 2650 or BUAL 2653). Grade of C or better. Research methods in marketing and their application to marketing problems.

MKTG 4370 SALES MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Principles and practices of organization and administration of sales organizations.

MKTG 4380 MARKETING CHANNEL SYSTEMS (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Designing channels of distribution: Objectives, constraints, and alternatives: Motivating, evaluating and controlling channel members.

MKTG 4390/4393 PERSONAL SELLING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Selling strategy as an interdisciplinary business activity.
Auburn University

MKTG 4400/4403 INTERNATIONAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Strategy, policy and the variables affecting international marketing decisions. Credit will not be given for more than one of the following: MKTG 4400, CAHS 5610, and CAHS 6610.

MKTG 4410/4413 CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Critical review and analysis of possible pragmatic applications of consumer behavior theories used for marketing decision making. May count either CADS 3800 or MKTG 4410.

MKTG 4420 ADVANCED PERSONAL SELLING (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MKTG 4390 or MKTG 4393). Permission of Department "C" or Better in MKTG 3310 and MKTG 4390. Advanced personal selling skills, practices and programs are covered. Emphasis is placed on sales presentations, demonstrations, negotiations and relationship building skills.

MKTG 4430 BUSINESS TO BUSINESS MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317. Marketing strategy and applications for business-to-business companies and markets.

MKTG 4500 MARKETING ON THE INTERNET (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (COMP 1000 or COMP 1003). Grade of C or better. Use of electronic media and the Internet for marketing strategy. Passing the University IT exam.

MKTG 4700 REAL ESTATE MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Selling strategy for real property, brokerage, management and marketing of real estate.

MKTG 4800 MARKETING STRATEGY (3) LEC. 3. Pr. At least 9 credits in MKTG 4050-4970 and MKTG 4360. and MKTG 3310 or MKTG 3317. Grade of C or better in MKTG 3310 or MKTG 3317, 9 hours of Marketing electives between 4050 and 4970, and Pr/Cr MKTG 4360. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

MKTG 4900 DIRECTED STUDIES (3) AAB/IND. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Advanced research, reading and study in marketing.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3) AAB/INT. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Grade of C or better. Provides a relevant and meaningful work experience in a marketing or marketing-related business, industry or organization.

MKTG 4970 SPECIAL TOPICS IN MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of current marketing topics. Course may be repeated for a maximum of 9 credit hours.

MKTG 4980 MARKETING STRATEGY (3) LEC. 3. Pr. At least 9 credits in MKTG 4050-4970 and MKTG 4360. and MKTG 3310 or MKTG 3317 and 9 hours of Marketing Electives. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

MKTG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. and Grade of C or better in MKTG 3310 or MKTG 3317. Provides honor’s students with the opportunity to conduct in-depth research. Thesis/research topics will be based on mutual agreement between committee and student. Course may be repeated for a maximum of 3 credit hours.

MKTG 7050/7056 SOCIAL AND LEGAL ENVIRONMENT OF MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. The influence of the social, legal, political, and economic environments on marketing operations.

MKTG 7310/7316 MARKETING MANAGEMENT (3) LEC. 3. Pr. (BUSI 7110 or BUSI 7116 or BUSI 7716) and (BUSI 7120 or BUSI 7126). Departmental approval. In-depth analysis of concepts and techniques pertinent to executive decision-making in marketing.

MKTG 7320/7326 ADVERTISING AND PROMOTION STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Managerial perspective of the marketing communication process.

MKTG 7330/7336 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. A managerial perspective of strategic decision-making and financial aspects of retail organizations.

MKTG 7350/7356 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 7360/7366 MARKETING RESEARCH: METHODOLOGY AND APPLICATIONS (3) LEC. 3. Pr. (MNGT 6040 or MNGT 6046) and (MKTG 3310 or MKTG 3313 or MKTG 3317) or (ISMN 6040 or ISMN 6046). Departmental approval. Marketing research design, implementation and data analysis for marketing managers. A
MKTG 7370/7376 SALES MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. In-depth study of sales management strategy and tactics.

MKTG 7390/7396 DATA BASE, DIRECT MARKETING AND SALES PROMOTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Fundamental concepts, tools and applications of data base, direct marketing and sales promotion to marketing problems.

MKTG 7400/7406 GLOBAL MARKETING AND DISTRIBUTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. A strategic managerial perspective of global marketing and distribution operations.

MKTG 7410/7416 ANALYSIS OF CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Psychological, sociological, and anthropological foundation of consumer and industrial purchase behavior and their application to marketing decisions.

MKTG 7500/7506 ELECTRONIC MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Ethical and strategic use of electronic media and the Internet for marketing communications and strategy.

MKTG 7600/7606 ENVIRONMENTALLY CONSCIOUS MARKETING MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (BUAL 2650 or BUAL 2653). Departmental approval. Advanced marketing strategies with an environmental focus.

MKTG 7720/7726 NEW PRODUCTS DEVELOPMENT AND MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Marketing in the process of developing innovative products and services.

MKTG 7940 INTERNATIONAL MARKETING ABROAD PROGRAM (3-6) FLD. Course may be repeated for a maximum of 6 credit hours.

MKTG 7970/7976 SPECIAL STUDIES IN MARKETING (3) LEC. 3. Departmental approval. Variable content in the marketing area. Course may be repeated for a maximum of 6 credit hours.

MKTG 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

Supply Chain Management Courses

SCMN 2150/2153 OPS: MANAGEMENT OF BUSINESS PROCESSES (2) LEC. 2. Fundamental concepts, techniques and tools of business processes.

SCMN 3710/3713 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3. Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Fall, Spring. Junior standing.


SCMN 3730 PURCHASING: SUPPLY MANAGEMENT AND SEARCHING (3) LEC. 3. In-depth coverage of purchasing and supply management processes, strategies, and tools. Fall, Spring. Junior standing.

SCMN 3810 PROFESSIONAL DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT (1) LEC. 1. SU. Pr. P/C BUSI 2010. SCMN majors only. Career planning and preparation for supply chain internships and professional experience opportunities. Credit will not be given for both SCMN 3810 and BUSI 3010 or SCMN 4810.

SCMN 3910 PRACTICUM IN SUPPLY CHAIN MANAGEMENT (1) PRA. 3. SU. Pr. SCMN 3150 or SCMN 3153 or SCMN 3710 or SCMN 3713. Departmental approval. SCMN majors only. Cooperatively selected field activity to gain practical SCM experience. Course may be repeated for a maximum of 3 credit hours.

SCMN 3920 INTERNSHIP IN SUPPLY CHAIN MANAGEMENT (0-6) AAB/INT. SU. Pr. SCMN 3150 or SCMN 3153 or SCMN 3710 or SCMN 3713. SCMN majors only. Departmental approval. Professional work experience in a supply chain focused position. Course may be repeated for a maximum of 6 credit hours.

SCMN 4700 SUPPLY CHAIN PERFORMANCE MANAGEMENT (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. SCMN majors only. Understanding and managing supply chain performance through the use of metrics, analysis, and improvement strategies. Fall, Spring.
SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3. Pr. SCMN 3150 or SCMN 3153. Tools, techniques and technologies of various supply chain processes.

SCMN 4770 SUPPLY CHAIN OPERATIONS MANAGEMENT (3) LEC. 3. Pr. SCMN 3150 and SCMN 3710 and SCMN 3720 and SCMN 3730. Review and application of current supply chain strategies processes and information technologies required to compete in today's global marketplace. The course will focus on presenting key manufacturing management techniques used to balance supply with demand to ensure customer satisfaction.

SCMN 4780 INTEGRATED LOGISTICS STRATEGY (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. SCMN 3710 & SCMN 3720 requires a grade of C or better. Strategies and tactics for improving service and financial performance of transportation companies and their customers. Fall.

SCMN 4800 SUPPLY CHAIN STGY:GLOBAL PERSP (3) LEC. 3. Pr. and SCMN 3710 and SCMN 3720 and SCMN 3730. Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring.

SCMN 4900 DIRECTED STUDIES IN SUPPLY CHAIN MANAGEMENT (1-3) AAB/LEC. SU. Pr. (SCMN 3150 or SCMN 3153) and (SCMN 3710 or SCMN 3713) and SCMN 3720 and SCMN 3730. Departmental approval. Advanced individual research of SCM topic under direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGMT (3-6) AAB. Pr. (SCMN 3150 or SCMN 3153) and (SCMN 3710 or SCMN 3713). Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours.

SCMN 5710 ADVANCED PROCESS ANALYSIS (3) LEC. 3. Pr. SCMN 3150 or SCMN 3153. Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Fall, Spring.

SCMN 5720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. (SCMN 3150 or SCMN 3153) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring.

SCMN 6710 ADVANCED PROCESS ANALYSIS (3) LEC. 3. Advanced concepts, techniques and tolls for process analysis; process performance; process control; process design. Fall, Spring.

SCMN 6720/6726 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. (SCMN 3150 or SCMN 3153) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring.

SCMN 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 6960/6966 SPECIAL PROBLEMS (3) IND. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 7600/7606 SUPPLY MNGT AND MANUFACTURING (3) LEC. 3. The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700/7706 DEMAND MNGT & FULFILLMENT (3) LEC. 3. Departmental approval. The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include strategy, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer.

SCMN 7776 SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Problems and analysis in the design and management of the retail, industrial and service supply chain.

SCMN 7800/7806 SUPPLY CHAIN STRATEGY (3) LEC. 3. Departmental approval. Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory visibility, process synchronization, information management, and financial analysis. Fall.
### Business Minor

A business minor is available within the College of Business for non-business majors. The courses required correspond with the common body of knowledge as specified by AACSB International. Completion of these courses provides the basic understanding of the foundations of business administration and facilitates progress toward graduate work in business. The courses required for the business minor are:

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ECON 2020</td>
<td>Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 2110</td>
<td>Principles of Financial Accounting</td>
<td>3</td>
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<tr>
<td>or ACCT 2810</td>
<td>Fundamentals Of Accounting</td>
<td></td>
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<tr>
<td>FINC 3610</td>
<td>Principles of Business Finance</td>
<td>3</td>
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<tr>
<td>or FINC 3810</td>
<td>Foundations Of Business Finance</td>
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<tr>
<td>MNGT 3100</td>
<td>Principles of Management</td>
<td>3</td>
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<tr>
<td>or MNGT 3810</td>
<td>Management Foundations</td>
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<tr>
<td>MKTG 3310</td>
<td>Principles of Marketing</td>
<td>3</td>
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</tbody>
</table>

**Total Hours**: 15

If any of these courses are taken to fulfill the University Core Curriculum requirement or a requirement in the major/professional option, alternative courses may be substituted with departmental approval. See course descriptions for appropriate prerequisites. Non-business majors who are seeking a business minor should declare the minor with the Director of Student Services in Lowder 147. Students seeking a business minor must earn an overall GPA of at least 2.0 in all courses required for the minor.

### School of Accountancy

The School of Accountancy is dedicated to advancing the field of accounting and preparing tomorrow's accounting leaders. Throughout the undergraduate program, accounting majors experience numerous opportunities to network with prospective employers and gain insight on career opportunities within the accounting profession. During the senior year, students are strongly encouraged to intern for the firm or corporation where they desire to work full-time after completing their education. The majority of students receive full-time job offers at the conclusion of their accounting internships and before enrolling in the Master of Accountancy (MAcc) Program.

Students who desire careers in public accounting must obtain 27 additional hours beyond the 123 hours required for the undergraduate degree in order to academically qualify for certification as a CPA. Most students pursue those additional hours through the MAcc Program. The MAcc Program provides students additional technical skills, research and communication skills, as well as focused preparation on passing the Uniform CPA Examination on the first sitting.

### Major

- Accountancy - On-Campus Option for First Degree Candidates (p. 340)
- Accountancy - Online Option for Second Degree Candidates (p. 339)

### Undergraduate Certificates

- Undergraduate Certificate in Accountancy (p. 341)

### Minor

- Accountancy (p. 340)

### Courses

**ACCT 2110/2113 PRINCIPLES OF FINANCIAL ACCOUNTING (3)** LEC. 3. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and ACCT 2810. Sophomore standing.


**ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3)** LEC. 3. Pr. ACCT 2110 or ACCT 2117. Emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Sophomore standing.

ACCT 2700/2703 BUSINESS LAW (3) LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2707 HONORS BUSINESS LAW (3) LEC. 3. Pr. Honors College. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 3110/3113 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. Accounting principles and theory including accounting for current assets, liabilities, and investments. Junior standing applies to ACCT 3110. ACCT 3113 is limited to students accepted to online accounting program.

ACCT 3110/3123 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Grade of C or better. Continuation of ACCT 3110, with emphasis on fixed assets, capital structure, and cash flows. Junior standing applies to ACCT 3120. ACCT 3123 is limited to students accepted to online accounting program.

ACCT 3210/3213 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 3210. ACCT 3213 is limited to students accepted to online accounting program.

ACCT 3310/3313 BUSINESS PROCESSES AND INTERNAL CONTROLS (3) LEC. 3. Pr. P/C ACCT 3110 or P/C ACCT 3113. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment. Junior standing applies to ACCT 3310. ACCT 3313 is limited to students accepted to online accounting program.

ACCT 3510/3513 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools. Junior standing applies to ACCT 3510. ACCT 3513 is limited to students accepted to online accounting program.

ACCT 3810 PROFESSIONAL DEVELOPMENT IN ACCOUNTANCY (1) LEC. 1. SU. Pr. (ACCT 3110 or ACCT 3113) and BUSI 2010. Career planning and preparation for transition from university student to accounting professional.

ACCT 4140/4143 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. A study of current issues in accounting theory and practice. Topics include regulations and economic and technological developments. ACCT 4143 is limited to students accepted to online accounting program.

ACCT 4310/4313 AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 and ACCT 3310 or ACCT 3313. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports. ACCT 4313 is limited to students accepted to online accounting program.

ACCT 4410/4413 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Principles of federal taxation as it applies to individuals and property transactions. ACCT 4413 is limited to students accepted to online accounting program.

ACCT 4900 DIRECTED STUDIES (1-3) IND. SU. Advanced individual research and study in accounting under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

ACCT 4920 ACCOUNTING INTERNSHIP (1-6) LEC. SU. Internship opportunity with an accounting firm, corporation, or governmental entity. Course may be repeated for a maximum of 6 credit hours.

ACCT 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

ACCT 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

ACCT 5130/5133 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics. ACCT 5133 is limited to students accepted to online accounting program.
ACCT 5310/5313 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Advanced topics in auditing and assurance services. Departmental Approval. ACCT 5313 is limited to students accepted to online accounting program.

ACCT 5420/5423 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413. Tax accounting for individuals, partnerships, corporations, estates, and trusts. Extensive use of a tax-service program. ACCT 5423 is limited to students accepted to online accounting program.

ACCT 5610/5613 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Accounting for governmental and not-for-profit entities. Focus on effective use of resources. ACCT 5613 is limited to students accepted to online accounting program.

ACCT 5700/5703 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 5703 is limited to students accepted to online accounting program.

ACCT 6130/6136 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Advanced topics in auditing and assurance services.

ACCT 6420/6426 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413. Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.

ACCT 6610/6616 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 6700/6706 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments.

ACCT 7110/7116 RESEARCH IN ACCOUNTING (3) LEC. 3. Pr. ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136. Departmental approval. An evaluation, critique, and application of financial accounting theory to current reporting problems using current research tools and resources.

ACCT 7120/7126 INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136. Departmental approval. Accounting issues unique to international business activity.

ACCT 7130/7136 FINANCIAL ANALYSIS & VALUATION (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Financial analysis to support managerial, investor, and creditor decision-making, forecasting financial statements and earnings, and applying valuation models to accounting measurement and investment decisions.

ACCT 7210/7216 ACCOUNTING FOR DECISION MAKING AND CONTROL (3) LEC. 3. Pr. ACCT 3210 or ACCT 3213. Departmental approval. Relationship between management accounting and information systems and analysis of costs.

ACCT 7310/7316 RISK ANALYSIS AND CONTROL (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Departmental approval. Analysis of strategic and business process risks and design of effective financial controls.

ACCT 7320/7326 FRAUD EXAMINATION (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Learning how and why occupational fraud is committed and how fraudulent conduct is deterred, investigated, and resolved.

ACCT 7410/7416 FEDERAL TAX RESEARCH (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Departmental approval. Sources of authority used in federal tax research and survey of tax policy issues.

ACCT 7420/7426 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3. Pr. (ACCT 5420 or ACCT 5423) or (ACCT 6420 or ACCT 6426). Tax issues involving corporations and partnership.

ACCT 7430/7436 TAXES AND DECISION MAKING (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Departmental approval. Emphasis on identifying, understanding, and evaluating tax planning opportunities.

ACCT 7510/7516 INTEGRATED ACCOUNTING APPLICATIONS (3) LEC. 3. Pr. ACCT 3510 or ACCT 3513. Departmental approval. Design and analysis of accounting information systems and relational databases.

ACCT 7710 GRADUATION REQUIREMENT (0) IND. Last spring semester of program, or departmental approval. Program residency required for graduation.

ACCT 7810/7816 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 7970/7976 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Departmental Approval. Industry issues in accounting.

**Accountancy - Online Option for Second Degree Candidates**

The School of Accountancy offers an online Bachelor of Science in Business Administration (BSBA) in Accountancy for candidates seeking professional advancement or a change in their career paths to accounting. This unique program combines traditional campus instruction with modern technology providing the Auburn campus experience to online students.

Our traditional campus accounting classes are filmed in smart classrooms using state of the art technology. Online students view their lectures via streaming video either live or at a time convenient to their work schedules. Since students are receiving the same instruction and AACSB accredited degree as their campus peers, they are held to the same rigor and academic standards.

Admission to the online BSBA in Accountancy program is limited to **second degree seeking candidates only** who meet the following criteria:

- Completed either an AACSB-accredited bachelor's degree in business or an AACSB-accredited MBA from a U.S. institution. Students with MBAs who do not have a business undergraduate degree must have completed courses equivalent to the required business prerequisites.
- Must be a U.S. citizen and have either a USA or APO address

Admitted students will receive a waiver of the university and college core classes and be required to complete only 30 semester hours in accounting. The admissions process and advising is administered by the Office of Graduate & Online Programs in the School of Accountancy. For more information, please contact Mrs. Andee Hodo, Assistant Director of Graduate & Online Programs, at andee.hodo@auburn.edu or (334) 844-6207. Completed applications will be considered on a competitive basis by the Committee on Undergraduate Study in Accountancy.

**Required Courses: (21 hours, 3 credit hours each)**
- ACCT 3113 Intermediate Accounting I
- ACCT 3123 Intermediate Accounting II
- ACCT 3213 Cost Accounting
- ACCT 3313 Business Processes & Internal Controls
- ACCT 3513 Accounting Information Systems
- ACCT 4313 Auditing & Assurance Services
- ACCT 4413 Income Tax I

**Accounting Electives: (9 hours - choose three classes)**
- ACCT 5133 Advanced Accounting Topics
- ACCT 5423 Income Tax II
- ACCT 5613 Governmental & Not-For-Profit Accounting
- ACCT 5703 Advanced Business Law

The student's plan of study must be approved by Mrs. Andee Hodo, Assistant Director of Graduate & Online Programs in the School of Accountancy, at andee.hodo@auburn.edu or (334) 844-6207. Students interested in meeting the educational requirements for the Uniform CPA Examination while pursuing the online BSBA in Accountancy will be advised by Mrs. Hodo to accomplish this goal.

Students who are working full-time may take six semester hours per semester and may complete the program in five semesters or two years. Students who are not working may complete the program more quickly. For more information, please visit http://harbert.auburn.edu/acct.
# Accountancy Minor

15 semester hours in minor (3000-level or above)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ACCT 3110</td>
<td>Intermediate Accounting I</td>
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<tr>
<td>ACCT 3120</td>
<td>Intermediate Accounting II</td>
<td>3</td>
</tr>
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</table>

Elective Courses - See advisor for approved course listing.

Total Hours: 15

## Curriculum in Accountancy

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>World History I or II</td>
<td>World History I or II or Social Science Core Elective</td>
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</tr>
<tr>
<td>Core Science I</td>
<td>Core Science II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1680 Calculus with Business Applications I</td>
<td>Core Fine Arts</td>
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</tr>
<tr>
<td>BUSI 1010 Contemporary Issues in Business Administration I</td>
<td>1 COMM 1000 Public Speaking</td>
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Total Hours: 15

### Sophomore

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<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ACCT 2700 Business Law</td>
<td>ACCT 2110 Principles of Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>ECON 2030 Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>BUAL 2600 Business Analytics I</td>
<td>BUAL 2650 Business Analytics II</td>
<td>3</td>
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<tr>
<td>Core Literature</td>
<td>Core Literature II or Humanities Core Elective</td>
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</tr>
<tr>
<td>SCMN 3150 Ops: Mngt of Business Processes</td>
<td>CTCT 3250 Information Analysis</td>
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<tr>
<td>BUSI 2010 Contemporary Issues in Business Administration II</td>
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Total Hours: 15

### Junior

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<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>ACCT 3110 Intermediate Accounting I</td>
<td>ACCT 3120 Intermediate Accounting II</td>
<td>3</td>
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<tr>
<td>ACCT 3210 Cost Accounting</td>
<td>ACCT 3510 Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 3310 Business Processes and Internal Controls</td>
<td>ACCT 4410 Income Tax I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 3810 Professional Development in Accountancy</td>
<td>MKTG 3310 Principles of Marketing</td>
<td>3</td>
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<tr>
<td>FINC 3610 Principles of Business Finance</td>
<td>MNGT 3100 Principles of Management</td>
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<tr>
<td>ISMN 3140 Introduction to Management Information Systems</td>
<td>Elective</td>
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Total Hours: 15

### Senior

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<tr>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ACCT 4310 Auditing and Assurance Services</td>
<td>Accounting Elective</td>
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</table>

Total Hours: 15
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Accounting Elective</td>
<td>3</td>
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<tr>
<td>MNGT 4800 Strategic Management</td>
<td>3</td>
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<tr>
<td>BUSI 4010 Contemporary Issues in Business</td>
<td>1</td>
</tr>
<tr>
<td>Administration IV - Senior/New Professional</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>6</td>
</tr>
<tr>
<td>6 UNIV 4AA0 University Graduation</td>
<td>0</td>
</tr>
<tr>
<td>Total Hours:</td>
<td>123</td>
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</tbody>
</table>

1 Must be a non-accounting business elective.

**Undergraduate Certificate in Accountancy**

The School of Accountancy offers an Undergraduate Certificate in Accountancy Program for students who successfully complete 24 hours (eight three-semester hour courses) of upper-level (3000 level and above) undergraduate accounting courses at Auburn University. The program is designed for two types of candidates: 1) campus undergraduate business students who are not majoring in accounting but desire to pursue the educational requirements to sit for the Uniform CPA Exam and would like formal recognition of this professional competency or 2) online undergraduate students pursuing the educational requirements to sit for the Uniform CPA Exam. Campus undergraduate students may be first degree candidates; however, online candidates must hold at least a four-year undergraduate degree from a regionally accredited university and must have completed the required business foundation prerequisites. The course requirements for the certificate program are listed below:

**Undergraduate Certificate in Accountancy Program**

**Requires 24 Semester Hours**

**Required Courses: (Six Hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 3110/3113 Intermediate Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 3120/3123 Intermediate Accounting II</td>
<td>3</td>
</tr>
</tbody>
</table>

The above course numbers that end in “0” represent the campus section, and course numbers ending in “3” represent the online section. The School of Accountancy does not allow Auburn University students to be concurrently enrolled in both online and campus sections. Campus students are not allowed to enroll in online sections.

All students are required to take Intermediate Accounting I and II. Campus students are required to complete all upper-level accounting courses at Auburn University-Main Campus. Online students that have completed Intermediate Accounting I and II at another regionally accredited institution and have earned a minimum grade of B or higher in each course may receive a waiver of these two courses by the Director of Graduate & Online Programs, and therefore, be required to take 24 hours from the courses listed below.

**Additional Courses Offered:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ACCT 3210/3213 Cost Accounting</td>
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<tr>
<td>ACCT 3310/3313 Business Processes and Internal Controls</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 3510/3513 Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 4140/4143 Special Topics in Accounting</td>
<td>3</td>
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<tr>
<td>ACCT 4310/4313 Auditing and Assurance Services</td>
<td>3</td>
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<tr>
<td>ACCT 4410/4413 Income Tax I</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 5130/5133 Advanced Accounting Topics</td>
<td>3</td>
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<tr>
<td>ACCT 5420/5423 Income Tax II</td>
<td>3</td>
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<tr>
<td>ACCT 5610/5613 Governmental and Not-For-Profit Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 5700/5703 Advanced Business Law</td>
<td>3</td>
</tr>
</tbody>
</table>

**PROGRAM REQUIREMENTS:**

**Campus Students:** Undergraduate Certificate Program Requirements
1. Candidates must be enrolled in a non-accounting business degree program at Auburn University.
2. Candidates must meet and adhere to course prerequisites listed in the AU Bulletin.
3. Candidates must earn a minimum of a 2.0 overall GPA across the eight courses.
4. Candidates must adhere to Auburn University policies and guidelines as outlined in the AU Bulletin.
5. No transfer credit is permitted. All eight courses must be taken at Auburn University-Main Campus.
6. Candidates must adhere to School of Accountancy policies and guidelines.
7. The admissions process is administered by the Office of Undergraduate Admissions.

**Online Students: Undergraduate Certificate Program Requirements**

1. Candidates must hold a four-year undergraduate degree from a regionally accredited university and must have completed the 24 hours of business foundation prerequisites.
2. Candidates must meet and adhere to course prerequisites listed in the AU Bulletin.
3. Candidates must earn a minimum of a 2.0 overall GPA across the eight courses.
4. Candidates must adhere to Auburn University policies and guidelines as outlined in the AU Bulletin.
5. The Program is limited to students with USA or APO addresses only.
6. No transfer credit is permitted. All eight courses must be taken at Auburn University.
7. Candidates must adhere to School of Accountancy policies and guidelines.
8. The admissions process is administered by the Office of Graduate & Online Programs in the School of Accountancy.

Questions should be directed to Mrs. Andee Hodo, Assistant Director of Graduate & Online Programs in the School of Accountancy, at andee.hodo@auburn.edu or (334) 844-6207.

**Department of Finance (FINC)**

**Finance**

The objective of the finance curriculum is to develop the specialized finance knowledge, techniques, and skills necessary for successful placement in finance related positions. The program encompasses the major areas of finance including corporate finance, financial institutions and markets, and investments. In addition, the program offers elective work in the subareas of real estate and risk management and insurance. The program will allow students the opportunity to develop not only the specialized knowledge of finance, but also the professional presentation and use of such knowledge through oral and written communication. Students enrolled in the finance program also complete the College of Business core curriculum designed to provide the broader understanding of the entire business organization including accounting, economics, management and marketing. College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.

**International Business**

The objective of the program is to provide students with not only the business preparation necessary for success in the global environment, but also the foreign language skills to effectively communicate in that environment. The IBUS curriculum is designed to provide maximum flexibility and broad-based preparation for future career opportunities.

Graduates are prepared for entry-level positions in many areas of business activity depending upon their particular area of concentration within business. Within the language component, students must select from French, German, Spanish, or Chinese.

**Majors**

- Finance (p. 345)
- International Business (p. 346)

**Minors**

- Finance (p. 347)
- International Business (p. 348)
Courses

FINC 2400 PERSONAL FINANCE (3) LEC. 3. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money.

FINC 3010 PROFESSIONAL DEVELOPMENT IN FINANCE (1) LEC. 1. SU. Pr. (P/C FINC 3610 or FINC 3613 or FINC 3617) and P/C BUSI 2010. Career planning and preparation for employment in the finance industry.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3. COB academic standards. Export management skills, including basic global supply chain management and trade finance. Junior standing.

FINC 3200 RISK AND INSURANCE (3) LEC. 3. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Junior standing.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Junior standing.

FINC 3610/3613 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117 or ACCT 2810 or ACCT 3110 or ACCT 3113. Corporate finance from the perspective of a financial manager. Topics include time value of money, valuation, and capital budgeting. May count either FINC 3610 or FINC 3810.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. Honors College. ACCT 2117. Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting cash budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Junior standing.

FINC 3620/3623 SMALL BUSINESS FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630/3633 ADVANCED BUSINESS FINANCE (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3610). C or better in FINC 3610. In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and capital structure.

FINC 3640 INVESTMENTS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 3750 FINANCIAL MODELING (3) LEC. 45. Pr. P/C FINC 3630 and P/C FINC 3640. Application of financial management and investments concepts through Excel modeling. Topics include capital budgeting, capital asset pricing, cost of capital, stock and bond valuation. Advanced topics include DCF modeling, portfolio optimization and VBA.

FINC 3810 FOUNDATIONS OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2810 or ACCT 2110 or ACCT 2117. Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Junior standing. May count either FINC 3610 or FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3. Pr. FINC 3200. Commercial risks and the insurance contracts used to address these risks.

FINC 4220 LIFE INSURANCE (3) LEC. 3. Pr. FINC 3200. Departmental approval. Individual life, health, annuity contracts and other investments, with a focus on financial planning, estate planning, and business continuation arrangements.

FINC 4250 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and FINC 3250. Analysis and evaluation of real estate investments including cash flow measurement for both residential and commercial investment projects.

FINC 4520 INTERNATIONAL FINANCIAL MARKETS (3) LEC. 3. Pr. FINC 5510. Departmental approval.

FINC 4630 FINANCIAL STRATEGY (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113) and (FINC 3630 or FINC 3633). The advanced application of corporate finance through case analysis, company analysis, and current topics.
FINC 4650/4653 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113) and (FINC 3630 or FINC 3633) and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.

FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3. Pr. FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. Departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours.

FINC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 5670 MERGERS, ACQUISITIONS, AND RESTRUCTURING (3) LEC. 3. Pr. FINC 3630 or FINC 3633. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. May count either FINC 5670 or FINC 6670/FINC 6676.

FINC 5680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 3630 or FINC 3633 or FINC 3640 or FINC 3700. Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk.

FINC 5740 ADVANCED FINANCIAL ANALYSIS (3) LEC. 3. Pr. (FINC 3630 or FINC 3633) and P/C FINC 3640 and (P/C ACCT 3110 or P/C ACCT 3113). Departmental approval. Issues surrounding and methods for financial analysis of investments/firms, including: ethics, qualitative methods, economics, financial reporting/analysis, and portfolio management. May count FINC 5740 or FINC 6740.

FINC 6510/6516 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 6670/6676 MERGERS, ACQUISITIONS AND RESTRUCTURING (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. Departmental approval. May count either FINC 6670 or FINC 6676.

FINC 6680/6686 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 6740 ADVANCED FINANCIAL ANALYSIS (3) LEC. 3. Pr. (BUSI 7110 or BUSI 7116). Departmental approval. Issues surrounding and methods for financial analysis of investments/firms, including: ethics, qualitative methods, economics, financial reporting/analysis, and portfolio management. May count FINC 5740 or 6740.

FINC 7410/7416 BUSINESS RISK MANAGEMENT (3) LEC. 3. Departmental approval. An analysis of business risk and the risk management methods, including loss control, insurance, and other forms of risk financing, used to handle these risks.

FINC 7600/7606 ADVANCED CORPORATE FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Departmental approval. Intensive study of theory and problems in corporate finance from an internal decision making point of view.

FINC 7620/7626 ADVANCED REAL ESTATE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Study of real estate markets including regulatory and legal issues, valuation of income producing property, financing sources, corporate real estate, investment performance measurement.
FINC 7630/7636 HEALTH CARE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. Techniques and analysis of financial management in a health care setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace.

FINC 7640/7646 ADVANCED INVESTMENTS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.

FINC 7650/7656 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. The integration of financial theory with practice through spreadsheets, case analysis, company analysis, and current topics in finance.

FINC 7660/7666 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies.

FINC 7690/7696 ADVANCED FINANCIAL SYSTEMS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.

FINC 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours.

FINC 7970/7976 SPECIAL TOPICS (1-3) IND. Departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FINC 8620 THEORY OF FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Choice under certainty and uncertainty, time-state preference models, stochastic dominance, the mean-variance criterion, and asset pricing models Miller-Modigliani propositions would be developed.

FINC 8640 INVESTMENTS (3) SEM. 3. Pr. FINC 8620. This course focuses on current literature in Investments. Students should develop the insights necessary to identify problems and conduct research in Investments.

FINC 8650 SEMINAR IN CORPORATE FINANCE (3) SEM. 3. Pr. FINC 86250. This course focuses on current literature in Corporate Finance. Students should develop the insights necessary to identify problems and conduct research in Corporate Finance.

FINC 8690 FINANCIAL MARKETS AND INTERMEDIATION (3) LEC. 3. Pr. FINC 8620. This course focuses on current literature in financial markets and intermediation. Students should develop the insights necessary to identify problems and conduct research in this area.

FINC 8700 SPECIAL TOPICS IN FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Varies according to faculty and students interests. This could be a course like Options, Futures and Derivatives, or a course with several participating faculty members discussing their own research.

FINC 8880 SEMINAR (1) SEM. 1. Admission to the Ph.D. in Business with a Concentration in Finance. Seminar presentations by visiting scholars, Finance Faculty and Ph.D. students.

FINC 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course may be repeated for a maximum of 60 credit hours.

**Curriculum in Finance**

**Freshman**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>World History I or II</td>
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<td>World History I or II or Social Science Core Elective</td>
<td>3</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1680 Calculus with Business Applications I</td>
<td>4</td>
<td>Core Fine Arts</td>
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Curriculum in International Business

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<tr>
<th>Freshman</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3 ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>World History I or II</td>
<td>3 World History I or II or Social Science Core Elective</td>
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<tr>
<td>MATH 1680 Calculus with Business Applications I</td>
<td>4 BUAL 2600 Business Analytics I</td>
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</table>

Total Hours: 123

1 See the Harbert College advising website for approved courses.
<table>
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<tr>
<th>Course</th>
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<th>Spring Hours</th>
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<tbody>
<tr>
<td>BUSI 1010 Contemporary Issues in Business Administration I</td>
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<td></td>
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<tr>
<td>Elementary Foreign Language I</td>
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<td></td>
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<tr>
<td>Elementary Foreign Language II</td>
<td>4</td>
<td>BUSI 2100 Oral Communication for Business 1</td>
</tr>
<tr>
<td>COMP 1000 Personal Computer Applications</td>
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<tr>
<td><strong>Sophomore</strong></td>
<td><strong>15</strong></td>
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</tbody>
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**Fall**

- BUSI 1010 Contemporary Issues in Business Administration II
- ECON 2030 Principles of Macroeconomics 3
- ECON 2020 Principles of Microeconomics 3
- Core Literature II or Humanities Core Elective 3
- ACCT 2210 Principles of Managerial Accounting 3
- ACCT 2700 Business Law 3
- Intermediate Foreign Language II 4

**Junior**

- Core Science I 4
- MNGT 3100 Principles of Management 3
- MKTG 3310 Principles of Marketing 3
- FINC 3610 Principles of Business Finance 3
- Foreign Language Comp. & Conv. 1

**Senior**

- PHIL 1020 Introduction to Ethics or 1040 Business Ethics 3
- Business Concentration 2 3
- Foreign Business Language 1 3
- ECON 4300 International Economics 3
- Elective 2

**Total Hours: 123**

1. Language sequence to be taken exclusively in French, German, Spanish, or Chinese.
2. A twelve hour Business Concentration must be selected from one of the following areas: Economics, Entrepreneurship & Family Business, Finance, Marketing or Supply Chain Management. See CoB advising website for options.
3. Students must complete a sequence in either core history or literature.

Completion of Information Technology Literacy Requirement

**Finance Minor**

15 semester hours in minor (3000-level or above)
International Business Minor

15 semester hours in minor (3000-level or above)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>FINC 5510</td>
<td>Multinational Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>ECON 4300</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 4400</td>
<td>International Marketing</td>
<td>3</td>
</tr>
<tr>
<td>Elective Courses - See advisor for approved course listing.</td>
<td>6</td>
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</tbody>
</table>

Total Hours 15

Department of Management

Programs in the Department of Management prepare students in basic business functions as well as the process of management. These professional programs are designed to impart knowledge that will assist future managers to be good decision makers for their organizations. The professional programs are Human Resources Management (HRMN), Business Administration (BSAD), Management (MNGT), and Entrepreneurship and Family Business (ENFB). College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.

Human Resources Management

The Human Resources Management program provides a comprehensive education in human resources management. The primary goals are to provide knowledge and experience, oriented toward practical, on-the-job applications and to prepare students for entry-level positions in private and public sector organizations. In addition, the program provides excellent preparation for graduate or professional studies in Human Resources Management.

Business Administration

The Business Administration program is an interdepartmental degree designed to provide maximum course flexibility and a broad-based preparation for future career opportunities. Students are required to demonstrate basic oral and written communication skills, familiarity with technological tools, and an understanding of the interrelationship between the United States and foreign countries with a comprehensive education in business management. The Business Administration program prepares students for entry-level managerial and staff responsibilities in business, government, and non-profit organizations.

Entrepreneurship and Family Business

The Entrepreneurship and Family Business program offers an opportunity for students to gain insight into the criteria necessary for new ventures and for the managing of family-oriented business endeavors. Focus of the curriculum is on both start-up activities and the development of skills necessary to manage publicly-held and privately-owned entrepreneurial operations.

Management

The Management program provides students a comprehensive overview of the skills necessary to compete in a managerial position in business. The program emphasizes such areas as behavioral dynamics, leadership skills, project management, business processes and logistics, international relations, as well as the management of information technology. It is designed to focus on those issues generic to both the manufacturing and service industries. These management skills, when complemented with the solid foundation provided by the business core courses, equip students with the necessary knowledge to become successful managers. One unique aspect of the program is a community service project geared toward helping the students understand the importance of community service and philanthropy in today’s global economy.

Majors

- Human Resources Management (p. 355)
- Business Administration (p. 353)
- Entrepreneurship and Family Business (p. 354)
- Management (p. 357)
Minor

- Entrepreneurship and Family Business (p. 358)
- Human Resource Management (p. 358)
- Organizational Development and Change (p. 358)

Entrepreneurship Family Bus Courses

**ENFB 3140 ESSENTIALS OF ENTREPRENEURSHIP (3)** LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. The application of basic business principles to the entrepreneurial environment. May count either ENFB 3140 or ENFB 4140.

**ENFB 4160 FAMILY BUSINESS MANAGEMENT (3)** LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation.

**ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3)** LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Study of aspects of managing and marketing concepts and processes that can be utilized to launch new ventures or a new division within an existing business.

**ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3)** LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Study of the important aspects of starting and managing a franchise business.

**ENFB 4190 NEW VENTURE CREATION (3)** LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Analysis of industrial, competitive, market and financial aspects of starting a business.

**ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3)** LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Application of entire business education and experience to a practical, hands-on project.

**ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3)** LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140) and ENFB 4190. Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization.

**ENFB 4920 INTERNSHIP (1-6)** INT. SU. Pr. 2.50 GPA. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

**ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (1-10)** SEM. Course may be repeated for a maximum of 10 credit hours.

**ENFB 5900 DIRECTED STUDIES (1-3)** IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

**ENFB 5960 SPECIAL PROBLEMS (1-3)** IND. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

**ENFB 6900/6906 DIRECTED STUDIES (1-3)** IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

**ENFB 6960/6966 SPECIAL PROBLEMS (3)** IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Human Resource Mngt Courses

**HRMN 3420/3423 HUMAN RESOURCE MANAGEMENT (3)** LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation.

**HRMN 4430 LABOR RELATIONS (3)** LEC. 3. General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions.
HRMN 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

HRMN 4950 SEMINAR IN HUMAN RESOURCE MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

HRMN 5460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 5470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

HRMN 5480 LABOR RELATIONS LAW (3) LEC. 3. Legal principles and issues under the Labor Management Relations Act and related laws. Case problem analysis.

HRMN 5510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice and design of managerial systems in these functions.

HRMN 5520 HUMAN RESOURCES AND ORGANIZATIONAL RESEARCH (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Human resource problems studied through a project involving data collection, analysis and a research report.

HRMN 5540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 5550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5960 SPECIAL PROBLEMS (1-3) IND. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 6460/6466 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 6470/6476 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

HRMN 6480/6486 LABOR RELATIONS LAW (3) LEC. 3. Study of legal principles under the Labor Management Relations Act and related labor laws. Case problems and current legal issues are analyzed.

HRMN 6510/6516 HR PLANNING DEV & APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice, and design of managerial systems and these functions.

HRMN 6520/6526 HUMAN RESOURCE AND ORGANIZATIONAL RESEARCH (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Study of human resource problems through a primary research project involving data collection, analysis, and written research report.

HRMN 6540/6546 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 6550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.
HRMN 6960/6966 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

HRMN 7080/7086 ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Advanced study of the role of personnel and human resource management. Topics include employee selection, performance appraisal, compensation, training, and development.


HRMN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research on thesis or research project. Course may be repeated with change in topics.

Management Courses

MNGT 3010 PROFESSIONAL DEVELOPMENT IN MANAGEMENT (1) LEC. 1. SU. Pr. (P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107) and P/C BUSI 2010. Career planning and preparation for employment in a management position.


MNGT 3460/3463 ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 3810 MANAGEMENT FOUNDATIONS (3) LEC. 3. Management Foundations is a broad based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3970 GLOBAL PERSPECTIVES IN BUSINESS IN SPAIN (6) LEC. 6. The objective of the course is to learn about business in Spain by immersing the student totally into the Spain language and culture. Course may be repeated for a maximum of 12 credit hours.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Issues unique to managing operations in the global business environment.

MNGT 4400 ORGANIZATIONAL CHANGE (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. The complexities involved in implementing change in organizations.

MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3) LEC. 3. Field analysis team projects with local or multinational organizations in a foreign country. Course will be taught in conjunction with COB International Studies Programs.

MNGT 4690 ETHICAL ISSUES IN MANAGEMENT (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). The course is designed to help students gain a better understanding of how ethical dilemmas can impact managerial decisions.

MNGT 4800/4803 STRATEGIC MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization. College of Business Information Technology requirement.

MNGT 4807 HONORS STRATEGIC MANAGEMENT (3) LEC. 3. Pr. Honors College. Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization.

MNGT 4890 STRATEGIC ENVIRONMENTAL MANAGEMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Course will examine the continuous relationship between the natural environment, strategy, and competitive advantage from both domestic and international perspectives.

MNGT 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. MNGT 3100. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.
MNGT 4950 SEMINAR IN MANAGEMENT (1-10) AAB/SEM. Course may be repeated for a maximum of 10 credit hours.

MNGT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

MNGT 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

MNGT 5560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 5960 SPECIAL PROBLEMS IN MANAGEMENT (1-3) AAB/IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 6300/6306 THE BUSINESS OF SPORTS (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107 or MNGT 3810) and (ECON 2020 or ECON 2023 or ECON 2027) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Business aspects of sports teams including sources of revenue, labor market, revenue sharing, salary cap and free agency.

MNGT 6350/6356 COMPETITIVE SERVICE ENTERPRISES (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Provides MBA students with a working model of service operations and lets them explore how information technology can be used to re-engineer the service process.

MNGT 6560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

MNGT 6960/6966 SPECIAL PROBLEMS (1-3) AAB/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

MNGT 7150/7156 MANAGING ORGANIZATIONAL CHANGE (3) LEC. 3. Departmental approval. Advanced study of organizational behavior in individual and group interactions within the environment of business organizations.

MNGT 7160/7166 STRATEGIC MANAGEMENT OF INNOVATION AND TECHNOLOGY (3) LEC. 3. Development of competitive advantages in high-technology businesses. Examines product/service innovation and technology development and commercialization strategies, and related issues and processes.

MNGT 7420/7426 SEMINAR IN ORGANIZATION CHANGE (3) SEM. 3. Pr. MNGT 7150 or MNGT 7156. The diagnostic and evaluation issues in organizational change.

MNGT 7720/7726 OPERATIONS AND TECHNOLOGY STRATEGY (3) LEC. 3. Pr. P/C BUSI 7220 or P/C BUSI 7226. Development of upper management decision skills for developing and implementing manufacturing and technology strategies through case analyses and a field project.

MNGT 7906 SPECIAL PROBLEMS (1-3) DSL. SU. Course may be repeated for a maximum of 3 credit hours.

MNGT 7970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Departmental approval. Current topics in management.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT I (3) LEC. 3. Pr. MNGT 8400. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8040 RESEARCH METHODS IN MANAGEMENT III (3) LEC. 3. Pr. MNGT 8030. Development of research skills and experience in writing an empirical research article based on research proposal developed in MNGT 8030.

MNGT 8300 SEMINAR IN ADVANCED ORGANIZATION THEORY (3) LEC. 3. Departmental approval. Advanced study of theories and research in organization theory.
MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Departmental approval. Advanced study of theories and research in organizational behavior. Overarching organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (4) LEC. 3. LAB. 1. Pr. STAT 7000. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. STAT 7000 or approved equivalent.

MNGT 8410 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT II (3) LEC. 3. Pr. MNGT 8400. Departmental approval. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVA, Discriminate Analysis & Polytomous Logistic Regression.

MNGT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7000 and MNGT 8400 and MNGT 8410. or equivalents. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

MNGT 8700 SEMINAR IN ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Departmental approval. Examination of empirical issues and technical considerations pertaining to the human resource management function in organizations

MNGT 8740 COMPENSATION THEORY (3) LEC. 3. An examination of compensation theory, design technology, and research methodologies used in developing and analyzing compensation systems.

MNGT 8800 APPRAISAL AND DEVELOPMENT OF HUMAN RESOURCES (3) LEC. 3. Departmental approval. Examination of empirical issues pertaining to the performance appraisal and human resource development functions of organizations.

MNGT 8820 ORGANIZATIONAL CHANGE RESEARCH METHODS (3) LEC. 3. Pr. MNGT 7150 or MNGT 7156. The study and application of research methods to conduct organizational diagnoses and to assess organizational effectiveness. Special emphasis is placed on qualitative methods.

MNGT 8850 ADVANCED HUMAN RESOURCE SELECTION (3) LEC. 3. Pr. MNGT 7080 or HRMN 7080 or HRMN 7086. Study of the technical considerations involved in the implementation of employee selection programs. Departmental approval; graduate statistics course.

MNGT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Curriculum in Business Administration

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15 16
## Curriculum in Entrepreneurship and Family Business

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¹ See the Harbert College advising website for approved courses.
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Total Hours: 123

^1 See CoB advising website for ENFB and HRMN electives.
^2 Business elective must be at the 3000 to 5000 level. See CoB advising website for approved business electives.
^3 Students must complete a sequence in either core history or literature.

http://business.auburn.edu/academics/departments/department-of-management

**Curriculum in Human Resources Management**
## Freshman

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### Total Hours: 15

### Sophomore

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Total Hours: 123

Students not passing the University IT examination must take COMP 1000.
HRMN electives must be selected from an approved listing.

Students must complete a sequence in either core history or literature.

## Curriculum in Management

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### Senior

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Entrepreneurship and Family Business Minor

This minor is available only to Management majors.

15 semester hours in minor

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<tr>
<td>ENFB 3140</td>
<td>Essentials of Entrepreneurship</td>
<td>3</td>
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<tr>
<td>ENFB 4170</td>
<td>Managing Entrepreneurial Start-Ups</td>
<td>3</td>
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<tr>
<td>ENFB 4180</td>
<td>Growth Strategies for Emerging Companies</td>
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<td>ENFB 4190</td>
<td>New Venture Creation</td>
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<td>Business Plan for the New Venture</td>
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Total Hours: 15

See the Harbert College advising website for approved courses.

Human Resource Management Minor

15 semester hours in minor

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<td>Human Resource Legislation</td>
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<td>HRMN 5470</td>
<td>Employee Compensation</td>
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<tr>
<td>HRMN 5510</td>
<td>Human Resource Planning, Development, and Appraisal</td>
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<tr>
<td>HRMN 5540</td>
<td>Human Resources Selection and Placement</td>
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Selective One of the Following Electives:

- MNGT 4400 | Organizational Change                           | 3     |
- MNGT 4690 | Ethical Issues in Management                    | 3     |
- MNGT 5560 | Leadership                                      | 3     |
- PSYC 2140 | Research Methods in Psychology                  | 3     |
- SOCY 3700 | Methods of Social Research                      | 3     |

Total Hours: 15

Organizational Development and Change Minor

This minor is available only to Management majors.

15 semester hours in minor

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<td>MNGT 4400</td>
<td>Organizational Change</td>
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<td>MNGT 4690</td>
<td>Ethical Issues in Management</td>
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<tr>
<td>MNGT 5560</td>
<td>Leadership</td>
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Elective - Choose one 3-hour course from the Designated Electives in the MNGT curriculum | 3 |

Total Hours: 15

Marketing

Marketing majors discover the interrelationship of marketing with other management tools and prepare themselves for executive/managerial careers involving functional areas such as advertising, channel and product decision-making, pricing, retailing and strategic marketing. College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.
Major

• Marketing (p. 361)

Minor

• Marketing (p. 362)

Courses

**MKTG 3010 PROFESSIONAL DEVELOPMENT IN MARKETING (1)** LEC. 1. SU. Pr. P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317 and P/C BUSI 2010. Career planning and preparation for employment in the marketing industry.

**MKTG 3310/3313 PRINCIPLES OF MARKETING (3)** LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3810. Junior standing.

**MKTG 3317 HONORS PRINCIPLES OF MARKETING (3)** LEC. 3. Pr. Honors College. ECON 2027 or ECON 2020. Study of functions, institutions, and basic problems of marketing goods and services in a global economy. Junior standing.

**MKTG 4050 MISPLACED MARKETING & CONSUMERS' INTERESTS (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Management decision making serving consumers' interests in public policy environment when a marketing perspective is lost, misapplied or abused.

**MKTG 4057 HONORS MISPLACED MARKETING & CONSUMERS' INTERESTS (3)** LEC. 3. Pr. Honors College. MKTG 3310 or MKTG 3317. Marketing decision making serving consumers' interests in public policy environment, with case perspectives of when a marketing perspective is lost, misapplied or abused.

**MKTG 4310 SPORTS AND ENTERTAINMENT MARKETING (3)** LEC. 3. Pr. MKTG 3310. Grade “C” or better in MKTG 3310. Application of marketing theory and practice to the sports and entertainment business.

**MKTG 4320 ADVERTISING (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of promotional objectives, strategy and tactics in marketing.

**MKTG 4330/4333 RETAIL MANAGEMENT (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control. Credit will not be given for more than one of the following: MKTG 4330, CAHS 5610, and CAHS 6610.

**MKTG 4340 MARKETING AND NEW PRODUCT DEVELOPMENT (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Marketing based analysis of profitable new products and brand extensions involving the invention, development and product launch plus sustaining market success.

**MKTG 4350 SERVICES MARKETING (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of marketing in service industries and implementation of service marketing strategies.

**MKTG 4360 MARKETING RESEARCH AND ANALYTICS (3)** LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (BUAL 2650 or BUAL 2653). Grade of C or better. Research methods in marketing and their application to marketing problems.

**MKTG 4370 SALES MANAGEMENT (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Principles and practices of organization and administration of sales organizations.

**MKTG 4380 MARKETING CHANNEL SYSTEMS (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Designing channels of distribution: Objectives, constraints, and alternatives: Motivating, evaluating and controlling channel members.

**MKTG 4390/4393 PERSONAL SELLING (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Selling strategy as an interdisciplinary business activity.

**MKTG 4400/4403 INTERNATIONAL MARKETING (3)** LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Strategy, policy and the variables affecting international marketing decisions. Credit will not be given for more than one of the following: MKTG 4400, CAHS 5610, and CAHS 6610.
MKTG 4410/4413 CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Critical review and analysis of possible pragmatic applications of consumer behavior theories used for marketing decision making. May count either CADS 3800 or MKTG 4410.

MKTG 4420 ADVANCED PERSONAL SELLING (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MKTG 4390 or MKTG 4393). Permission of Department "C" or Better in MKTG 3310 and MKTG 4390. Advanced personal selling skills, practices and programs are covered. Emphasis is placed on sales presentations, demonstrations, negotiations and relationship building skills.

MKTG 4430 BUSINESS TO BUSINESS MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317. Marketing strategy and applications for business-to-business companies and markets.

MKTG 4440 REAL ESTATE MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Selling strategy for real property, brokerage, management and marketing of real estate.

MKTG 4480 REAL ESTATE MARKETING STRATEGY (3) LEC. 3. Pr. At least 9 credits in MKTG 4050-4970 and MKTG 4360. and MKTG 3310 or MKTG 3317. Grade of C or better in MKTG 3310 or MKTG 3317, 9 hours of Marketing electives between 4050 and 4970, and Pr/Cr MKTG 4360. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

MKTG 4490 DIRECTED STUDIES (3) AAB/IND. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Advanced research, reading and study in marketing.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3) AAB/INT. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Grade of C or better. Provides a relevant and meaningful work experience in a marketing or marketing-related business, industry or organization.

MKTG 4970 SPECIAL TOPICS IN MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of current marketing topics. Course may be repeated for a maximum of 9 credit hours.

MKTG 4980 MARKETING STRATEGY (3) LEC. 3. Pr. At least 9 credits in MKTG 4050-4970 and MKTG 4360. and MKTG 3310. Pr., Grade of C or better in MKTG 3310 or MKTG 3317 and 9 hours of Marketing Electives. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

MKTG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. and Grade of C or better in MKTG 3310 or MKTG 3317. Provides honor's students with the opportunity to conduct in-depth research. Thesis/research topics will be based on mutual agreement between committee and student. Course may be repeated for a maximum of 3 credit hours.

MKTG 7050/7056 SOCIAL AND LEGAL ENVIRONMENT OF MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. The influence of the social, legal, political, and economic environments on marketing operations.

MKTG 7310/7316 MARKETING MANAGEMENT (3) LEC. 3. Pr. (BUSI 7110 or BUSI 7116 or BUSI 7716) and (BUSI 7120 or BUSI 7126). Departmental approval. In-depth analysis of concepts and techniques pertinent to executive decision-making in marketing.

MKTG 7320/7326 ADVERTISING AND PROMOTION STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Managerial perspective of the marketing communication process.

MKTG 7330/7336 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. A managerial perspective of strategic decision-making and financial aspects of retail organizations.

MKTG 7350/7356 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 7360/7366 MARKETING RESEARCH: METHODOLOGY AND APPLICATIONS (3) LEC. 3. Pr. (MNGT 6040 or MNGT 6046) and (MKTG 3310 or MKTG 3313 or MKTG 3317) or (ISMN 6040 or ISMN 6046). Departmental approval. Marketing research design, implementation and data analysis for marketing managers. A

MKTG 7370/7376 SALES MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. In-depth study of sales management strategy and tactics.
MKTG 7390/7396 DATA BASE, DIRECT MARKETING AND SALES PROMOTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Fundamental concepts, tools and applications of data base, direct marketing and sales promotion to marketing problems.

MKTG 7400/7406 GLOBAL MARKETING AND DISTRIBUTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. A strategic managerial perspective of global marketing and distribution operations.

MKTG 7410/7416 ANALYSIS OF CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Psychological, sociological, and anthropological foundation of consumer and industrial purchase behavior and their application to marketing decisions.

MKTG 7500/7506 ELECTRONIC MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Ethical and strategic use of electronic media and the Internet for marketing communications and strategy.

MKTG 7600/7606 ENVIRONMENTALLY CONSCIOUS MARKETING MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (BUAL 2650 or BUAL 2653). Departmental approval. Advanced marketing strategies with an environmental focus.

MKTG 7720/7726 NEW PRODUCTS DEVELOPMENT AND MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Marketing in the process of developing innovative products and services.

MKTG 7940 INTERNATIONAL MARKETING ABROAD PROGRAM (3-6) FLD. Course may be repeated for a maximum of 6 credit hours.

MKTG 7970/7976 SPECIAL STUDIES IN MARKETING (3) LEC. 3. Departmental approval. Variable content in the marketing area. Course may be repeated for a maximum of 6 credit hours.

MKTG 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

Curriculum in Marketing

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<td>ECON 2020 Principles of Microeconomics</td>
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<td>ECON 2030 Principles of Macroeconomics</td>
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<td>COMM 1000 Public Speaking</td>
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## Marketing Minor

**Junior**

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<td>MKTG 4360 Marketing Research and Analytics</td>
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<td>BUAL 2650 Business Analytics II</td>
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<td>CTCT 3250 Information Analysis</td>
<td>3</td>
<td>FINC 3610 Principles of Business Finance</td>
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<td>MNGT 3100 Principles of Management</td>
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<td>ISMN 3140 Introduction to Management Information Systems</td>
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**Senior**

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Total Hours: 123

<sup>1</sup> Must earn a "C" in this course.

<sup>2</sup> See the Harbert College advising website for approved courses.

### Marketing Minor

MKTG 3310 and 15 hours of marketing electives.

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Total Hours: 18

### Department of Systems and Technology

The Department of Systems and Technology prepares students for careers involving the planning, analysis, and execution of processes related to the movement of passengers, product, and information. The professional programs within the Department are designed to provide students with the technical skills and knowledge needed to be effective decision makers for their organizations. The professional programs available are Business Analytics (BUAL), Information Systems Management (ISMN), and Supply Chain Management (SCMN). Information regarding careers, internships, scholarships, and student organizations is available through the program coordinators. College of Business pre-requisites are strictly enforced. Junior standing and compliance with College of Business academic standards are required for all 3000 and above level courses.

### Business Analytics

The Business Analytics Program prepares students for careers that use data to support solve problems and exploit opportunities in a data-driven manner. Students learn skills in a natural progression that goes through formulating a problem, identifying and cleaning data, uncovering patterns in data, developing predictive models, using these models to make recommendations, and communicating the results in a manner appropriate to executives or clients. Business Analytics skills are in demand across a wide range of industries including healthcare, marketing, finance, consulting, transportation, and information technology. Students are encouraged to develop expertise in a functional business discipline such as marketing or finance using elective coursework.
Information Systems Management

The Information Systems Management program provides education and training so that students can help lead organizational change projects in transforming and improving business processes and in designing and creating new, innovative digital products and services. The program is designed to enable students to meet the challenges that are poised by Information Technology Management in both public sector and for-profit organizations. Because information systems are critical to all aspects of every organization, Information System Management majors are in great demand in the marketplace. Information systems students can focus their study in the areas of business analytics, information security, and/or technology infrastructure.

Supply Chain Management

The Supply Chain Management program combines logistics and operations management knowledge to provide a comprehensive education for students interested in careers with manufacturers, retailers, consultancies, and logistics services providers. The primary goal of the program is to provide a practical understanding of procurement, operations, logistics, and transportation so that graduates will excel in entry-level management positions, graduate school, and future opportunities.

Majors

- Business Analytics (p. 375)
- Information Systems Management (p. 376)
- Supply Chain Management (p. 378)

Minors

- Business Analytics (p. 373)
- Business-Engineering-Technology (p. 373)
- Information Assurance (p. 379)
- Information Systems Management (p. 380)
- Supply Chain Management (p. 380)

Aviation Management Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.

AVMG 3200 APPLIED ANALYSIS IN AIR TRANSPORTATION (3) LEC. 3. Pr. AVMG 1010 and ECON 2020. Junior standing.. Junior standing or Departmental approval. Development of principles required in economic analysis.

AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. SU. AVMG, AVMF, AVMN, and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, operation, and typical problems.

**AVMG 4080 AIR TRANSPORT PLANNING (3)** LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Junior Standing or Departmental Approval. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

**AVMG 4130 AIRPORT MANAGEMENT (3)** LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

**AVMG 4140 AIRPORT PLANNING AND DESIGN (3)** LEC. 3. Pr. AVMG 4130. Junior Standing or Departmental Approval. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

**AVMG 4190 AIRSPACE MANAGEMENT (3)** LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

**AVMG 4200 AIR CARGO OPERATIONS (3)** LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

**AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6)** INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

**AVMG 4967 HONORS SPECIAL PROBLEMS (1-3)** LEC. Pr. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

**AVMG 4997 HONORS THESIS (1-3)** IND. Pr. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

**AVMG 5090 AVIATION LAW AND POLICY (3)** LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

**AVMG 5170 AIRLINE MANAGEMENT (3)** LEC. 3. Pr. AVMG 1010 and AVMG 3050. Junior Standing or Departmental Approval. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

**AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3)** LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or Departmental Approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

**AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3)** LEC. 3. Investigation of current issues in the aviation industry.

**AVMG 6090/6096 AVIATION LAW AND POLICY (3)** LEC. 3. Departmental approval. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

**AVMG 6170/6176 AIRLINE MANAGEMENT (3)** LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

**AVMG 6180/6186 GLOBAL AIR TRANSPORTATION MANAGEMENT (3)** LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

**AVMG 6970/6976 SPECIAL TOPICS AVIATION MNGT (1-3)** LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

**AVMG 7930/7936 SPECIAL PROBLEMS AVIATION MNGT (1-3)** LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.
Business Analytics Courses

**BUAL 2600/2603 BUSINESS ANALYTICS I (3)** LEC. 3. Pr. (MATH 1610 or MATH 1617 or MATH 1680 or MATH 1683). Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results.

**BUAL 2650/2653 BUSINESS ANALYTICS II (3)** LEC. 3. Pr. BUAL 2600 or STAT 2610 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 3010 or STAT 2513. A second course in quantitative analysis in business including statistical inference, classification analysis, predictive modeling, forecasting, introduction to data mining.

**BUAL 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS ANALYTICS (1)** LEC. 1. SU. Pr. P/C BUAL 2650 and P/C BUSI 2010. Career planning and preparation for employment as an analytics professional.

**BUAL 4910 PRACTICUM (1-3)** PRA. SU. Supervised practical application of business analytics theory and methods. Course may be repeated for a maximum of 3 credit hours.

**BUAL 4920 BUSINESS ANALYTICS INTERNSHIP (1-6)** INT. SU. The internship program represents an opportunity for students to be exposed to analytics environments first-hand and to integrate this experience with their formal education. The practical nature of the internship facilitates the educational process and provides valuable work experience. Course may be repeated for a maximum of 6 credit hours.

**BUAL 5600 PREDICTIVE MODELING I (3)** LEC. 3. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

**BUAL 5610 PREDICTIVE MODELING II (3)** LEC. 3. Pr. (BUAL 5600 or BUAL 6600 or BUAL 6606). or equivalent. Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

**BUAL 5650 BIG DATA I (3)** LEC. 3. Pr. BUAL 2650. or equivalent. Managing, governing, extracting, merging, and preparing large data sets for analysis.

**BUAL 5660 BIG DATA II (3)** LEC. 3. Pr. BUAL 5650. Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.

**BUAL 5700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3)** LEC. 3. Pr. ISMN 5650. Advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6706.

**BUAL 5860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3)** LEC. 3. Pr. BUAL 5610 and BUAL 5660. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

**BUAL 5900 DIRECTED STUDIES (1-3)** IND. SU. Faculty led individualized or group-oriented in-depth study of a topic in business analytics. May include literary research, algorithm development, programming, data analysis, or a combination of these. Course may be repeated for a maximum of 6 credit hours.

**BUAL 6600/6606 PREDICTIVE MODELING I (3)** LEC. 3. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

**BUAL 6610/6616 PREDICTIVE MODELING II (3)** LEC. 3. Pr. (BUAL 5600 or BUAL 6600 or BUAL 6606). Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. May count either BUAL 5610 or BUAL 6610/6616.

**BUAL 6650/6656 BIG DATA I (3)** LEC. 3. or equivalent. Managing, governing, extracting, merging, and preparing large data sets for analysis.

**BUAL 6660/6666 BIG DATA II (3)** LEC. 3. Pr. (BUAL 5650 or BUAL 6650 or BUAL 6656). Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.
BUAL 6700/6706 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650 or ISMN 6650 or ISMN 6656. This course covers advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6.

BUAL 6860/6866 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 6610 or BUAL 6616. A case-based, project-oriented approach to business decision making based on company’s mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 6960/6966 SPECIAL PROBLEMS (3) IND. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

Flight Education Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 2. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and airplane flight time. Special fee.


AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2150 or Departmental approval. Dual and solo flight instruction and discussion to prepare for first solo in a single-engine airplane. Special fee.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2171 or Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA).

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2230. Flight instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating – Airplane Practical Test. Special fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2250 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX).

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2241. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating – Airplane Practical Test. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special Fees. Requires at least a valid FAA 3rd Class Medical certificate.
AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests.


AVMF 4320 PRINCIPLES OF PROFESSIONAL FLIGHT (3) LEC. 3. Pr. AVMF 2230. Multi-engine transport aircraft systems and operating procedures (normal, abnormal, and emergency). Includes hydraulic, electric, pneumatic, air conditioning and pressurization, auxiliary power unit (APU), landing gear, and flight control systems. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 6. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Special fees.


AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1000 or PHYS 1007. Private Pilot Certificate, or Departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affecting lift, thrust, drag, in-air performance, stability and flight control.

Information Systems Management Courses

ISMN 3010 PROFESSIONAL DEVELOPMENT IN INFORMATION SYSTEMS (1) LEC. 1. SU. Pr. P/C ISMN 3140 and P/C BUSI 2010. Career planning and preparation for employment as an information systems management professional.

ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management.

ISMN 3070 BUSINESS SYSTEM LOGIC AND MODELING (3) LEC. 3. Concepts, techniques, and tools for discovering, specifying, and modeling business logic are introduced, explored, and applied.

ISMN 3080 PROGRAMMING AND COMPUTER APPLICATIONS (3) LEC. 3. Visual and object-oriented business programming languages are introduced and explored.

ISMN 3140/3143 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3840 ANALYSIS OF BUSINESS SYSTEMS (3) LEC. 3. The study and application of tools, techniques, and methodologies to analyze, understand, and model business systems.

ISMN 4090 DIGITAL BUSINESS DESIGN (3) LEC. 3. Pr. ISMN 3830 or MNGT 3830 or MNGT 3833. Students bring together knowledge of digital technologies and their skills in business design and development to create innovative, leading-edge processes, products, and services for today's modern organizations.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3. Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies.

ISMN 4870 DATABASE SERVER FUNDAMENTALS (3) LEC. 3. Pr. ISMN 3830. Database servers as core components of developing n-Tier information technology are discussed. Practical exercises used to demonstrate the process of using QSQL to manage database through data manipulation language and data definition language. Advanced database objects are introduced.
ISMN 4880 MGT INFO SYSTEMS PROJECTS (3) LEC. 3. Pr. ISMN 4090. Coreq. ISMN 3830. Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on-projects.

ISMN 4920 INTERNSHIP (3) AAB/INT. 3. SU. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

ISMN 4950 SEMINAR IN INFORMATION SYSTEMS MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

ISMN 5040 ADVANCED BUSINESS DATA COMMUNICATIONS (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 5270 CURRENT ISSUES IN IS FOR ORGS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 5290/5293 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Pr. BUAL 5650 or BUAL 5600. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/9293.

ISMN 5360/5363 APPLICATION OF GEOSPATIAL INFORMATION SYSTEMS FOR BUSINESS (3) LEC. 3. GIS involves the use of GIS and desktop mapping technology to aid in processes such as disaster recovery, facility planning and management, market segmentation, and community growth. The student will learn how to strategically use GIS to facilitate organizational performance. Credit will not be given for both ISMN 5360/5363 and ISMN 6360/6366.

ISMN 5370/5373 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 5380/5383 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as an tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 5390/5393 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both ISMN 5390/5393 and ISMN 6390/6396.

ISMN 5620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Overview of business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 5630 CLIENTSIDE INTERNET PGM (3) LEC. 3. Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 5640 SERVERSIDE INTERNET PGM (3) LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 5650 APPLICATION DEVELOPMENT WITH EMERGING TECHNOLOGIES (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 5680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 5690 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.
ISMN 5720/5723 ELECTRONIC COMMERCE (3) LEC. 3. A managerial and interdisciplinary investigation into the many different business activities done on the Internet including buying and selling products and services, servicing customers, collaborating with stakeholders inside and outside the organization, social networking, and learning, among others. Students will come away with a broad knowledge of electronic commerce and its implications to modern business life and social life. Credit will not be given for both ISMN 5720/5723 and ISMN 6720/6726.

ISMN 5730/5733 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 5740/5743 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 5750/5753 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. Pr. (ISMN 5730 or ISMN 5670). This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. Credit will not be given for both ISMN 5750/5753 and ISMN 6750/6756.

ISMN 5770 INFORMATION SYSTEMS ETHICS (3) LEC. 3. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1040) and (ISMN 3140 or ISMN 3143). Information systems ethics, including: fundamentals; professional and user standards; and issues related to privacy, freedom of expression, intellectual property, and software development. Credit will not be given for both ISMN 5770 and ISMN 6770/6776.

ISMN 5870 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) IND. 3. Independent study investigating current literature in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 6040/6046 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 6270/6276 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 6286 INFORMATION SYSTEMS ARCHITECTURE IN THE SMALL LAND MEDIUM-SIZE ENTERPRISE (3) LEC. 3. Pr. ISMN 3040 and ISMN 3070. This course is an expose’ into the current business applications of open source software. The course consists of 1) A research component focusing on current trends and practices within the culture of Open Source Software as well as the current and potential impact on business and 2) a hands-on laboratory component in which students explore the application of Open Source Software as a business tool. Equivalent courses at the graduate level. Credit will not be given for both ISMN 5280 and ISMN 6280/6286.

ISMN 6290/6296 ADVANCED PROGRAMMING APPLICATION DEVELOPMENT (3) LEC. 3. Department approval. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/9293.

ISMN 6370/6376 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 6380/6386 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as a tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.
ISMN 6390/6396 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both ISMN 5390/5393 and ISMN 6390/6396.

ISMN 6620/6626 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Evaluates business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 6630/6636 CLIENTSIDE INTERNET PROGRAMMING (3) LEC. 3. Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 6640/6646 SERVERSIDE INTERNET PGM (3) LEC. 3. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 6650/6656 APPLICATION DEVELOPMENT WITH EMERGING TECHNOLOGIES (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 6670/6676 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

ISMN 6680/6686 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830 or ISMN 7830 or ISMN 7836. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 6690/6696 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 6710/6716 INFORMATION RISK ANALYSIS (3) LEC. 3. Departmental approval. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions.

ISMN 6720/6726 ELECTRONIC COMMERCE (3) LEC. 3. A managerial and interdisciplinary investigation into the many different business activities done on the Internet including buying and selling products and services, servicing customers, collaborating with stakeholders inside and outside the organization, social networking, and learning, among others. Students will come away with a broad knowledge of electronic commerce and its implications to modern business life and social life. Credit will not be given for both ISMN 5720/5723 and ISMN 6720/6726.

ISMN 6730/6736 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 6740/6746 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 6750/6756 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. May count either ISMN 5750 or ISMN 6750.

ISMN 6770/6776 INFORMATION SYSTEMS ETHICS (3) LEC. 3. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1040) and (ISMN 3140 or ISMN 3143). Information systems ethics, including: fundamentals; professional and user standards; and issues related to privacy, freedom of expression, intellectual property, and software development. Credit will not be given for both ISMN 5770 and ISMN 6770/6776.

ISMN 6870/6876 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.
ISMN 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 9 credit hours.

ISMN 6960/6966 SPECIAL PROBLEMS (3) IND. 3. General information systems management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 9 credit hours.

ISMN 7020/7026 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3. Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7140/7146 MANAGING END USER COMPUTING (3) LEC. 3. Studies MIS from user's perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

ISMN 7360/7366 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3. A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7380/7386 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660/7666 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7670/7676 ELECTRONIC COMMERCE (3) LEC. 3. The tools, skills, technologies, and business and social implications of the emergence of electronic commerce in cyberspace.

ISMN 7730/7736 MANAGEMENT OF INNOVATION (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760/7766 QUANT METHODS IN OPS MNGT (3) LEC. 3.

ISMN 7810/7816 STRUCTURED DECISION MAKING (3) LEC. 3. Introduction to business decision structuring and aiding, including multiple criteria and group-decision making methodology.

ISMN 7830/7836 ADVANCED DATABASE MANAGEMENT SYSTEMS PROJECTS (3) LEC. 3. Database management systems using database methodologies to support business applications, including requirements for distributed databases.

ISMN 7870/7876 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880/7886 ADV MNGT OF INFO SYS (3) LEC. 3. In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890/7896 INFORMATION RESOURCE MNGT (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7980/7986 MMIS PROJECT (1-10) IND. SU. Departmental approval. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 10 credit hours.

ISMN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research on thesis or research project. Course may be repeated with change in topics.

ISMN 8010 IS MANAGEMENT RESEARCH SEM. I (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.

ISMN 8020 IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.
ISMN 8030 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH I (3) SEM. 3. Research methodologies used in conducting research with emphasis on empirical research methods.

ISMN 8040 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH II (3) SEM. 3. Research methodologies used in conducting research with emphasis on conceptual and empirical research methods.

ISMN 8500 ADVANCED IS MANAGEMENT RESEARCH SEMINAR I (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research.

ISMN 8660 ADVANCED IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals.

ISMN 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Must be degree seeking PhD student in the Business with concentration in IS program.

Supply Chain Management Courses

SCMN 2150/2153 OPS: MANAGEMENT OF BUSINESS PROCESSES (2) LEC. 2. Fundamental concepts, techniques and tools of business processes.

SCMN 3710/3713 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3. Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Fall, Spring. Junior standing.


SCMN 3730 PURCHASING: SUPPLY MANAGEMENT AND SEARCHING (3) LEC. 3. In-depth coverage of purchasing and supply management processes, strategies, and tools. Fall, Spring. Junior standing.

SCMN 3810 PROFESSIONAL DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT (1) LEC. 1. SU. Pr. P/C BUSI 2010. SCMN majors only. Career planning and preparation for supply chain internships and professional experience opportunities. Credit will not be given for both SCMN 3810 and BUSI 3010 or SCMN 4810.

SCMN 3910 PRACTICUM IN SUPPLY CHAIN MANAGEMENT (1) PRA. 3. SU. Pr. SCMN 3150 or SCMN 3153 or SCMN 3710 or SCMN 3713. Departmental approval. SCMN majors only. Cooperatively selected field activity to gain practical SCM experience. Course may be repeated for a maximum of 3 credit hours.

SCMN 3920 INTERNSHIP IN SUPPLY CHAIN MANAGEMENT (0-6) AAB/INT. SU. Pr. SCMN 3150 or SCMN 3153 or SCMN 3710 or SCMN 3713. SCMN majors only. Departmental approval. Professional work experience in a supply chain focused position. Course may be repeated for a maximum of 6 credit hours.

SCMN 4700 SUPPLY CHAIN PERFORMANCE MANAGEMENT (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. SCMN majors only. Understanding and managing supply chain performance through the use of metrics, analysis, and improvement strategies. Fall, Spring.

SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3. Pr. SCMN 3150 or SCMN 3153. Tools, techniques and technologies of various supply chain processes.

SCMN 4770 SUPPLY CHAIN OPERATIONS MANAGEMENT (3) LEC. 3. Pr. SCMN 3150 and SCMN 3710 and SCMN 3720 and SCMN 3730. Review and application of current supply chain strategies processes and information technologies required to compete in today's global marketplace. The course will focus on presenting key manufacturing management techniques used to balance supply with demand to ensure customer satisfaction.

SCMN 4780 INTEGRATED LOGISTICS STRATEGY (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. SCMN 3710 & SCMN 3720 requires a grade of C or better. Strategies and tactics for improving service and financial performance of transportation companies and their customers. Fall.

SCMN 4800 SUPPLY CHAIN STGY:GLOBAL PERSP (3) LEC. 3. Pr. and SCMN 3710 and SCMN 3720 and SCMN 3730. Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring.
SCMN 4900 DIRECTED STUDIES IN SUPPLY CHAIN MANAGEMENT (1-3) AAB/LEC. SU. Pr. (SCMN 3150 or SCMN 3153) and (SCMN 3710 or SCMN 3713) and SCMN 3720 and SCMN 3730. Departmental approval. Advanced individual research of SCM topic under direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGMT (3-6) AAB. Pr. (SCMN 3150 or SCMN 3153) and (SCMN 3710 or SCMN 3713). Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours.

SCMN 5710 ADVANCED PROCESS ANALYSIS (3) LEC. 3. Pr. SCMN 3150 or SCMN 3153. Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Fall, Spring.

SCMN 5720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. (SCMN 3150 or SCMN 3153) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring.

SCMN 5710 ADVANCED PROCESS ANALYSIS (3) LEC. 3. Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Fall, Spring.

SCMN 6720/6726 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. (SCMN 3150 or SCMN 3153) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring.

SCMN 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be individually designed for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 6960/6966 SPECIAL PROBLEMS (3) IND. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 7600/7606 SUPPLY MNGT AND MANUFACTURING (3) LEC. 3. The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700/7706 DEMAND MNGT & FULFILLMENT (3) LEC. 3. Departmental approval. The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include integrated planning, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer.

SCMN 7800/7806 SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Problems and analysis in the design and management of the retail, industrial and service supply chain.

SCMN 7844/7846 SUPPLY CHAIN STRATEGY (3) LEC. 3. Departmental approval. Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory visibility, process synchronization, information management, and financial analysis. Fall.

### Business Analytics Minor

15 semester hours in minor

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<td>BUAL 5660</td>
<td>Big Data II</td>
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<td>BUAL 5600</td>
<td>Predictive Modeling I</td>
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<td>BUAL 5610</td>
<td>Predictive Modeling II</td>
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<tr>
<td>BUAL 5860</td>
<td>Communicating Quantitative Results in Business</td>
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**Total Hours:** 15

### Business-Engineering-Technology Minor

Students who minor in Business-Engineering-Technology learn, practice, and integrate entrepreneurship, engineering, and business management skills demanded by the technology-driven global economy, solve real-world case study and design problems, and
work in cross-functional teams. The minor is a joint offering by the Colleges of Business and Engineering. Admission to the minor is competitive. Engineering and business majors apply for admission to the Business-Engineering-Technology Program as second semester sophomores. To remain in the program the cumulative GPA must be equal to or greater than 3.0.

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<td>Product/Process Design and Development I</td>
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### Curriculum in Aviation Management - BS

**Freshman**

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<td>SCMH 1010 Concepts of Science(^1)</td>
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**Sophomore**

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<td>Free Elective</td>
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<td>PHIL 1020 Introduction to Ethics or 1040 Business Ethics</td>
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**Junior**

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<td>AVMG 3050 Severe and Hazardous Weather Disruptions</td>
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<td>FINC 3610 Principles of Business Finance</td>
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### Senior

- **Fall**
  - ENGL 3080 Business Writing 3
  - ENGL 3810 3
  - AVMG 4060 Commercial Aviation Safety 3
  - AVMG 4190 Air Space Management 3
  - AVMG 5090 Aviation Law and Policy 3
  - AVMG 5180 Global Air Transportation Management 3
  - Elective 3
  - UNIV 4AA0 University Graduation 0

- **Spring**
  - MGT 4800 Strategic Management 3
  - AVMG 5090 Aviation Law and Policy 3
  - HRMN 3420 Human Resource Management 3
  - AVMG 4810 1

**Total Hours: 124**

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1. PHYS 1500/PHYS 1510 or PHYS 1600/PHYS 1610 may substitute the SCMH 1010/PHYS 1000 requirement.
2. Students must complete a sequence in either core history or literature.

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## Curriculum in Business Analytics

### Freshman

- **Fall**
  - ENGL 1100 English Composition I 3
  - World History I or II 3
  - Core Science I 4
  - MATH 1680 Calculus with Business Applications I 4
  - BUSI 1010 Contemporary Issues in Business Administration I 1

  **Total: 15**

- **Spring**
  - ENGL 1120 English Composition II 3
  - World History I or II or Social Science Core Elective 3
  - Core Science II 4
  - Core Fine Arts 3
  - COMM 1000 Public Speaking 3

  **Total: 16**

### Sophomore

- **Fall**
  - ACCT 2110 Principles of Financial Accounting 3
  - ECON 2020 Principles of Microeconomics 3
  - BUAL 2600 Business Analytics I 3
  - Core Literature 3
  - SCM 3150 Ops: Mngt of Business Process 2
  - BUSI 2010 Contemporary Issues in Business Administration II 1

  **Total: 15**

- **Spring**
  - ACCT 2210 Principles of Managerial Accounting 3
  - ECON 2030 Principles of Macroeconomics 3
  - BUAL 2650 Business Analytics II 3
  - Core Literature II or Humanities Core Elective 3
  - CTCT 3250 Information Analysis 3

  **Total: 15**

### Junior

- **Fall**
  - BUAL 3010 1
  - BUAL 5600 Predictive Modeling I 3
  - BUAL 5650 Big Data I 3
  - FINC 3610 Principles of Business Finance 3

  **Total: 15**

- **Spring**
  - BUAL 5600 Predictive Modeling I 3
  - BUAL 5660 Big Data II 3
  - Business Analytics Elective 1 3

**Total: 15**
### Curriculum in Information Systems Management

#### Freshman

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### Sophomore

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### Junior

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<td>ISMN 5650 Application Development with Emerging Technologies</td>
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**Total Hours: 123**

1 See the Harbert College advising website for approved courses.

**Curriculum in Professional Flight Management - BS**

**Freshman**

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<td>AVMG 1010 Introduction to Aviation</td>
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<td>AVMF 2241 Instrument Flight Training I</td>
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<td>COMP 1000 Personal Computer Applications</td>
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**Sophomore**

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### Junior

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<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNGT 3100 Principles of Management</td>
<td>3</td>
<td>World History I or II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 1000 Foundations of Physics&lt;sup&gt;1&lt;/sup&gt;</td>
<td>4</td>
<td>MKTG 3310 Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BUAL 2650 Business Analytics II</td>
<td>3</td>
<td>FINC 3610 Principles of Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>AVMG 3050 Severe and Hazardous Weather Disruptions</td>
<td>3</td>
<td>AVMG 3140 Air Transport Industry Development</td>
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<tr>
<td>AVMF 4271 Multi-Engine Flight Training</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>17</td>
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<td>15</td>
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</table>

### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Literature II or Humanities Core Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 3080 Business Writing</td>
<td>3</td>
<td>MNGT 4800 Strategic Management</td>
<td>3</td>
</tr>
<tr>
<td>AVMG 4060 Commercial Aviation Safety</td>
<td>3</td>
<td>AVMG 4400 Applied Aerodynamics and Propulsion Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVMG 4190 Air Space Management</td>
<td>3</td>
<td>AVMG 5090 Aviation Law and Policy</td>
<td>3</td>
</tr>
<tr>
<td>AVMG 3200 Applied Analysis in Transportation</td>
<td>3</td>
<td>AVMG 4810</td>
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<tr>
<td></td>
<td></td>
<td>AVMG 5180 Global Air Transportation Management</td>
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<td>UNIV 4AA0 University Graduation</td>
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<td></td>
<td>15</td>
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</table>

Total Hours: 128

<sup>1</sup> PHYS 1500/PHYS 1510 or PHYS 1600/PHYS 1610 can substitute the SCMH 1010/PHYS 1000 requirement.

<sup>2</sup> Students must complete a sequence in either core history or literature.

**Completion of Information Technology Literacy Requirement.**

---

**Curriculum in Supply Chain Management**

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>World History I or II</td>
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<td>World History I or II or Social Science Core Elective</td>
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<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1680 Calculus with Business Applications I</td>
<td>4</td>
<td>Core Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 1010 Contemporary Issues in Business Administration I</td>
<td>1</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td></td>
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### Sophomore

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<tr>
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<tbody>
<tr>
<td>ACCT 2110 Principles of Financial Accounting</td>
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<td>3</td>
</tr>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
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<td>3</td>
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<tr>
<td>BUAL 2600 Business Analytics I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SCMN 3150 Ops: Mngt of Business Processes</td>
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<tr>
<td>BUSI 2010 Contemporary Issues in Business Administration II</td>
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**Total Hours: 15 15**

### Junior

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<th>Spring Hours</th>
<th>Summer Hours</th>
<th>Hours</th>
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<tr>
<td>SCMN 3710 Logs: Mngt of Fulfillment Proc</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>SCMN 3810 Professional Development in Supply Chain Management</td>
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<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MKTG 3310 Principles of Marketing</td>
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<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTCT 3250 Information Analysis</td>
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<tr>
<td>Elective</td>
<td>6</td>
<td>2</td>
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</tr>
</tbody>
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**Total Hours: 16 14 3**

### Senior

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SCMN 4700 Supply Chain Performance Management</td>
<td>3</td>
<td>3</td>
<td></td>
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<tr>
<td>SCMN 4730, 4780, 5710, or 5720 Elective</td>
<td>3</td>
<td>3</td>
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<tr>
<td>SCMN Elective</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BUSI 4010 Contemporary Issues in Business Administration IV - Senior/New Professional</td>
<td>1</td>
<td>6</td>
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</tr>
<tr>
<td>Elective</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**Total Hours: 14 15**

---

1. See the Harbert College advising website for approved courses.

## Information Assurance Minor

15 semester hours in minor
ISMN 5730  Security & Information Assurance  3
Elective Courses - See advisor for approved course listing. For Business majors only.  12
Total Hours  15

**Information Systems Management Minor**

15 semester hours in minor (3000-level or above)

Elective Courses - See advisor for approved course listing.  15

**Total Hours**  15

**Professional Flight Management Minor**

20 semester hours in minor

- AVMF 2230  Principles of Instrument Flight (Flight)  3
- AVMF 2241  Instrument Flight Training I  2
- AVMF 2250  Principles of Commercial Flight  3
- AVMF 2251  Instrument Flight Training II  2
- AVMF 2261  Commercial Pilot Flight Training I  2
- AVMF 2271  Commercial Pilot Flight Training II  2
- AVMF 4400  Applied Aerodynamics and Propulsion Systems  3
- AVMG 3050  Severe and Hazardous Weather Disruptions  3

**Total Hours**  20

**Supply Chain Management Minor**

15-17 semester hours in minor (3000-level or above)

- SCMN 3150  Ops: Mngt of Business Processes  2
- SCMN 3710  Logs: Mngt of Fulfillment Proc  3
- SCMN 3720  Trans: Mngt of Product Flows  3
- SCMN 3730  Purchasing: Supply Management and Searching  3

Choose two (6 hours) from the following elective courses:

- SCMN 4700  Supply Chain Performance Management  2
- SCMN 4780  Integ Logistics Strategy  2
- SCMN 4800  Supply Chain Stg:Global Persp  3
- SCMN 4970  Spec Tops in Supply Chain Mgmt  3
- SCMN 5710  Advanced Process Analysis  3
- SCMN 5720  Quality& Process Improvement  3

**Total Hours**  17

**College of Education**

**BETTY LOU WHITFORD**, Dean
**THERESA McCORMICK**, Associate Dean for Academic Affairs
**JENNY BARTON**, Assistant Dean for Administration
**RODNEY GREER**, Assistant Dean for Research

**THE COLLEGE OF EDUCATION** prepares competent, committed, and reflective professionals to help build a better future for individuals, our state, our nation, and our world. Educator preparation majors as well as health- and rehabilitation-related majors are offered in the Department of Curriculum and Teaching; Department of Educational Foundations, Leadership, and Technology; School of Kinesiology; and Department of Special Education, Rehabilitation, and Counseling.
Admission to the College

Eligibility criteria and admission procedures for freshmen and transfer students are outlined elsewhere in this Bulletin. On-campus students may request a transfer into the College of Education by contacting the Office of Student Services, 3464 Haley Center. Although currently enrolled students may transfer into any of the college’s undergraduate majors, students transferring into the elementary education pre-major need to be aware of GPA restrictions and other admission requirements for admission to the professional part of this programs. Please discuss progression and completion requirements with an academic advisor.

College of Education students are charged a fee for professional liability insurance.

Teacher Education Majors

The college’s teacher education majors are designed to ensure that program graduates have the knowledge, skills, and dispositions to help all students learn. These programs maintain selective admission, retention, and graduation requirements and are in compliance with the Alabama State Board of Education’s rules for teacher education.

Accreditation and Approvals

Auburn University’s College of Education is accredited by the National Council for Accreditation of Teacher Education (NCATE). All programs preparing teachers and other professional school personnel are approved by the Alabama State Board of Education (ALSDE). In addition, the state of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of AU’s graduates who have met all ALSDE certification requirements when they apply for certification in other states. If you plan to teach in a state other than Alabama, please contact that state's certification agency to ensure compliance with any additional state requirements.

Field Experiences

Students in teacher education programs participate in sequential learning opportunities in public school and community settings throughout their programs.

The pre-teaching experience is a prerequisite for admission to teacher education. This five-day experience is intended to provide the opportunity for students to observe the school as a total organization and increase their awareness of the teaching profession. The primary focus is observation and reflection.

Additional field experiences are conducted concurrently with enrollment in professional education courses. These experiences occur prior to clinical residency/internship and provide students with multiple opportunities to work with diverse learners in schools and communities.

Clinical residency/internship is the culminating field-based experience and spans a full semester. This experience immerses interns in the learning community and provides them with intensive and extensive opportunities to develop and demonstrate competence in the professional roles for which they are preparing.

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Admission to Teacher Education

The first transition point in teacher education programs is admission to teacher education. Criteria are noted below.

• Completion and submission of the Admission to Teacher Education Application
• Completion of 45 semester hours in the program
• Satisfactory completion or current enrollment in the orientation course
• For students admitted to teacher education July 1, 2017, and thereafter - Minimum 2.75 grade-point average on all college coursework attempted as well as all coursework attempted at Auburn, in professional studies, and in the teaching field
• Satisfactory performance in the pre-teaching experience
• A passing score on each of the Praxis Core Academic Skills for Educators (Reading, Writing, and Mathematics)
• Documentation of clear background check
• Satisfactory completion of a professional interview

Students who fail to meet these criteria upon initial application may submit new evidence in an effort to satisfy admission to teacher education requirements. Meeting the above criteria at a minimum level does not guarantee admission into teacher education. One
teacher education program, elementary education, has a restricted enrollment. For additional information about admission to this program, see Major with Restricted Enrollment.

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**Admission to Clinical Residency (Internship)**

The second transition point in teacher education programs is admission to clinical residency (internship). Criteria are noted below.

- Completion and submission of the Clinical Residency (Internship) Application one year in advance
- Admission to Teacher Education
- Satisfactory completion of all courses on the program checklist designated as prerequisites for clinical residency
- For students admitted to teacher education prior to July 1, 2017 - Minimum 2.50 grade-point average on all college coursework attempted as well as all coursework attempted at Auburn, in professional studies, and in the teaching field; for students admitted to teacher education July 1, 2017, and thereafter - Minimum 2.75 grade-point average on all college coursework attempted as well as all coursework attempted at Auburn, in professional studies, and in the teaching field
- No grade below a C in professional studies courses
- Passing score(s) on the appropriate Praxis II assessment(s)
- Demonstrated potential for teaching with departmental approval

Students who fail to meet these criteria may submit new evidence in an effort to satisfy admission to clinical residency/internship requirements.

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**Exit from Clinical Residency (Internship)**

- Satisfactory completion of all key assessments
- Satisfactory completion of teaching requirements (taught 20 full days, including 10 consecutive days)
- Satisfactory completion of attendance requirements (full-time, full semester)

**Graduation**

To be eligible for graduation, students must meet the following criteria.

- Registration for UNIV 4AA0 ED1 (graduation check)
- Completion of all courses on the program checklist (Note: Approvals of Course Substitution Request’s must be on file in the Office of Student Services, 3464 Haley.)
- For students admitted to teacher education prior to July 1, 2017 - Minimum 2.50 grade-point average on all college coursework attempted as well as all coursework attempted at Auburn, in professional studies, and in the teaching field; for students admitted to teacher education July 1, 2017, and thereafter - Minimum 2.75 grade-point average on all college coursework attempted as well as all coursework attempted at Auburn, in professional studies, and in the teaching field
- No grade below a C in professional studies courses
- Satisfactory grade in clinical residency/internship including completion of all requirements

**Certification**

The associate dean for academic affairs has been designated as the teacher certification officer for Auburn University. Applying for certification with the Alabama State Department of Education is a separate process from applying for graduation. It is critical that teacher education students meet with their academic advisor in the Office of Student Services (Haley 3464) routinely to ensure they meet the most current ALSDE requirements for certification. To obtain certification in the state of Alabama, program graduates must submit a completed certification application with required processing fee to Office of Student Services in order to begin the process of certification with the ALSDE. Instructions for completing the certification packet are provided to the student by mid-semester of their clinical residency via AU email. Program graduates who delay obtaining Alabama certification may be subject to changes made in teacher certification requirements between the time of graduation and the time of the certification request. Students seeking certification in other states should contact those state certification offices to obtain their application forms and requirements.
The following table shows undergraduate teacher education programs by department and by grade levels of certification. Music Education (P-12) and secondary education programs in English language arts, foreign language, mathematics, science, and social science meet the university requirements for a second major in the teaching field.

<table>
<thead>
<tr>
<th>Department and Program</th>
<th>Grade Levels</th>
<th>P-3</th>
<th>K-6</th>
<th>6-12</th>
<th>P-12</th>
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<td>Department of Curriculum and Teaching</td>
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<tr>
<td>Agriscience Education</td>
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<tr>
<td>Business and Marketing Education</td>
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<tr>
<td>Chemistry Education</td>
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<tr>
<td>Early Childhood Education</td>
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<td>Elementary Education</td>
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<td>English Language Arts Education/English</td>
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<td>French Education</td>
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<td>German Education</td>
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<td>Mathematics Education</td>
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<td>Music Education, Instrumental and Vocal</td>
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<td>Physics Education</td>
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<td>Spanish Education</td>
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<td>Physical Education/Teacher Education</td>
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<td>Department of Special Education, Rehabilitation, and Counseling</td>
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<td>Early Childhood/Elementary Special Education, P-6</td>
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</table>

Assurance of Competence

The College of Education guarantees the success of graduates who receive initial professional certification through the college and who are employed within their area(s) of specialization. The college will provide remediation at no cost to an individual who was
recommended for certification by the College of Education and whose job performance within two years after program completion is deemed unsatisfactory by a local education agency based on performance evaluations established by the Alabama State Board of Education.

Health- and Rehabilitation-related Majors

Exercise science and physical activity and health (including an option in fitness, conditioning and performance) are offered in the School of Kinesiology. Rehabilitation and disability studies is offered in the Department of Special Education, Rehabilitation, and Counseling.

Major with Restricted Enrollment

Due to high demand, the elementary education major has a restricted enrollment. A total of 75 elementary education applicants are admitted each year with admission decisions occurring in fall and spring. Applications are considered only if students have met all criteria noted in the Admission to Teacher Education section above. Fall semester 25 applicants are accepted and begin a cohort sequence the following spring semester; spring semester 50 applicants are accepted and begin a cohort sequence the following fall semester. Rankings for elementary education applicants are determined by the AU Core GPA and a professional interview which includes a review of a resume, a writing sample, and a face-to-face interview.

Dual Objective Program

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Non-degree Program

The Physical Activity and Wellness Program is a non-degree program that requires 8 hours (4 courses), including KINE 1100/KINE 1103, Wellness, and 3 courses (each one from a different category of physical activity). Categories include cardio-respiratory fitness (PHED 1200), fitness and conditioning (PHED 1300), team sports (PHED 1400), individual sports (PHED 1500), performance activities (PHED 1600), and aquatic skills (PHED 1700). Students who complete the 8-hour program may apply for a Physical Activity and Wellness Certificate, issued by the School of Kinesiology. Students may also elect to take individual courses, without completing the 8-hour program. Of course, students may elect to take more than four courses if they desire to use the program to ensure a regular physical activity program.

Learning Resources Center

The Learning Resources Center (LRC), located in 3408/3410 Haley Center, is a service unit for the College of Education. The LRC provides instructional technology services which include video recordings, computer software, audio recordings, kits, books, and periodicals for the education profession. Two computer classrooms, a Micro-Center, and the college computer network are managed by the LRC. LRC personnel assist faculty and students with the production, selection, and utilization of newer instructional and informational technologies. Online education technologies and support services are provided. Art design and digital document production services are available to College of Education faculty and staff.

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Minors

- Adult Education: Training and Workforce Development (p. 480)
- Community Music (p. 449)
- Counseling (p. 510)
- Office Systems Management (p. 469)
- Sport Coaching (p. 496)

Graduate Programs

The College of Education offers graduate programs that prepare professionals in the fields of education, kinesiology, counseling, and rehabilitation. Offerings include M.Ed., M.S., Ed.S., and Ph.D. degree programs, graduate minors, and graduate certificates. Alternative master’s certification degree programs offer qualified individuals who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a master’s degree.
Departments

• Curriculum and Teaching - MEd, MS, EdS, PhD (p. 1371)
• Educational Foundations, Leadership and Technology - MEd, MS, EdS, PhD (p. 1419)
• Kinesiology - MEd, MS, EdS, PhD (p. 1473)
• Special Education, Rehabilitation, & Counseling - MEd, MS, PhD (p. 1525)

Curriculum and Teaching - MEd, MS, EdS, PhD

Degree Programs

• Agriscience Education (p. 1374)
• Business and Marketing Education (p. 1376)
• Career and Technical Education (p. 1379)
• Early Childhood Education (p. 1380)
• Elementary Education (p. 1382)
• English for Speakers of Other Languages (p. 1387)
• English Language Arts Education (p. 1384)
• Foreign Language Education: French or Spanish (p. 1388)
• Mathematics Education (p. 1392)
• Music Education: Instrumental or Vocal (p. 1395)
• Reading Education (p. 1398)
• Science Education: General Science, Biology, Chemistry, or Physics (p. 1400)
• Social Science Education: General Social Science or History (p. 1409)

Graduate Certificates

• Adult Education and English Language Teaching (p. 1428)
• Community Music (p. 1414)
• Reading Instruction (p. 1400)
• Teaching English as a Second Language (TESL)/Teaching English as a Foreign Language (TEFL) (p. 1414)

Educational Foundations, Leadership and Technology - MEd, MS, EdS, PhD

Degree Programs

• Administration of Elementary and Secondary Education (p. 1420)
• Administration of Higher Education (p. 1422)
• Administration of Supervision and Curriculum (p. 1422)
• Adult Education (p. 1423)
• Agricultural Leadership (p. 1424)
• Educational Psychology (p. 1424)
• Library Media (p. 1426)

Graduate Certificates

• Adult Education (p. 1423)
• Adult Education and English Language Teaching (p. 1428)
• College/University Teaching (p. 1428)
• Educational Leadership (p. 1429)
• Extension Educator (p. 1429)
• Instructional Leadership (p. 1426)
• Instructional Technology for Distance Education (p. 1429)
• Program Evaluation (p. 1430)
• Technology Educator (p. 1430)

Minor
• Sport Management (p. 1430)

Kinesiology - MS, PhD

Degree Programs
• Exercise Science (p. 1475)
• Physical Activity and Health (p. 1475)
• Physical Education/Teacher Education (p. 1475)
• Kinesiology (p. 1477)

Graduate Certificate
• Movement Skill Analysis (p. 1477)

Graduate Minor
• Sport Management (p. 1430)

Special Education, Rehabilitation, and Counseling - MEd, MS, EdS, PhD

Degree Programs
• Clinical Mental Health Counseling (p. 509)
• Clinical Rehabilitation Counseling (p. 1526)
• Counselor Education (p. 512)
• Counseling Psychology (p. 510)
• Collaborative Teacher Special Education, K-12 (p. 1526)
• Early Childhood/Elementary Special Education, P-6 (p. 1528)
• Rehabilitation and Special Education (p. 1531)
• School Counseling (p. 516)

Graduate Certificates
• Transition Specialist (p. 1531)
• Intervention for Students with Autism and Developmental Disabilities (p. 1530)
• Rehabilitation Leadership and Management (p. 1531)

Adult Education Courses

ADED 4010/4013 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3. Departmental approval. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 4050/4053 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 4600/4603 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning.

ADED 4610 DIRECTED WORK EXPERIENCE (3) LEC. 3. SU. Departmental approval. In-service, supervised work experience individually designated for part-time or summer work experience.
ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Departmental approval. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources.

ADED 4650/4653 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Departmental approval. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.


ADED 4900 INDEPENDENT STUDY (1-6) IND. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 4910/4913 PRACTICUM (1-6) PRA. SU. Departmental Approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9) INT. 9. SU. Departmental approval. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Or Minor.

ADED 4970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or special topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 7010/7016 LEARNING RESOURCES (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. May count either ADED 7010 or ADED 7016.

ADED 7050/7056 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 3. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education. May count either ADED 7050 or ADED 7056.

ADED 7060/7066 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3. Introduction to principles and practices involved in designing education programs in the area of specialization. May count either ADED 7060 or ADED 7066.

ADED 7600/7606 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning. May count either ADED 7600 or ADED 7606.

ADED 7620/7626 CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. May count either ADED 7620 or ADED 7626.

ADED 7640/7646 WORKFORCE EDUCATION (3) LEC. 3. Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues. May count either ADED 7640 or ADED 7646.

ADED 7650/7656 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities. May count either ADED 7650 or ADED 7656.

ADED 7670/7676 ADULT EDUCATION IN COOPERATIVE EXTENSION (3) LEC. 3. Exploration of the unique relationship between adult education and the Cooperative Extension System. May count either ADED 7670 or ADED 7676.

ADED 7680/7686 LEARNING STYLES IN ADULT EDUCATION (3) LEC. 3. This course is designed to provide students with an understanding of the various learning styles perspectives in Adult Education. May count either ADED 7680 or ADED 7686.

ADED 7690/7696 MEETING DIVERSE NEEDS IN ADULT EDUCATION SETTINGS (3) LEC. 3. This course provides an innovative look at disability services in post-secondary institutions. Learners will study the history of disability services, legislation, campus accessibility, assessment of the accessibility of adult education settings and other topics of interest.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.
ADED 7910/7916 PRACTICUM (1-3) PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours.

ADED 7920/7926 INTERNSHIP (1-10) INT. SU. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. May count either ADED 7920 or ADED 7926. Course may be repeated for a maximum of 10 credit hours.

ADED 7950 SEMINAR (1-3) SEM. SU. Presentation of research projects, analysis of procedures, and findings. Course may be repeated for a maximum of 3 credit hours.

ADED 7960 READINGS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

ADED 7970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

ADED 7990/7996 RESEARCH AND THESIS (1-10) MST. Departmental approval. Individualized support and direction for students writing their thesis. Course may be repeated with change in topics.

ADED 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 8910 PRACTICUM (1-6) PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college, or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

ADED 8950 SEMINAR (1-6) SEM. SU. Presentation by graduate students of research projects and/or analysis of procedures and findings. Course may be repeated for a maximum of 6 credit hours.

ADED 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research writings. Course may be repeated for a maximum of 6 credit hours.

ADED 8970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or advanced topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 8980/8986 FIELD PROJECT (1-10) FLD. SU. Field project formulated, planned, conducted, evaluated, and reported in appropriate written form and oral formats under the direction of the student's major professor. Course may be repeated for a maximum of 10 credit hours.

ADED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours

Career and Technical Courses

CTCT 1200 KEYBOARDING AND FORMATTING (3) LEC. 1. LAB. 4. Mastery of alphanumeric keyboard with basic keyboarding and formatting applications of business documents. (Students with previous keyboarding/typewriting instruction consult with Business/Marketing Education faculty for placement.)

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2. LAB. 3. Repair and maintenance of small air-cooled engines and power equipment in Agriculture. May count either CTCT 2100 or CTCT 3100.

CTCT 2200/2203 COMPUTER LITERACY IN BUSINESS EDUCATION (3) LEC. 1. LAB. 4. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. Includes basic computer literacy skills. May count either CTCT 2200 or CTCT 2203.

CTCT 3000/3003 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3. Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings. Departmental approval. May count either CTCT 3000 or CTCT 3003.
CTCT 3200/3203 RECORDS MANAGEMENT (2) LEC. 2. Integrated records management systems, records management functions, classification systems, micrographics, electronic records, and records management careers. Departmental approval. May count either CTCT 3200 or CTCT 3203.

CTCT 3240/3243 INFORMATION PROCESSING I (3) LEC. 2. LAB. 2. Pr. CTCT 2200 or CTCT 2203 or (CTSE 2200 or CTSE 2203 or CTSE 2207). Exploration of organizational needs for text-based information processing. Functions and capabilities of text-based information processing components. Departmental approval. May count either CTCT 3240 or CTCT 3243.

CTCT 3250/3253 INFORMATION ANALYSIS (3) LEC. 2. LAB. 2. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. May count either CTCT 3250 or CTCT 3253.

CTCT 4000/4003 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2. Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs. May count either CTCT 4000 or CTCT 4003.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3. Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.


CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.

CTCT 4200/4203 MANAGING OFFICE SYSTEMS (3) LEC. 2. LAB. 2. Pr. CTCT 3250 or CTCT 3253. Capstone course with emphasis on integration of information processing procedures, administrative support, and management functions. Departmental approval. May count either CTCT 4200 or CTCT 4203.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. The student's learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920/4923 CLINICAL RESIDENCY (12) AAB. 40. SU. Admission to Teacher Education. Admission to Clinical Residency. Supervised clinical residency experiences abroad in a school or other appropriate setting. Evaluation and analysis of the clinical residency experience. May count either CTCT 4920 or CTCT 4923.

CTCT 4940/4943 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) FLD. SU. Supervised occupational work experience in an approved specialization-related occupation. Departmental approval. May count either CTCT 4940 or CTCT 4943. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050/5053 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 5060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Admission to Teacher Education. Introduction to principles and practices involved in designing education programs in the area of specialization. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 5080/5083 PRINCIPLES OF COORDINATION (3) LEC. 3. Admission to Teacher Education. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.
CTCT 5200/5203 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, systems, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 6200 or CTCT 6200/CTCT 6206.

CTCT 5240/5243 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 5240/CTCT 5243 or CTCT 6240/CTCT 6246.

CTCT 5250/5253 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May Count Either CTCT 3250/CTCT 3253 or CTCT 5250/CTCT 5253 CTCT 6250/CTCT 6256.

CTCT 5260/5263 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/CTCT 6266.

CTCT 5940/5943 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience in a Commerce and Information Technology environment. May count either CTCT 4940/CTCT 4943 or CTCT 5940/CTCT 5943 or CTCT 6940/CTCT 6946.

CTCT 6050/6056 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Admission to alternative master's program. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 6060/6066 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Introduction to principles and practices involved in designing educational programs in the area of specialization. Admission to alternative master's program. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 6080/6086 PRINCIPLES OF COORDINATION (3) LEC. 3. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 6200/6206 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 5203 or CTCT 6200/CTCT 6206.

CTCT 6240/6246 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 6240/CTCT 62406 or CTCT 5240/5243.

CTCT 6250/6256 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May count either CTCT 6250/CTCT 6256 or CTCT 5250/5253.

CTCT 6260/6266 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/6266.

CTCT 6940/6946 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience and software application in a Commerce and Information Technology environment. May count either CTCT 6940/CTCT 6946 or CTCT 5940/5943.

CTCT 7000/7006 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs. May count either CTCT 7000 or CTCT 7006.

CTCT 7010/7016 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3. Developing, managing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Departmental approval. May count either CTCT 7010 or CTCT 7016.

CTCT 7100/7106 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2. LAB. 2. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment. May count either CTCT 7100 or CTCT 7106.
CTCT 7120/7126 COURSES OF STUDY IN AGRISCIENCE EDUCATION (3) LEC. 3. Pr. CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education. Departmental approval. May count either CTCT 7120 or CTCT 7126.

CTCT 7200/7206 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3. Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students. Departmental approval. May count either CTCT 7200 or CTCT 7206.

CTCT 7240/7246 ADMINISTRATIVE MANAGEMENT (3) LEC. 3. Pr. CTCT 4200 or CTCT 4203. Management of office systems, information and personnel. Managing and controlling administrative services. Departmental approval. May count either CTCT 7240 or CTCT 7246.

CTCT 7300/7306 INTEGRATING TECHNOLOGY IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Pr. CTCT 5050 or CTCT 6050 or CTCT 5053 or CTCT 6056. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. Departmental approval. May count either CTCT 7300 or CTCT 7306.

CTCT 7710/7716 ADVANCED TEACHING METHODS (3) LEC. 3. Pr. (CTCT 5050 or CTCT 5053) or (CTCT 6050 or CTCT 6056). Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching. Departmental approval. May count either CTCT 7710 or CTCT 7716.

CTCT 7720/7726 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Pr. CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066. Issues affecting the development and management of educational programs; strategies for improving educational programs. Departmental approval. May count either CTCT 7720 or CTCT 7726.

CTCT 7730/7736 PROGRAM EVALUATION (3) LEC. 3. Pr. (CTCT 7720 or CTCT 7726). Principles and procedures used in evaluating academic-related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations. Departmental approval. May count either CTCT 7730 or CTCT 7736.

CTCT 7750/7756 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) LEC. 2. LAB. 2. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs. Departmental approval. May count either CTCT 7750 or CTCT 7756.

CTCT 7760/7766 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LEC. 2. LAB. 2. Pr. (CTCT 7750 or CTCT 7756). Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data. Departmental approval. May count either CTCT 7760 or CTCT 7766.

CTCT 7770/7776 CLINICAL SUPERVISION (3) LEC. 3. Pr. (CTCT 7710 or CTCT 7716). Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers. Departmental approval. May count either CTCT 7770 or CTCT 7776.

CTCT 7780/7786 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education. Departmental approval. May count either CTCT 7780 or CTCT 7786.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1. SU. Departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours.

CTCT 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-3) PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours.

CTCT 7920/7926 CLINICAL RESIDENCY (9-12) AAB/INT. 40. SU. Admission to Clinical Residency. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Departmental approval. May count either CTCT 7920 or CTCT 7926. Course may be repeated for a maximum of 12 credit hours.

CTCT 7950/7956 SEMINAR IN AREA OF SPECIALIZATION (1-3) SEM. SU. Departmental approval. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.
CTCT 7960/7966 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970/7976 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730/8736 CURRICULUM DEVELOPMENT IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Pr. CTCT 7730 or CTCT 7736. Principles of career and technical education curriculum planning, identification of educational needs of students, selecting technical content, and evaluating materials. May count either CTCT 8730 or CTCT 8736.

CTCT 8770/8776 SUPERVISION OF INSTRUCTION (3) LEC. 3. Pr. CTCT 7770 or CTCT 7776. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel. Departmental approval. May count either CTCT 8870 or CTCT 8876.

CTCT 8800/8806 TEACHER EDUCATION (3) LEC. 3. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs. Departmental approval. May count either CTCT 8800 or CTCT 8806.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours.

CTCT 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

CTCT 8950 SEMINAR IN AREA OF SPECIALIZATION (1-6) SEM. Departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980/8986 FIELD PROJECT (1-10) FLD. 1. SU. Departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Counselor Ed, Counseling Psych Courses

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1. LAB. 2. The process of career decision-making through hands-on activities, in-class exercises, and job shadowing.

COUN 2000 LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. 3. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2020 INTRODUCTION TO LGBTQ STUDIES (3) LEC. 3. The class focuses on content addressing and introduces lesbian, gay, bisexual, and transgender studies. The course will examine the historical, scientific, psychological, and cultural contexts of relationships, issues and trends in a diverse society related to sexual orientation.

COUN 2900 DIRECTED STUDIES (1-3) IND. SU. Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3) FLD. Course may be repeated for a maximum of 9 credit hours.
COUN 2950 THRIVING THROUGH TRANSITIONS (1) SEM. 1. This course requires participation in activities that support healthy living and assignments that facilitate understanding of mechanisms that promote well-being. Course content reviews the process of recovery from addiction and mechanisms used to support long-term recovery. Course may be repeated for a maximum of 12 credit hours.

COUN 2970/2973 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3) LEC. Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.

COUN 3000/3003 CAREER SUCCESS (2) LEC. 2. Developing a career plan via instruction on researching careers, writing resumes, developing portfolios, interviewing, net working and other career development practices. May count either COUN 3000 or COUN 3003.

COUN 3100 COUNSELING AND HUMAN SERVICES (3) LEC. 3. Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.

COUN 3980 SUPERVISED RESEARCH EXPERIENCE IN COUNSELING (3) LAB. 3. SU. This course provides students with the opportunity to gain supervised research experience in counselor education, counseling psychology, and special education programs. Students will work with the faculty instructor to gain experience in a range of research activities. Course may be repeated for a maximum of 12 credit hours.

COUN 4000 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY (3) LEC. 3. Pr. COUN 2000. Current theory, research, and practice regarding counseling and psychotherapy. We will cover several current issues related relevant to counseling and psychotherapy, including the process of change, theoretical perspectives, ethical issues.

COUN 4010 INTRODUCTION TO PREVENTION AND MENTAL HEALTH PROMOTION (3) LEC. 3. Pr. COUN 2000. Addressing the ideas of prevention and health promotion in counseling psychology. We will address such concepts as positive psychology, mindfulness, stress, health promotion, body image, social justice theory, social advocacy, and prevention theory.

COUN 4910 PRACTICUM (1-3) PRA. SU. This course provides students with the opportunity to be actively involved in social justice efforts that affect the region and nation through gaining hands-on experience in a social justice agency. Course may be repeated for a maximum of 6 credit hours.

COUN 4970 SPECIAL TOPICS IN COUNSELING (3) LAB. 3. Introduction to selected topic in counseling. Course will provide a semester-long introduction and introduction into research in the topic of interest using a seminar style of instruction. Course may be repeated for a maximum of 9 credit hours.

COUN 7100 INTRODUCTION TO SCHOOL PSYCHOLOGY (3) LEC. 3. Orientation to profession of school psychology; history of the profession, professional roles, ethical and legal standards, and current issues.

COUN 7200 INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3) LEC. 3. Pr. COUN 7100 or (COUN 7400 or COUN 7406) or COUN 8530. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.


COUN 7230 CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3) LEC. 3. Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.

COUN 7240/7246 COUNSELING CHILDREN AND ADOLESCENTS (3) LEC. 3. Course provides awareness, knowledge, and skills for counseling children and adolescents using effective theoretical approaches, counseling modalities, and specific techniques. May count either COUN 7240 or COUN 7246.

COUN 7250/7256 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3. Pr. COUN 7100 or (COUN 7400 or COUN 7406) or COUN 8530. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions. May count either COUN 7250 or COUN 7256.

COUN 7310/7316 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3. Theories and current research in development across the lifespan with emphasis on applications to counseling. May count either COUN 7310 or COUN 7316.

COUN 7320/7326 COUNSELING THEORIES (3) LEC. 3. Study of major counseling theories. May count either COUN 7320 or COUN 7326.
COUN 7330/7336 COUNSELING DIVERSE POPULATIONS (3) LEC. 3. Departmental approval. Special counseling and advocacy issues. Needs of diverse populations are considered.

COUN 7340 GROUP COUNSELING (3) LEC. 3. Leading, developing, evaluating a counseling group; including group proposal, session development, group dynamics, group leadership and evaluation, treatment planning; group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3. Pr. (COUN 7320 or COUN 7326) or (COUN 7400 or COUN 7406) or COUN 8530. Methods, interventions, and skills essential to counseling.

COUN 7360 ADVANCED COUNSELING PRACTICE (3) LEC. 3. An intensive study of advanced counseling skills with supervised experience. Class format will include lecture, group discussion, role play, case and videotaped counseling practice analysis, observational analysis and evaluation of counseling techniques.

COUN 7400/7406 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3. Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice.

COUN 7410 ORIENTATION TO CLINICAL MENTAL HEALTH COUNSELING (3) LEC. 3. Orientation to clinical mental health counseling to include roles, responsibilities, systems, theories, professional issues, and history.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3. Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program.

COUN 7430 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Theory and practice of counseling and student services in higher education.

COUN 7500/7506 CRISIS INTERVENTION IN COUNSELING (3) LEC. 3. Development of skills and knowledge for crisis intervention and management in counseling, including prevention planning, intervention strategies and evaluation.

COUN 7510 ADVANCED CLINICAL MENTAL HEALTH COUNSELING INTERVENTIONS (3) LEC. 3. Pr. COUN 7320 or COUN 7326. Advanced counseling interventions, practices, techniques and methods for mental health counselors, including treatment planning, counseling processes, and evaluation.

COUN 7810 COUNSELING CONSULTATION THEORY AND PRACTICE (3) LEC. 3. Counseling consultation theories, models, practices, legal and ethical standards, and interdisciplinary approaches in school and clinical mental health settings.

COUN 7820 PSYCHOEDUCATIONAL INTERVENTIONS: ACADEMIC (3) LEC. 3. Pr. COUN 7100 and COUN 7220. Intervention approaches designed to address children's academic success across all content areas including: reading, mathematics, written language and other academic enablers.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3. SU. Departmental approval. Supervised experiences appropriate to student's program emphasis area. Course may be repeated for a maximum of 9 credit hours.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr. COUN 7910. Departmental approval. Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours.

COUN 7940 DIRECTED FIELD EXPERIENCE (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. SU. May be taken more than one semester. Course may be repeated for a maximum of 10 credit hours.

COUN 7970 SPECIAL TOPICS (1-3) AAB. An in-depth study of a current topic(s) impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

COUN 8100 PERSONALITY AND INDIVIDUAL DIFFERENCES (3) LEC. 3. Origins and structure of individual differences in personality and intelligence, and their application to counseling.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>LEC.</th>
<th>Coreq.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUN 8110</td>
<td>COUNSELING ASSESSMENT ACROSS THE LIFESPAN (3)</td>
<td></td>
<td></td>
<td></td>
<td>Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, and attitude tests across the lifespan.</td>
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<tr>
<td>COUN 8120</td>
<td>APPRAISAL IN COUNSELING AND PSYCHOLOGY (3)</td>
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<td></td>
<td>Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.</td>
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<tr>
<td>COUN 8200</td>
<td>INTELLECTUAL ASSESSMENT OF ADULTS (3)</td>
<td></td>
<td></td>
<td></td>
<td>Theory and measurement of adult intelligence. Administration and interpretation of selected tests.</td>
</tr>
<tr>
<td>COUN 8210</td>
<td>TEST ADMINISTRATION AND PROFESSIONAL PRACTICE (3)</td>
<td></td>
<td></td>
<td></td>
<td>Pr. COUN 7200 or ERMA 8350 or FOUN 8350 and COUN 7210. Coreq. COUN 8200. Administration and scoring of selected tests, primarily WAIS-IV, to familiarize students with measurements for assessment of adult intelligence.</td>
</tr>
<tr>
<td>COUN 8220</td>
<td>PSYCHOLOGICAL SCIENCE AND HEALTH (3)</td>
<td></td>
<td></td>
<td></td>
<td>Pr. PSYC 7150 and PSYC 7180 and COUN 7330 and COUN 7310. In this course, fundamental science relating to health and psychology will be reviewed, focusing on major theoretical foundations, research findings, and empirically supported interventions. Students will be expected to integrate foundational knowledge in psychological science with particular emphasis on biological.</td>
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<tr>
<td>COUN 8230</td>
<td>COLLOQUIUM IN COUNSELING PSYCHOLOGY I (2)</td>
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<td>This course provides pre-practicum students with training in the conduct of counseling psychology research to provide foundational skills in processes involved in research.</td>
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<tr>
<td>COUN 8240</td>
<td>COLLOQUIUM IN COUNSELING PSYCHOLOGY II (2)</td>
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<td></td>
<td>This course provides continued training in the conduct of counseling psychology research and provides opportunities to demonstrate an ability to evaluate psychotherapy research in order to achieve readiness for practicum in research skills.</td>
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<tr>
<td>COUN 8250</td>
<td>COLLOQUIUM IN COUNSELING PSYCHOLOGY III (2)</td>
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<td></td>
<td>Pr. COUN 8240. This course provides advanced training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to contribute to meaningful scholarship in Counseling Psychology.</td>
</tr>
<tr>
<td>COUN 8260</td>
<td>COLLOQUIUM IN COUNSELING PSYCHOLOGY IV (2)</td>
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<td></td>
<td>Pr. COUN 8250. This course provides advanced training in the development, conduct, and dissemination of social justice-oriented research and provides opportunities to demonstrate an ability to integrate concepts of equity and justice in the contribution to meaningful scholarship in Counseling Psychology.</td>
</tr>
<tr>
<td>COUN 8400</td>
<td>PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3)</td>
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<td>Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.</td>
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<tr>
<td>COUN 8510</td>
<td>CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3)</td>
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<td>Departmental approval. History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives.</td>
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<tr>
<td>COUN 8520</td>
<td>CONTEMPORARY ISSUES IN SCHOOL PSYCHOLOGY (1-3)</td>
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<td></td>
<td>History, development, and current issues. Legal and ethical considerations, research and service initiatives, and new client populations. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>COUN 8530</td>
<td>CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3)</td>
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<td></td>
<td></td>
<td>History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.</td>
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<tr>
<td>COUN 8540</td>
<td>COUN SUPERVISION-THEORY &amp; PRAC (3)</td>
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<td>Advanced theories, skills, models and methods used in counseling supervision including counselor development, supervisory processes and evaluation.</td>
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<tr>
<td>COUN 8550/8556</td>
<td>COUNSELOR EDUCATION PEDAGOGY (3)</td>
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<td></td>
<td>Counselor Education pedagogical skills and knowledge including; theories, course and curriculum development methods, and professional responsibilities. May count either COUN 8550 or COUN 8556.</td>
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<tr>
<td>COUN 8610</td>
<td>ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3)</td>
<td></td>
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<td>Theory and practice of humanistic/existential approaches to individual and group therapy.</td>
</tr>
<tr>
<td>COUN 8620</td>
<td>ADVANCED THEORIES: COGNITIVE/BEHAVIORAL THEORIES (3)</td>
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<td></td>
<td>Current cognitive/behavioral models for understanding human problems and behavior change.</td>
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</tbody>
</table>
COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3. Departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8700 DIVERSITY AND SOCIAL JUSTICE IN COUNSELOR EDUCATION (3) LEC. 3. Must be admitted to the Counselor Education Doctoral Program. This advanced course provides students with information about issues of diversity and social justice. Students apply this information to their roles in the counseling profession, specifically as future counselor educators, leaders of the profession, and advocates.

COUN 8800 PROFESSIONAL DEVELOPMENT INTERNSHIP SKILLS (3) LEC. 3. This three-hour required course is designed to help students solidify their professional identity and effectively apply for their one-year Counseling Psychology internship.

COUN 8910 PRACTICUM (3) LEC. 3. SU. Departmental approval. Advanced supervised experiences appropriate to student's program emphasis. Course may be repeated for a maximum of 9 credit hours.

COUN 8920 INTERNSHIP (1-9) INT. SU. Departmental approval. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8930 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Departmental approval. Supervised, full-time experience in Counseling Psychology at the doctoral level. May be repeated to satisfy 2000 clock hour accreditation requirement.

COUN 8970 SPECIAL TOPICS (1-3) SEM. SU. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8980 FIELD PROJECT (1-10) FLD. SU. Departmental approval. Required for completion of the Education Specialist degree. Course may be repeated for a maximum of 10 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Early Childhood Education Courses

CTEC 3020 PRIMARY MATH AND SCIENCE (3) LEC. 3. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in Kindergarten through Grade 3.

CTEC 3030 INTUITIVE THOUGHT AND SYMBOLIC FUNCTION (3) LEC. 3. Coreq. CTEC 4911. Young children's intuitive thought for pre-service teachers.

CTEC 3150 LANGUAGE DEVELOPMENT: IMPLICATIONS FOR THE CHILDHOOD EDUCATOR (3) LEC. 3. Applications of language development theories to teaching children. Emphasis on the effects theories have on curriculum and teaching.

CTEC 3200 A WORKING THEORY FOR THE CONSTRUCTIVIST EDUCATOR (3) LEC. 3. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.


CTEC 4210/4213 THE CONSTRUCTIVIST TEACHER: GROWING PROFESSIONALLY (1) AAB. 1. Pr. P/C CTEC 4920 or P/C CTEC 4923. Admission to Clinical Residency. The roles and responsibilities of being an early childhood professional. May count either CTEC 4210 or CTEC 4213.

CTEC 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (2) LEC. 2. SU. Pr. CTEC 3200. Coreq. CTEC 3030. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (2) LEC. 2. SU. Pr. CTEC 3200. Coreq. CTEC 4200. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice. Course may be repeated for a maximum of 20 credit hours.
CTEC 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTEC 4210 or P/C CTEC 4213. Admission to Clinical Residency. Experience in a setting serving pre-primary or primary-school children with varying abilities. Admission to internship. May count either CTEC 4920 or CTEC 4923.

CTEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Individual readings program. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

CTEC 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEC 7200/7206 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3) LEC. 3. Historical overview of current issues, trends, and programs in early childhood education. May count either CTEC 7200 or CTEC 7206.

CTEC 7210/7216 ORIGINS OF THOUGHT (3) LEC. 3. Piaget's theories of how thought develops in young children. Comparison of the social and biological roots of thought. May not count either CTEC 7210 or CTEC 7216.

CTEC 7260/7266 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3. Examination of children's play from a constructivist theoretical perspective and translation of theory into early childhood educational practice. May count either CTEC 7260 or CTEC 7266.

CTEC 7270/7276 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. May count either CTEC 7270 or CTEC 7276. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510/7516 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. How to read, review, analyze and interpret significant research studies in early childhood education. May count either CTEC 7510 or CTEC 7516.

CTEC 7520/7526 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned. May count either CTEC 7520 or CTEC 7526.

CTEC 7530/7536 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Organization, administration, and supervision of early childhood programs. May count either CTEC 7530 or CTEC 7536.

CTEC 7540/7546 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Assessment and evaluation of all program components from a constructivist perspective. May count either CTEC 7540 or CTEC 7546.

CTEC 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning objectives related to the student's area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEC 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Departmental approval. May count either CTEC 7910 or CTEC 7916. Course may be repeated for a maximum of 6 credit hours.

CTEC 7970 SPECIAL TOPICS (3-9) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTEC 8240/8246 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. May count either CTEC 8240 or CTEC 8246.

CTEC 8270/8276 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Master's Degree. May count either CTEC 8270 or CTEC 8276. Course may be repeated for a maximum of 6 credit hours.

CTEC 8720/8726 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3. Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Master's Degree. May count either CTEC 8720 or CTEC 8726.

CTEC 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3. Analysis and interpretation of the design of constructivist investigation. Master's Degree.
CTEC 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEC 8970 SPECIAL TOPICS (3-9) LEC. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 8980/8986 FIELD PROJECT (1-3) FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May not count either CTEC 8980 or CTEC 8986. Course may be repeated for a maximum of 3 credit hours.

CTEC 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Ed Resrch, Methods, Analysis Courses

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3. Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.

ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3. Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200/7206 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3. Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models. May count either ERMA 7200 or ERMA 7206.

ERMA 7210/7216 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3. Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7210 or ERMA 7216 or FOUN 7210 or FOUN 7216). Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one's findings.

ERMA 7300/7306 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research. Departmental approval. May count either ERMA 7300 or ERMA 7306.

ERMA 7310/7316 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306). Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, and logistic regression, as they are utilized in educational research. Departmental approval. May count either ERMA 7310 or ERMA 7316.

ERMA 7320/7326 APPLIED QUANTITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206) and (ERMA 7300 or ERMA 7306) or (FOUN 7300 or FOUN 7306). The study and application of detailed strategies of research study designs, data collection, analysis, and reporting of quantitative data. May count either ERMA 7320 or ERMA 7326. Course may be repeated for a maximum of 6 credit hours.

ERMA 7400 MIXED METHODS RESEARCH (3) LEC. 3. Pr. ERMA 7200 or ERMA 7206 or ERMA 7210 or ERMA 7216 or ERMA 7300 or ERMA 7306. Overview and introduction to the use of mixed methods research in the social and behavioral sciences.

ERMA 7410 RESEARCH METHODS FOR SOCIAL JUSTICE AND EQUITY (3) LEC. 3. Pr. ERMA 7300 or ERMA 7306 or ERMA 7210 or ERMA 7216 or ERMA 7400. This course focuses on critical educational research in the scholar-activist model. Through engaging with critical theoretical frameworks, critical empirical research, and research methods, this course prepares students to produce research and scholarship for social justice and equity in education.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

ERMA 7970/7976 SPECIAL TOPICS IN EDUCATION RESEARCH METHODS & ASSESSMENT (1-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be with a change in topic. Course may be repeated with change in topics.
ERMA 8100/8106 PROGRAM EVALUATION (3) LEC. 3. Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation. May count either ERMA 8100 or ERMA 8106.

ERMA 8120 TEACHER EVALUATION (3) LEC. 3. Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200/8206 SURVEY RESEARCH METHODS (3) LEC. 3. Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data. May count either ERMA 8200 or ERMA 8206.

ERMA 8210/8216 PREP RESEARCH FOR PUBLICATION (3) LEC. 3. SU. Pr. (ERMA 7300 or ERMA 7306) and (ERMA 7310 or ERMA 7316) and ERMA 7210 or (FOUN 7210 or FOUN 7216) or (FOUN 7300 or FOUN 7306) or (FOUN 7310 or FOUN 7316). Preparation of graduate student research for publication or presentation at professional conference through practice, group discussions, peer review and feedback from experienced editorial board members. May count either ERMA 8210 or ERMA 8216.

ERMA 8320/8326 DESIGN AND ANALYSIS IN EDUCATION III (3) LEC. 3. Pr. (ERMA 7300 or ERMA 7310 or ERMA 7316) or (ERMA 7316 or FOUN 7310 or FOUN 7316). Discriminate analysis, MANOVA, canonical correlation, path analysis, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research. Departmental approval. May count either ERMA 8320 or ERMA 8326.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3. Pr. FOUN 7300 or FOUN 7306 or ERMA 7300 or ERMA 7306. Departmental approval. Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3. Pr. (FOUN 8320 or FOUN 8326 or ERMA 8320 or ERMA 8326). Departmental approval. Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316). Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics.

Educational Leadership Courses

EDLD 7200/7206 SUPERVISION AND PERSONNEL MANAGEMENT (3) LEC. 3. Supervision theory and practice with responsibility for leadership in the recruitment, evaluation and staff development of employees. May count either EDLD 7200 or EDLD 7206.

EDLD 7210/7216 MULTIPROFESSIONAL LEADERSHIP FOR EQUITY (3) LEC. 3. National, state, and local evidence will inform students' understanding of diversity issues in schools. Theories, concepts and principles of leadership from a multidisciplinary, multiprofessional perspective, will be applied to addressing issues of equity in schools. May count either EDLD 7210 or EDLD 7216.

EDLD 7220/7226 ORGANIZATIONAL AND SCHOOL MANAGEMENT (3) LEC. 3. This course will prepare students in understanding legal and ethical responsibilities of school leaders, fiscal revenues and expenditures of Alabama public schools, using action research and components of a comprehensive, ongoing, planning and budgeting program. May count either EDLD 7220 or EDLD 7226.

EDLD 7330/7336 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3) LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3) LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.

EDLD 7500/7506 PRINCIPAL LEADERSHIP (3) LEC. 3. Designed to serve instructional leaders in K-12 settings concerning leadership dispositions and leadership theory important to promoting student success and achievement. May count either EDLD 7500 or EDLD 7506.
EDLD 7510/7516 ACTION RESEARCH AND DATA ANALYSIS (3) LEC. 3. Research methodologies to improve instructional and school-based decision-making action, qualitative, and case study techniques applied to school, classroom, or school-community observation. May count either EDLD 7510 or EDLD 7516.

EDLD 7520/7526 LEADERSHIP AND THE LEARNING ORGANIZATION (3) LEC. 3. Management of schools as learning organizations; issues related to student learning and achievement through attention to organizational components. May count either EDLD 7520 or EDLD 7526.

EDLD 7530/7536 PLANNING AND CONTINUOUS IMPROVEMENT (3) LEC. 3. Development of frameworks for collection, analysis, and use of school data for the improvement of instruction, the learning environment, and student achievement. May count either EDLD 7530 or EDLD 7536.

EDLD 7540/7546 INSTRUCTIONAL AND CURRICULAR LEADERSHIP (3) LEC. 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools. May count either EDLD 7540 or EDLD 7546.

EDLD 7550/7556 EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (3) LEC. 3. Preparation of pro-active leaders in school business affairs; use of action research and components of a comprehensive, ongoing, planning and budgeting program; facilities management. May count either EDLD 7550 or EDLD 7556.

EDLD 7560/7566 EDUCATIONAL SYSTEMS AND COMMUNITIES (3) LEC. 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.

EDLD 7570/7576 LEGAL AND ETHICAL ISSUES (3) LEC. 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society. May count either EDLD 7570 or EDLD 7576.

EDLD 7580/7586 SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (3) LEC. 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts. May count either EDLD 7580 or EDLD 7586.

EDLD 7900 DIRECTED STUDIES (1-9) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

EDLD 7910/7916 PRACTICUM (1-6) PRA. Experience closely relating theory and practice, usually conducted in realistic settings. May count either EDLD 7910 or EDLD 7916. Course may be repeated for a maximum of 6 credit hours.

EDLD 7920 ADMINISTRATIVE INTERNSHIP (1-6) AAB/INT. Departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Course may be repeated for a maximum of 6 credit hours.

EDLD 7930/7936 ADMINISTRATIVE INTERNSHIP/RESIDENCY (1-6) INT. Ongoing field-based experiences in educational administration; observation, participation, and leading with practicing administrators in school systems. Course may be repeated for a maximum of 6 credit hours.

EDLD 7970 SPECIAL TOPICS (1-9) LEC. Variable content for advanced studies in the area of educational leadership. Course may be repeated for a maximum of 9 credit hours.

EDLD 8200/8206 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes. May count either EDLD 8200 or EDLD 8206.

EDLD 8210/8216 EDUCATIONAL LEADERSHIP: THEORY AND PRACTICE (3) LEC. 3. Educational leadership theory and applications for K-12 settings. May count either EDLD 8210 or EDLD 8216.

EDLD 8220/8226 PERSONAL AND PROFESSIONAL DEVELOPMENT (3) LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. May count either EDLD 8220 or EDLD 8226.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (3) LEC. 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.

EDLD 8240/8246 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3) LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. May count either EDLD 8240 or EDLD 8246.
EDLD 8250/8256 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3) LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. May count either EDLD 8250 or EDLD 8256.

EDLD 8260/8266 THEORY AND DEVELOPMENT OF ORGANIZATIONS (3) LEC. 3. Theoretical frameworks of educational organizations. May count either EDLD 8260 or EDLD 8266.

EDLD 8270/8276 LEADERSHIP IN FINANCE AND MANAGEMENT (3) LEC. 3. Theory and practice of instructional leadership related to personnel and fiscal management of a school or school district. May count either EDLD 8270 or EDLD 8276.

EDLD 8280 THE SUPERINTENDENCY IN EDUCATION (3) LEC. 3. Theoretical frameworks of educational organizations.

EDLD 8300/8306 CURRICULUM THEORY AND PRACTICE (3) LEC. 3. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice.

EDLD 8310/8316 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (3) LEC. 3. Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. May count either EDLD 8310 or EDLD 8316.

EDLD 8320/8326 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3) LEC. 3. Pr. EDLD 7340 and EDLD 8300 and EDLD 8310 or EDLD 8316. For those considering a career in upper level management. Focuses on context, societal, and political influences related to curriculum processes and organizational change. Departmental approval. May count either EDLD 8320 or EDLD 8326.

EDLD 8340/8346 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3) LEC. 3. Organizational transformational change at personal, interpersonal, and institutional levels. May count either EDLD 8340 or EDLD 8346.

EDLD 8400/8406 ETHICS FOR LEADERS (3) LEC. 3. Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve. May count either EDLD 8400 or EDLD 8406.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3. Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8600/8606 MENTORING FOR CAREER DEVELOPMENT (3) LEC. 3. Assist graduate students in discovering how mentoring can enhance their career/professional development and benefit their organizations. May count either EDLD 8600 or EDLD 8606.

EDLD 8940/8946 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950/8956 SEMINAR (3) SEM. 3. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. May count either EDLD 8950 or EDLD 8956. Course may be repeated for a maximum of 6 credit hours.

EDLD 8980/8986 PROJECT ANALYSIS (3) LEC. 3. Problem solving, reflective practice and action research and used for continuous school improvement. Provides opportunities to engage in diverse field based research projects. May count either EDLD 8980 or EDLD 8986.

EDLD 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

Educational Media Courses

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1. LAB. 2. Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Limited to majors requiring teaching certification.

EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 5100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.
EDMD 6000/6006 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments. May count either EDMD 6000 or EDMD 6006.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000/7006 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3. Theory, problems, procedures, and standards in the utilization of technology in instructional design and development. May count either EDMD 7000 or EDMD 7006.

EDMD 7010/7016 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3. Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments. May count either EDMD 7010 and EDMD 7016.

EDMD 7020/7026 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3. Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined. May count either EDMD 7020 or EDMD 7026.

EDMD 7100/7106 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3. Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education. May count either EDMD 7100 or EDMD 7106.

EDMD 7110/7116 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies. May count either EDMD 7110 or EDMD 7116.

EDMD 7120/7126 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3. An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills. May count either EDMD 7120 or EDMD 7126.

EDMD 7130/7136 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3. Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies. May count either EDMD 7130 or EDMD 7136.

EDMD 7200/7206 APPLIED INSTRUCTIONAL DESIGN (3) LEC. 3. Pr. EDMD 7000 or EDMD 7006. Applying instructional design skills, students will plan, develop, implement and assess instructional products using appropriate technologies. May count either EDMD 7200 or EDMD 7206.

EDMD 7210/7216 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3. Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction. May count either EDMD 7210 or EDMD 7216.

EDMD 7230/7236 THEORY AND PRACTICE OF DISTANCE EDUCATION (3) LEC. 3. Theories, concepts, and tools that support distance education, with emphasis on application in design, development, and implementation of distance education instruction. May count either EDMD 7230 or EDMD 7236.

EDMD 7300/7306 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3. Pr. ERMA 7200 or FOUN 7200 or ERMA 7206 or FOUN 7206. A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology. May count either EDMD 7300 or EDMD 7306.

EDMD 7310/7316 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3. Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed. May count either EDMD 7310 or EDMD 7316.

EDMD 7320/7326 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3. Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. May count either EDMD 7320 or EDMD 7326.

EDMD 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student's work accomplished at regular intervals.

EDMD 7910/7916 PRACTICUM (1-6) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.
EDMD 7920/7926 CLINICAL RESIDENCY (1-6) INT. SU. Pr. (P/C EDMD 7120 or P/C EDMD 7126) and (P/C EDMD 7130 or P/C EDMD 7136). Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. May count either EDMD 7920 or EDMD 7926. Course may be repeated for a maximum of 6 credit hours.

EDMD 7930 TEACHING APPRENTICESHIP (3) SEM. 3. Departmental approval. A structured opportunity for students to apply educational media concepts and theories in the college classroom. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940/7946 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr. FOUN 7200 or ERMA 7200 or ERMA 7206 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970/7976 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 7980/7986 FIELD PROJECT (3-6) INT. SU. Pr. ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques.

Educational Psychology Courses

EPSY 7400/7406 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3. Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment. May count either EPSY 7400 or EPSY 7406.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3. The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420/7426 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3. Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction. May count either EPSY 7420 or EPSY 7426.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3. Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3. Advanced study and analysis of existing classroom management discipline models including observation research activity.

EPSY 7450 PERSONAL AND PROFESSIONAL DEVELOPMENT AND PERSONALITY DYNAMICS (3) LEC. 3. Survey of different theories and models of personality leading to in-depth study of theories and models most applicable for use in conceiving of and building personal and professional development plans.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATION OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410/8416 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3. Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning. May count either EPSY 8410 or EPSY 8416.

EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3. An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.

EPSY 8440 ED PSYCH APPRENT SEMINAR (3) LEC. 3. Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.
EPSY 8540 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICESHIP SEMINAR (3) LEC. 3. A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICESHIP SEMINAR (3) LEC. 3. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with changes in topic.

Elementary Education Courses

CTEE 3100 INTRODUCTION TO ELEMENTARY EDUCATION (3) LEC. 3. Admission to Teacher Education. Knowledge, skills, and dispositions necessary for elementary education, with emphasis on professional expectations and school structure.

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (4) LEC. 30. LAB. 105. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of social sciences for elementary learners.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4010. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of language arts for elementary learners.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4040. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of science for elementary learners.

CTEE 4040 CURRICULUM: MATHEMATICS (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4030. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of mathematics for elementary learners.

CTEE 4190 EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.

CTEE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTEE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4920/4923 CLINICAL RESIDENCY (11) AAB/INT. 11. SU. Pr. P/C CTEE 4950 or P/C CTEE 4953. Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Admission to internship. May count either CTEE 4920 or CTEE 4923.

CTEE 4950/4953 PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB/SEM. 1. SU. Pr. P/C CTEE 4920 or P/C CTEE 4923. Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. May count either CTEE 4950 or CTEE 4953. Course may be repeated for a maximum of 4 credit hours.

CTEE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEE 4970 SPECIAL TOPICS (1-6) AAB/LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTEE 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEE 7010/7016 APPROACHES TO TEACHING (3) LEC. 3. Organizational patterns, planning and approaches to instruction in the elementary school.
CTEE 7410/7416 CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) social science education. May count either CTEE 7410 or CTEE 7416.

CTEE 7420/7426 CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education. May count either CTEE 7420 or CTEE 7426.

CTEE 7430/7436 CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education. May count either CTEE 7430 or CTEE 7436.

CTEE 7440/7446 CURRICULUM AND TEACHING IN MATHEMATICS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education. May count either CTEE 7440 or CTEE 7446.

CTEE 7490 THE ELEMENTARY SCHOOL PROGRAM (3) LEC. 3. Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.

CTEE 7510/7516 RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3) LEC. 3. A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school. May count either CTEE 7510 or CTEE 7516.

CTEE 7530/7536 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3) LEC. 3. Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices. May count either CTEE 7530 or CTEE 7536.

CTEE 7540/7546 EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3) LEC. 3. Evaluation methods and exploration of evaluation literature in areas of specialization. May count either CTEE 7540 or CTEE 7546.

CTEE 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB/PRA. SU. Departmental approval. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEE 7970/7976 SPECIAL TOPICS (1-6) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. May count either CTEE 7970 or CTEE 7979. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

CTEE 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980/8986 FIELD PROJECT (1-10) FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May count either CTEE 8980 or CTEE 8986. Course may be repeated for a maximum of 10 credit hours.

CTEE 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English for Spkrs Other Lang Courses

CTES 5410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3. Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs. May count either CTES 5410 or CTES 6410.
CTES 6410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3. Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs. May count either CTES 5410 or CTES 6410.

CTES 7400/7406 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Application of instructional technology in second language instruction, authentic materials in the ESL classroom. May count either CTES 7400 or CTES 7406.

CTES 7420/7426 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. May count either CTES 7420 or CTES 7426.

CTES 7460/7466 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. May count either CTES 7460 or CTES 7466.

CTES 7470/7476 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. May count either CTES 7470 or CTES 7476.

CTES 7480/7486 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. May count either CTES 7480 or CTES 7486.

CTES 7920/7926 CLINICAL RESIDENCY (3-9) AAB/INT. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 9 credit hours.

Foundations of Education Courses

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2. LAB. 3. Exploration of socio-cultural factors and individual differences; understanding diversity and communication with students with different cultural backgrounds, abilities, and values; combines class-based as well as community-based discovery learning, known as service learning, that links theory and practice and involves students.

FOUN 3100/3103 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. With grades of "C" or better. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning. May count either FOUN 3100 or FOUN 3103.

FOUN 3110/3113 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT I (3) LEC. 2. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3. Pr. (FOUN 3110 or FOUN 3113 or CTSE 4090 or CTSE 4070 or CTSE 4073) and (EDUC 3000 or FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction. May count either FOUN 3120 or FOUN 3123.

FOUN 7000/7006 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3. Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined. May count either FOUN 7000 or FOUN 7006.

FOUN 7010/7016 HISTORY OF AMERICAN EDUCATION (3) LEC. 3. Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education. May count either FOUN 7010 or FOUN 7016.

FOUN 7020/7026 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3. Advanced study of education's response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined. May count either FOUN 7020 or FOUN 7026.

FOUN 7030/7036 MODERNITY, PHILOSOPHY AND THE CURRICULUM (3) LEC. 3. Advanced study of the philosophical assumptions of curriculum development within the context of modernity. May count either FOUN 7030 or FOUN 7036.
FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3. Advanced philosophical study of educational research within the context of education's professional culture.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

FOUN 7930 TEACHING APPRENTICESHIP (3) IND. 3. Departmental approval. A structured opportunity for students to explore social foundations of education concepts and pedagogies in the college classroom. Course may be repeated for a maximum of 6 credit hours.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010/8016 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3. Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum for 10 hours. Course may be repeated with change in topics.

Higher Ed Administration Courses

HIED 7200 ORGANIZATIONAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Theory and practice of higher education organizations with emphasis on supervision and management of personnel.

HIED 7210/7216 LEADERSHIP IN HIGHER EDUCATION (3) LEC. 3. Exploration, discussion and application of theories, concepts and principles of leadership applied to higher education organizations. May count either EDLD 7210 or HIED 7210.

HIED 7220 HIGHER EDUCATION MANAGEMENT (3) LEC. 3. Procedures and practices in school educational management.

HIED 7230/7236 STUDENT SERVICES ADMINISTRATION POSTSECONDARY EDUCATION (3) LEC. 3. Organization, administration and evaluation of student personnel services in postsecondary education.

HIED 7240 LEGAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Constitutional and statutory provisions for education and an analysis of judicial decisions affecting higher education.

HIED 7250 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Overview of major developmental theories affecting college students.

HIED 7260 COUNSELING AND ADVISING IN HIGHER EDUCATION (3) LEC. 3. Introduces counseling and advising theory and application for student services professionals in higher education.

HIED 7270/7276 OVERVIEW OF POSTSECONDARY EDUCATION (3) LEC. 3. Overview of the history and evolution of postsecondary education in North America. May count either HIED 7270 or HIED 7276.

HIED 7400 SPORT MARKETING AND PUBLIC RELATIONS (3) LEC. 3. Marketing and public relations of sport organizations as associated with higher education institutions.

HIED 7410 SPORT ETHICS (3) LEC. 3. Covers ethical issues in sport organizations as associated with higher education institutions.

HIED 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

HIED 7910 PRACTICUM (3) PRA. 3. Departmental approval. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

HIED 7920 INTERNSHIP (1-6) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 6 credit hours.

HIED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

HIED 8200 ASSESSMENT AND EVALUATION IN HIGHER EDUCATION (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making.
HIED 8230 PLANNING AND BUDGETING IN HIGHER EDUCATION (3) LEC. 3. Components and implementation of a comprehensive, ongoing planning and budgeting program in higher education.

HIED 8270 FINANCIAL MANAGEMENT IN HIGHER EDUCATION (3) LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

HIED 8480 INSTITUTIONAL RESEARCH IN HIGHER EDUCATION (3) LEC. 3. Components of institutional research and assessment that support comprehensive planning, analysis, decision support and management needs of the higher educational institution. May count either EDLD 8480 or HIED 8480.

HIED 8500 THE PROFESSORIATE (3) LEC. 3. Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

HIED 8510 SEMINAR IN COLLEGE TEACHING (3) LEC/SEM. 3. Overview of major issues in higher education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities.

HIED 8950 SEMINAR (3) LEC. 3. Presentation by graduate students of research projects and/or analysis of procedures and finding. Course may be repeated for a maximum of 6 credit hours.

HIED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 credit hours.

Interdepartmental Education Courses

EDUC 1010 ORIENTATION TO TEACHER EDUCATION (0) LEC. 0. SU. Orientation to the teaching profession.

EDUC 5970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

EDUC 6970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

Kinesiology Courses

KINE 1100/1103 WELLNESS (2) LEC. 1. LAB. 2. Basic concepts and principles of wellness with laboratory experiences for the self-appraisal of health-related physical fitness. May count either KINE 1100 or KINE 1103.

KINE 2003 PILLARS OF HEALTH: A JOURNEY TO OPTIMAL HEALTH & WELLBEING (3) LAB. 4. Students will learn and apply Mindfulness-Based Stress Reduction (MBSR) techniques and practices that have been shown, scientifically, to reduce stress and act as an aid to many health conditions that arise or are exacerbated by stress. On-campus labs are required.

KINE 2250/2253 MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2251 MOTOR DEVELOPMENT ACROSS THE LIFESPAN LABORATORY (1) LAB. 2. SU. Pr. (P/C KINE 2250 or P/C KINE 2253). Develops understanding and skills concerning the broad concept of motor development across the lifespan.

KINE 2503 SPORT OPTIMIZATION I (3) LEC. 2. LAB. 2. Basic concepts associated with the assessment of sport performance for the purpose of optimization.

KINE 2513 SPORT OPTIMIZATION 2 (3) LEC. 2. LAB. 2. Pr. KINE 2503 or HLHP 2500 or HLHP 2503. Concepts associated with the assessment and interpretation of sport performance for the purpose of optimization.

KINE 2703 HEALTH CRISIS IN CHILDREN AND YOUTH (3) LEC. 3. Explores the scope of the childhood obesity epidemic and the health consequences of being overweight or obese during the pediatric years and long-term implications during adulthood.

KINE 2723 KEEPING KIDS HEALTHY, ACTIVE, AND FIT (3) LEC. 3. Practical and application approach toward developing comprehensive programming that aims to promote physical activity and fitness in preschool- and school-age children.

KINE 2800/2803 INTRODUCTION TO KINESIOLOGY (3) LEC. 3. People, history and programs that have led to the current status of physical education, exercise science and health promotion.
KINE 3003 MEDICAL TERMINOLOGY FOR ALLIED HEALTH PROFESSIONS (3) LEC. 3. Focus on medical terminology/abbreviations used in allied health care and application to health care documentation. Web-based delivery.

KINE 3010/3013 INSTRUCTION AND TECHNOLOGY IN KINESIOLOGY (2) LEC. 1. LAB. 2. Communication skills, instructional strategies and technological competencies related to conveying information in the Kinesiology disciplines. May count either KINE 3010 or KINE 3013.

KINE 3020/3023 SCIENTIFIC FOUNDATIONS OF KINESIOLOGY (4) LEC. 4. Overview of the biomechanical, physiological and psychological foundations of human movement. Core biology. May count either KINE 3020 or KINE 3023.

KINE 3030 INTRODUCTION TO PERSONAL TRAINING (3) LEC. 3. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3031 INTRODUCTION TO PERSONAL TRAINING LABORATORY (3) LAB. 6. Pr. P/C KINE 3030. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3043 HISTORY OF AMERICAN PHYSICAL CULTURE (3) LEC. 3. Appreciation of the historical and cultural aspects of health, exercise, fitness and sports activities in modern American society.

KINE 3050/3053 CARE AND PREVENTION OF INJURIES (3) LEC. 3. Students will understand how to implement proper procedures in sports medicine care, create/lead emergency action plans, prevent injury/illness occurrence, care for basic injuries/illnesses, and analyze environmental conditions for safety, and provide important information to sports medicine health professionals. May count either KINE 3050 or KINE 3053.

KINE 3100/3103 ADAPTIVE SPORTS (3) LEC. 3. An introduction to various competitive and recreational activities for persons with disabilities. May count either KINE 3100 or KINE 3103.

KINE 3113 PARALYMPIC SPORT (3) LEC. 3. An introduction to the Paralympic Games including the Games development, rules, and current issues related to media, marketing, and social rights.

KINE 3200 SKILLS AND CONCEPTS OF RHYTHMIC ACTIVITIES (3) LEC. 2. LAB. 2. Skillful performance in gymnastics and other rhythmic activities and an understanding of the basic movement concepts in those activities.

KINE 3210 SKILLS AND CONCEPTS OF SPORT (3) LEC. 2. LAB. 2. Skillful performance in games and sports and an understanding of the tactics in those activities. Admission to Teacher Education.

KINE 3230 TEACHING MOTOR SKILLS (3) LEC. 2. LAB. 2. Introduction to motor skills that students learn during their elementary school years in physical education.

KINE 3250 SKILL ACQUISITION FOR SCHOOL-AGED CHILDREN (3) LEC. 2. LAB. 2. Pr. (HLHP 2250 or HLHP 2253 or KINE 2250 or KINE 2253) and (HLHP 3020 or HLHP 3023 or KINE 3020 or KINE 3023). Principles of skill acquisition applied to instructional settings in teaching and coaching.

KINE 3260 PHYSICAL EDUCATION FOR INDIVIDUALS WITH DISABILITIES (3) LEC. 2. LAB. 2. Pr. (KINE 2250 and KINE 2251 or KINE 2253) or (HLHP 2250 or HLHP 2251 or HLHP 2253). Program needs of individuals with disabilities in physical education and physical activity settings.

KINE 3300 INSTRUCTIONAL STRATEGIES IN PHYSICAL EDUCATION (3) LEC. 2. LAB. 2. Pr. HLHP 3010 or HLHP 3013 or KINE 3010 or KINE 3013. Admission to Teacher Education. Instructional and class management strategies appropriate to teach quality elementary and secondary physical education Admission to Teacher Education.

KINE 3400 HEALTH PROMOTION IN THE WORKPLACE (3) LEC. 3. Planning, implementation, evaluation and marketing of health promotion programs.

KINE 3413 REGISTERED YOGA TEACHER LEVEL I (3) LEC. 2. LAB. 2. Basic principles of teaching yoga. Concepts include the poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3413 & KINE 3423 completes a Yoga Teacher Certification.
KINE 3423 REGISTERED YOGA TEACHER LEVEL II (3) LEC. 2. LAB. 2. Pr. KINE 3413 or HLHP 3410 or HLHP 3413. Advanced principles of teaching yoga. Focus on poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3413 and KINE 3423 completes a Yoga Teacher Certification.

KINE 3443 COMPLEMENTARY THERAPIES AND INTEGRATIVE HEALTH (3) DSL. 3. An introduction to complementary therapies and integrative health including the basic concepts, foundation, clinical applications, and scientific evidence of specific holistic therapeutic practices.

KINE 3453 ACUPUNCTURE, ACUPRESSURE AND EXERCISE (3) LEC. 3. A practical approach to the application and implication of acupuncture/accupressure used in conjunction with exercise and other holistic strategies for overall health.

KINE 3620 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail.

KINE 3621 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT LABORATORY (1) LAB. 2. Coreq. KINE 3620. Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 3650 MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Coreq. KINE 3651. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3651 MOTOR LEARNING AND PERFORMANCE LABORATORY (1) LAB. 2. Coreq. KINE 3650. Lab experience will allow students to gain first-hand experience with modern experimental methods, data collection, and basic analysis tools in motor learning research and develop an understanding of the experience of human research participants in kinesiology research.

KINE 3680 PHYSIOLOGY OF EXERCISE (3) LEC. 3. Departmental approval. Coreq. KINE 3681. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3681 PHYSIOLOGY OF EXERCISE LAB (1) LAB. 2. Coreq. KINE 3680. Applying knowledge of basic energy, musculoskeletal, nervous, and cardiovascular systems using various testing procedures. Focus on understanding the science of exercise, interpreting common physiological fitness tests, and how to write about findings using basic scientific writing techniques.

KINE 3820/3823 PRINCIPLES OF SPORT COACHING (3) LEC. 3. Basic principles of sport pedagogy and the conduct of sport training programs. Departmental approval. May count either KINE 3820 or KINE 3823.

KINE 3830 THEORY AND PRACTICE OF SPORTS OFFICIATING (3) LEC. 3. Instruction and practice of officiating a variety of sport activities.

KINE 3843 COACHING THE MENTAL SIDE OF SPORTS (3) LEC. 3. Understand athletes’ psychology and how to provide them with mental skills to enhance their performance in athletics, academics, and life.

KINE 3873 LEGAL AND ILLEGAL SPORTS SUPPLEMENTS (3) LEC. 3. Introductory approach to the safety, efficacy, and legality of popular legal and illegal sports supplements.

KINE 4133 THE NEUROBIOLOGY OF PLAY (3) LEC. 3. This course is an introduction to psychological and neuroscientific research on play and games. We will focus on play behavior in human beings, but will incorporate comparative evidence from play in other animals. Using an interdisciplinary approach, we will draw.

KINE 4200 PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. HLHP 3300. Understanding of the skill theme approach based on skill themes, movement concepts and levels of skill proficiency. Credit will not be given for both KINE 4200 and KINE 4360. Admission to Teacher Education.

KINE 4300 PHYSICAL EDUCATION IN SECONDARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. (KINE 3300 or HLHP 3300 or HLHP 3303). Constructing and implementing appropriate lifetime sports and fitness programs for middle and secondary school students. Admission to Teacher Education.
KINE 4350 TEACHING FOR LIFETIME PHYSICAL ACTIVITY (3) LEC. 2. LAB. 2. Pr. (HLHP 3020 or HLHP 3023 or KINE 3020 or KINE 3023). Admission to Teacher Education. Coreq. KINE 3300. Skills and knowledge to conduct comprehensive fitness education programs in schools. Admission to Teacher Education.

KINE 4360 HEALTH EDUCATION AND PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (3) LEC. 2. LAB. 2. Admission to Teacher Education. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200. Admission to Teacher Education.

KINE 4400/4403 APPLIED ANATOMY FOR THE ALLIED HEALTH PROFESSIONAL (3) LEC. 3. Study of skeletal anatomy with an applied approach. May count either KINE 4400 or KINE 4403.

KINE 4450/4453 PHYSICAL ACTIVITY AND PUBLIC HEALTH (3) LEC. 3. Departmental approval. Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4500 INDIVIDUAL AND GROUP FITNESS INSTRUCTION (3) LEC. 3. Principles of exercise prescription and field assessment techniques to develop, implement and evaluate individual and group exercise programs.

KINE 4560/4563 SPORT TECHNIQUE AND MOVEMENT ANALYSIS (3) LEC. 3. Skills and knowledge for observing, evaluating, and correcting movement patterns. May count either KINE 4560 or KINE 4563.

KINE 4600 STRENGTH DEVELOPMENT (3) LEC. 3. Basic concepts and principles of strength development.

KINE 4620/4623 EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Role of psychological factors in sport, exercise and physical activity.

KINE 4630/4633 STRENGTH AND CONDITIONING PREPARATION (3) LEC. 3. Pr. KINE 4600. Preparation as a National Strength and Conditioning Specialist. May count either KINE 4630 or KINE 4633.

KINE 4640 PHYSICAL CONDITIONING AND SPEED (3) LEC. 3. Basic concepts and principles of physical conditioning and speed.

KINE 4690/4693 CORRECTIVE EXERCISE SPECIALIST PREPARATION (3) LEC. 3. Pr. KINE 3620 and P/C KINE 3621. Preparation for the National Academy of Sports Medicine corrective exercise specialist examination. May count either KINE 4690 or KINE 4693.

KINE 4720 MEASUREMENT AND QUANTITATIVE ANALYSIS IN EXERCISE SCIENCE (3) LEC. 3. Pr. (KINE 3020 or KINE 3023 or HLHP 3020 or HLHP 3023) and (STAT 2510 or STAT 2513). Departmental approval. Concepts and statistics related to assessing human performance.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (BIOL 1020 and BIOL 1021 or BIOL 1027) and BIOL 2500 and (CHEM 1030 and CHEM 1031) and PHYS 1500. ((BIOL 1020 grade of C or higher; BIOL 1021, grade of C or higher;) OR BIOL 1027 grade of C or higher;) AND (BIOL 2500, grade of C or higher;) AND (CHEM 1030 - grade of C or higher/CHEM 1031, grade of C or higher;) AND (PHYS 1500, grade of C or higher). Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. KINE 4760. Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4860/4863 EXERCISE PROGRAMMING FOR SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription, programming and field assessment techniques to develop, implement and evaluate exercise programs for special populations. May count either KINE 4860 or KINE 4863.

KINE 4880 TRAINING AND CONDITIONING PROGRAMMING (3) LEC. 3. Pr. (KINE 4600 or HLHP 4600 or HLHP 4640) and KINE 4640. Skills and knowledge related to sport specific annual training regimens.

KINE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4920 CLINICAL RESIDENCY (10) AAB/IND. 10. SU. Coreq. KINE 5353 and KINE 5350. Culminating supervised work experience in school settings for K-12 Physical Education. Students must be cleared and approved for Clinical Residency by College of Education criteria.
KINE 4930/4933 PHYSICAL ACTIVITY AND HEALTH INTERNSHIP (1-12) INT. SU. Pr. KINE 5550 and KINE 5551. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. May count either KINE 4930 or KINE 4933. Course may be repeated for a maximum of 12 credit hours.

KINE 4940/4943 FITNESS, CONDITIONING AND PERFORMANCE INTERNSHIP (1-12) INT. SU. Pr. KINE 4690 or KINE 4693 and KINE 4880. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. Site must be approved by internship coordinator. May count either KINE 4940 or KINE 4943. Course may be repeated for a maximum of 12 credit hours.

KINE 4970 SPECIAL TOPICS (1-3) AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

KINE 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental Approval. Directed research within the area of specialty within the School. Course may be repeated for a maximum of 6 credit hours.

KINE 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

KINE 5200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 5250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 5300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 5350/5353 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. (P/C KINE 4920 or P/C HLHP 4920 or P/C HLHP 4923 or P/C KINE 4923). Admission to Teacher Education. Development of appropriate measurement tools to assess student learning. May count either KINE 5350 or KINE 5353.

KINE 5400 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3. Pr. (HLHP 3680 or KINE 3680). Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. May count KINE 5400, KINE 6400, or KINE 6406.

KINE 5500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (3) LEC. 3. Pr. KINE 3680 and KINE 3681. Concepts in physiological testing, test selection, and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction. CPR certification must be obtained prior to the end of the course. May count either KINE 5500 or KINE 6500.

KINE 5501 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION LABORATORY (1) LAB. 2. Pr. KINE 3680 and KINE 3681. Application of concepts in physiological testing, test selection and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction.

KINE 5550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (1) LEC. 1. Pr. KINE 5500 and KINE 5551. A review of American College of Sports Medicine (ACSM) health and fitness testing and evaluation including; cardiorespiratory, muscular fitness, body composition, balance and flexibility testing, interpretation of exercise test results, exercise prescription and health risk classification.

KINE 5551 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION LABORATORY (2) LAB. 4. Pr. KINE 5500 and KINE 5551. Coreq. KINE 5550. Practical experience in health and fitness testing and evaluation including; cardiorespiratory, muscular fitness, body composition and flexibility testing, interpretation of exercise test results, exercise prescription and health risk classification. CPR certification must be current.

KINE 5600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Pr. (HLHP 3680 or KINE 3680). Physiological adaptations to training and conditioning for optimizing sport performance. May count either KINE 5600 or KINE 6600.
KINE 5820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 5920 INTERNSHIP (1-12) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 6350/6356 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. P/C KINE 7920 or P/C HLHP 7920 or P/C HLHP 7926.

KINE 6400/6406 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. May count KINE 5400, KINE 6400, or KINE 6406.

KINE 6500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (3) LEC. 3. Concepts, procedures and skill in health and fitness testing and test interpretation for normal and special populations. Equivalent of HLHP 3680 or KINE 3680 must be taken prior to course or KINE 3680.

KINE 6550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (4) LEC. 1. LAB. 6. Pr. HLHP 5500 or KINE 5500 or KINE 6500 or HLHP 6500 or HLHP 6506. Practical experience in cardiovascular and musculoskeletal exercise evaluation and prescription; interpretation of exercise test results for exercise prescription and health risk stratification. CPR certification must be current. May count either KINE 5550 or KINE 6550.

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Physiological adaptations to training and conditioning for sport performance. May count either KINE 5600 or KINE 6600.

KINE 6820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 6920 INTERNSHIP (1-12) IND. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 12 credit hours.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3. Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7180/7186 APPLIED SOCIOLOGICAL ASPECTS OF SPORT AND EXERCISE (3) LEC. 3. Critical examination and application of sociological aspects of sport and exercise in a variety of settings. May count either KINE 7180 or KINE 7186.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3. Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS IN PHYSICAL EDUCATION (3) LEC. 3. Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3. Pr. HLHP 7010 or HLHP 7016 or KINE 7010. Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3. Instructional strategies and content for elementary and secondary physical education.
KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3. Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.

KINE 7400/7406 ADVANCED ANATOMICAL PRINCIPLES (3) LEC. 3. Coreq. KINE 7416 and KINE 7410. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge. May count either KINE 7400 or KINE 7406.

KINE 7410/7416 ADVANCED ANATOMICAL PRINCIPLES LAB (1) LAB. 2. Coreq. KINE 7400 and KINE 7406. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge.

KINE 7420/7426 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH I (3) LEC. 3. Introductory approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7420 or KINE 7426.

KINE 7430/7436 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH II (3) LEC. 3. Pr. KINE 7420 or HLHP 7420 or HLHP 7426 or KINE 7426. Advanced approach to skill analysis as well as the use of the software program Dartifish. May count either KINE 7430 or KINE 7436.

KINE 7536 ADVANCED PRINCIPLES OF STRENGTH AND CONDITIONING (3) DSL. 3. A review of the material and tools necessary to take the National Strength and Conditioning Association's Certified Strength and Conditioning Specialist (CSCS) Exam.

KINE 7546 ATHLETIC MOVEMENT ENHANCEMENT (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Performance Enhancement Specialist.

KINE 7556 EFFICIENT MOVEMENT STRATEGIES (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Corrective Exercise Specialist.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3. Electrocardiography from a exercise scientist's perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620/7626 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Departmental approval. May count either KINE 7620 or KINE 7626.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Departmental approval. Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or HLHP 7626). Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7670 LAB TECHNIQUES IN BIOMECHANICS (3) LEC. 1. LAB. 2. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or KINE 7626). Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3) LEC. 3. Departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3. Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECHNIQUES IN EXERCISE PHYSIOLOGY (3) LEC. 1. LAB. 4. Pr. (HLHP 7680 or HLHP 7686 or KINE 7680). Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3. Departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3. Departmental approval. Examination of theoretical and empirical issues in motor development across the life span.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>KINE 7750</td>
<td>ADVANCED SPORT PSYCHOLOGY (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Examination of psychological factors that influence athletic performance. Or equivalent.</td>
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<tr>
<td>KINE 7780</td>
<td>EXERCISE MOTIVATION AND ADHERENCE (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Theoretical foundations and recent research in exercise motivation and adherence. Or equivalent.</td>
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<tr>
<td>KINE 7790</td>
<td>MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3)</td>
<td>LEC. 3</td>
<td>(HLHP 7650 or HLHP 7656 or KINE 7650)</td>
<td>Examination of motor behavior characteristics of individuals with disabilities.</td>
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<tr>
<td>KINE 7820/7826</td>
<td>CLINICAL/NON-CLINICAL INTERNSHIP IN KINESIOLOGY (1-10)</td>
<td>INT. SU</td>
<td></td>
<td>Supervised work experience in physical activity, health, fitness, conditioning, performance and rehabilitation settings. This course is for non-teacher education students. May count either KINE 7820 or KINE 7826. Course may be repeated for a maximum of 10 credit hours.</td>
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<tr>
<td>KINE 7900</td>
<td>DIRECTED STUDIES (1-3)</td>
<td>IND. SU</td>
<td></td>
<td>Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.</td>
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<td>KINE 7910</td>
<td>PRACTICUM (1-3)</td>
<td>PRA.</td>
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<td>Departmental approval. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>KINE 7920</td>
<td>INTERNSHIP (1-10)</td>
<td>INT. SU</td>
<td></td>
<td>Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.</td>
</tr>
<tr>
<td>KINE 7930</td>
<td>NON-THESIS RESEARCH PROJECT (1-6)</td>
<td>IND. SU</td>
<td>Pr. KINE 7010 or HLHP 7010 or HLHP 7016</td>
<td>Departmental approval. Continuation/completion of a scientific research project that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>KINE 7950</td>
<td>SEMINAR (1-3)</td>
<td>SEM. SU</td>
<td></td>
<td>Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>KINE 7960</td>
<td>SPECIAL PROBLEMS (1-3)</td>
<td>IND. SU</td>
<td></td>
<td>Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>KINE 7970</td>
<td>SPECIAL TOPICS (1-3)</td>
<td>LEC.</td>
<td></td>
<td>Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.</td>
</tr>
<tr>
<td>KINE 7980</td>
<td>RESEARCH PROJECT IN KINESIOLOGY (1-6)</td>
<td>IND. SU</td>
<td>Pr. KINE 7010 or HLHP 7010 or HLHP 7016</td>
<td>Departmental approval. Completion of a scientific research project in Kinesiology that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>KINE 7990</td>
<td>RESEARCH AND THESIS (1-10)</td>
<td>IND.</td>
<td></td>
<td>Course may be repeated with change in topics.</td>
</tr>
<tr>
<td>KINE 8300</td>
<td>RESEARCH IN KINESIOLOGY (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Examination and evaluation of current research trends within the field of kinesiology.</td>
</tr>
<tr>
<td>KINE 8310</td>
<td>SUPERVISION/ADMINISTRATION OF LABS IN KINESIOLOGY (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Skills and techniques of the daily management of kinesiology labs. Topics include budgeting, outreach, entrepreneurship, grants, and personnel management.</td>
</tr>
<tr>
<td>KINE 8320</td>
<td>RESEARCH MENTORSHIP (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Skills and experience in the mentorship of novice researchers in the field of Kinesiology.</td>
</tr>
<tr>
<td>KINE 8710</td>
<td>SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3)</td>
<td>LEC. 3</td>
<td></td>
<td>In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Or equivalent.</td>
</tr>
<tr>
<td>KINE 8750</td>
<td>THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3)</td>
<td>LEC. 3</td>
<td>(HLHP 7620 or HLHP 7620) or KINE 7620 or KINE 7620</td>
<td>Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.</td>
</tr>
<tr>
<td>KINE 8760</td>
<td>PHYSICAL ACTIVITY EPIDEMIOLOGY (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Development of analytic skills to evaluate and/or conduct population-based research related to physical activity and disease.</td>
</tr>
<tr>
<td>KINE 8770</td>
<td>NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3)</td>
<td>LEC. 3</td>
<td>Pr. KINE 7680 or HLHP 7680 or HLHP 7686 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training.</td>
<td></td>
</tr>
</tbody>
</table>
KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3. Pr. (HLHP 7680 or KINE 7680) or HLHP 7686 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 8910 PRACTICUM (1-3) PRA. SU. Departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours.

KINE 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 8930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

KINE 8950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8960 SPECIAL PROBLEMS (1-3) IND. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic. Course may be repeated with change in topics.

KINE 8980 FIELD PROJECT (1-6) FLD.

KINE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Field project away from campus. Course may be repeated for a maximum of 9 credit hours. Course may be repeated with change in topics.

Middle School Education Courses

CTMD 4010 TEACHING MATHEMATICS: MIDDLE SCHOOL (4) LEC. 2. LAB. 4. Admission to Teacher Education. Specific teaching strategies for a comprehensive middle school program grades 4-8.

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 4200 or P/C CTSE 4203. Admission to Clinical Residency. Supervised teaching in a public middle or secondary school, abroad, accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTMD 4920 or CTMD 4923.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

Music Education Courses

CTMU 1010 INTRODUCTION TO MUSIC EDUCATION (0) LAB. 1. Introduction to teaching music.
CTMU 1020 MUSIC EDUCATION LAB I (1) LAB. 3. Development and documentation of general music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 2010 MUSIC EDUCATION LAB II (1) LAB. 3. Development and documentation of vocal or instrumental music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 3040 MUSIC AND RELATED ARTS (4) LEC. 2. LAB. 4. Interdisciplinary instruction appropriate for students' developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTMU 4910/4913 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. Admission to Teacher Education. Cooperatively selected field experience. May count either CTMU 4910 or CTMU 4913. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920/4923 CLINICAL RESIDENCY (12) AAB. 40. SU. Admission to Teacher Education. Admission to Clinical Residency. Supervised on-the-job experience in a school or other appropriate setting abroad with regularly scheduled discussions with supervising faculty provide evaluation and analysis of the intern. May count either CTMU 4920 or CTMU 4923.

CTMU 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTMU 4997 HONORS THESIS (1-3) IND. Pr. Honors College. The student's thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.


CTMU 5140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Admission to Teacher Education. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140 or CTMU 6140.


CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master’s Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master’s Certification Program.

CTMU 7000/7006 SCHOOL AND COMMUNITY MUSIC (1) LEC. 1. Developing skills, disposition, community, and research planning for graduate students in school and community music. May count either CTMU 7000 or CTMU 7006. Course may be repeated for a maximum of 2 credit hours.

CTMU 7510/7516 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians. May count either CTMU 7510 or CTMU 7516.

CTMU 7520/7526 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum. May count either CTMU 7520 or CTMU 7526.

CTMU 7530/7536 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education. May count either CTMU 7530 or CTMU 7536.

CTMU 7540/7546 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings. May count either CTMU 7540 or CTMU 7546.

CTMU 7550/7556 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3. An overview of applications of current technology in music classroom, studios, and offices. May count either CTMU 7550 or CTMU 7556.

CTMU 7560/7566 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3. Current tools, skills, and concepts for creating aural and visual interactive applications. May count either CTMU 7560 or CTMU 7566.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3. Pr. CTMU 7550 or CTMU 7556. Departmental approval. Current research music instructional technology, design of interactive applications.

CTMU 7580/7586 PSYCHOLOGY OF MUSIC (3) LEC. 3. This course will focus on exploring the musical experience psychological, psycho-acoustic, emotional, anthropological, sociological, and assistance perspectives to better understand how philosophical and practical approaches work in music teaching, learning, and in community settings. May count either CTMU 7580 or CTMU 7586.

CTMU 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMU 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7970/7976 SPECIAL TOPICS (1-9) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTMU 8950/8956 SEMINAR (1-3) SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTMU 8980/8986 FIELD PROJECT (1-6) FLD. SU. Course may be repeated for a maximum of 6 credit hours.

CTMU 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.
Physical Education Courses

PHED 1003 ACTIVE AUBURN (2) LEC. 2. Basic concepts associated with physical activity and the opportunities on campus to engage in health-promoting and wellness activities. Course may be repeated for a maximum of 4 credit hours.

PHED 1023 FRESHMAN FIT (2) LEC. 1. LAB. 2. Basic concepts associated with exercise participation, nutrition, stress reduction and proper sleep. Introduction to campus opportunities for health promoting behaviors.

PHED 1200 CARDIO RESPIRATORY: FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to running (jogging), swimming, cycling and aerobic dance. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1210 CARDIO RESPIRATORY: AEROBIC DANCE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in aerobic dance.

PHED 1220 CARDIO RESPIRATORY: CIRCUIT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in circuit training.

PHED 1230 CARDIO RESPIRATORY: JOGGING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in jogging.

PHED 1240 CARDIO RESPIRATORY: SWIM FOR FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in swim for fitness.

PHED 1250 CARDIO RESPIRATORY: WATER AEROBICS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in water aerobics.

PHED 1263 MILITARY FITNESS FOR EVERYONE (2) LEC. 2. Basics of military-type physical activity training, goal-setting, and fitness principles.

PHED 1300 FITNESS AND CONDITIONING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1310 FITNESS: BODYBUILDING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in bodybuilding.

PHED 1320 FITNESS: LIFETIME ACTIVITY (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in lifetime activity.

PHED 1330 FITNESS: WEIGHT CONTROL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight control.

PHED 1340 FITNESS: WEIGHT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training.

PHED 1350 FITNESS WEIGHT TRAINING WOMEN (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness for weight training for women.

PHED 1360 FITNESS: WEIGHT TRAINING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training II.

PHED 1383 KETTLEBELL TRAINING (2) LEC. 1. LAB. 1. Introductory approach to kettlebell techniques and kettlebell program development.

PHED 1393 WEIGHT MANAGEMENT (2) LAB. 2. Nutrition and exercise concepts associated with maintaining healthy weight.

PHED 1400 TEAM SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to, volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1410 TEAM SPORTS: BASKETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.
PHED 1420 TEAM SPORTS: FLAG FOOTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1430 TEAM SPORTS: SOCCER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1440 TEAM SPORTS: SOFTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1450 TEAM SPORTS: VOLLEYBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1500 INDIVIDUAL SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1510 INDIVIDUAL SPORTS: BOWLING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1520 INDIVIDUAL SPORTS: GOLF (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1530 INDIVIDUAL SPORTS: GOLF II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1540 INDIVIDUAL SPORTS: RACQUETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1550 INDIVIDUAL SPORTS: TENNIS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1560 INDIVIDUAL SPORTS: TENNIS II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1600 PERFORMANCE ACTIVITIES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to, dance and gymnastics. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1610 PERFORM ACTIVITY - PILATES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1620 PERFORMANCE ACTIVITY: KARATE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Course may be repeated for a maximum of 6 credit hours.

PHED 1630 PERFORMANCE ACTIVITY: TAE KWON DO (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1640 PERFORMANCE ACTIVITY: YOGA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1700 AQUATICS: OTHER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course may be repeated for a maximum of 4 credit hours.

PHED 1710 AQUATICS: BEGINNING KAYAKING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1720 AQUATICS: ADVANCED KAYAKING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.
PHED 1730 AQUATICS: KEELBOAT SAILING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1740 AQUATICS: LIFEGUARD TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1750 AQUATICS: BEGINNING SWIMMING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1760 AQUATICS: SCUBA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1770 AQUATICS: WATER SKIING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1780 AQUATICS: ADVANCED WATER SKIING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1800 VARSITY MEN'S SPORTS: STRENGTH AND CONDITION (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

PHED 1810 VARSITY MEN'S SPORTS: FOOTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1820 VARSITY MEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1830 VARSITY MEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1840 VARSITY MEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1850 VARSITY MEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1860 VARSITY MEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN'S SPORTS: BASEBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN'S SPORTS: SOCCER (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN'S SPORTS: GYMNASTICS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.
PHED 1960 VARSITY WOMEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN'S SPORTS: SOFTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN'S SPORTS: VOLLEYBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 2100 WHEELCHAIR SPORTS FOR EVERYONE (2) LEC. 2. LAB. 1. A physical education class which introduces students to various wheelchair sports.

PHED 2200 SELF DEFENSE FOR WOMEN (1) LEC. 1. The Rape Aggression Defense (RAD) System is a comprehensive program of realistic self-defense tactics and techniques for women that promotes awareness, prevention, risk reduction and risk avoidance with a progression to hands-on training and simulation exercises.

Reading Education Courses

CTRD 1000 CRITICAL READING (2) LEC. 2. Strategies for reading expository text, with emphasis on vocabulary learning and text structures, toward goal of critical evaluation of evidence for authors' main-idea claims.

CTRD 3000 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 2. LAB. 1. Admission to Teacher Education. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially at risk of reading difficulties. Includes laboratory teaching experience. May count either CTRD 3000 or CTRD 3710.

CTRD 3010/3013 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION II (4) LEC. 3. LAB. 3. Admission to Teacher Education. Theoretical foundations of language and literacy development of children and implications for teaching. Clinical, laboratory experiences with children. May count either CTRD 3010, CTRD 3003, or CTRD 3700.

CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTRD 5003 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000 or CRTD 6006.

CTRD 5030 THE READING OF ADOLESCENTS (3) LEC. 3. Admission to Teacher Education. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 5710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Admission to Teacher Education. Strategies to enhance literacy and inquiry for student's content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 6000/6006 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000 or CRTD 6006.

CTRD 6030/6036 THE READING OF ADOLESCENTS (3) LEC. 3. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6700/6706 DEVELOPMENTAL READING K-12 (3) LEC. 3. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6710/6716 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Strategies to enhance literacy and inquiry for student's content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 7510/7516 RESEARCH STUDIES IN READING EDUCATION (3) RES. 3. Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CTRD 7520/7526 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.

CTRD 7530/7536 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, faculties and school systems in the continuous improvement of curriculum and teaching practices.

CTRD 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization.

CTRD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920/7926 CLINICAL RESIDENCY (1-9) INT. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Departmental approval. May count either CTRD 7920 or CTRD 7926. Course may be repeated for a maximum of 9 credit hours.

CTRD 7970/7976 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 6 credit hours.

CTRD 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

RSED 3000/3003 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3. Pr. 2.00 GPA. Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings. May count either RSED 3000 or RSED 3003.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3. Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3030 INTRODUCTION TO SPEECH PATHOLOGY IN SPECIAL EDUCATION (3) LEC. 3. Emphasis on the role and function of speech pathologist with respect to best practices in the school setting.

RSED 3100/3103 ASSESSMENT IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Concepts and techniques for developmental screening, evaluation and assessment for young children (ages 3-8) with developmental delays and disabilities. Departmental approval. May count either RSED 3100 or RSED 3103.

RSED 3110/3113 ASSESSMENT: ELIGIBILITY FOR SPECIAL EDUCATION (3) LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special education. May count either RSED 3110 or RSED 3113.
RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3. Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3. Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4110 SUPPORTED EMPLOYMENT IN REHABILITATION (3) LEC. 3. Historical, legislative, theoretical, research and practical foundation of supported employment.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3. The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3. Departmental approval. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4140 ASSESSMENT: PROGRAM PLANNING IN SPECIAL EDUCATION (3) LEC. 3. Coreq. RSED 4920. A framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on application assessment of students with disabilities, and how to use assessment data to inform instructional planning and IEP goal development.

RSED 4900/4903 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours.

RSED 4910/4913 PRACTICUM (1-6) PRA. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4920/4923 CLINICAL RESIDENCY (9) AAB/INT. 9. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Departmental approval or admission to internship.

RSED 4970/4973 SPECIAL TOPICS (1-3) IND. Departmental approval. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 3 credit hours.

RSED 5000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 5010 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3. Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each. May count RSED 5010, RSED 6010, or RSED 6016.

RSED 5020 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 6020, or RSED 6026.

RSED 5030 MENTAL RETARDATION (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5030, RSED 6030, or RSED 6036.

RSED 5040 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 5050 BEHAVIOR DISORDER (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5050, RSED 6050, or RSED 6056.
RSED 5060 SEVERE DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5060, RSED 6060, or RSED 6066.

RSED 5070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count either RSED 5070 or RSED 6070.

RSED 5100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 3010. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 5110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. Admission to Teacher Education. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 5120 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 5130 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities. Admission to Teacher Education. May count RSED 5130, RSED 6130, or RSED 6136.

RSED 5140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Pr. RSED 3010. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 5150 ELEMENTARY TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Admission to Teacher Education. Instructional strategies in reading and math for students who have learning and behavior problems. May count RSED 5150, RSED 6150, or RSED 6156.

RSED 5160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 6160, or RSED 6166.

RSED 5170 TRANSITION FROM BIRTH TO ADULTHOOD (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on practices, programs, and services. May count RSED 5170, RSED 6170, or RSED 6176.

RSED 5180 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the theoretical basis and the practical application of classroom organizational and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management. May count RSED 5180, RSED 6180, or RSED 6186.

RSED 5190 COMMUNITY-BASED INSTRUCTION AND RELATED SERVICES (3) LEC. 3. Provides an in-depth study of transition programs and practices for youth with disabilities as they transition into adulthood. May count either RSED 6190 or RSED 6196.

RSED 5200/5203 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment. May count RSED 5220, RSED 6220, or RSED 6226.
RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 5340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 6000/6006 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 6010/6016 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count RSED 6010 or RSED 6016.

RSED 6020/6026 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 6020, or RSED 6026.

RSED 6030/6036 MENTAL RETARDATION (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5030, RSED 6030, or RSED 6036.

RSED 6040/6046 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 6050/6056 BEHAVIOR DISORDERS (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5050, RSED 6050, or RSED 6056.

RSED 6060/6066 SEVERE DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5060, RSED 6060, or RSED 6066.

RSED 6100/6106 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count RSED 5070 or RSED 6070.

RSED 6110/6116 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 6120/6126 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 6130/6136 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities. May count RSED 5130, RSED 6130, or RSED 6136.

RSED 6140/6146 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>RSED 6150/6156</td>
<td>ELEMENTARY TEACHING METHODS IN SPECIAL EDUCATION (3)</td>
<td></td>
<td>Instructional strategies in reading and math for students who have learning and behavior problems. May count RSED 5150, RSED 6150, or RSED 6156.</td>
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<tr>
<td>RSED 6160/6166</td>
<td>FRAMEWORK FOR COLLABORATION IN K-12 (3)</td>
<td></td>
<td>Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 6160, or RSED 6166.</td>
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<tr>
<td>RSED 6170/6176</td>
<td>TRANSITION FROM BIRTH TO ADULTHOOD (3)</td>
<td></td>
<td>History, philosophy, models, and definitions of transition with emphasis on best practices, programs, and services. May count RSED 5170, RSED 6170, or RSED 6176.</td>
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<tr>
<td>RSED 6180/6186</td>
<td>INSTRUCTIONAL CLASSROOM MANAGEMENT (3)</td>
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<td>This course is designed to provide students with the theoretical basis and the practical application of classroom organization and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management. May count RSED 5180, RSED 6180, or RSED 6186.</td>
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<td>RSED 6190/6196</td>
<td>COMMUNITY-BASED INSTRUCTION AND RELATED SERVICES (3)</td>
<td></td>
<td>Provides an in-depth study of transition programs and practices for youth with disabilities as they transition into adulthood. May count either RSED 5190 or RSED 6196.</td>
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<tr>
<td>RSED 6200/6206</td>
<td>VOCATIONAL EVALUATION IN REHABILITATION (3)</td>
<td></td>
<td>Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.</td>
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<tr>
<td>RSED 6210/6216</td>
<td>OCCUPATIONAL INFORMATION (3)</td>
<td></td>
<td>Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.</td>
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<tr>
<td>RSED 6220/6226</td>
<td>PLACEMENT SERVICES IN REHABILITATION (3)</td>
<td></td>
<td>The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count RSED 6220 or RSED 6226.</td>
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<tr>
<td>RSED 6230/6236</td>
<td>REHABILITATION ASSISTIVE TECHNOLOGY (3)</td>
<td></td>
<td>Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.</td>
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<tr>
<td>RSED 6340/6346</td>
<td>FOUNDATIONS OF SUBSTANCE USE COUNSELING (3)</td>
<td></td>
<td>Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.</td>
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<tr>
<td>RSED 7010/7016</td>
<td>REHABILITATION PROFESSIONS, PROGRAMS AND ETHICS (3)</td>
<td></td>
<td>This course exposes students to the ethics, history and development of the rehabilitation counseling movement inclusive of its legal base, philosophies, concepts, and current socio-political trends. May count either RSED 7010 or RSED 7016.</td>
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<tr>
<td>RSED 7100/7106</td>
<td>ADVANCED ASSESSMENT AND INTERVENTION IN EARLY INTERVENTION (3)</td>
<td></td>
<td>Assessment and intervention strategies for special needs children, birth to age three. Departmental approval. May count either RSED 7100 or RSED 7106.</td>
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<tr>
<td>RSED 7110/7116</td>
<td>ADVANCED ASSESSMENT AND INTERVENTION EARLY CHILDHOOD SPECIAL EDUCATION (3)</td>
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<td>Assessment and intervention strategies for special needs children, pre-k through 3rd grade. Departmental approval. May count either RSED 7110 or RSED 7116.</td>
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<tr>
<td>RSED 7120/7126</td>
<td>ADVANCED ASSESSMENT IN SPECIAL EDUCATION (3)</td>
<td></td>
<td>Advanced study of educational tests and procedures for diagnosing special training problems. Departmental approval. May count either RSED 7120 or RSED 7126.</td>
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<tr>
<td>RSED 7130/7136</td>
<td>ADVANCED ASSESSMENT I IN REHABILITATION (3)</td>
<td></td>
<td>Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130 or RSED 7136.</td>
<td>Pr. RSED 7130 or RSED 7136.</td>
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<tr>
<td>RSED 7140</td>
<td>ADVANCED ASSESSMENT II IN REHABILITATION (3)</td>
<td></td>
<td>Interpretation of vocational evaluation data for prescriptive purposes and communication of that data through report writing and oral communication.</td>
<td>Pr. RSED 7130 or RSED 7136.</td>
</tr>
<tr>
<td>RSED 7150/7156</td>
<td>MULTICULTURAL ASPECTS OF DISABILITIES (3)</td>
<td></td>
<td>Study of three main areas relevant to multicultural competencies and standards for rehabilitation professionals: (a) acquisition of communication skills; (b) attitudes towards ethnic minorities, and (c) knowledge about minority populations. May count either RSED 7150 or RSED 7156.</td>
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</tbody>
</table>
RSED 7200/7206 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 7100 or RSED 7106. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support. Departmental approval. May count either RSED 7200 or RSED 7206.

RSED 7210/7216 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 7110 or RSED 7116. Curriculum methods, intervention plans, intervention methods, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes. Departmental approval. May count either RSED 7210 or RSED 7216.

RSED 7220/7226 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Applied study and practice in analyzing, designing, constructing and evaluating teaching sequences and programs with empirical emphasis for design of instructional principles. May count either RSED 7220 or RSED 7226.

RSED 7230/7236 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs. Departmental approval. May count either RSED 7230 or RSED 7236.

RSED 7246/7240 SEMINAR IN REHABILITATION RESEARCH AND DESIGN (3) LEC. 3. Research in rehabilitation counseling, with focus on acquisition of knowledge about traditional and recent developments in research methods, and skill application. May count either RSED 7240 or RSED 7246.

RSED 7300/7306 REHABILITATION COUNSELING TECHNIQUES (3) LEC. 3. Facilitative communication skills and systematic problem solving skills for effective clinical practice. May count either RSED 7300 or RSED 7306.

RSED 7310/7316 PROPRIETARY REHABILITATION (3) LEC. 3. Pr. (RSED 6210 or RSED 6216) and (RSED 7130 or RSED 7136). Vocational rehabilitation in private sector including case management and expert witness for workers compensation, personal injury litigation, and social security. May count either RSED 7310 or RSED 7316.

RSED 7320/7326 INDIVIDUAL COUNSELING APPROACHES IN REHABILITATION COUNSELING (3) LEC. 3. Survey of theoretical approaches involved in individual counseling with an emphasis on persons with disabilities using an eclectic point of view and psycho-educational approach. May count either RSED 7320 or RSED 7326.

RSED 7330/7336 GROUP COUNSELING IN REHABILITATION SETTINGs (3) LEC. 3. Pr. RSED 7320 or RSED 7326. Nature and function of group dynamics in rehabilitation settings including theories of groups, group structure, and psych-educational strategies used with rehabilitation clients. May count either RSED 7330 or RSED 7336.

RSED 7400/7406 CURRICULUM AND TEACHING IN SPECIALIZATION (3) LEC. 3. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (intellectual disability, learning disabilities, behavioral disorders, etc.). RSED 7400 and RSED 7406 may be repeated for a maximum combined total of 6 credit hours.

RSED 7410/7416 PROGRAM IMPLEMENTATION IN SPECIALIZATION (3) LEC. 3. Program organization and development of materials for curriculum improvement and teaching practices in a disability specialization area. RSED 7410 and RSED 7416 may be repeated for a maximum combined total of 9 credits with a change in disability specialization.

RSED 7420/7426 RESEARCH IN SPECIALIZATION (3) LEC. 3. Examination and interpretation of applied research in specialization area (intellectual disabilities, learning disabilities, behavioral disorders, etc.). Course may be repeated with a change in research area. May count either RSED 7420 or RSED 7426. Course may be repeated for a maximum of 6 credit hours.

RSED 7430/7436 RESEARCH INTO PRACTICE (3) LEC. 3. Applied opportunities for translating instructional and behavioral research into practice. The course may be repeated with a change in research topic. Departmental approval. May count either RSED 7430 or RSED 7436. Course may be repeated for a maximum of 6 credit hours.

RSED 7440/7446 SEMINAR IN SPECIALIZATION (3) SEM. 3. Departmental approval. Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topics.

RSED 7460/7466 POSITIVE BEHAVIOR SUPPORTS (3) LEC. 3. Evaluating and implementing Positive Behavior Interventions and Supports (PBIS) for students grades PK through 12 in traditional and alternative educational settings. May count either RSED 7460 or RSED 7466.
RSED 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 3 credit hours.

RSED 7910/7916 PRACTICUM (1-6) PRA. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 7920/7926 CLINICAL RESIDENCY (1-9) INT. SU. Departmental approval. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Course may be repeated for a maximum of 12 credit hours.

RSED 7940/7946 ADVANCED THEORIES IN REHABILITATION COUNSELING (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count either RSED 7940 or RSED 7946.

RSED 7950/7956 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. 3. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count either RSED 7950 or RSED 7956.

RSED 7980/7986 NON-THESIS PROJECT (1-3) IND. SU. Course may be repeated for a maximum of 10 credit hours.

RSED 7990/7996 RESEARCH AND THESIS (1-10) MST. Departmental approval. The content focus of the study area will be translated into specific objectives with the student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 10 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3. Departmental approval. History, principles, and methodology of single subject research with emphasis on the various types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3. Departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030/8036 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3. Critical and contemporary issues regarding disability and its relationship to the leadership roles of professionals in special education and rehabilitation. May count either RSED 8030 or RSED 8036.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3. Departmental approval. Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities.

RSED 8050/8056 DISABILITIES AND THE LAW (3) LEC. 3. Departmental approval. Development of rehabilitation and special education laws from a historical, policy, leadership, and advocacy perspective.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3. Departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3. SU. Departmental approval. A series of doctoral seminars devoted to professional technical writing, grant writing, management, and research. Course may be repeated with change in topics.

RSED 8110/8116 ORGANIZATIONAL LEADERSHIP AND CHANGE REHABILITATION (3) LEC. 3. Organizational leadership for the public and private non-profit sectors of rehabilitation emphasizing individual qualities required for successful leadership. Departmental approval. May count either RSED 8110 or RSED 8116.

RSED 8120/8126 MANAGEMENT OF PUBLIC SECTOR ORGANIZATIONS (3) LEC. 3. Objective and analytical perspective of public sector management and organizational leadership skills as it relates to rehabilitation settings. Departmental approval. May count either RSED 8120 or RSED 8126.

RSED 8230 EXAMINING DISABILITY DATABASES (3) LEC. 3. Conducting descriptive and correlational research by using existing publicly available databases in the field of disabilities.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topics.
RSED 8950/8956 SEMINAR (1-3) SEM. Departmental approval. Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations. Course may be repeated for a maximum of 9 credit hours.

RSED 8980/8986 NON-THESIS PROJECT (1-10) IND. SU. Departmental approval. May be repeated with change in topic. Provides an opportunity for advanced graduate students to pursue a project of interest. Course may be repeated with change in topics.

RSED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Course may be repeated with change in topic.

Secondary Education Courses

CTSE 1020 DEVELOPMENTAL STUDIES: MATHEMATICS (2) LEC. 1. LAB. 2. Departmental approval. Develops mathematics skills conducive to successful college study. Credit counted toward enrollment, but not graduation.

CTSE 1030 DEVELOPMENTAL STUDIES: ENGLISH LANGUAGE ARTS (2) LEC. 1. LAB. 2. SU. Departmental approval. Develops reading/study and composition skills conducive to successful college study. Credit not counted toward graduation. Course may be repeated for a maximum of 4 credit hours.

CTSE 4000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program.


CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4210. Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4050 and CTSE 4210. Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070/4073 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks. May count either CTSE 4070 or CTSE 4073.

CTSE 4080/4083 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Pr. CTSE 4070 or CTSE 4073. Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students. May count either CTSE 4080 or CTSE 4083.

CTSE 4090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 5010 and CTSE 5020. Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.

CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTRD 5030 and CTRD 5710. Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms.

CTSE 4200/4203 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOMS (2) LEC. 2. Pr. P/C CTSE 7920 or P/C CTMU 7926 or P/C CTMU 7920 or P/C CTMU 7926 or (P/C CTMU 4920 or P/C CTMU 4923) or (P/C CTSE 4920 or P/C CTSE 4923). Admission to Teacher Education. The role of the teacher in classroom management. Methods for developing a positive learning environment. May count either CTSE 4200 or CTSE 4203.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.
CTSE 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.

CTSE 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 5210 or P/C CTSE 5213 or P/C CTSE 5220 or P/C CTSE 5223 or P/C CTSE 5230 or P/C CTSE 5233 or P/C CTSE 5240 or P/C CTSE 5243 or P/C CTSE 5250 or P/C CTSE 5253 or P/C CTSE 5410. Admission to Teacher Education. Admission to Clinical Residency. Supervised teaching in a public secondary school abroad accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTSE 4920 or CTSE 4923.

CTSE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTSE 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours.

CTSE 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTSE 5000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. Junior standing. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2. LAB. 4. Pr. MATH 2660. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 5100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4090. Admission to Teacher Education. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 5210/5213 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) LEC. 1. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 5220/5223 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 5230/5233 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 5240/5243 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 5250/5253 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 5710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5710 or CTSE 6710.

CTSE 6000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.
CTSE 6010/6016 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2. LAB. 4. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 6100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 4, LEC/LLB. 6. Pr. CTSE 4090. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 6210/6216 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) AAB/SEM. 1. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 6220/6226 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 6230/6236 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB/SEM. 15. Pr. (P/C CTSE 7920 or P/C CTSE 7926). Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 6240/6246 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 6250/6256 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. May count either CTSE 5710 or CTSE 6710.

CTSE 7000/7006 ORIENTATION TO TEACHING AND LEARNING (1) LEC. 1. Skills, dispositions, community, and research planning for graduate students including preparation of a research proposal. May count either CTSE 7000 or CTSE 7006.

CTSE 7090 INQUIRY METHODS OF SCIENCE TEACHING (4) LEC. 4. Departmental approval. Study and practice of various inquiry based methods for teaching science as new teachers, including demonstration, laboratory, and inquiry projects.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3. Departmental approval. Implications of research and theory for the total secondary school program.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3. Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520/7526 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3. Nature of learners and of knowledge and implications for for building curricula and planning instruction in the area of specialization. May count either CTSE 7520 or CTSE 7526.

CTSE 7530/7536 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Program models, components, and standards in the area of specialization. May count either CTSE 7530 or CTSE 7536.

CTSE 7540/7546 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. May count either CTSE 7540 or CTSE 7546.
CTSE 7560 EQUITY ISSUES IN MATHEMATICS EDUCATION (3) LEC. 3. Theories, issues, and pedagogy related to achieving equity in mathematics education.

CTSE 7800/7806 CAPSTONE IN TEACHING AND LEARNING (2) LEC. 2. Development of a unique portfolio based on professional interest and demonstration the ability to foster student achievement through the design, implementation, and assessment of learning activities. May count either CTSE 7800 or CTSE 7806.

CTSE 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTSE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920/7926 CLINICAL RESIDENCY (8-11) AAB/INT. 40. SU. Pr. P/C CTSE 6210 or P/C CTSE 6216 or P/C CTSE 6220 or P/C CTSE 6260 or P/C CTSE 6266 or P/C CTSE 6270 or P/C CTSE 6276 or P/C CTSE 6280 or P/C CTSE 6286 or P/C CTSE 6290 or P/C CTSE 6296 or P/C CTSE 6250 or P/C CTSE 6256 or P/C CTSE 6260 or P/C CTSE 6266 or P/C CTSE 6270 or P/C CTSE 6276. Admission to Clinical Residency. Supervised clinical residency experiences in a school, college or other appropriate setting. Evaluation and analysis of the clinical residency experience. Departmental approval. May count either CTSE 7920 or CTSE 7926. Course may be repeated for a maximum of 11 credit hours.

CTSE 7970/7976 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for the graduate student and professor to pursue selected topics in depth. Course may be repeated for a maximum of 6 credit hours.

CTSE 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTSE 8950/8956 SEMINAR (1-3) SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTSE 8980/8986 FIELD PROJECT (1-3) FLD. SU. Departmental approval. Students review literature pertaining to a problem they have identified in their own practice, form hypotheses, plan intervention, collect data, analyze and interpret results, write summary of the project following approved guidelines, and orally defend the results of their project. Course may be repeated for a maximum of 3 credit hours.

CTSE 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Curriculum and Teaching

The Department of Curriculum and Teaching prepares teachers in content-specific, research-based pedagogy. Departmental faculty and school professionals partner to provide rich clinical experiences in diverse settings. All educator preparation programs are approved by the Alabama State Board of Education. Auburn University’s College of Education is accredited through the National Council for Accreditation of Teacher Education (NCATE). Music education programs are also accredited by the National Association of Schools of Music (NASM).

Elementary education is a high demand major. Due to limited enrollment, all students who meet minimum criteria may not be admitted. See Major with Restricted Enrollment for additional information.

In addition to undergraduate teacher education majors, the department offers undergraduate minors in community music and office systems management.

A list of course offerings is available on the Auburn University website.

Information about graduate programs is available at Curriculum and Teaching - MEd, MS, EdS, PhD.

The Department of Curriculum and Teaching offers the following undergraduate majors.

Undergraduate Majors

- Agriscience Education (p. 449)
- Business and Marketing Education (p. 451)
- Chemistry Education (p. 452)
- French Education (p. 458)
• German Education (p. 459)
• Spanish Education (p. 461)
• Early Childhood Education (p. 453)
• Elementary Education (p. 455)
• English Language Arts Education/English (p. 456)
• General Science Education (p. 462)
• General Social Science Education/History (p. 463)
• Mathematics Education (p. 464)
• Music Education/Instrumental and Vocal (p. 465)
• Physics Education (p. 468)

Minors
• Community Music (p. 449)
• Office Systems Management (p. 469)

Career and Technical Courses

CTCT 1200 KEYBOARDING AND FORMATTING (3) LEC. 1. LAB. 4. Mastery of alphanumeric keyboard with basic keyboarding and formatting applications of business documents. (Students with previous keyboarding/typewriting instruction consult with Business/Marketing Education faculty for placement.)

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2. LAB. 3. Repair and maintenance of small air-cooled engines and power equipment in Agriculture. May count either CTCT 2100 or CTCT 3100.

CTCT 2200/2203 COMPUTER LITERACY IN BUSINESS EDUCATION (3) LEC. 1. LAB. 4. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. Includes basic computer literacy skills. May count either CTCT 2200 or CTCT 2203.

CTCT 3000/3003 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3. Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings. Departmental approval. May count either CTCT 3000 or CTCT 3003.

CTCT 3200/3203 RECORDS MANAGEMENT (2) LEC. 2. Integrated records management systems, records management functions, classification systems, micrographics, electronic records, and records management careers. Departmental approval. May count either CTCT 3200 or CTCT 3203.

CTCT 3240/3243 INFORMATION PROCESSING I (3) LEC. 2. LAB. 2. Pr. CTCT 2200 or CTCT 2203 or (CTSE 2200 or CTSE 2203 or CTSE 2207). Exploration of organizational needs for text-based information processing. Functions and capabilities of text-based information processing components. Departmental approval. May count either CTCT 3240 or CTCT 3243.

CTCT 3250/3253 INFORMATION ANALYSIS (3) LEC. 2. LAB. 2. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. May count either CTCT 3250 or CTCT 3253.

CTCT 4000/4003 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2. Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs. May count either CTCT 4000 or CTCT 4003.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3. Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.


CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.
CTCT 4200/4203 MANAGING OFFICE SYSTEMS (3) LEC. 2. LAB. 2. Pr. CTCT 3250 or CTCT 3253. Capstone course with emphasis on integration of information processing procedures, administrative support, and management functions. Departmental approval. May count either CTCT 4200 or CTCT 4203.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. The student's learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920/4923 CLINICAL RESIDENCY (12) AAB. 40. SU. Admission to Teacher Education. Admission to Clinical Residency. Supervised clinical residency experiences abroad in a school or other appropriate setting. Evaluation and analysis of the clinical residency experience. May count either CTCT 4920 or CTCT 4923.

CTCT 4940/4943 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) FLD. SU. Supervised occupational work experience in an approved specialization-related occupation. Departmental approval. May count either CTCT 4940 or CTCT 4943. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050/5053 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 5060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Admission to Teacher Education. Introduction to principles and practices involved in designing education programs in the area of specialization. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 5080/5083 PRINCIPLES OF COORDINATION (3) LEC. 3. Admission to Teacher Education. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 5200/5203 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, systems, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 6200 or CTCT 6200/CTCT 6206.

CTCT 5240/5243 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. may count either CTCT 5240/CTCT 5243 or CTCT 6240/CTCT 6246.

CTCT 5250/5253 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May Count Either CTCT 3250/CTCT 3253 or CTCT 5250/CTCT 5253 CTCT 6250/CTCT 6256.

CTCT 5260/5263 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/CTCT 6266.

CTCT 5940/5943 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience in a Commerce and Information Technology environment. May count either CTCT 4940/CTCT 4943 or CTCT 5940/CTCT 5943 or CTCT 6940/CTCT 6946.

CTCT 6050/6056 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Admission to alternative master's program. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 6060/6066 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Introduction to principles and practices involved in designing educational programs in the area of specialization. Admission to alternative master's program. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 6080/6086 PRINCIPLES OF COORDINATION (3) LEC. 3. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.
CTCT 6200/6206 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 5203 or CTCT 6200/CTCT 6206.

CTCT 6240/6246 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 6240/CTCT 6246 or CTCT 5240/5243.

CTCT 6250/6256 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May count either CTCT 6250/CTCT 6256 or CTCT 5250/5253.

CTCT 6260/6266 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/6266.

CTCT 6940/6946 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience and software application in a Commerce and Information Technology environment. May count either CTCT 6940/CTCT 6946 or CTCT 5940/5943.

CTCT 7000/7006 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs. May count either CTCT 7000 or CTCT 7006.

CTCT 7010/7016 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3. Developing, managing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Departmental approval. May count either CTCT 7010 or CTCT 7016.

CTCT 7100/7106 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2. LAB. 2. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment. May count either CTCT 7100 or CTCT 7106.

CTCT 7120/7126 COURSES OF STUDY IN AGRICIENCE EDUCATION (3) LEC. 3. Pr. CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education. Departmental approval. May count either CTCT 7120 or CTCT 7126.

CTCT 7200/7206 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3. Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students. Departmental approval. May count either CTCT 7200 or CTCT 7206.

CTCT 7240/7246 ADMINISTRATIVE MANAGEMENT (3) LEC. 3. Pr. CTCT 4200 or CTCT 4203. Management of office systems, information and personnel. Managing and controlling administrative services. Departmental approval. May count either CTCT 7240 or CTCT 7246.

CTCT 7300/7306 INTEGRATING TECHNOLOGY IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Pr. CTCT 5050 or CTCT 6050 or CTCT 5053 or CTCT 6056. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. Departmental approval. May count either CTCT 7300 or CTCT 7306.

CTCT 7710/7716 ADVANCED TEACHING METHODS (3) LEC. 3. Pr. (CTCT 5050 or CTCT 5053) or (CTCT 6050 or CTCT 6056). Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching. Departmental approval. May count either CTCT 7710 or CTCT 7716.

CTCT 7720/7726 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Pr. CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066. Issues affecting the development and management of educational programs; strategies for improving educational programs. Departmental approval. May count either CTCT 7720 or CTCT 7726.

CTCT 7730/7736 PROGRAM EVALUATION (3) LEC. 3. Pr. (CTCT 7720 or CTCT 7726). Principles and procedures used in evaluating academic-related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations. Departmental approval. May count either CTCT 7730 or CTCT 7736.

CTCT 7750/7756 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) LEC. 2. LAB. 2. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs. Departmental approval. May count either CTCT 7750 or CTCT 7756.
CTCT 7760/7766 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LEC. 2. LAB. 2. Pr. (CTCT 7750 or CTCT 7756). Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data. Departmental approval. May count either CTCT 7760 or CTCT 7766.

CTCT 7770/7776 CLINICAL SUPERVISION (3) LEC. 3. Pr. (CTCT 7710 or CTCT 7716). Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers. Departmental approval. May count either CTCT 7770 or CTCT 7776.

CTCT 7780/7786 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education. Departmental approval. May count either CTCT 7780 or CTCT 7786.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1. SU. Departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours.

CTCT 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-3) PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours.

CTCT 7920/7926 CLINICAL RESIDENCY (9-12) AAB/INT. 40. SU. Admission to Clinical Residency. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Departmental approval. May count either CTCT 7920 or CTCT 7926. Course may be repeated for a maximum of 12 credit hours.

CTCT 7950/7956 SEMINAR IN AREA OF SPECIALIZATION (1-3) SEM. SU. Departmental approval. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7960/7966 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970/7976 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 3 credit hours.

CTCT 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730/8736 CURRICULUM DEVELOPMENT IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Pr. CTCT 7730 or CTCT 7736. Principles of career and technical education curriculum planning, identification of educational needs of students, selecting technical content, and evaluating materials. May count either CTCT 8730 or CTCT 8736.

CTCT 8770/8776 SUPERVISION OF INSTRUCTION (3) LEC. 3. Pr. CTCT 7770 or CTCT 7776. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel. Departmental approval. May count either CTCT 8770 or CTCT 8776.

CTCT 8800/8806 TEACHER EDUCATION (3) LEC. 3. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs. Departmental approval. May count either CTCT 8800 or CTCT 8806.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours.

CTCT 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.
CTCT 8950 SEMINAR IN AREA OF SPECIALIZATION (1-6) SEM. Departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980/8986 FIELD PROJECT (1-10) FLD. 1. SU. Departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Early Childhood Education Courses

CTEC 3020 PRIMARY MATH AND SCIENCE (3) LEC. 3. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in Kindergarten through Grade 3.

CTEC 3030 INTUITIVE THOUGHT AND SYMBOLIC FUNCTION (3) LEC. 3. Coreq. CTEC 4911. Young children’s intuitive thought for pre-service teachers.

CTEC 3150 LANGUAGE DEVELOPMENT: IMPLICATIONS FOR THE CHILDHOOD EDUCATOR (3) LEC. 3. Applications of language development theories to teaching children. Emphasis on the effects theories have on curriculum and teaching.

CTEC 3200 A WORKING THEORY FOR THE CONSTRUCTIVIST EDUCATOR (3) LEC. 3. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.


CTEC 4210/4213 THE CONSTRUCTIVIST TEACHER: GROWING PROFESSIONALLY (1) AAB. 1. Pr. P/C CTEC 4920 or P/C CTEC 4923. Admission to Clinical Residency. The roles and responsibilities of being an early childhood professional. May count either CTEC 4210 or CTEC 4213.

CTEC 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (2) LEC. 2. SU. Pr. CTEC 3200. Coreq. CTEC 3030. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (2) LEC. 2. SU. Pr. CTEC 3200. Coreq. CTEC 4200. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice. Course may be repeated for a maximum of 20 credit hours.

CTEC 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTEC 4210 or P/C CTEC 4213. Admission to Clinical Residency. Experience in a setting serving pre-primary or primary-school children with varying abilities. Admission to internship. May count either CTEC 4920 or CTEC 4923.

CTEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Individual readings program. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

CTEC 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEC 7200/7206 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3) LEC. 3. Historical overview of current issues, trends, and programs in early childhood education. May count either CTEC 7200 or CTEC 7206.

CTEC 7210/7216 ORIGINS OF THOUGHT (3) LEC. 3. Piaget’s theories of how thought develops in young children. Comparison of the social and biological roots of thought. May not count either CTEC 7210 or CTEC 7216.
CTEC 7260/7266 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3. Examination of children's play from a constructivist theoretical perspective and translation of theory into early childhood educational practice. May count either CTEC 7260 or CTEC 7266.

CTEC 7270/7276 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. May count either CTEC 7270 or CTEC 7276. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510/7516 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. How to read, review, analyze and interpret significant research studies in early childhood education. May count either CTEC 7510 or CTEC 7516.

CTEC 7520/7526 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned. May count either CTEC 7520 or CTEC 7526.

CTEC 7530/7536 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Organization, administration, and supervision of early childhood programs. May count either CTEC 7530 or CTEC 7536.

CTEC 7540/7546 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Assessment and evaluation of all program components from a constructivist perspective. May count either CTEC 7540 or CTEC 7546.

CTEC 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning objectives related to the student's area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEC 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Departmental approval. May count either CTEC 7910 or CTEC 7916. Course may be repeated for a maximum of 6 credit hours.

CTEC 7970 SPECIAL TOPICS (3-9) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics. 

CTEC 8240/8246 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. May count either CTEC 8240 or CTEC 8246.

CTEC 8270/8276 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Master's Degree. May count either CTEC 8270 or CTEC 8276. Course may be repeated for a maximum of 6 credit hours.

CTEC 8720/8726 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3. Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Master's Degree. May count either CTEC 8720 or CTEC 8726.

CTEC 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3. Analysis and interpretation of the design of constructivist investigation. Master's Degree.

CTEC 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEC 8970 SPECIAL TOPICS (3-9) LEC. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 8980/8986 FIELD PROJECT (1-3) FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May not count either CTEC 8980 or CTEC 8986. Course may be repeated for a maximum of 3 credit hours.

CTEC 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.
Elementary Education Courses

CTEE 3100 INTRODUCTION TO ELEMENTARY EDUCATION (3) LEC. 3. Admission to Teacher Education. Knowledge, skills, and dispositions necessary for elementary education, with emphasis on professional expectations and school structure.

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (4) LEC. 30. LAB. 105. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of social sciences for elementary learners.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4010. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of language arts for elementary learners.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4040. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of science for elementary learners.

CTEE 4040 CURRICULUM: MATHEMATICS (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4030. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of mathematics for elementary learners.

CTEE 4190 EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.

CTEE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTEE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEE 4920/4923 CLINICAL RESIDENCY (11) AAB/INT. 11. SU. Pr. P/C CTEE 4950 or P/C CTEE 4953. Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Admission to internship. May count either CTEE 4920 or CTEE 4923.

CTEE 4950/4953 PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB/SEM. 1. SU. Pr. P/C CTEE 4920 or P/C CTEE 4923. Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. May count either CTEE 4950 or CTEE 4953. Course may be repeated for a maximum of 4 credit hours.

CTEE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTEE 4970 SPECIAL TOPICS (1-6) AAB/LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTEE 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEE 7010/7016 approaches to teaching (3) LEC. 3. Organizational patterns, planning and approaches to instruction in the elementary school.

CTEE 7410/7416 CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement in (K-6) social science education. May count either CTEE 7410 or CTEE 7416.

CTEE 7420/7426 CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3) LEC. 3. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education. May count either CTEE 7420 or CTEE 7426.
CTEE 7430/7436 CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education. May count either CTEE 7430 or CTEE 7436.

CTEE 7440/7446 CURRICULUM AND TEACHING IN MATHEMATICS (GRADES K-6) (3) LEC. 3. Teaching practices and re-appraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education. May count either CTEE 7440 or CTEE 7446.

CTEE 7490 THE ELEMENTARY SCHOOL PROGRAM (3) LEC. 3. Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.

CTEE 7510/7516 RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3) LEC. 3. A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school. May count either CTEE 7510 or CTEE 7516.

CTEE 7530/7536 ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3) LEC. 3. Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices. May count either CTEE 7530 or CTEE 7536.

CTEE 7540/7546 EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3) LEC. 3. Evaluation methods and exploration of evaluation literature in areas of specialization. May count either CTEE 7540 or CTEE 7546.

CTEE 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB/PRA. SU. Departmental approval. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEE 7970/7976 SPECIAL TOPICS (1-6) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. May count either CTEE 7970 or CTEE 7979. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTEE 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980/8986 FIELD PROJECT (1-10) FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May count either CTEE 8980 or CTEE 8986. Course may be repeated for a maximum of 10 credit hours.

CTEE 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English for Spkrs Other Lang Courses

CTES 5410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3. Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs. May count either CTES 5410 or CTES 6410.

CTES 6410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3. Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs. May count either CTES 5410 or CTES 6410.

CTES 7400/7406 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Application of instructional technology in second language instruction, authentic materials in the ESL classroom. May count either CTES 7400 or CTES 7406.
CTES 7420/7426 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. May count either CTES 7420 or CTES 7426.

CTES 7460/7466 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. May count either CTES 7460 or CTES 7466.

CTES 7470/7476 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. May count either CTES 7470 or CTES 7476.

CTES 7480/7486 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. May count either CTES 7480 or CTES 7486.

CTES 7920/7926 CLINICAL RESIDENCY (3-9) AAB/INT. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 9 credit hours.

Middle School Education Courses

CTMD 4010 TEACHING MATHEMATICS: MIDDLE SCHOOL (4) LEC. 2. LAB. 4. Admission to Teacher Education. Specific teaching strategies for a comprehensive middle school program grades 4-8.

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 4200 or P/C CTSE 4203. Admission to Clinical Residency. Supervised teaching in a public middle or secondary school, abroad, accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTMD 4920 or CTMD 4923.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

Music Education Courses

CTMU 1010 INTRODUCTION TO MUSIC EDUCATION (0) LAB. 1. Introduction to teaching music.

CTMU 1020 MUSIC EDUCATION LAB I (1) LAB. 3. Development and documentation of general music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 2010 MUSIC EDUCATION LAB II (1) LAB. 3. Development and documentation of vocal or instrumental music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 3040 MUSIC AND RELATED ARTS (4) LEC. 2. LAB. 4. Interdisciplinary instruction appropriate for students' developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.
CTMU 4910/4913 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. Admission to Teacher Education. Cooperatively selected field experience. May count either CTMU 4910 or CTMU 4913. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920/4923 CLINICAL RESIDENCY (12) AAB. 40. SU. Admission to Teacher Education. Admission to Clinical Residency. Supervised on-the-job experience in a school or other appropriate setting abroad with regularly scheduled discussions with supervising faculty to provide evaluation and analysis of the intern. May count either CTMU 4920 or CTMU 4923.

CTMU 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.

CTMU 4997 HONORS THESIS (1-3) IND. Pr. Honors College. The student’s thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.


CTMU 5140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Admission to Teacher Education. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140 or CTMU 6140.


CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master’s Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master’s Certification Program.

CTMU 7000/7006 SCHOOL AND COMMUNITY MUSIC (1) LEC. 1. Developing skills, disposition, community, and research planning for graduate students in school and community music. May count either CTMU 7000 or CTMU 7006. Course may be repeated for a maximum of 2 credit hours.
CTMU 7510/7516 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians. May count either CTMU 7510 or CTMU 7516.

CTMU 7520/7526 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum. May count either CTMU 7520 or CTMU 7526.

CTMU 7530/7536 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education. May count either CTMU 7530 or CTMU 7536.

CTMU 7540/7546 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings. May count either CTMU 7540 or CTMU 7546.

CTMU 7550/7556 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3. An overview of applications of current technology in music classroom, studios, and offices. May count either CTMU 7550 or CTMU 7556.

CTMU 7560/7566 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3. Current tools, skills, and concepts for creating aural and visual interactive applications. May count either CTMU 7560 or CTMU 7566.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3. Pr. CTMU 7550 or CTMU 7556. Departmental approval. Current research music instructional technology, design of interactive applications.

CTMU 7580/7586 PSYCHOLOGY OF MUSIC (3) LEC. 3. This course will focus on exploring the musical experience psychological, psycho-acoustic, emotional, anthropological, sociological, and assistance perspectives to better understand how philosophical and practical approaches work in music teaching, learning, and in community settings. May count either CTMU 7580 or CTMU 7586.

CTMU 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMU 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7970/7976 SPECIAL TOPICS (1-9) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTMU 8950/8956 SEMINAR (1-3) SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTMU 8980/8986 FIELD PROJECT (1-6) FLD. SU. Course may be repeated for a maximum of 6 credit hours.

CTMU 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Reading Education Courses

CTRD 1000 CRITICAL READING (2) LEC. 2. Strategies for reading expository text, with emphasis on vocabulary learning and text structures, toward goal of critical evaluation of evidence for authors' main-idea claims.

CTRD 3000 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 2. LAB. 1. Admission to Teacher Education. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially at risk of reading difficulties. Includes laboratory teaching experience. May count either CTRD 3000 or CTRD 3710.

CTRD 3010/3013 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION II (4) LEC. 3. LAB. 3. Admission to Teacher Education. Theoretical foundations of language and literacy development of children and implications for teaching. Clinical, laboratory experiences with children. May count either CTRD 3010, CTRD 3003, or CTRD 3700.
CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTRD 5003 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000 or CRTD 6006.

CTRD 5030 THE READING OF ADOLESCENTS (3) LEC. 3. Admission to Teacher Education. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 5710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Admission to Teacher Education. Strategies to enhance literacy and inquiry for student's content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 6000/6006 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000 or CRTD 6006.

CTRD 6030/6036 THE READING OF ADOLESCENTS (3) LEC. 3. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6700/6706 DEVELOPMENTAL READING K-12 (3) LEC. 3. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6710/6716 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Strategies to enhance literacy and inquiry for student's content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.


CTRD 7510/7516 RESEARCH STUDIES IN READING EDUCATION (3) RES. 3. Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CTRD 7520/7526 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.

CTRD 7530/7536 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, faculties and school systems in the continuous improvement of curriculum and teaching practices.

CTRD 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization.

CTRD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920/7926 CLINICAL RESIDENCY (1-9) INT. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Departmental approval. May count either CTRD 7920 or CTRD 7926. Course may be repeated for a maximum of 9 credit hours.

CTRD 7970/7976 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 6 credit hours.

CTRD 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.
CTRD 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTRD 8980 FIELD PROJECT (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

CTRD 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Secondary Education Courses

CTSE 1020 DEVELOPMENTAL STUDIES: MATHEMATICS (2) LEC. 1. LAB. 2. Departmental approval. Develops mathematics skills conducive to successful college study. Credit counted toward enrollment, but not graduation.

CTSE 1030 DEVELOPMENTAL STUDIES: ENGLISH LANGUAGE ARTS (2) LEC. 1. LAB. 2. SU. Departmental approval. Develops reading/study and composition skills conducive to successful college study. Credit not counted toward graduation. Course may be repeated for a maximum of 4 credit hours.

CTSE 4000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program.


CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4210. Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4050 and CTSE 4210. Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070/4073 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks. May count either CTSE 4070 or CTSE 4073.

CTSE 4080/4083 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Pr. CTSE 4070 or CTSE 4073. Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students. May count either CTSE 4080 or CTSE 4083.

CTSE 4090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 5010 and CTSE 5020. Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.

CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTRD 5030 and CTRD 5710. Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms.

CTSE 4200/4203 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOMS (2) LEC. 2. Pr. P/C CTSE 7920 or P/C CTSE 7926 or P/C CTMU 7920 or P/C CTMU 7926 or (P/C CTMU 4920 or P/C CTMU 4923) or (P/C CTSE 4920 or P/C CTSE 4923). Admission to Teacher Education. The role of the teacher in classroom management. Methods for developing a positive learning environment. May count either CTSE 4200 or CTSE 4203.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTSE 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.
CTSE 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 5210 or P/C CTSE 5213 or P/C CTSE 5220 or P/C CTSE 5223 or P/C CTSE 5230 or P/C CTSE 5233 or P/C CTSE 5240 or P/C CTSE 5243 or P/C CTSE 5250 or P/C CTSE 5253 or P/C CTSE 5410. Admission to Teacher Education. Admission to Clinical Residency. Supervised teaching in a public secondary school abroad accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTSE 4920 or CTSE 4923.

CTSE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTSE 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours.

CTSE 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTSE 5000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. Junior standing. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2. LAB. 4. Pr. MATH 2660. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 5050 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.

CTSE 5210/5213 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) LEC. 1. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 5220/5223 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 5230/5233 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 5240/5243 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 5250/5253 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 5710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5710 or CTSE 6710.

CTSE 6000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.
CTSE 6010/6016 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2. LAB. 4. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 6100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 4, LEC/LLB. 6. Pr. CTSE 4090. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 6210/6216 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) AAB/SEM. 1. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 6220/6226 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 6230/6236 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB/SEM. 15. Pr. (P/C CTSE 7920 or P/C CTSE 7926). Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 6240/6246 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 6250/6256 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. May count either CTSE 5710 or CTSE 6710.

CTSE 7000/7006 ORIENTATION TO TEACHING AND LEARNING (1) LEC. 1. Skills, dispositions, community, and research planning for graduate students including preparation of a research proposal. May count either CTSE 7000 or CTSE 7006.

CTSE 7090 INQUIRY METHODS OF SCIENCE TEACHING (4) LEC. 4. Departmental approval. Study and practice of various inquiry based methods for teaching science as new teachers, including demonstration, laboratory, and inquiry projects.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3. Departmental approval. Implications of research and theory for the total secondary school program.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3. Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520/7526 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3. Nature of learners and of knowledge and implications for for building curricula and planning instruction in the area of specialization. May count either CTSE 7520 or CTSE 7526.

CTSE 7530/7536 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Program models, components, and standards in the area of specialization. May count either CTSE 7530 or CTSE 7536.

CTSE 7540/7546 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. May count either CTSE 7540 or CTSE 7546.
CTSE 7560 EQUITY ISSUES IN MATHEMATICS EDUCATION (3) LEC. 3. Theories, issues, and pedagogy related to achieving equity in mathematics education.

CTSE 7800/7806 CAPSTONE IN TEACHING AND LEARNING (2) LEC. 2. Development of a unique portfolio based on professional interest and demonstration the ability to foster student achievement through the design, implementation, and assessment of learning activities. May count either CTSE 7800 or CTSE 7806.

CTSE 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTSE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920/7926 CLINICAL RESIDENCY (8-11) AAB/INT. 40. SU. Pr. P/C CTSE 6210 or P/C CTSE 6216 or P/C CTSE 6220 or P/C CTSE 6226 or P/C CTSE 6228 or P/C CTSE 6230 or P/C CTSE 6236 or P/C CTSE 6240 or P/C CTSE 6246 or P/C CTSE 6250 or P/C CTSE 6256. Admission to Clinical Residency. Supervised clinical residency experiences in a school, college or other appropriate setting. Evaluation and analysis of the clinical residency experience. Departmental approval. May count either CTSE 7920 or CTSE 7926. Course may be repeated for a maximum of 11 credit hours.

CTSE 7970/7976 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for the graduate student and professor to pursue selected topics in depth. Course may be repeated for a maximum of 6 credit hours.

CTSE 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTSE 8950/8956 SEMINAR (1-3) SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTSE 8980/8986 FIELD PROJECT (1-3) FLD. SU. Departmental approval. Students review literature pertaining to a problem they have identified in their own practice, form hypotheses, plan intervention, collect data, analyze and interpret results, write summary of the project following approved guidelines, and orally defend the results of their project. Course may be repeated for a maximum of 3 credit hours.

CTSE 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Community Music Minor

Required coursework (9 hours):

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<tr>
<td>CTMU 1010</td>
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<td>CTMU 1020</td>
<td>Music Education Lab I</td>
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<td>CTMU 2010</td>
<td>Music Education Lab II</td>
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<tr>
<td>CTMU 4910/4913</td>
<td>Practicum in Area of Specialization</td>
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Select two of the following 4 hour courses: 8

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<tr>
<td>CTMU 5110</td>
<td>Children's Music Learning</td>
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<tr>
<td>CTMU 5120</td>
<td>School and Community General Music Education</td>
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<td>CTMU 5130</td>
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<tr>
<td>CTMU 5140</td>
<td>School and Community Vocal Music Education</td>
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Total Hours 16

Curriculum in Agriscience Education

Freshman

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<td>MATH 1130</td>
<td>Pre-Calculus Trigonometry</td>
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Fall | Hours | Spring | Hours |
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<td>ENGL 1100</td>
<td>English Composition I</td>
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<td>Core History or Core Social Science</td>
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<td>MATH 1130</td>
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<td>BIOL 1030 Organismal Biology</td>
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<td>Course</td>
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<td>BIOL 1020 Principles of Biology</td>
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<td>ECON 2020/2027 Principles of Microeconomics</td>
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<td>Core Fine Arts</td>
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<td>HORT 2020 Horticulture Crop Production</td>
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<td>FOUN 3000 Diversity of Learners and Settings</td>
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<td>Ag Electives</td>
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<td>AGEC 3010 Agribusiness Marketing or 4000 Principles of Agribusiness Management</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Senior</td>
<td></td>
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</tr>
<tr>
<td>CTCT 4000/4003 Classroom/Laboratory Management, Organization and Evaluation in Career and Technical Education</td>
<td>2</td>
<td>UNIV 4AA0 University Graduation</td>
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</tr>
<tr>
<td>CTCT 4140 Agricultural Structure and Metal Fabrication Technology</td>
<td>3</td>
<td>CTCT 4923/4920 Clinical Residency</td>
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<tr>
<td>FISH 5210 Principles of Aquaculture, 2100 Introduction to Fisheries Sciences, or 5520 Small Impoundment Management</td>
<td>3</td>
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<tr>
<td>CTCT 4030 Career and Technical Student Organizations</td>
<td>3</td>
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</tr>
<tr>
<td>CTCT 5050/5053 Methods of Teaching in Area of Specialization</td>
<td>3</td>
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</tr>
<tr>
<td>Total Hours: 123</td>
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</tbody>
</table>
Students must complete a history sequence or a literature sequence.

Prerequisite for Admission to Clinical Residency.

PHIL 1010/PHIL 1017/PHIL 1020/PHIL 1027/PHIL 1030/PHIL 1037/PHIL 1040/PHIL 1050/PHIL 1060/PHIL 1070/PHIL 1080/PHIL 1090/PHIL 1100/HONR 1007/HONR 1017(SLO3)

Agriculture Elective: See advisor for approved course listing.

Prerequisite: Admission to Teacher Education.

## Curriculum in Business and Marketing Education

### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120</td>
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<tr>
<td>Core History 1</td>
<td>3</td>
<td>Core History or Core Social Science</td>
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</tr>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Math</td>
<td>3</td>
</tr>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Social Science</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 1010 Orientation to Teacher Education 2</td>
<td>0</td>
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</table>

12 12

### Sophomore

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ACCT 2110 Principles of Financial Accounting or 2810 Fundamentals Of Accounting</td>
<td>3</td>
<td>Core Literature or Core Humanities</td>
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<tr>
<td>Core Literature 1</td>
<td>3</td>
<td>ACCT 2700 Business Law</td>
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<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
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<tr>
<td>Humanities Core 4</td>
<td>3</td>
<td>FINC 2400</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Leadership Skills for Personal and Organizational Development</td>
<td>3</td>
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</table>

13 16

### Junior

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CTCT 2200/2203 Computer Literacy in Business Education</td>
<td>3</td>
<td>MKTG 3310</td>
<td>3</td>
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<tr>
<td>FOUN 3000 Diversity of Learners and Settings 2</td>
<td>3</td>
<td>CTCT 5240/5243 Multimedia Design</td>
<td>3</td>
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<tr>
<td>MNGT 3100 Principles of Management or 3810 Management Foundations</td>
<td>3</td>
<td>CTCT 5250/5253 Information Design &amp; Analysis</td>
<td>3</td>
</tr>
<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners</td>
<td>3</td>
<td>CTCT 5260/5263 Applied Computer Technology</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 5200/5203 Records Management Systems</td>
<td>3</td>
<td>FOUN 3110 Adolescents Development, Learning, Motivation and Assessment I 2,3</td>
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#### Summer

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CTCT 5060 Program Planning in Area of Specialization</td>
<td>3</td>
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<tr>
<td>CTCT 5080/5083 Principles of Coordination (Name change: Principles of Coordination)</td>
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<tr>
<td>CTCT 4970 Special Topics in Area of Specialization</td>
<td>3</td>
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<tr>
<td>CTCT 5940/5943 Work Experience in Information Technology</td>
<td>3</td>
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</table>

3 3 3 3
### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>CTCT 4000/4003 Classroom/Laboratory Management, Organization and Evaluation in Career and Technical Education</td>
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<tr>
<td>CTCT 5050/5053 Methods of Teaching in Area of Specialization</td>
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<tr>
<td>CTRD 5003 Language and Literacy in the Content Areas</td>
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<tr>
<td>CTCT 4910 Practicum in Area of Specialization (or Elective)</td>
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<tr>
<td>FOUN 3120 Adolescent Development, Learning, Motivation and Assessment II</td>
<td>3</td>
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</tr>
<tr>
<td><strong>Total Hours:</strong></td>
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<td>12</td>
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</table>

**Students must complete a history sequence or a literature sequence.**

**Prerequisite for Admission to Clinical Residency.**

**Prerequisite: Admission to Teacher Education.**

**Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).**

### Curriculum in Chemistry Education/Chemistry

#### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1610 Calculus I or 1617 Honors Calculus I</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Core History I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1110 General Chemistry I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1111 General Chemistry I Laboratory</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Hours:</strong></td>
<td>17</td>
<td>17</td>
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#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1500 General Physics I</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 2070 Organic Chemistry I</td>
<td>3</td>
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<td><strong>Total Hours:</strong></td>
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<td>17</td>
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<tr>
<td>Course</td>
<td>Credits</td>
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<tr>
<td>----------------------------------------------------</td>
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</tr>
<tr>
<td>CHEM 2071 Organic Chemistry I Laboratory</td>
<td>1</td>
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</tr>
<tr>
<td>1 CHEM 2080 Organic Chemistry II</td>
<td>3</td>
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<tr>
<td>CHEM 2081 Organic Chemistry II Laboratory</td>
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</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Hours</td>
<td>Spring</td>
</tr>
<tr>
<td>FOUN 3000 Diversity of Learners and Settings³</td>
<td>3</td>
<td>CHEM 3000 Chemical Literature</td>
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<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners³</td>
<td>3</td>
<td>Chemistry Elective (3000-5000 level)</td>
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<tr>
<td>CHEM 3050 Analytical Chemistry</td>
<td>3</td>
<td>CHEM 3160 Survey of Physical Chemistry</td>
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<tr>
<td>CHEM 3051 Analytical Chemistry Laboratory</td>
<td>1</td>
<td>CTSE 4090 Curriculum and Teaching I: Science¹,³</td>
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<tr>
<td>Chemistry Elective (3000-5000 level)</td>
<td>3</td>
<td>CTRD 5003 Language and Literacy in the Content Areas³</td>
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<tr>
<td>CTSE 5000 Technology in Science Education³</td>
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<tr>
<td>Senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Hours</td>
<td>Spring</td>
</tr>
<tr>
<td>FOUN 3120 Adolescent Development, Learning, Motivation and Assessment II¹,³</td>
<td>3</td>
<td>CTSE 4920/4923 Clinical Residency²</td>
</tr>
<tr>
<td>CHEM 5180 Biochemistry I</td>
<td>3</td>
<td>CTSE 5240/5243 Clinical Residency Seminar in Science Teaching¹,⁴</td>
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<tr>
<td>CHEM 5181 Biochemistry I Laboratory</td>
<td>1</td>
<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
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</tr>
<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
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<tr>
<td>CTSE 5100 Curriculum and Teaching II: Science¹,³</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Total Hours: 122</td>
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</tr>
</tbody>
</table>

1  Prerequisite: Admission to Teacher Education.
2  Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
3  Prerequisite for Admission to Clinical Residency.
4  Co-requisite with Clinical Residency.

Chemistry Elective: See advisor for approved course listing.

## Curriculum in Early Childhood Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Hours</td>
</tr>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>Core History¹</td>
<td>3</td>
</tr>
<tr>
<td>Core Math</td>
<td>3</td>
</tr>
<tr>
<td>Core Social Science³</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 1010 Orientation to Teacher Education⁴</td>
<td>0</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
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<tr>
<td>--------------</td>
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</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Hours</td>
</tr>
<tr>
<td>Core Literature¹</td>
<td>3</td>
</tr>
<tr>
<td>Approved Humanities Choice²</td>
<td>3</td>
</tr>
<tr>
<td>MATH 2860 Mathematics for Elementary Education II</td>
<td>3</td>
</tr>
<tr>
<td>Science Elective with Lab</td>
<td>4</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Hours</td>
</tr>
<tr>
<td>FOUN 3000 Diversity of Learners and Settings⁴</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 3000 Foundations of Language and Literacy Instruction I⁴,⁵</td>
<td>3</td>
</tr>
<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners⁴</td>
<td>3</td>
</tr>
<tr>
<td>CTEC 3200 A Working Theory for the Constructivist Educator⁴,⁵</td>
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<tr>
<td>HDFS 3010 Child Development in the Family</td>
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<tr>
<td>CTEC 4200 The Constructivist Teacher: Strategies and Techniques⁴,⁵</td>
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<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Fall</td>
<td>Hours</td>
</tr>
<tr>
<td>FOUN 3100 Child Development, Learning, Motivation and Assessment⁴,⁵</td>
<td>6</td>
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<tr>
<td>CTEC 4912 Practicum in Primary Grades⁴,⁵</td>
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<tr>
<td>CTEC 3020 Primary Math and Science⁵</td>
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<tr>
<td>CTMU 3040 Music and Related Arts⁵</td>
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<tr>
<td></td>
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<tr>
<td>Total Hours: 122</td>
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</tr>
</tbody>
</table>

Curriculum guides for the junior and senior year vary according to semester of admission to Teacher Education. Some curriculum guides include a summer term. See advisor.

¹ Students must complete a history sequence or a literature sequence.
² PHIL 1010/PHIL 1017/PHIL 1020/PHIL 1027/PHIL 1030/PHIL 1037/PHIL 1040/PHIL 1050/PHIL 1060/PHIL 1070/PHIL 1080/PHIL 1090/PHIL 1100/HONR 1007/HONR 1017(SLO3)
One history or core social science course must be from ANTH 1000/ANTH 1007, GEOG 1010/GEOG 1017, HIST 1010/HIST 1017, HIST 1020/HIST 1027, PSYC 2010, SOCY 1000/SOCY 1007 OR UNIV 2720/UNIV 2727 unless FLGC 1150 or UNIV 2710/HONR 2717 taken as Humanities(SLO9)

Prerequisite for Admission to Clinical Residency.
Prerequisite: Admission to Teacher Education.
Co-requisite with Clinical Residency.
Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

Curriculum in Elementary Education

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>Core History 1</td>
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<td>Core History or Core Social Science</td>
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<tr>
<td>Core Science I</td>
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<td>Core Science II</td>
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<tr>
<td>Core Math</td>
<td>3</td>
<td>MATH 2850 Mathematics for Elementary Education I</td>
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<tr>
<td>Core Social Science</td>
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<td>Core Social Science</td>
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<td></td>
</tr>
<tr>
<td>EDUC 1010 Orientation to Teacher Education</td>
<td>0</td>
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<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 2860 Mathematics for Elementary Education II</td>
<td>3</td>
<td>MATH 2870 Mathematics for Elementary Education III (or Math Elective)</td>
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<tr>
<td>Core Literature 1</td>
<td>3</td>
<td>Core Literature 1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Humanities Core</td>
<td>3</td>
<td>Core Fine Arts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Science Elective with Lab</td>
<td>4</td>
<td>Approved HDFS or PSYC</td>
<td>3</td>
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</tr>
<tr>
<td>EDMD 3300 Utilization of Instructional Technology for Educators 2</td>
<td>2</td>
<td>FOUN 3000 Diversity of Learners and Settings 2</td>
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<tr>
<td>RSED 3000 Diversity and Exceptionality of Learners</td>
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<table>
<thead>
<tr>
<th>Junior</th>
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<tbody>
<tr>
<td>CTEE 3100 Introduction to Elementary Education 2,3</td>
<td>3</td>
<td>CTEE 4010 Curriculum: Social Science 2,3</td>
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<tr>
<td>FOUN 3100 Child Development, Learning, Motivation and Assessment 2,3</td>
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<td>CTEE 4020 Curriculum: Language Arts 2,3</td>
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<td>CTRD 3000 Foundations of Language and Literacy Instruction I 2,3</td>
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<td>CTRD 3013 Foundations of Language and Literacy Instruction II 2,3</td>
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<tr>
<td>KINE 4360 Health Education and Physical Education in Elementary Schools 3</td>
<td>3</td>
<td>CTMU 3040 Music and Related Arts</td>
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</tbody>
</table>

| | | 15 | 16 |
### Senior

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>CTEE 4030 Curriculum: Natural Science 2,3</td>
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<td>CTEE 4040 Curriculum: Mathematics 2,3</td>
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<td>CTEE 4190 Effective Classroom Management in the Elementary School 2,3</td>
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<tr>
<td>EDMD 5100 Media for Children (or advisor approved elective)</td>
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</tbody>
</table>

Total Hours: 122

Curriculum guides for the junior and senior year vary according to semester of admission to Teacher Education. Some curriculum guides include a summer term. See advisor.

1. Students must complete a history sequence or a literature sequence.
2. Prerequisite for Admission to Clinical Residency.
3. Prerequisite: Admission to Teacher Education.
4. Corequisite with Clinical Residency.
5. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

### Freshman

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
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</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Core Math</td>
<td>3</td>
<td></td>
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<tr>
<td>THEA 2010 Introduction to Theatre</td>
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<tr>
<td>Core Science I</td>
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<td>3</td>
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Total Hours: 16

### Sophomore

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<thead>
<tr>
<th>Course Description</th>
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<tbody>
<tr>
<td>Select one of the following to complete a sequence:</td>
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<tr>
<td>ENGL 2230 British Literature before 1789</td>
<td></td>
<td>ENGL 2230 British Literature before 1789</td>
</tr>
<tr>
<td>ENGL 2240 British Literature after 1789</td>
<td></td>
<td>ENGL 2240 British Literature after 1789</td>
</tr>
<tr>
<td>ENGL 2250 American Literature before 1865</td>
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<td>ENGL 2250 American Literature before 1865</td>
</tr>
<tr>
<td>ENGL 2260 American Literature after 1865</td>
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<td>ENGL 2260 American Literature after 1865</td>
</tr>
<tr>
<td>Core Social Science</td>
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<td></td>
</tr>
<tr>
<td>Journalism Elective</td>
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</tr>
<tr>
<td>American or British Lit 2000 level 2</td>
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<tr>
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Total Hours: 18
### Auburn University

#### Junior

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<tr>
<td><strong>FOUN 3000 Diversity of Learners and Settings</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
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<td><strong>FOUN 3110 Adolescent Development, Learning, Motivation and Assessment</strong>&lt;sup&gt;1,3&lt;/sup&gt;</td>
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<tr>
<td><strong>CTSE 5010 Language Study for Teachers</strong></td>
<td>3</td>
<td><strong>CTSE 4150 Curriculum and Teaching I: English Language Arts</strong>&lt;sup&gt;1,3&lt;/sup&gt;</td>
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<tr>
<td><strong>CTSE 5020 Rhetoric and Composition for Teachers</strong></td>
<td>3</td>
<td><strong>CTRD 5030 The Reading of Adolescents</strong></td>
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<td><strong>CTRD 5003 Language and Literacy in the Content Areas</strong>&lt;sup&gt;1,3&lt;/sup&gt;</td>
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<td><strong>English Ling/Rhet Elective Group</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
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<td><strong>English Writing Elective Group</strong>&lt;sup&gt;4&lt;/sup&gt;</td>
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<td><strong>ENGL 3130 Survey of Critical Theory</strong></td>
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#### Senior

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<td><strong>Eng. Globalism, Sustainability, of Div. Gp</strong>&lt;sup&gt;6&lt;/sup&gt;</td>
<td>3</td>
<td><strong>CTSE 5210/5213 Teacher Inquiry Workshop: Problems and Possibilities</strong>&lt;sup&gt;3,8&lt;/sup&gt;</td>
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<td><strong>ENGL 4800 Seminar in Literature</strong></td>
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**Total Hours:** 127

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1. Prerequisite for Admission to Clinical Residency.
2. Select one of the following: ENGL 2230/ENGL 2240/ENGL 2250/ENGL 2260
3. Prerequisite: Admission to Teacher Education
4. Select one of the following: ENGL 2000/ENGL 2010/ENGL 3040/ENGL 3080/ENGL 4000/ENGL 4010
5. Select one of the following: ENGL 3110/ENGL 3120/ENGL 4140/ENGL 4150/ENGL 4180/ENGL 5410
6. Select one of the following: ENGL 3710/ENGL 3850/ENGL 3870/ENGL 4160/ENGL 4450/ENGL 4710/ENGL 4720/ENGL 4740
7. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
8. Co-requisite with Clinical Residency.

### Group 1 - Linguistics/Rhetoric

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<tr>
<td>ENGL 3110</td>
<td>Survey of Linguistics</td>
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<td>ENGL 3120</td>
<td>Survey of Rhetoric</td>
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<td>ENGL 4140</td>
<td>Language Variation</td>
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<td>ENGL 4150</td>
<td>Topics in Language Study</td>
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<td>ENGL 4180</td>
<td>Rhetorical Theory and Practice</td>
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<tr>
<td>ENGL 5410</td>
<td>History of the English Language</td>
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Group 2 - Course in Globalism, Sustainability, or Diversity

ENGL 3710  Survey of African American Literature Before 1900  3
ENGL 3870  World English Literatures  3
ENGL 4450  Topics in African American Literature  3
ENGL 4710  Topics in Gender and Literature  3
ENGL 4720  Topics in Minority Voices in Literature  3
ENGL 3850  Study in London  3
ENGL 4160  Technology, Literacy, and Culture  3
ENGL 4740  Environment, Literature, and Culture  3
Total Hours  24

Group 3 - Writing elective

ENGL 2000  Introduction to Creative Writing  3
ENGL 2010  Introduction to Professional Writing  3
ENGL 3040  Technical Writing  3
ENGL 3080  Business Writing  3
ENGL 4000  Advanced Composition  3
ENGL 4010  Topics in Writing  3
Total Hours  18

Curriculum in Foreign Language Education/French

Freshman

Fall  Hours  Spring  Hours
ENGL 1100 English Composition I  3  Core History II  3
Core History I  3  FLFR 2020 Intermediate French II  4
Core Math  3  Humanities Core  3
FLFR 2010 Intermediate French I  4  ENGL 1120 English Composition II  3
Core Science I  4  EDUC 1010 Orientation to Teacher Education  4
  Core Science II  4
17  17

Sophomore

Fall  Hours  Spring  Hours
Core Literature  3  COMM 1000 Public Speaking  3
Core Fine Arts  3  Core Social Science  3
Core Social Science  3  Free Elective#  2
Free Elective  3  FLFR 3110 French Civilization  3
FLFR 3010 French Phonetics and Diction,  3  Select one of the following:
  3030  FLFR 3040 French Composition
French Conversation, or 4030 French Continuing  FLFR 4020 Advanced Grammar and Stylistics
Conversation  FLFR 4040 French Continuing Composition
15  14
### Junior

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<th>Fall</th>
<th>Hours</th>
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<tr>
<td><strong>FOUN 3000 Diversity of Learners and Settings</strong>&lt;sup&gt;4&lt;/sup&gt;</td>
<td>3</td>
<td><strong>CTSE 4080/4083 Curriculum and Teaching II:</strong></td>
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<tr>
<td><strong>CTSE 4070/4073 Curriculum and Teaching I:</strong></td>
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<td><strong>FLFR Electives (3000 or above)</strong>&lt;sup&gt;6&lt;/sup&gt;</td>
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<td><strong>FLFR Elective (3000 or above)</strong>&lt;sup&gt;6&lt;/sup&gt;</td>
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<td><strong>CTSE 5220/5223 Class Management and Discipline in Foreign Language Classroom</strong>&lt;sup&gt;2,5&lt;/sup&gt;</td>
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<td>FLFR 3140 Survey of French Literature I</td>
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<tr>
<td>FLFR 3150 Survey of French Literature II</td>
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### Senior

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<tr>
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<tr>
<td><strong>FOUN 3120 Adolescent Development, Learning, Motivation and Assessment II</strong>&lt;sup&gt;2,4&lt;/sup&gt;</td>
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<tr>
<td><strong>EDMD 3300 Utilization of Instructional Technology for Educators</strong>&lt;sup&gt;4&lt;/sup&gt;</td>
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<td><strong>CTSE 4920/4923 Clinical Residency</strong>&lt;sup&gt;3&lt;/sup&gt;</td>
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<tr>
<td><strong>FLFR Electives (3000 or above)</strong>&lt;sup&gt;6&lt;/sup&gt;</td>
<td>9</td>
<td><strong>CTSE 5220/5223 Class Management and Discipline in Foreign Language Classroom</strong>&lt;sup&gt;2,5&lt;/sup&gt;</td>
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Total Hours: 120

1. FLFR 1010 and FLFR 1020 may also be required based on placement test score.
2. Prerequisite: Admission to Teacher Education.
3. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4. Prerequisite for Admission to Clinical Residency.
5. Co-requisite with Clinical Residency.
6. FLFR Elective: See advisor for approved course listing.

# FLFR 2000 level courses are 3 hours at junior colleges. If these courses are transferred, 6 hours of free elective are required to meet 120 hour minimum.

### Curriculum in Foreign Language Education/German

#### Freshman

<table>
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<tr>
<th>Fall</th>
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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>ENGL 1100 English Composition I</strong></td>
<td>3</td>
<td><strong>Core History II</strong></td>
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<tr>
<td>Core History I</td>
<td>3</td>
<td><strong>FLGR 2020 Intermediate German II</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td>Core Science I</td>
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<td><strong>Core Science II</strong></td>
<td>4</td>
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<tr>
<td><strong>FLGR 2010 Intermediate German II</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
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<td><strong>ENGL 1120 English Composition II</strong></td>
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<tr>
<td>Core Math</td>
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<td><strong>EDUC 1010 Orientation to Teacher Education</strong>&lt;sup&gt;4&lt;/sup&gt;</td>
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<tr>
<td>Humanities Core</td>
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**Sophomore**

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<tr>
<td>Core Social Science</td>
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<td>Core Social Science</td>
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<tr>
<td>FLGR 3010 Beginning German Composition and Conversation</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
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<tr>
<td>FLGR 3110 German Culture and Civilization I or 3120 German Culture and Civilization II</td>
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<td>FLGR 3020 Intermediate German Composition and Conversation</td>
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<td>Core Literature</td>
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**Junior**

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<tbody>
<tr>
<td>FOUN 3000 Diversity of Learners and Settings</td>
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<td>3</td>
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<tr>
<td>CTSE 4070/4073 Curriculum and Teaching I: Foreign Language</td>
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<tr>
<td>FLGR 3100 Introduction to German Literature</td>
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<td>FLGR 4110 Masterpieces of German Literature I</td>
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**Senior**

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**Total Hours: 120**

1. FLGR 1010 and FLGR 1020 may also be required based on placement test score.
2. Prerequisite: Admission to Teacher Education.
3. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4. Prerequisite for Admission to Clinical Residency.
5. Co-requisite with Clinical Residency.
6. FLGR Elective: See advisor for approved course listing.
FLGR 2000 level courses are 3 hours at junior colleges. If these courses are transferred, 6 hours of free elective are required to meet 120 hour minimum.

### Curriculum in Foreign Language Education/Spanish

#### Freshman

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<th>Fall</th>
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<td>ENGL 1100 English Composition I</td>
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<tr>
<td>Core History I</td>
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<td>Core History II</td>
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<td>Core Math</td>
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<td>Humanities Core</td>
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<td>Core Science I</td>
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<td>FLSP 2010 Intermediate Spanish I¹</td>
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#### Sophomore

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<tr>
<td>Core Literature</td>
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<td>Core Fine Arts</td>
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<td>FLSP 3010 Spanish Phonetics</td>
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<td>FLSP 3070 Communicative Skills in Spanish II</td>
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#### Junior

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<tr>
<td>FOUN 3000 Diversity of Learners and Settings²</td>
<td>3</td>
<td>CTSE 4080/4083 Curriculum and Teaching II: Foreign Language²,⁴</td>
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<td>RSED 3000/3003 Diversity and Exceptionality of Learners²</td>
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<td>CTRD 5003 Language and Literacy in the Content Areas²</td>
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<td>FLSP 3100 Introduction to Hispanic Literature</td>
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<td>FLSP 3110 Cultures of Spain</td>
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<td>CTSE 4070/4073 Curriculum and Teaching I: Foreign Language²,⁴</td>
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<td>FLSP 4010 Oral Proficiency in Spanish</td>
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<td>FLSP 3080 Intro to Cultural Analysis</td>
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#### Senior

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<td>CTSE 4920/4923 Clinical Residency³</td>
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<tr>
<td>FLSP 3210 Cultures of Spanish America</td>
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<td>CTSE 5220/5223 Class Management and Discipline in Foreign Language Classroom²,⁵</td>
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<td>FLSP Electives (3000 or above)</td>
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¹FLSP courses are 2 hours at junior colleges and 4 hours at senior. ²Courses are offered only in the second semester. ³CTSE 4920/4923 Clinical Residency is required only if not transferred. ⁴Courses are offered only in the first semester. ⁵Courses are offered only in the third semester.
Curriculum in General Science Education

<table>
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1. FLSP 1010 and FLSP 1020 may also be required based on placement test score.
2. Prerequisite: Admission to Teacher Education.
3. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4. Prerequisite for Admission to Clinical Residency.
5. Co-requisite with Clinical Residency.
6. FLSP Elective: See advisor for approved course listing.
# FLSP 2000 level courses are 3 hours at junior colleges. If these courses are transferred, 6 hours of free electives are required to meet 120 hour minimum.

### Freshman

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>GEOL 1100 Dynamic Earth</td>
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<tr>
<td>MATH 1610 Calculus I or 1617 Honors Calculus I</td>
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<td>BIOL 1030 Organismal Biology</td>
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<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>ENGL 1120 English Composition II</td>
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<td>EDUC 1010 Orientation to Teacher Education</td>
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### Sophomore

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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td>BIOL 3060 Ecology</td>
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<td>BIOL 3030 Evolution and Systematics</td>
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<td>GEOL 1110 Earth and Life Through Time</td>
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### Junior

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<td>PHYS 1510 General Physics II</td>
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<td>CTSE 4090 Curriculum and Teaching I: Science</td>
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<td>CTSE 5000 Technology in Science Education</td>
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<td>GEOL 5220 Geomorphology</td>
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<td>GEOL 2010 Mineralogy and Optical Crystallography</td>
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GEOL 3060 Lunar and Planetary Geology  
Course 3000-5000 level Earth Systems Science Elective  

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1. Students must complete a history sequence or a literature sequence.
2. Prerequisite: Admission to Teacher Education.
3. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
4. Prerequisite for Admission to Clinical Residency.
5. Corequisite for Clinical Residency.

Curriculum in General Social Science Education/History

Freshman

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Sophomore

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<td>Technology for Educators^1</td>
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Junior

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### Curricular in Mathematics Education/Mathematics

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<td>3 CTRD 5003</td>
<td>Language and Literacy in the Content Areas⁹</td>
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#### Senior

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<td>CTSE 4920/4923 Clinical Residency⁹</td>
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<td>CTSE 4050 Curriculum and Teaching I: Social Science¹,⁵</td>
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<td>CTSE 5250/5253 Seminar in Social Science Education⁵,⁸</td>
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<td>UNIV 4AA0 University Graduation</td>
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<td>CTSE 4910 Practicum⁵</td>
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¹ Prerequisite for Admission to Clinical Residency.
² POLI 1090 and POLI 3120/POLI 3090
³ HIST 2070/HIST 2080 and HIST 2110/HIST 2130
⁴ HIST 2100/HIST 2120 and 9 hours of approved US History 3000-level or above
⁵ Prerequisite: Admission to Teacher Education.
⁶ 9 hours of approved HIST 3000-level or above
⁷ HIST 5060/HIST 5070 and 3 hours of approved HIST 3000-level or above
⁸ Co-requisite with Clinical Residency.
⁹ Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).

Social Science Electives, Sociology Elective: See advisor for approved course listing.

### Curriculum in Mathematics Education/Mathematics

#### Freshman

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<td>Core History I</td>
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<td>MATH 1610</td>
<td>Calculus I or 1617 Honors Calculus I</td>
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#### Sophomore

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<td>3 MATH 2660 Topics in Linear Algebra</td>
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**Junior**

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<tr>
<td>CTSE 5040 Technology and Applications in Secondary Mathematics Education&lt;sup&gt;1,2&lt;/sup&gt;</td>
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<td>CTMD 4010 Teaching Mathematics: Middle School&lt;sup&gt;1,2&lt;/sup&gt;</td>
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<td>FOUN 3000 Diversity of Learners and Settings&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>RSED 3000/3003 Diversity and Exceptionality of Learners&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>STAT 3600 Probability and Statistics I</td>
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<td>MATH 5380 Intermediate Euclidean Geometry I</td>
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**Senior**

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<td>CTSE 4030 Curriculum and Teaching I: Mathematics&lt;sup&gt;1,2&lt;/sup&gt;</td>
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<td>CTSE 4920/4923 Clinical Residency&lt;sup&gt;3&lt;/sup&gt;</td>
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<td>MATH 5200 Analysis I</td>
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<td>CTSE 5230/5233 Managing Middle and High School Classroom (Math Education)&lt;sup&gt;2,4&lt;/sup&gt;</td>
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Total Hours: 122

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1. Prerequisite for Admission to Clinical Residency.
2. Prerequisite: Admission to Teacher Education.
3. Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
5. Select one of the following: MATH 5120/MATH 5140/MATH 5150/MATH 5180/
   MATH 5300/MATH 5730/MATH 5750/MATH 5770

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**Curriculum in Music Education/Instrumental and Vocal**

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<td>ENGL 1100 English Composition I</td>
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<td>MUAP 1110 Performance I&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>MUAP 1210 Performance II&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>MUSE Ensemble&lt;sup&gt;4, 8&lt;/sup&gt;</td>
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<td>Music Skills I</td>
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<td>Orientation to Teacher Education</td>
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<td>Introduction to Music Education</td>
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**Sophomore**

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**Junior**

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<tr>
<td>MUSI 2310</td>
<td>Music Theory III</td>
<td>2</td>
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<tr>
<td>MUSI 2320</td>
<td>Music Skills III</td>
<td>1</td>
<td>1</td>
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<tr>
<td>MUSI 3040</td>
<td>Brass Instrument Skills</td>
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<tr>
<td>CTMU 2010</td>
<td>Music Education Lab II</td>
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<td>MUSI 3060</td>
<td>Woodwind Instrument Skills</td>
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<tr>
<td>MUSI 3510</td>
<td>Music History I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>MUSI 3610</td>
<td>Choral Conducting I or 3630 Instrumental Conducting</td>
<td>3</td>
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<tr>
<td>MUAP 3120</td>
<td>Performance V (applied)</td>
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<tr>
<td>CTMU 5130</td>
<td>School and Community Instrumental Music Education or 5140 School and Community Vocal Music Education</td>
<td>4</td>
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<tr>
<td>RSED 3000/3003</td>
<td>Diversity and Exceptionality of Learners</td>
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**Senior**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Fall Hours</th>
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<tr>
<td>Humanities Core</td>
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<tr>
<td>Core Science</td>
<td></td>
<td>4</td>
<td>12</td>
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<tr>
<td>FOUN 3110</td>
<td>Adolescent Development, Learning, Motivation and Assessment I</td>
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### Curriculum in Physical Education/Teacher Education

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Select one of the following:</td>
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<td>Select one of the following:</td>
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<tr>
<td>BIOL 1000 Introduction to Biology &amp; BIOL 1001 Introduction to Biology Laboratory</td>
<td></td>
<td>BIOL 1010 A Survey of Life &amp; BIOL 1011 A Survey of Life Laboratory</td>
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<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td></td>
<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td>BIOL 1027 Honors Biology</td>
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<td>BIOL 1037 Honors Organismal Biology</td>
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</tr>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>KINE 1100/1103 Wellness</td>
<td>2</td>
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<tr>
<td>KINE 2251 Motor Development Across the Lifespan Laboratory</td>
<td>1</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td>Core History or Core Social Science</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Math</td>
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<tr>
<td>KINE 2250/2253 Motor Development Across the Lifespan</td>
<td>2</td>
<td>Elective</td>
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<tr>
<td>EDUC 1010 Orientation to Teacher Education</td>
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#### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Humanities</td>
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<td>Core Literature or Core Humanities</td>
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<tr>
<td>Core Literature</td>
<td>3</td>
<td>BIOL 2510 Human Anatomy and Physiology II</td>
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<tr>
<td>BIOL 2500 Human Anatomy and Physiology I</td>
<td>4</td>
<td>KINE 3010/3013 Instruction and Technology in Kinesiology</td>
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<tr>
<td>KINE 3650 Motor Learning and Performance Laboratory</td>
<td>3</td>
<td>KINE 3680 Physiology of Exercise</td>
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<tr>
<td>KINE 3651 Motor Learning and Performance Laboratory</td>
<td>1</td>
<td>KINE 3681 Physiology of Exercise Lab</td>
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### Curriculum in Physics Education/Physics

#### Freshman

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>Core History II</td>
<td>3</td>
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<tr>
<td>Core History I</td>
<td></td>
<td>PHYS 1617 Honors Physics II or 1610 Engineering Physics II</td>
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<tr>
<td>Core Fine Arts</td>
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<td>Humanities Core</td>
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<tr>
<td>PHYS 1607 Honors Physics I or 1600 Engineering Physics I</td>
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<td>ENGL 1120 English Composition II</td>
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<tr>
<td>MATH 1610 Calculus I, 1617 Honors Calculus I, or 1710 Calculus for Engineering and Science I</td>
<td></td>
<td>EDUC 1010 Orientation to Teacher Education</td>
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#### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>KINE 3300 Instructional Strategies in Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners</td>
<td>3</td>
<td>KINE 3620 Biomechanical Analysis of Human Movement</td>
<td>3</td>
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<tr>
<td>KINE 3200 Skills and Concepts of Rhythmic Activities</td>
<td>3</td>
<td>KINE 3621 Biomechanical Analysis of Human Movement Laboratory</td>
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<tr>
<td>FOUN 3000 Diversity of Learners and Settings</td>
<td>3</td>
<td>KINE 3230 Teaching Motor Skills</td>
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<tr>
<td>KINE 3260 Physical Education for Individuals with Disabilities</td>
<td>3</td>
<td>FOUN 3100/3103 Child Development, Learning, Motivation and Assessment</td>
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#### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>KINE 4450/4453 Physical Activity and Public Health</td>
<td>3</td>
<td>KINE 4920 Clinical Residency</td>
<td>10</td>
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<tr>
<td>KINE 3210 Skills and Concepts of Sport</td>
<td>3</td>
<td>KINE 5350/5353 Assessment in Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>KINE 4200 Physical Education in Elementary Schools</td>
<td>4</td>
<td>UNIV 4AA0 University Graduation</td>
<td>0</td>
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<tr>
<td>KINE 4300 Physical Education in Secondary Schools</td>
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</table>

**Total Hours: 120**

1. Students must complete a history sequence or a literature sequence.
2. Prerequisite: Admission to Teacher Education.
3. Prerequisite: Admission to Clinical Residency (application for internship is one year in advance).
4. Prerequisite for Admission to Internship.
5. Co-requisite with Internship.
MATH 1620 Calculus II or 1627 Honors Calculus II  4

Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
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</tr>
<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<tr>
<td>Core Literature</td>
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<td>Free Elective</td>
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<td>Core Social Science</td>
<td>3</td>
<td>MATH 2650 Linear Differential Equations</td>
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<tr>
<td>MATH 2630 Calculus III or 2637 Honors Calculus III</td>
<td>4</td>
<td>PHYS 2100 Intermediate Mechanics</td>
<td>3</td>
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<tr>
<td>PHYS 2200 Introductory Quantum Physics and Relativity</td>
<td>3</td>
<td>PHYS 2300 Physics Laboratory Skills</td>
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</table>

| Total              | 17    | 17                   |       |

Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
<td>Core Social Science</td>
<td>3</td>
</tr>
<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners</td>
<td>3</td>
<td>3 Physics Elective (3000-5000 level )</td>
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</tr>
<tr>
<td>PHYS 3100 Intermediate Electricity and Magnetism</td>
<td>3</td>
<td>CTSE 4090 Curriculum and Teaching I: Science</td>
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<tr>
<td>PHYS 4100 Fundamentals of Quantum Mechanics</td>
<td>3</td>
<td>CTRD 5003 Language and Literacy in the Content Areas</td>
<td>3</td>
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<tr>
<td>FOUN 3000 Diversity of Learners and Settings</td>
<td>3</td>
<td>PHYS 3200 Statistical Thermodynamics</td>
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</table>

| Total              | 15    | 16                   |       |

Senior

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>FOUN 3120 Adolescent Development, Learning, Motivation and Assessment II</td>
<td>3</td>
<td>CTSE 5240/5243 Clinical Residency Seminar in Science Teaching</td>
<td>1</td>
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<tr>
<td>PHYS 4200 Fundamental Experiments in Physics</td>
<td>2</td>
<td>CTSE 4920/4923 Clinical Residency</td>
<td>11</td>
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<tr>
<td>CTSE 5000 Technology in Science Education</td>
<td>2</td>
<td>UNIV 4AA0 University Graduation</td>
<td>0</td>
</tr>
<tr>
<td>CTSE 5100 Curriculum and Teaching II: Science</td>
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<td></td>
<td>4</td>
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<tr>
<td>Physics Elective (3000-5000 level)</td>
<td>6</td>
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| Total              | 17    | 12                   |       |

Total Hours: 126

1  Prerequisite: Admission to Teacher Education.
2  Prerequisite: Admission to Clinical Residency (application for Clinical Residency is one year in advance).
3  Prerequisite for Admission to Clinical Residency.
4  Co-requisite with Clinical Residency.

Physics Elective: See advisor for approved course listing.

Office Systems Management Minor

Select 15 hours from the following:

<table>
<thead>
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<th>Course</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>CTCT 2200/2203</td>
<td>Computer Literacy in Business Education</td>
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<tr>
<td>CTCT 3000/3003</td>
<td>Leadership Skills for Personal and Organizational Development</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 4970</td>
<td>Special Topics in Area of Specialization</td>
<td>1-3</td>
</tr>
</tbody>
</table>
Educational Foundations, Leadership and Technology

The Department of Educational Foundations, Leadership and Technology prepares exemplary educational practitioners and develops cooperative partnerships with university departments, schools, community agencies and business and industry to provide outstanding educators, trainers and leaders. This department ensures that students will participate in theoretical, applied and practitioner-based research enhancing the fields of adult education, higher education, educational leadership, educational media and educational psychology.

The department offers one undergraduate minor in adult education: training and workforce development. All other programs are at the graduate level; however, the department provides service courses for undergraduate teacher education majors in the areas of educational foundations and educational media.

More information about the Graduate program options is available on the department’s Graduate bulletin page. The University schedule of courses is available on the Auburn University Website.

• Adult Education: Training and Workforce Development (p. 480)

Adult Education Courses

ADED 4010/4013 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3. Departmental approval. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 4050/4053 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 4600/4603 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning.

ADED 4610 DIRECTED WORK EXPERIENCE (3) LEC. 3. SU. Departmental approval. In-service, supervised work experience individually designated for part-time or summer work experience.

ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Departmental approval. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources.

ADED 4650/4653 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Departmental approval. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.


ADED 4900 INDEPENDENT STUDY (1-6) IND. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 4910/4913 PRACTICUM (1-6) PRA. SU. Departmental Approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9) INT. 9. SU. Departmental approval. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Or Minor.

ADED 4970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or special topics within adult education. Course Course may be repeated for a maximum of 6 credit hours.
ADED 7010/7016 LEARNING RESOURCES (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. May count either ADED 7010 or ADED 7016.

ADED 7050/7056 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 3. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education. May count either ADED 7050 or ADED 7056.

ADED 7060/7066 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3. Introduction to principles and practices involved in designing education programs in the area of specialization. May count either ADED 7060 or ADED 7066.

ADED 7070/7076 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning. May count either ADED 7070 or ADED 7076.

ADED 7080/7086 WORKFORCE EDUCATION (3) LEC. 3. Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues. May count either ADED 7080 or ADED 7086.

ADED 7090/7096 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities. May count either ADED 7090 or ADED 7096.

ADED 7100/7106 ADULT EDUCATION IN COOPERATIVE EXTENSION (3) LEC. 3. Exploration of the unique relationship between adult education and the Cooperative Extension System. May count either ADED 7100 or ADED 7106.

ADED 7110/7116 LEARNING STYLES IN ADULT EDUCATION (3) LEC. 3. This course is designed to provide students with an understanding of the various learning styles perspectives in Adult Education. May count either ADED 7110 or ADED 7116.

ADED 7120/7126 MEETING DIVERSE NEEDS IN ADULT EDUCATION SETTINGS (3) LEC. 3. This course provides an innovative look at disability services in post-secondary institutions. Learners will study the history of disability services, legislation, campus accessibility, assessment of the accessibility of adult education settings and other topics of interest.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.

ADED 7910/7916 PRACTICUM (1-3) PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours.

ADED 7920/7926 INTERNSHIP (1-10) INT. SU. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. May count either ADED 7920 or ADED 7926. Course may be repeated for a maximum of 10 credit hours.

ADED 7950 SEMINAR (1-3) SEM. SU. Presentation of research projects, analysis of procedures, and findings. Course may be repeated for a maximum of 3 credit hours.

ADED 7960 READINGS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

ADED 7970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

ADED 7990/7996 RESEARCH AND THESIS (1-10) MST. Departmental approval. Individualized support and direction for students writing their thesis. Course may be repeated with change in topics.

ADED 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 8910 PRACTICUM (1-6) PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.
ADED 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college, or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

ADED 8950 SEMINAR (1-6) SEM. SU. Presentation by graduate students of research projects and/or analysis of procedures and findings. Course may be repeated for a maximum of 6 credit hours.

ADED 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research writings. Course may be repeated for a maximum of 6 credit hours.

ADED 8970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or advanced topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 8980/8986 FIELD PROJECT (1-10) FLD. SU. Field project formulated, planned, conducted, evaluated, and reported in appropriate written form and oral formats under the direction of the student's major professor. Course may be repeated for a maximum of 10 credit hours.

ADED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours

Ed Resrch, Methods, Analysis Courses

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3. Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.

ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3. Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200/7206 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3. Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models. May count either ERMA 7200 or ERMA 7206.

ERMA 7210/7216 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3. Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7210 or ERMA 7216 or FOUN 7210 or FOUN 7216). Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one's findings.

ERMA 7300/7306 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research. Departmental approval. May count either ERMA 7300 or ERMA 7306.

ERMA 7310/7316 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306). Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, and logistic regression, as they are utilized in educational research. Departmental approval. May count either ERMA 7310 or ERMA 7316.

ERMA 7320/7326 APPLIED QUANTITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206) and (ERMA 7300 or ERMA 7306) or (FOUN 7300 or FOUN 7306). The study and application of detailed strategies of research study designs, data collection, analysis, and reporting of quantitative data. May count either ERMA 7320 or ERMA 7326. Course may be repeated for a maximum of 6 credit hours.

ERMA 7400 MIXED METHODS RESEARCH (3) LEC. 3. Pr. ERMA 7200 or ERMA 7206 or ERMA 7210 or ERMA 7216 or ERMA 7300 or ERMA 7306. Overview and introduction to the use of mixed methods research in the social and behavioral sciences.

ERMA 7410 RESEARCH METHODS FOR SOCIAL JUSTICE AND EQUITY (3) LEC. 3. Pr. ERMA 7300 or ERMA 7306 or ERMA 7210 or ERMA 7216 or ERMA 7400. This course focuses on critical educational research in the scholar-activist model. Through engaging with critical theoretical frameworks, critical empirical research, and research methods, this course prepares students to produce research and scholarship for social justice and equity in education.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.
ERMA 7970/7976 SPECIAL TOPICS IN EDUCATION RESEARCH METHODS & ASSESSMENT (1-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be with a change in topic. Course may be repeated with change in topics.

ERMA 8100/8106 PROGRAM EVALUATION (3) LEC. 3. Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation. May count either ERMA 8100 or ERMA 8106.

ERMA 8120 TEACHER EVALUATION (3) LEC. 3. Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200/8206 SURVEY RESEARCH METHODS (3) LEC. 3. Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data. May count either ERMA 8200 or ERMA 8206.

ERMA 8210/8216 PREP RESEARCH FOR PUBLICATION (3) LEC. 3. SU. Pr. (ERMA 7300 or ERMA 7306) and (ERMA 7310 or ERMA 7316) and ERMA 7210 or (FOUN 7210 or FOUN 7216) or (FOUN 7300 or FOUN 7306) or (FOUN 7310 or FOUN 7316). Preparation of graduate student research for publication or presentation at professional conference through practice, group discussions, peer review and feedback from experienced editorial board members. May count either ERMA 8210 or ERMA 8216.

ERMA 8320/8326 DESIGN AND ANALYSIS IN EDUCATION III (3) LEC. 3. Pr. (FOUN 7310 or ERMA 7310) or (ERMA 7316 or FOUN 7316). Discriminate analysis, MANOVA, canonical correlation, path analysis, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research. Departmental approval. May count either ERMA 8320 or ERMA 8326.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3. Pr. FOUN 7300 or FOUN 7306 or ERMA 7300 or ERMA 7306. Departmental approval. Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3. Pr. (FOUN 8320 or FOUN 8326 or ERMA 8320 or ERMA 8326). Departmental approval. Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316). Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics.

Educational Leadership Courses

EDLD 7200/7206 SUPERVISION AND PERSONNEL MANAGEMENT (3) LEC. 3. Supervision theory and practice with responsibility for leadership in the recruitment, evaluation and staff development of employees. May count either EDLD 7200 or EDLD 7206.

EDLD 7210/7216 MULTIPROFESSIONAL LEADERSHIP FOR EQUITY (3) LEC. 3. National, state, and local evidence will inform students' understanding of diversity issues in schools. Theories, concepts and principles of leadership from a multidisciplinary, multiprofessional perspective, will be applied to addressing issues of equity in schools. May count either EDLD 7210 or EDLD 7216.

EDLD 7220/7226 ORGANIZATIONAL AND SCHOOL MANAGEMENT (3) LEC. 3. This course will prepare students in understanding legal and ethical responsibilities of school leaders, fiscal revenues and expenditures of Alabama public schools, using action research and components of a comprehensive, ongoing, planning and budgeting program. May count either EDLD 7220 or EDLD 7226.

EDLD 7330/7336 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3) LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3) LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>EDLD 7500/7506</td>
<td><strong>PRINCIPAL LEADERSHIP (3)</strong> LEC. 3. Designed to serve instructional leaders in K-12 settings concerning leadership dispositions and leadership theory important to promoting student success and achievement. May count either EDLD 7500 or EDLD 7506.</td>
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<tr>
<td>EDLD 7510/7516</td>
<td><strong>ACTION RESEARCH AND DATA ANALYSIS (3)</strong> LEC. 3. Research methodologies to improve instructional and school-based decision-making action, qualitative, and case study techniques applied to school, classroom, or school-community observation. May count either EDLD 7510 or EDLD 7516.</td>
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<tr>
<td>EDLD 7520/7526</td>
<td><strong>LEADERSHIP AND THE LEARNING ORGANIZATION (3)</strong> LEC. 3. Management of schools as learning organizations; issues related to student learning and achievement through attention to organizational components. May count either EDLD 7520 or EDLD 7526.</td>
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<tr>
<td>EDLD 7530/7536</td>
<td><strong>PLANNING AND CONTINUOUS IMPROVEMENT (3)</strong> LEC. 3. Development of frameworks for collection, analysis, and use of school data for the improvement of instruction, the learning environment, and student achievement. May count either EDLD 7530 or EDLD 7536.</td>
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<tr>
<td>EDLD 7540/7546</td>
<td><strong>INSTRUCTIONAL AND CURRICULAR LEADERSHIP (3)</strong> LEC. 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools. May count either EDLD 7540 or EDLD 7546.</td>
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<tr>
<td>EDLD 7550/7556</td>
<td><strong>EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (3)</strong> LEC. 3. Preparation of pro-active leaders in school business affairs; use of action research and components of a comprehensive, ongoing, planning and budgeting program; facilities management. May count either EDLD 7550 or EDLD 7556.</td>
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<tr>
<td>EDLD 7560/7566</td>
<td><strong>EDUCATIONAL SYSTEMS AND COMMUNITIES (3)</strong> LEC. 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.</td>
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<tr>
<td>EDLD 7570/7576</td>
<td><strong>LEGAL AND ETICAL ISSUES (3)</strong> LEC. 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society. May count either EDLD 7570 or EDLD 7576.</td>
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<tr>
<td>EDLD 7580/7586</td>
<td><strong>SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (3)</strong> LEC. 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts. May count either EDLD 7580 or EDLD 7586.</td>
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<tr>
<td>EDLD 7900</td>
<td><strong>DIRECTED STUDIES (1-9)</strong> IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.</td>
<td>1-9</td>
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<tr>
<td>EDLD 7910/7916</td>
<td><strong>PRACTICUM (1-6)</strong> PRA. Experience closely relating theory and practice, usually conducted in realistic settings. May count either EDLD 7910 or EDLD 7916. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>EDLD 7920</td>
<td><strong>ADMINISTRATIVE INTERNSHIP (1-6)</strong> AAB/INT. Departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Course may be repeated for a maximum of 6 credit hours.</td>
<td>1-6</td>
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<tr>
<td>EDLD 7930/7936</td>
<td><strong>ADMINISTRATIVE INTERNSHIP/RESIDENCY (1-6)</strong> INT. Ongoing field-based experiences in educational administration; observation, participation, and leading with practicing administrators in school systems. Course may be repeated for a maximum of 6 credit hours.</td>
<td>1-6</td>
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<tr>
<td>EDLD 7970</td>
<td><strong>SPECIAL TOPICS (1-9)</strong> LEC. Variable content for advanced studies in the area of educational leadership. Course may be repeated for a maximum of 9 credit hours.</td>
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<tr>
<td>EDLD 8200/8206</td>
<td><strong>ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3)</strong> LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes. May count either EDLD 8200 or EDLD 8206.</td>
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<tr>
<td>EDLD 8210/8216</td>
<td><strong>EDUCATIONAL LEADERSHIP: THEORY AND PRACTICE (3)</strong> LEC. 3. Educational leadership theory and applications for K-12 settings. May count either EDLD 8210 or EDLD 8216.</td>
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<tr>
<td>EDLD 8220/8226</td>
<td><strong>PERSONAL AND PROFESSIONAL DEVELOPMENT (3)</strong> LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. May count either EDLD 8220 or EDLD 8226.</td>
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<tr>
<td>EDLD 8230</td>
<td><strong>SYSTEMIC PLANNING AND BUDGETING (3)</strong> LEC. 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.</td>
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EDLD 8240/8246 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3) LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. May count either EDLD 8240 or EDLD 8246.

EDLD 8250/8256 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3) LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. May count either EDLD 8250 or EDLD 8256.

EDLD 8260/8266 THEORY AND DEVELOPMENT OF ORGANIZATIONS (3) LEC. 3. Theoretical frameworks of educational organizations. May count either EDLD 8260 or EDLD 8266.

EDLD 8270/8276 LEADERSHIP IN FINANCE AND MANAGEMENT (3) LEC. 3. Theory and practice of instructional leadership related to personnel and fiscal management of a school or school district. May count either EDLD 8270 or EDLD 8276.

EDLD 8280 THE SUPERINTENDENCY IN EDUCATION (3) LEC. 3. Theoretical frameworks of educational organizations.

EDLD 8300/8306 CURRICULUM THEORY AND PRACTICE (3) LEC. 3. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice.

EDLD 8310/8316 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (3) LEC. 3. Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. May count either EDLD 8310 or EDLD 8316.

EDLD 8320/8326 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3) LEC. 3. Pr. EDLD 7340 and EDLD 8300 and EDLD 8310 or EDLD 8316. For those considering a career in upper level management, focuses on context, societal, and political influences related to curriculum processes and organizational change. Departmental approval. May count either EDLD 8320 or EDLD 8326.

EDLD 8340/8346 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3) LEC. 3. Organizational and transformational change at personal, interpersonal, and institutional levels. May count either EDLD 8340 or EDLD 8346.

EDLD 8400/8406 ETHICS FOR LEADERS (3) LEC. 3. Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve. May count either EDLD 8400 or EDLD 8406.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3. Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8600/8606 MENTORING FOR CAREER DEVELOPMENT (3) LEC. 3. Assist graduate students in discovering how mentioning can enhance their career/professional development and benefit their organizations. May count either EDLD 8600 or EDLD 8606.

EDLD 8940/8946 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950/8956 SEMINAR (3) SEM. 3. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. May count either EDLD 8950 or EDLD 8956. Course may be repeated for a maximum of 6 credit hours.

EDLD 8980/8986 PROJECT ANALYSIS (3) LEC. 3. Problem solving, reflective practice and action research and used for continuous school improvement. Provides opportunities to engage in diverse field based research projects. May count either EDLD 8980 or EDLD 8986.

EDLD 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

Educational Media Courses

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1. LAB. 2. Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Limited to majors requiring teaching certification.
EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 5100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 6000/6006 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments. May count either EDMD 6000 or EDMD 6006.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000/7006 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3. Theory, problems, procedures, and standards in the utilization of technology in instructional design and development. May count either EDMD 7000 or EDMD 7006.

EDMD 7010/7016 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3. Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments. May count either EDMD 7010 and EDMD 7016.

EDMD 7020/7026 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3. Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined. May count either EDMD 7020 or EDMD 7026.

EDMD 7100/7106 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3. Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education. May count either EDMD 7100 or EDMD 7106.

EDMD 7110/7116 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies. May count either EDMD 7110 or EDMD 7116.

EDMD 7120/7126 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3. An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills. May count either EDMD 7120 or EDMD 7126.

EDMD 7130/7136 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3. Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies. May count either EDMD 7130 or EDMD 7136.

EDMD 7200/7206 APPLIED INSTRUCTIONAL DESIGN (3) LEC. 3. Pr. EDMD 7000 or EDMD 7006. Applying instructional design skills, students will plan, develop, implement and assess instructional products using appropriate technologies. May count either EDMD 7200 or EDMD 7206.

EDMD 7210/7216 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3. Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction. May count either EDMD 7210 or EDMD 7216.

EDMD 7230/7236 THEORY AND PRACTICE OF DISTANCE EDUCATION (3) LEC. 3. Theories, concepts, and tools that support distance education, with emphasis on application in design, development, and implementation of distance education instruction. May count either EDMD 7230 or EDMD 7236.

EDMD 7300/7306 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3. Pr. ERMA 7200 or FOUN 7200 or ERMA 7206 or FOUN 7206. A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology. May count either EDMD 7300 or EDMD 7306.

EDMD 7310/7316 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3. Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed. May count either EDMD 7310 or EDMD 7316.

EDMD 7320/7326 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3. Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. May count either EDMD 7320 or EDMD 7326.
EDMD 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student's work accomplished at regular intervals.

EDMD 7910/7916 PRACTICUM (1-6) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.

EDMD 7920/7926 CLINICAL RESIDENCY (1-6) INT. SU. Pr. (P/C EDMD 7120 or P/C EDMD 7126) and (P/C EDMD 7130 or P/C EDMD 7136). Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. May count either EDMD 7920 or EDMD 7926. Course may be repeated for a maximum of 6 credit hours.

EDMD 7930 TEACHING APPRENTICESHIP (3) SEM. 3. Departmental approval. A structured opportunity for students to apply educational media concepts and theories in the college classroom. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940/7946 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr. FOUN 7200 or ERMA 7200 or ERMA 7206 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970/7976 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 7980/7986 FIELD PROJECT (3-6) INT. SU. Pr. ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques.

Educational Psychology Courses

EPSY 7400/7406 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3. Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment. May count either EPSY 7400 or EPSY 7406.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3. The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420/7426 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3. Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction. May count either EPSY 7420 or EPSY 7426.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3. Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3. Advanced study and analysis of existing classroom management discipline models including observation research activity.

EPSY 7450 PERSONAL AND PROFESSIONAL DEVELOPMENT AND PERSONALITY DYNAMICS (3) LEC. 3. Survey of different theories and models of personality leading to in-depth study of theories and models most applicable for use in conceiving of and building personal and professional development plans.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATION OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410/8416 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3. Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning. May count either EPSY 8410 or EPSY 8416.

EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3. An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.
EPSY 8440 ED PSYCH APPRENT SEMINAR (3) LEC. 3. Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.

EPSY 8540 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICESHIP SEMINAR (3) LEC. 3. A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICESHIP SEMINAR (3) LEC. 3. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with changes in topic.

Foundations of Education Courses

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2. LAB. 3. Exploration of socio-cultural factors and individual differences; understanding diversity and communication with students with different cultural backgrounds, abilities, and values; combines class-based as well as community-based discovery learning, known as service learning, that links theory and practice and involves students.

FOUN 3100/3103 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. With grades of "C" or better. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning. May count either FOUN 3100 or FOUN 3103.

FOUN 3110/3113 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT I (3) LEC. 2. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3. Pr. (FOUN 3110 or FOUN 3113 or CTSE 4090 or CTSE 4070 or CTSE 4073) and (EDUC 3000 or FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction. May count either FOUN 3120 or FOUN 3123.

FOUN 7000/7006 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3. Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined. May count either FOUN 7000 or FOUN 7006.

FOUN 7010/7016 HISTORY OF AMERICAN EDUCATION (3) LEC. 3. Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education. May count either FOUN 7010 or FOUN 7016.

FOUN 7020/7026 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3. Advanced study of education’s response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined. May count either FOUN 7020 or FOUN 7026.

FOUN 7030/7036 MODERNITY, PHILOSOPHY AND THE CURRICULUM (3) LEC. 3. Advanced study of the philosophical assumptions of curriculum development within the context of modernity. May count either FOUN 7030 or FOUN 7036.

FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3. Advanced philosophical study of educational research within the context of education’s professional culture.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

FOUN 7930 TEACHING APPRENTICESHIP (3) IND. 3. Departmental approval. A structured opportunity for students to explore social foundations of education concepts and pedagogies in the college classroom. Course may be repeated for a maximum of 6 credit hours.
FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010/8016 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3. Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum for 10 hours. Course may be repeated with change in topics.

Higher Ed Administration Courses

HIED 7200 ORGANIZATIONAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Theory and practice of higher education organizations with emphasis on supervision and management of personnel.

HIED 7210/7216 LEADERSHIP IN HIGHER EDUCATION (3) LEC. 3. Exploration, discussion and application of theories, concepts and principles of leadership applied to higher education organizations. May count either EDLD 7210 or HIED 7210.

HIED 7220 HIGHER EDUCATION MANAGEMENT (3) LEC. 3. Procedures and practices in school educational management.

HIED 7230/7236 STUDENT SERVICES ADMINISTRATION POSTSECONDARY EDUCATION (3) LEC. 3. Organization, administration and evaluation of student personnel services in postsecondary education.

HIED 7240 LEGAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Constitutional and statutory provisions for education and an analysis of judicial decisions affecting higher education.

HIED 7250 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Overview of major developmental theories affecting college students.

HIED 7260 COUNSELING AND ADVISING IN HIGHER EDUCATION (3) LEC. 3. Introduces counseling and advising theory and application for student services professionals in higher education.

HIED 7270/7276 OVERVIEW OF POSTSECONDARY EDUCATION (3) LEC. 3. Overview of the history and evolution of postsecondary education in North America. May count either HIED 7270 or HIED 7276.

HIED 7400 SPORT MARKETING AND PUBLIC RELATIONS (3) LEC. 3. Marketing and public relations of sport organizations as associated with higher education institutions.

HIED 7410 SPORT ETHICS (3) LEC. 3. Covers ethical issues in sport organizations as associated with higher education institutions.

HIED 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

HIED 7910 PRACTICUM (3) PRA. 3. Departmental approval. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

HIED 7920 INTERNSHIP (1-6) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 6 credit hours.

HIED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

HIED 8200 ASSESSMENT AND EVALUATION IN HIGHER EDUCATION (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making.

HIED 8230 PLANNING AND BUDGETING IN HIGHER EDUCATION (3) LEC. 3. Components and implementation of a comprehensive, ongoing planning and budgeting program in higher education.

HIED 8270 FINANCIAL MANAGEMENT IN HIGHER EDUCATION (3) LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

HIED 8480 INSTITUTIONAL RESEARCH IN HIGHER EDUCATION (3) LEC. 3. Components of institutional research and assessment that support comprehensive planning, analysis, decision support and management needs of the higher educational institution May count either EDLD 8480 or HIED 8480.
HIED 8500 THE PROFESSORIATE (3) LEC. 3. Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

HIED 8510 SEMINAR IN COLLEGE TEACHING (3) LEC/SEM. 3. Overview of major issues in higher education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities.

HIED 8950 SEMINAR (3) LEC. 3. Presentation by graduate students of research projects and/or analysis of procedures and finding. Course may be repeated for a maximum of 6 credit hours.

HIED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 credit hours.

**Minor in Adult Education: Training and Workforce Development**

Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADED 4010</td>
<td>Learning Resources in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>ADED 4050</td>
<td>Methods of Teaching in Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 4600</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 4650</td>
<td>Teaching the Disadvantaged Adult</td>
<td>3</td>
</tr>
<tr>
<td>ADED 4910</td>
<td>Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 15

**Kinesiology**

The School of Kinesiology prepares students in the following areas: exercise science; physical activity and health with an additional option in fitness, conditioning and performance; and physical education/teacher education. The mission of the Kinesiology programs at Auburn University is to promote the creation and application of knowledge about physical activity and performance, create and implement an invigorating learning environment for undergraduate and graduate students, and improve the health and wellness of society through research, outreach, and teaching. Students learn how to improve the health or performance of individuals using an intervention model and how to intervene in the lives of those who wish to become healthier or want to improve their athletic performance. Experiences run the gamut from trying to help an elderly person be well and fit to motivating the young child to be more physically active to assisting the elite athlete in optimizing sport performance.

**Exercise Science**

The undergraduate major in exercise science prepares students for graduate study in the exercise science sub-disciplines (biomechanics, exercise physiology, and motor behavior) and entry into professional programs such as medicine, physical therapy, and occupational therapy. Exercise science is a high demand major. Students in this program are preparing for admission into competitive graduate programs. Advisors may make recommendations of alternative programs based on academic performance.

**Physical Activity and Health**

*(includes option in Fitness, Conditioning and Performance)*

There are two degree options in this major: 1) physical activity and health, and 2) fitness, conditioning and performance. The undergraduate major in physical activity and health prepares students in applied exercise science and for management roles in a variety of health and fitness settings. Students attain the knowledge, skills, and abilities to function as exercise professionals in cardiac and pulmonary rehabilitation and in corporate and commercial fitness programs. The undergraduate option in fitness, conditioning, and performance focuses on preparing students in the basic scientific foundations supporting fitness, health, and coaching practices. This option will prepare students for careers and certifications in personal training and in strength and conditioning.

**Physical Education/Teacher Education**

The undergraduate major in physical education/teacher education prepares highly qualified K-12 teachers with the capacity to create curriculum and instruction that help children achieve an active lifestyle which will continue in and through adulthood. This educator preparation program is approved by the Alabama State Board of Education. Auburn University’s College of Education is accredited by the National Council for Accreditation of Teacher Education (NCATE).
Sport Coaching Minor
The sport coaching minor is a 15 semester hour commitment and is open to all students across campus. This minor is particularly attractive to students interested in the field of sport coaching.

Physical Activity and Wellness (Non-degree Program)
The physical activity and wellness non-degree program is an 8 semester hour commitment and is available to all students across campus. Particularly attractive to those students who enjoy physical activity, the program combines study of the basic principles of wellness with participation in a broad range of physical activity categories. The specific course of study is shown below.

- KINE 1100/KINE 1103: Wellness (2 credit hours)
- 3 PHED courses from 3 different categories, e.g., fitness, team sports, aquatics (6 hours)

While completion of this program does not appear on transcripts or diplomas, students may request a certificate upon completion.

Undergraduate Programs
- Exercise Science (p. 492)
- Fitness, Conditioning and Performance (p. 493)
- Physical Activity and Health (p. 495)
- Physical Education/Teacher Education (p. 467)

Minor
- Sport Coaching (p. 496)

Kinesiology Courses
KINE 1100/1103 WELLNESS (2) LEC. 1. LAB. 2. Basic concepts and principles of wellness with laboratory experiences for the self-appraisal of health-related physical fitness. May count either KINE 1100 or KINE 1103.

KINE 2003 PILLARS OF HEALTH: A JOURNEY TO OPTIMAL HEALTH & WELLBEING (3) LAB. 4. Students will learn and apply Mindfulness-Based Stress Reduction (MBSR) techniques and practices that have been shown, scientifically, to reduce stress and act as an aid to many health conditions that arise or are exacerbated by stress. On-campus labs are required.

KINE 2250/2253 MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2251 MOTOR DEVELOPMENT ACROSS THE LIFESPAN LABORATORY (1) LAB. 2. SU. Pr. (P/C KINE 2250 or P/C KINE 2253). Develops understanding and skills concerning the broad concept of motor development across the lifespan.

KINE 2503 SPORT OPTIMIZATION I (3) LEC. 2. LAB. 2. Basic concepts associated with the assessment of sport performance for the purpose of optimization.

KINE 2513 SPORT OPTIMIZATION 2 (3) LEC. 2. LAB. 2. Pr. KINE 2503 or HLHP 2500 or HLHP 2503. Concepts associated with the assessment and interpretation of sport performance for the purpose of optimization.

KINE 2703 HEALTH CRISIS IN CHILDREN AND YOUTH (3) LEC. 3. Explores the scope of the childhood obesity epidemic and the health consequences of being overweight or obese during the pediatric years and long-term implications during adulthood.

KINE 2723 KEEPING KIDS HEALTHY, ACTIVE, AND FIT (3) LEC. 3. Practical and application approach toward developing comprehensive programming that aims to promote physical activity and fitness in preschool- and school-age children.

KINE 2800/2803 INTRODUCTION TO KINESIOLOGY (3) LEC. 3. People, history and programs that have led to the current status of physical education, exercise science and health promotion.

KINE 3003 MEDICAL TERMINOLOGY FOR ALLIED HEALTH PROFESSIONS (3) LEC. 3. Focus on medical terminology/abbreviations used in allied health care and application to health care documentation. Web-based delivery.

KINE 3010/3013 INSTRUCTION AND TECHNOLOGY IN KINESIOLOGY (2) LEC. 1. LAB. 2. Communication skills, instructional strategies and technological competencies related to conveying information in the Kinesiology disciplines. May count either KINE 3010 or KINE 3013.
KINE 3020/3023 SCIENTIFIC FOUNDATIONS OF KINESIOLOGY (4) LEC. 4. Overview of the biomechanical, physiological and psychological foundations of human movement. Core biology. May count either KINE 3020 or KINE 3023.

KINE 3030 INTRODUCTION TO PERSONAL TRAINING (3) LEC. 3. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3031 INTRODUCTION TO PERSONAL TRAINING LABORATORY (3) LAB. 6. Pr. P/C KINE 3030. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3043 HISTORY OF AMERICAN PHYSICAL CULTURE (3) LEC. 3. Appreciation of the historical and cultural aspects of health, exercise, fitness and sports activities in modern American society.

KINE 3050/3053 CARE AND PREVENTION OF INJURIES (3) LEC. 3. Students will understand how to implement proper procedures in sports medicine care, create/lead emergency action plans, prevent injury/illness occurrence, care for basic injuries/illnesses, and analyze environmental conditions for safety, and provide important information to sports medicine health professionals. May count either KINE 3050 or KINE 3053.

KINE 3100/3103 ADAPTIVE SPORTS (3) LEC. 3. An introduction to various competitive and recreational activities for persons with disabilities. May count either KINE 3100 or KINE 3103.

KINE 3113 PARALYMPIC SPORT (3) LEC. 3. An introduction to the Paralympic Games including the Games development, rules, and current issues related to media, marketing, and social rights.

KINE 3200 SKILLS AND CONCEPTS OF RHYTHMIC ACTIVITIES (3) LEC. 2. LAB. 2. Skillful performance in gymnastics and other rhythmic activities and an understanding of the basic movement concepts in those activities.

KINE 3210 SKILLS AND CONCEPTS OF SPORT (3) LEC. 2. LAB. 2. Skillful performance in games and sports and an understanding of the tactics in those activities. Admission to Teacher Education.

KINE 3230 TEACHING MOTOR SKILLS (3) LEC. 2. LAB. 2. Introduction to motor skills that students learn during their elementary school years in physical education.

KINE 3250 SKILL ACQUISITION FOR SCHOOL-AGED CHILDREN (3) LEC. 2. LAB. 2. Pr. (HLHP 2250 or HLHP 2253 or KINE 2250 or KINE 2253) and (HLHP 3020 or HLHP 3023 or KINE 3020 or KINE 3023). Principles of skill acquisition applied to instructional settings in teaching and coaching.

KINE 3260 PHYSICAL EDUCATION FOR INDIVIDUALS WITH DISABILITIES (3) LEC. 2. LAB. 2. Pr. (KINE 2250 and KINE 2251 or KINE 2253) or (HLHP 2250 or HLHP 2251 or HLHP 2253). Program needs of individuals with disabilities in physical education and physical activity settings.

KINE 3300 INSTRUCTIONAL STRATEGIES IN PHYSICAL EDUCATION (3) LEC. 2. LAB. 2. Pr. HLHP 3010 or HLHP 3013 or KINE 3010 or KINE 3013. Admission to Teacher Education. Instructional and class management strategies appropriate to teach quality elementary and secondary physical education Admission to Teacher Education.

KINE 3400 HEALTH PROMOTION IN THE WORKPLACE (3) LEC. 3. Planning, implementation, evaluation and marketing of health promotion programs.

KINE 3413 REGISTERED YOGA TEACHER LEVEL I (3) LEC. 2. LAB. 2. Basic principles of teaching yoga. Concepts include the poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3413 & KINE 3423 completes a Yoga Teacher Certification.

KINE 3423 REGISTERED YOGA TEACHER LEVEL II (3) LEC. 2. LAB. 2. Pr. KINE 3413 or HLHP 3410 or HLHP 3413. Advanced principles of teaching yoga. Focus on poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3413 and KINE 3423 completes a Yoga Teacher Certification.
KINE 3443 COMPLEMENTARY THERAPIES AND INTEGRATIVE HEALTH (3) DSL. 3. An introduction to complementary therapies and integrative health including the basic concepts, foundation, clinical applications, and scientific evidence of specific holistic therapeutic practices.

KINE 3453 ACUPUNCTURE, ACUPRESSURE AND EXERCISE (3) LEC. 3. A practical approach to the application and implication of acupuncture/acupressure used in conjunction with exercise and other holistic strategies for overall health.

KINE 3620 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail.

KINE 3621 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT LABORATORY (1) LAB. 2. Coreq. KINE 3620. Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 3650 MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Coreq. KINE 3651. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3651 MOTOR LEARNING AND PERFORMANCE LABORATORY (1) LAB. 2. Coreq. KINE 3650. Lab experience will allow students to gain first-hand experience with modern experimental methods, data collection, and basic analysis tools in motor learning research and develop an understanding of the experience of human research participants in kinesiology research.

KINE 3680 PHYSIOLOGY OF EXERCISE (3) LEC. 3. Departmental approval. Coreq. KINE 3681. Energetics of exercise and physiological responses and adaptations of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3681 PHYSIOLOGY OF EXERCISE LAB (1) LAB. 2. Coreq. KINE 3680. Applying knowledge of basic energy, musculoskeletal, nervous, and cardiovascular systems using various testing procedures. Focus on understanding the science of exercise, interpreting common physiological fitness tests, and how to write about findings using basic scientific writing techniques.

KINE 3820/3823 PRINCIPLES OF SPORT COACHING (3) LEC. 3. Basic principles of sport pedagogy and the conduct of sport training programs. Departmental approval. May count either KINE 3820 or KINE 3823.

KINE 3830 THEORY AND PRACTICE OF SPORTS OFFICIATING (3) LEC. 3. Instruction and practice of officiating a variety of sport activities.

KINE 3843 COACHING THE MENTAL SIDE OF SPORTS (3) LEC. 3. Understand athletes’ psychology and how to provide them with mental skills to enhance their performance in athletics, academics, and life.

KINE 3873 LEGAL AND ILLEGAL SPORTS SUPPLEMENTS (3) LEC. 3. Introductory approach to the safety, efficacy, and legality of popular legal and illegal sports supplements.

KINE 4133 THE NEUROBIOLOGY OF PLAY (3) LEC. 3. This course is an introduction to psychological and neuroscientific research on play and games. We will focus on play behavior in human beings, but will incorporate comparative evidence from play in other animals. Using an interdisciplinary approach, we will draw.

KINE 4200 PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. HLHP 3300. Understanding of the skill theme approach based on skill themes, movement concepts and levels of skill proficiency. Credit will not be given for both KINE 4200 and KINE 4360. Admission to Teacher Education.

KINE 4300 PHYSICAL EDUCATION IN SECONDARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. (KINE 3300 or HLHP 3300 or HLHP 3303). Constructing and implementing appropriate lifetime sports and fitness programs for middle and secondary school students. Admission to Teacher Education.

KINE 4350 TEACHING FOR LIFETIME PHYSICAL ACTIVITY (3) LEC. 2. LAB. 2. Pr. (HLHP 3020 or HLHP 3023 or KINE 3020 or KINE 3023). Admission to Teacher Education. Coreq. KINE 3300. Skills and knowledge to conduct comprehensive fitness education programs in schools. Admission to Teacher Education.
KINE 4360 HEALTH EDUCATION AND PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (3) LEC. 2. LAB. 2. Admission to Teacher Education. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200. Admission to Teacher Education.

KINE 4400/4403 APPLIED ANATOMY FOR THE ALLIED HEALTH PROFESSIONAL (3) LEC. 3. Study of skeletal anatomy with an applied approach. May count either KINE 4400 or KINE 4403.

KINE 4450/4453 PHYSICAL ACTIVITY AND PUBLIC HEALTH (3) LEC. 3. Departmental approval. Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4500 INDIVIDUAL AND GROUP FITNESS INSTRUCTION (3) LEC. 3. Principles of exercise prescription and field assessment techniques to develop, implement and evaluate individual and group exercise programs.

KINE 4560/4563 SPORT TECHNIQUE AND MOVEMENT ANALYSIS (3) LEC. 3. Skills and knowledge for observing, evaluating, and correcting movement patterns. May count either KINE 4560 or KINE 4563.

KINE 4600 STRENGTH DEVELOPMENT (3) LEC. 3. Basic concepts and principles of strength development.

KINE 4620/4623 EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Role of psychological factors in sport, exercise and physical activity.

KINE 4630/4633 STRENGTH AND CONDITIONING PREPARATION (3) LEC. 3. Pr. KINE 4600. Preparation as a National Strength and Conditioning Specialist. May count either KINE 4630 or KINE 4633.

KINE 4640 PHYSICAL CONDITIONING AND SPEED (3) LEC. 3. Basic concepts and principles of physical conditioning and speed.

KINE 4690/4693 CORRECTIVE EXERCISE SPECIALIST PREPARATION (3) LEC. 3. Pr. KINE 3620 and P/C KINE 3621. Preparation for the National Academy of Sports Medicine corrective exercise specialist examination. May count either KINE 4690 or KINE 4693.

KINE 4720 MEASUREMENT AND QUANTITATIVE ANALYSIS IN EXERCISE SCIENCE (3) LEC. 3. Pr. (BIOL 1020 and BIOL 1021 or BIOL 1027) and BIOL 2500 and (CHEM 1030 and CHEM 1031) and PHYS 1500. Research literature, experimental design and research interpretation in exercise science.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (Biol 1020 and BIOL 1021 or BIOL 1027) and BIOL 2500 and (CHEM 1030 and CHEM 1031) and PHYS 1500. (BIOL 1020 grade of C or higher; BIOL 1021, grade of C or higher;) OR BIOL 1027 grade of C or higher;) AND (BIOL 2500, grade of C or higher;) AND (CHEM 1030 - grade of C or higher/CHEM 1031, grade of C or higher;) AND (PHYS 1500, grade of C or higher). Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. KINE 4760. Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4860/4863 EXERCISE PROGRAMMING FOR SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription, programming and field assessment techniques to develop, implement and evaluate exercise programs for special populations. May count either KINE 4860 or KINE 4863.

KINE 4880 TRAINING AND CONDITIONING PROGRAMMING (3) LEC. 3. Pr. (KINE 4600 or HLHP 4600 or HLHP 4640) and KINE 4640. Skills and knowledge related to sport specific annual training regimens.

KINE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4920 CLINICAL RESIDENCY (10) AAB/IND. 10. SU. Coreq. KINE 5353 and KINE 5350. Culminating supervised work experience in school settings for K-12 Physical Education. Students must be cleared and approved for Clinical Residency by College of Education criteria.
KINE 4930/4933 PHYSICAL ACTIVITY AND HEALTH INTERNSHIP (1-12) INT. SU. Pr. KINE 5550 and KINE 5551. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. May count either KINE 4930 or KINE 4933. Course may be repeated for a maximum of 12 credit hours.

KINE 4940/4943 FITNESS, CONDITIONING AND PERFORMANCE INTERNSHIP (1-12) INT. SU. Pr. KINE 4690 or KINE 4693 and KINE 4880. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. Site must be approved by internship coordinator. May count either KINE 4940 or KINE 4943. Course may be repeated for a maximum of 12 credit hours.

KINE 4970 SPECIAL TOPICS (1-3) AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

KINE 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental Approval. Directed research within the area of specialty within the School. Course may be repeated for a maximum of 6 credit hours.

KINE 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

KINE 5200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 5250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 5300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 5350/5353 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. (P/C KINE 4920 or P/C HLHP 4920 or P/C HLHP 4923 or P/C KINE 4923). Admission to Teacher Education. Development of appropriate measurement tools to assess student learning. May count either KINE 5350 or KINE 5353.

KINE 5400 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3. Pr. (HLHP 3680 or KINE 3680). Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. May count KINE 5400, KINE 6400, or KINE 6406.

KINE 5500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (3) LEC. 3. Pr. KINE 3680 and KINE 3681. Concepts in physiological testing, test selection, and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction. CPR certification must be obtained prior to the end of the course. May count either KINE 5500 or KINE 6500.

KINE 5501 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION LABORATORY (1) LAB. 2. Pr. KINE 3680 and KINE 3681. Application of concepts in physiological testing, test selection and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction.

KINE 5550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (1) LEC. 1. Pr. KINE 5500 and KINE 5551. Concepts in physiological testing, test selection, and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction including: cardiorespiratory, muscular fitness, body composition, balance and flexibility testing, interpretation of exercise test results, exercise prescription and health risk classification.

KINE 5551 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION LABORATORY (2) LAB. 4. Pr. KINE 5500 and KINE 5551. Practical experience in health and fitness testing and evaluation including: cardiorespiratory, muscular fitness, body composition and flexibility testing, interpretation of exercise test results, exercise prescription and health risk classification. CPR certification must be current.

KINE 5600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Pr. (HLHP 3680 or KINE 3680). Physiological adaptations to training and conditioning for optimizing sport performance. May count either KINE 5600 or KINE 6600.
KINE 5820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 5920 INTERNSHIP (1-12) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 6350/6356 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. P/C KINE 7920 or P/C HLHP 7920 or P/C HLHP 7926.

KINE 6400/6406 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. May count KINE 5400, KINE 6400, or KINE 6406.

KINE 6500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (3) LEC. 3. Concepts, procedures and skill in health and fitness testing and test interpretation for normal and special populations. Equivalent of HLHP 3680 or KINE 3680 must be taken prior to course or KINE 3680.

KINE 6550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (4) LEC. 1. LAB. 6. Pr. HLHP 5500 or KINE 5500 or KINE 6500 or HLHP 6500 or HLHP 6506. Practical experience in cardiovascular and musculoskeletal exercise evaluation and prescription; interpretation of exercise test results for exercise prescription and health risk stratification. CPR certification must be current. May count either KINE 5550 or KINE 6550.

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Physiological adaptations to training and conditioning for sport performance. May count either KINE 5600 or KINE 6600.

KINE 6820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 6920 INTERNSHIP (1-12) IND. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 12 credit hours.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3. Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7180/7186 APPLIED SOCIOLOGICAL ASPECTS OF SPORT AND EXERCISE (3) LEC. 3. Critical examination and application of sociological aspects of sport and exercise in a variety of settings. May count either KINE 7180 or KINE 7186.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3. Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS IN PHYSICAL EDUCATION (3) LEC. 3. Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3. Pr. HLHP 7010 or HLHP 7016 or KINE 7010. Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3. Instructional strategies and content for elementary and secondary physical education.
KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3. Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.

KINE 7400/7406 ADVANCED ANATOMICAL PRINCIPLES (3) LEC. 3. Coreq. KINE 7416 and KINE 7410. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge. May count either KINE 7400 or KINE 7406.

KINE 7410/7416 ADVANCED ANATOMICAL PRINCIPLES LAB (1) LAB. 2. Coreq. KINE 7400 and KINE 7406. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge.

KINE 7420/7426 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH I (3) LEC. 3. Introductory approach to skill analysis as well as the use of the software program Dartfish. May count either KINE 7420 or KINE 7426.

KINE 7430/7436 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH II (3) LEC. 3. Pr. KINE 7420 or HLHP 7420 or HLHP 7426 or KINE 7426. Advanced approach to skill analysis as well as the use of the software program Dartfish. May count either KINE 7430 or KINE 7436.

KINE 7536 ADVANCED PRINCIPLES OF STRENGTH AND CONDITIONING (3) DSL. 3. A review of the material and tools necessary to take the National Strength and Conditioning Association's Certified Strength and Conditioning Specialist (CSCS) Exam.

KINE 7546 ATHLETIC MOVEMENT ENHANCEMENT (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Performance Enhancement Specialist.

KINE 7556 EFFICIENT MOVEMENT STRATEGIES (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Corrective Exercise Specialist.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3. Electrocardiography from an exercise scientist's perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620/7626 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Departmental approval. May count either KINE 7620 or KINE 7626.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Departmental approval. Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or HLHP 7626). Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7670 LAB TECHNIQUES IN BIOMECHANICS (3) LEC. 1. LAB. 2. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or KINE 7626). Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3) LEC. 3. Departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3. Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECHNIQUES IN EXERCISE PHYSIOLOGY (3) LEC. 1. LAB. 4. Pr. (HLHP 7680 or HLHP 7686 or KINE 7680). Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3. Departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3. Departmental approval. Examination of theoretical and empirical issues in motor development across the life span.
KINE 7750 ADVANCED SPORT PSYCHOLOGY (3) LEC. 3. Departmental approval. Examination of psychological factors that influence athletic performance. Or equivalent.

KINE 7780 EXERCISE MOTIVATION AND ADHERENCE (3) LEC. 3. Theoretical foundations and recent research in exercise motivation and adherence. Or equivalent.

KINE 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3) LEC. 3. Pr. (HLHP 7650 or HLHP 7656 or KINE 7650). Examination of motor behavior characteristics of individuals with disabilities.

KINE 7820/7826 CLINICAL/NON-CLINICAL INTERNSHIP IN KINESIOLOGY (1-10) INT. SU. Supervised work experience in physical activity, health, fitness, conditioning, performance and rehabilitation settings. This course is for non-teacher education students. May count either KINE 7820 or KINE 7826. Course may be repeated for a maximum of 10 credit hours.

KINE 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 7910 PRACTICUM (1-3) PRA. Departmental approval. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 7920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 7930 NON-THESIS RESEARCH PROJECT (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Continuation/completion of a scientific research project that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

KINE 7970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.

KINE 7980 RESEARCH PROJECT IN KINESIOLOGY (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Completion of a scientific research project in Kinesiology that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7990 RESEARCH AND THESIS (1-10) IND. Course may be repeated with change in topics.

KINE 8300 RESEARCH IN KINESIOLOGY (3) LEC. 3. Examination and evaluation of current research trends within the field of kinesiology.

KINE 8310 SUPERVISION/ADMINISTRATION OF LABS IN KINESIOLOGY (3) LEC. 3. Skills and techniques of the daily management of kinesiology labs. Topics include budgeting, outreach, entrepreneurship, grants, and personnel management.

KINE 8320 RESEARCH MENTORSHIP (3) LEC. 3. Skills and experience in the mentorship of novice researchers in the field of Kinesiology.

KINE 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3) LEC. 3. In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Or equivalent.

KINE 8750 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7620) or KINE 7620 or KINE 7620. Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

KINE 8760 PHYSICAL ACTIVITY EPIDEMIOLOGY (3) LEC. 3. Development of analytic skills to evaluate and/or conduct population-based research related to physical activity and disease.

KINE 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3) LEC. 3. Pr. KINE 7680 or HLHP 7680 or HLHP 7686 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training.
KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3. Pr. (HLHP 7680 or KINE 7680) or HLHP 7686 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 8910 PRACTICUM (1-3) PRA. SU. Departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours.

KINE 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 8930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

KINE 8950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8960 SPECIAL PROBLEMS (1-3) IND. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course be repeated with change in topic. Course may be repeated with change in topics.

KINE 8980 FIELD PROJECT (1-6) FLD.

KINE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Field project away from campus. Course may be repeated for a maximum of 9 credit hours. Course may be repeated with change in topics.

Physical Education Courses

PHED 1003 ACTIVE AUBURN (2) LEC. 2. Basic concepts associated with physical activity and the opportunities on campus to engage in health-promoting and wellness activities. Course may be repeated for a maximum of 4 credit hours.

PHED 1023 FRESHMAN FIT (2) LEC. 1. LAB. 2. Basic concepts associated with exercise participation, nutrition, stress reduction and proper sleep. Introduction to campus opportunities for health promoting behaviors.

PHED 1200 CARDIO RESPIRATORY: FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to running (jogging) swimming, cycling and aerobic dance. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1210 CARDIO RESPIRATORY: AEROBIC DANCE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in aerobic dance.

PHED 1220 CARDIO RESPIRATORY: CIRCUIT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in circuit training.

PHED 1230 CARDIO RESPIRATORY: JOGGING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in jogging.

PHED 1240 CARDIO RESPIRATORY: SWIM FOR FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in swim for fitness.

PHED 1250 CARDIO RESPIRATORY: WATER AEROBICS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in water aerobics.

PHED 1263 MILITARY FITNESS FOR EVERYONE (2) LEC. 2. Basics of military-type physical activity training, goal-setting, and fitness principles.

PHED 1300 FITNESS AND CONDITIONING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with a change in topic. Course may be repeated with change in topics.
PHED 1310 FITNESS: BODYBUILDING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in bodybuilding.

PHED 1320 FITNESS: LIFETIME ACTIVITY (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in lifetime activity.

PHED 1330 FITNESS: WEIGHT CONTROL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight control.

PHED 1340 FITNESS: WEIGHT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training.

PHED 1350 FITNESS WEIGHT TRAINING WOMEN (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness for weight training for women.

PHED 1360 FITNESS: WEIGHT TRAINING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training II.

PHED 1383 KETTLEBELL TRAINING (2) LEC. 1. LAB. 1. Introductory approach to kettlebell techniques and kettlebell program development.

PHED 1393 WEIGHT MANAGEMENT (2) LAB. 2. Nutrition and exercise concepts associated with maintaining healthy weight.

PHED 1400 TEAM SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to, volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1410 TEAM SPORTS: BASKETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1420 TEAM SPORTS: FLAG FOOTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1430 TEAM SPORTS: SOCCER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1440 TEAM SPORTS: SOFTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1450 TEAM SPORTS: VOLLEYBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1500 INDIVIDUAL SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with change in topic. Course may be repeated with change in topics.

PHED 1510 INDIVIDUAL SPORTS: BOWLING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1520 INDIVIDUAL SPORTS: GOLF (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1530 INDIVIDUAL SPORTS: GOLF II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1540 INDIVIDUAL SPORTS: RACQUETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1550 INDIVIDUAL SPORTS: TENNIS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1560 INDIVIDUAL SPORTS: TENNIS II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.
PHED 1600 PERFORMANCE ACTIVITIES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to, dance and gymnastics. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1610 PERFORM ACTIVITY - PILATES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1620 PERFORMANCE ACTIVITY: KARATE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Course may be repeated for a maximum of 6 credit hours.

PHED 1630 PERFORMANCE ACTIVITY: TAE KWON DO (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1640 PERFORMANCE ACTIVITY: YOGA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1700 AQUATICS: OTHER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course may be repeated for a maximum of 4 credit hours.

PHED 1710 AQUATICS: BEGINNING KAYAKING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1720 AQUATICS: ADVANCED KAYAKING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1730 AQUATICS: KEELBOAT SAILING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1740 AQUATICS: LIFEGUARD TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1750 AQUATICS: BEGINNING SWIMMING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1760 AQUATICS: SCUBA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1770 AQUATICS: WATER SKIING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1780 AQUATICS: ADVANCED WATER SKIING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1800 VARSITY MEN'S SPORTS: STRENGTH AND CONDITION (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

PHED 1810 VARSITY MEN'S SPORTS: FOOTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1820 VARSITY MEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1830 VARSITY MEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1840 VARSITY MEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1850 VARSITY MEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.
PHED 1860 VARSITY MEN’S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN’S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN’S SPORTS: BASEBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN’S SPORTS: SOCCER (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN’S SPORTS: GYMNASTICS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN’S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN’S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN’S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN’S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1960 VARSITY WOMEN’S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN’S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN’S SPORTS: SOFTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN’S SPORTS: VOLLEYBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 2100 WHEELCHAIR SPORTS FOR EVERYONE (2) LEC. 2. LAB. 1. A physical education class which introduces students to various wheelchair sports.

PHED 2200 SELF DEFENSE FOR WOMEN (1) LEC. 1. The Rape Aggression Defense (RAD) System is a comprehensive program of realistic self-defense tactics and techniques for women that promotes awareness, prevention, risk reduction and risk avoidance with a progression to hands-on training and simulation exercises.

Curriculum in Exercise Science

Freshman

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<th>Fall</th>
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<th>Spring</th>
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<td>Select one of the following:</td>
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<tr>
<td>BIOL 1020 Principles of Biology  &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1030 Organismal Biology  &amp; BIOL 1031 Organismal Biology Laboratory</td>
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<td>BIOL 1027 Honors Biology</td>
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<td>BIOL 1037 Honors Organismal Biology</td>
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<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>Core Social Science</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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### Core Fine Arts
3 PHED Elective 2

### Sophomore

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<tr>
<td>Core Literature 1</td>
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<td>Humanities Core</td>
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<td><strong>KINE 1100 Wellness</strong></td>
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<td>Core Literature or Core Humanities</td>
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<td>Core Social Science</td>
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<td>BIOL 2510 Human Anatomy and Physiology II</td>
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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td><strong>KINE 2250 Motor Development Across the Lifespan</strong></td>
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<td><strong>KINE 2251 Motor Development Across the Lifespan Laboratory</strong></td>
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### Junior

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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td><strong>KINE 3620 Biomechanical Analysis of Human Movement</strong></td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td><strong>KINE 3621 Biomechanical Analysis of Human Movement Laboratory</strong></td>
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<td>PHYS 1500 General Physics I</td>
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<td><strong>KINE 3650 Motor Learning and Performance</strong></td>
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<td><strong>KINE 3680 Physiology of Exercise</strong></td>
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### Senior

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<td><strong>KINE 4760 Introduction to Exercise Science Research</strong></td>
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<td><strong>KINE 4780 Exercise Science Research</strong></td>
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Total Hours: 120

1 Students must complete a history sequence or a literature sequence.
2 Directed Electives and KINE Electives: See advisor for options.

### Curriculum in Fitness, Conditioning and Performance
### Freshman

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### Sophomore

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<tr>
<td>Core Literature(^1)</td>
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<td>Core Literature or Core Humanities</td>
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<tr>
<td>Core Fine Arts</td>
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<td>Humanities Core</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>BIOL 2510 Human Anatomy and Physiology II</td>
<td>4</td>
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<tr>
<td>KINE 2250/2253 Motor Development Across the Lifespan</td>
<td>2</td>
<td>KINE 3680 Physiology of Exercise</td>
<td>3</td>
</tr>
<tr>
<td>KINE 2251 Motor Development Across the Lifespan Laboratory</td>
<td>1</td>
<td>KINE 3681 Physiology of Exercise Lab</td>
<td>1</td>
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<tr>
<td>BIOL 2500 Human Anatomy and Physiology I</td>
<td>4</td>
<td>KINE 1103 Wellness</td>
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### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>KINE 3620 Biomechanical Analysis of Human Movement</td>
<td>3</td>
<td>KINE 3650 Motor Learning and Performance</td>
<td>3</td>
</tr>
<tr>
<td>KINE 3621 Biomechanical Analysis of Human Movement Laboratory</td>
<td>1</td>
<td>KINE 3651 Motor Learning and Performance Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>KINE 4400/4403 Applied Anatomy for the Allied Health Professional</td>
<td>3</td>
<td>KINE 4450/4453 Physical Activity and Public Health</td>
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<td>KINE 4600 Strength Development</td>
<td>3</td>
<td>KINE 4560/4563 Sport Technique and Movement Analysis</td>
<td>3</td>
</tr>
<tr>
<td>KINE 4640 Physical Conditioning and Speed</td>
<td>3</td>
<td>KINE 4620/4623 Exercise and Sport Psychology</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td><strong>Total</strong></td>
<td>16</td>
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### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Directed Electives</td>
<td>7</td>
<td>KINE 4940/4943 Fitness, Conditioning and Performance Internship</td>
<td>12</td>
</tr>
<tr>
<td>KINE 4690 Corrective Exercise Specialist Preparation or 4693 Corrective Exercise Specialist Preparation</td>
<td>3</td>
<td>UNIV 4AA0 University Graduation</td>
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</table>
KINE 4630 Strength and Conditioning Preparation **or** 4633 Strength and Conditioning Preparation

<table>
<thead>
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<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>13</td>
<td></td>
<td>12</td>
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</table>

Total Hours: 120

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Students must complete a history sequence or a literature sequence.

**Curriculum in Physical Activity and Health**

**Freshman**

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td></td>
<td></td>
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<td>Select one of the following:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>BIOL 1020 Principles of Biology</td>
<td>BIOL 1030 Organismal Biology</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>&amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>&amp; BIOL 1031 Organismal Biology Laboratory</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BIOL 1027 Honors Biology</td>
<td>BIOL 1037 Honors Organismal Biology</td>
</tr>
<tr>
<td></td>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Core Social Science</td>
<td>3</td>
<td>Core History or Core Social Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Core History$^1$</td>
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<td>PHED Elective</td>
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<tr>
<td></td>
<td>MATH 1130 Pre-Calculus Trigonometry</td>
<td>3</td>
<td>KINE 1100 Wellness <strong>or</strong> 1103 Wellness</td>
<td>2</td>
</tr>
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</table>

|          |     | 16    |        | 14    |

**Sophomore**

<table>
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<tr>
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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<td>Core Literature <strong>or</strong> Core Humanities</td>
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<td>Humanities Core</td>
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<tr>
<td></td>
<td></td>
<td>3</td>
<td>KINE 3620 Biomechanical Analysis of Human Movement</td>
<td>3</td>
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<tr>
<td></td>
<td>KINE 2250 Motor Development Across the Lifespan <strong>or</strong> 2253 Motor Development Across the Lifespan</td>
<td>2</td>
<td>KINE 3621 Biomechanical Analysis of Human Movement Laboratory</td>
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<tr>
<td></td>
<td>KINE 2251 Motor Development Across the Lifespan Laboratory</td>
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<td>Elective</td>
<td>3</td>
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<tr>
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<td>BIOL 2500 Human Anatomy and Physiology I</td>
<td>4</td>
<td>Directed Electives$^2$</td>
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|          |     | 16    |        | 16    |

**Junior**

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
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<td>4</td>
<td>PHED Elective</td>
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<td></td>
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<td>7</td>
<td>KINE 3650 Motor Learning and Performance</td>
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<td></td>
<td></td>
<td>3</td>
<td>KINE 3651 Motor Learning and Performance Laboratory</td>
<td>1</td>
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<tr>
<td></td>
<td>KINE 3680 Physiology of Exercise</td>
<td>3</td>
<td>KINE 3650 Motor Learning and Performance Laboratory</td>
<td>1</td>
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<tr>
<td></td>
<td>KINE 3681 Physiology of Exercise Lab</td>
<td>1</td>
<td>KINE 5500 Exercise Technology I: Principles of Exercise Testing and Interpretation</td>
<td>3</td>
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<td></td>
<td></td>
<td>KINE 5501 Exercise Technology I: Principles of Exercise Testing and Interpretation Laboratory</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
<td>Directed Electives$^2$</td>
<td>6</td>
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</tbody>
</table>

|          |     | 15    |        | 16    |
Senior

Fall | Hours | Spring | Hours
---|---|---|---
KINE 4450 Physical Activity and Public Health or 4453 Physical Activity and Public Health | 3 | UNIV 4AA0 University Graduation | 0
KINE Elective | 3 | KINE 4930 or KINE 4933 | 12
KINE 5400 Exercise Prescription for Normal and Special Populations | 3 | | |
KINE 5550 Exercise Technology II: Applied Exercise Testing and Interpretation | 1 | | |
KINE 5551 Exercise Technology II: Applied Exercise Testing and Interpretation Laboratory | 2 | | |
Directed Electives | 3 | | |
---|---|---|---
15 | 12

Total Hours: 120

1 Students must complete a history sequence or a literature sequence.
2 Directed Electives and KINE Electives: See advisor for approved course options.

**Sport Coaching Minor**

15 semester hours in minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 3820/3823</td>
<td>Principles of Sport Coaching</td>
<td>3</td>
</tr>
<tr>
<td>KINE 4620/4623 or KINE 3843</td>
<td>Exercise and Sport Psychology or Coaching the Mental Side of Sports</td>
<td>3</td>
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</table>

Select 9 hours from list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>KINE 2503</td>
<td>Sport Optimization I</td>
<td></td>
</tr>
<tr>
<td>KINE 2513</td>
<td>Sport Optimization 2</td>
<td></td>
</tr>
<tr>
<td>KINE 3043</td>
<td>History of American Physical Culture</td>
<td></td>
</tr>
<tr>
<td>KINE 3050/3053</td>
<td>Care and Prevention of Injuries</td>
<td></td>
</tr>
<tr>
<td>KINE 3100/3103</td>
<td>Adaptive Sports</td>
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<tr>
<td>KINE 3113</td>
<td>Paralympic Sport</td>
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<tr>
<td>KINE 3843</td>
<td>Coaching the Mental Side of Sports</td>
<td></td>
</tr>
<tr>
<td>KINE 3830</td>
<td>Theory and Practice of Sports Officiating</td>
<td></td>
</tr>
<tr>
<td>KINE 3873</td>
<td>Legal and Illegal Sports Supplements</td>
<td></td>
</tr>
<tr>
<td>KINE 4560/4563</td>
<td>Sport Technique and Movement Analysis</td>
<td></td>
</tr>
<tr>
<td>KINE 4600</td>
<td>Strength Development</td>
<td></td>
</tr>
<tr>
<td>KINE 4620/4623</td>
<td>Exercise and Sport Psychology</td>
<td></td>
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<tr>
<td>KINE 4640</td>
<td>Physical Conditioning and Speed</td>
<td></td>
</tr>
<tr>
<td>KINE 5820</td>
<td>Sport Management</td>
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</table>

Total Hours: 15

**Special Education, Rehabilitation, and Counseling - MEd, MS, EdS, PhD, Graduate Certificate**

**Degree Programs**

- Clinical Mental Health Counseling (p. 509)
- Counselor Education (p. 512)
- Counseling Psychology (p. 510)
- Collaborative Teacher Special Education, K-12 (p. 1526)
• Early Childhood/Elementary Special Education, P-6 (p. 1528)
• Rehabilitation and Special Education (p. 1531)
• Rehabilitation Counseling (p. 1526)
• School Counseling (p. 516)

Graduate Certificates
• Transition Specialist (p. 1531)
• Intervention for Students with Autism and Developmental Disabilities (p. 1530)
• Inclusive Elementary Education Practices (p. 516)
• Rehabilitation Leadership and Management (p. 1531)

The Department of Special Education, Rehabilitation, and Counseling offers graduate certificates and graduate degree programs leading to the master of education (certification option), master of science, specialist in education, and doctor of philosophy. All graduate educator preparation programs are approved by the Alabama State Board of Education (ALSBE). Auburn University’s College of Education is accredited through the National Council for Accreditation of Teacher Education (NCATE). Master’s and doctoral programs in counselor education are accredited by the Council for the Accreditation of Counseling and Related Educational Programs (CACREP). The master’s and doctoral programs in counseling psychology are accredited by the American Psychological Association (APA).

Master’s Degree Programs (MEd/MS)
Application to the master’s programs includes: meeting Graduate School requirements for admission, submission of the departmental application and all undergraduate transcripts, a GPA of at least a 2.75 on undergraduate coursework, and three reference forms.

Counselor Education (Clinical Mental Health Counseling, School Counseling, Rehabilitation Counseling)
Additional admission requirements for the school counseling program include a clear background check and a passing score on each of the Praxis Core Academic Skills for Educators (Reading, Writing, and Mathematics).

Students in all master’s-level counseling programs must pass a comprehensive graduation exam which currently consists of the Counselor Preparation Comprehensive Examination (CPCE) and complete other assigned work and/ or examinations designed to evaluate students’ skills in areas related to program goals. All master’s programs require extensive extramural practicum and internships in placements related to the area of professional preparation. Students in the rehabilitation counseling program are required to complete the Certified Rehabilitation Counselor (CRC) Examination, and students in all other counseling master’s programs are provided the opportunity to complete the National Counselor Examination (NCE).

Students in the school counseling program must earn a passing score on the appropriate Praxis II subject assessment and may be subject to other components of the State testing program depending on prior professional educator certification. In accordance with State regulations, effective for students unconditionally admitted to the school counseling certification program prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet master’s-level certification program requirements. Effective for students unconditionally admitted to certification programs July 1, 2017 and after, a minimum GPA of 3.25 will be required on all courses used to meet master’s-level certification program requirements.

Special Education (Early Childhood/Elementary Special Education, P-6; Collaborative Teacher Special Education, K-12)
Master of Education (MEd) degree programs in special education include both alternative and traditional certification options. Alternative MEd certification programs offer qualified students who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a master’s degree. Admission requirements for the alternative and traditional master’s programs include a clear background check.

Additional admission requirements for the alternative master’s programs in special education include a passing score on each of the Praxis Core Academic Skills for Educators (Reading, Writing, and Mathematics), the appropriate Praxis II subject assessment, and a bachelor’s degree from an accredited college or university with a minimum GPA of 2.75 overall or a master’s or higher degree with a GPA of at least 3.0. This GPA must be documented on the official transcript of the degree granting institution and must be the GPA that was used as the basis for granting the degree, not a GPA that includes post-degree courses.
Additional admission requirements for the traditional master's programs in special education include a valid bachelor's level professional educator certificate in a teaching field and may include additional certification tests.

Degree requirements for master's-level special education programs are in compliance with regulations established by the ALSBE and include a written comprehensive exam as well as a passing score on the appropriate Praxis II assessment for alternative master's students and traditional master's students with prior certification in a teaching field other than special education. In accordance with State regulations, effective for students unconditionally admitted to certification programs prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet master's-level certification program requirements. Effective for students unconditionally admitted to certification programs July 1, 2017 and after, a minimum 3.25 GPA will be required on all courses used to meet master's-level certification program requirements.

Specialist in Education Degree Program (EdS)

Applicants to the EdS program in special education collaborative teacher must satisfy the Graduate School’s admission requirements. Departmental admission requirements include a master’s degree from an accredited college or university, academic good standing at the institution last attended, competitive GRE scores, three reference forms, current resume, a valid master’s-level professional educator certificate in special education, clear background check, and approval by the department. In some cases, depending on prior level certification, additional certification tests may be required.

Degree requirements for specialist-level teacher certification programs are in compliance with regulations established by the ALSBE. Specialist programs include a minimum of 30 semester hours beyond the master’s degree. Additional requirements include satisfactory completion of a field project and a written comprehensive exam.

In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.25 is required on all courses used to meet specialist-level certification program requirements. Effective for students unconditionally admitted July 1, 2017 and after, a minimum GPA of 3.50 will be required on all courses used to meet specialist-level certification program requirements.

Master's- and Specialist-Level Certification

Individuals completing State-approved master's-level special education certification programs are eligible to apply for Alabama Class A certification; individuals completing State-approved specialist-level special education certification programs are eligible to apply for Alabama Class AA certification. Effective September 1, 2018, the Alabama State Board of Education will require an acceptable score on the edTPA for initial certification in a teaching field. This certification requirement applies to individuals completing alternative master’s programs. Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

Doctoral Degree Programs (PhD)

Doctoral programs are offered in counseling psychology, counselor education, and special education.

Applicants to the PhD programs must satisfy the Graduate School’s admission requirements. Counselor education applicants must have completed an approved master’s degree program prior to enrollment, preferably from a CACREP accredited master's program requiring 60 credit hours. Counseling psychology applicants may apply with a bachelor’s degree, some graduate coursework, a master’s degree, or a doctoral degree (the latter in the case of re-specialization). Special education applicants must have completed three years of direct teaching of students with disabilities.

The number of hours required for the three doctoral programs varies and within each program is dependent on previous graduate work, ranging from 61-109 hours. Research methods, statistics, and foundations of education are components of all doctoral programs. Doctoral students must register for at least 10 hours of dissertation credit while completing a dissertation.

Graduate Certificates

Graduate certificates are offered in Transition Specialist, Intervention for Students with Autism and Developmental Disabilities, and Inclusive Elementary Education Practices.

Online Learning Graduate Programs and Courses

The Department of Special Education, Rehabilitation, and Counseling offers the Special Education (MEd and EdS) and Rehabilitation Counseling graduate programs through online learning as well as through residential study.
Additional information
Detailed admission and program requirements for the department’s multiple areas of graduate study are available on the College of Education’s website, Academics (http://www.education.auburn.edu/academics/).

The Department of Special Education, Rehabilitation, and Counseling offers the following undergraduate degree programs.

Undergraduate Majors
- Early Childhood/Elementary Special Education, P-6 (p. 513)
- Collaborative Teacher Special Education, K-12 (p. 512)
- Rehabilitation and Disability Studies (p. 515)

Undergraduate Minor
- Counseling (p. 510)

Counselor Ed, Counseling Psych Courses

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1. LAB. 2. The process of career decision-making through hands-on activities, in-class exercises, and job shadowing.

COUN 2000 LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. 3. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.

COUN 2020 INTRODUCTION TO LGBTQ STUDIES (3) LEC. 3. The class focuses on content addressing and introduces lesbian, gay, bisexual, and transgender studies. The course will examine the historical, scientific, psychological, and cultural contexts of relationships, issues and trends in a diverse society related to sexual orientation.

COUN 2900 DIRECTED STUDIES (1-3) IND. SU. Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.

COUN 2940 DIRECTED FIELD EXPERIENCE (1-3) FLD. Course may be repeated for a maximum of 9 credit hours.

COUN 2950 THRIVING THROUGH TRANSITIONS (1) SEM. 1. This course requires participation in activities that support healthy living and assignments that facilitate understanding of mechanisms that promote well-being. Course content reviews the process of recovery from addiction and mechanisms used to support long-term recovery. Course may be repeated for a maximum of 12 credit hours.

COUN 2970/2973 SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3) LEC. Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.

COUN 3000/3003 CAREER SUCCESS (2) LEC. 2. Developing a career plan via instruction on researching careers, writing resumes, developing portfolios, interviewing, net working and other career development practices. May count either COUN 3000 or COUN 3003.

COUN 3100 COUNSELING AND HUMAN SERVICES (3) LEC. 3. Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.

COUN 3980 SUPERVISED RESEARCH EXPERIENCE IN COUNSELING (3) LAB. 3. SU. This course provides students with the opportunity to gain supervised research experience in counselor education, counseling psychology, and special education programs. Students will work with the faculty instructor to gain experience in a range of research activities. Course may be repeated for a maximum of 12 credit hours.

COUN 4000 INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY (3) LEC. 3. Pr. COUN 2000. Current theory, research, and practice regarding counseling and psychotherapy. We will cover several current issues related relevant to counseling and psychotherapy, including the process of change, theoretical perspectives, ethical issues.

COUN 4010 INTRODUCTION TO PREVENTION AND MENTAL HEALTH PROMOTION (3) LEC. 3. Pr. COUN 2000. Addressing the ideas of prevention and health promotion in counseling psychology. We will address such concepts as positive psychology, mindfulness, stress, health promotion, body image, social justice theory, social advocacy, and prevention theory.
COUN 4910 PRACTICUM (1-3) PRA. SU. This course provides students with the opportunity to be actively involved in social justice efforts that affect the region and nation through gaining hands-on experience in a social justice agency. Course may be repeated for a maximum of 6 credit hours.

COUN 4970 SPECIAL TOPICS IN COUNSELING (3) LAB. 3. Introduction to selected topic in counseling. Course will provide a semester-long introduction and introduction into research in the topic of interest using a seminar style of instruction. Course may be repeated for a maximum of 9 credit hours.

COUN 7100 INTRODUCTION TO SCHOOL PSYCHOLOGY (3) LEC. 3. Orientation to profession of school psychology; history of the profession, professional roles, ethical and legal standards, and current issues.

COUN 7200 INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3) LEC. 3. Pr. COUN 7100 or (COUN 7400 or COUN 7406) or COUN 8530. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.


COUN 7230 CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3) LEC. 3. Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.

COUN 7240/7246 COUNSELING CHILDREN AND ADOLESCENTS (3) LEC. 3. Course provides awareness, knowledge, and skills for counseling children and adolescents using effective theoretical approaches, counseling modalities, and specific techniques. May count either COUN 7240 or COUN 7246.

COUN 7250/7256 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3. Pr. COUN 7100 or (COUN 7400 or COUN 7406) or COUN 8530. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions. May count either COUN 7250 or COUN 7256.

COUN 7310/7316 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3. Theories and current research in development across the lifespan with emphasis on applications to counseling. May count either COUN 7310 or COUN 7316.

COUN 7320/7326 COUNSELING THEORIES (3) LEC. 3. Study of major counseling theories. May count either COUN 7320 or COUN 7326.

COUN 7330/7336 COUNSELING DIVERSE POPULATIONS (3) LEC. 3. Departmental approval. Special counseling and advocacy issues. Needs of diverse populations are considered.

COUN 7340 GROUP COUNSELING (3) LEC. 3. Leading, developing, evaluating a counseling group; including group proposal, session development, group dynamics, group leadership and evaluation, treatment planning; group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3. Pr. (COUN 7320 or COUN 7326) or (COUN 7400 or COUN 7406) or COUN 8530. Methods, interventions, and skills essential to counseling.

COUN 7360 ADVANCED COUNSELING PRACTICE (3) LEC. 3. An intensive study of advanced counseling skills with supervised experience. Class format will include lecture, group discussion, role play, case and videotaped counseling practice analysis, observational analysis and evaluation of counseling techniques.

COUN 7400/7406 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3. Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice.

COUN 7410 ORIENTATION TO CLINICAL MENTAL HEALTH COUNSELING (3) LEC. 3. Orientation to clinical mental health counseling to include roles, responsibilities, systems, theories, professional issues, and history.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3. Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program.

COUN 7430 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Theory and practice of counseling and student services in higher education.

COUN 7500/7506 CRISIS INTERVENTION IN COUNSELING (3) LEC. 3. Development of skills and knowledge for crisis intervention and management in counseling, including prevention planning, intervention strategies and evaluation.
COUN 7510 ADVANCED CLINICAL MENTAL HEALTH COUNSELING INTERVENTIONS (3) LEC. 3. Pr. COUN 7320 or COUN 7326. Advanced counseling interventions, practices, techniques and methods for mental health counselors, including treatment planning, counseling processes, and evaluation.

COUN 7810 COUNSELING CONSULTATION THEORY AND PRACTICE (3) LEC. 3. Counseling consultation theories, models, practices, legal and ethical standards, and interdisciplinary approaches in school and clinical mental health settings.

COUN 7820 PSYCHOEDUCATIONAL INTERVENTIONS: ACADEMIC (3) LEC. 3. Pr. COUN 7100 and COUN 7220. Intervention approaches designed to address children's academic success across all content areas including: reading, mathematics, written language and other academic enablers.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3. SU. Departmental approval. Supervised experiences appropriate to student's program emphasis area. Course may be repeated for a maximum of 9 credit hours.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr. COUN 7910. Departmental approval. Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours.

COUN 7940 DIRECTED FIELD EXPERIENCE (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. SU. May be taken more than one semester. Course may be repeated for a maximum of 10 credit hours.

COUN 7970 SPECIAL TOPICS (1-3) AAB. An in-depth study of a current topic(s) impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

COUN 8100 PERSONALITY AND INDIVIDUAL DIFFERENCES (3) LEC. 3. Origins and structure of individual differences in personality and intelligence, and their application to counseling.

COUN 8110 COUNSELING ASSESSMENT ACROSS THE LIFESPAN (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, and attitude tests across the lifespan.

COUN 8120 APPRAISAL IN COUNSELING AND PSYCHOLOGY (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.

COUN 8200 INTELLECTUAL ASSESSMENT OF ADULTS (3) LEC. 2. LAB. 3. Pr. COUN 7200. Theory and measurement of adult intelligence. Administration and interpretation of selected tests.

COUN 8210 TEST ADMINISTRATION AND PROFESSIONAL PRACTICE (3) LEC. 3. Pr. COUN 7200 or ERMA 8350 or FOUN 8350 and COUN 7210. Coreq. COUN 8200. Administration and scoring of selected tests, primarily WAIS-IV, to familiarize students with measurements for assessment of adult intelligence.

COUN 8220 PSYCHOLOGICAL SCIENCE AND HEALTH (3) LEC. 3. Pr. PSYC 7150 and PSYC 7180 and COUN 7330 and COUN 7310. In this course, fundamental science relating to health and psychology will be reviewed, focusing on major theoretical foundations, research findings, and empirically supported interventions. Students will be expected to integrate foundational knowledge in psychological science with particular emphasis on biological.

COUN 8230 COLLOQUIUM IN COUNSELING PSYCHOLOGY I (2) SEM. 2. SU. This course provides pre-practicum students with training in the conduct of counseling psychology research to provide foundational skills in processes involved in research.

COUN 8240 COLLOQUIUM IN COUNSELING PSYCHOLOGY II (2) SEM. 2. SU. This course provides continued training in the conduct of counseling psychology research and provides opportunities to demonstrate an ability to evaluate psychotherapy research in order to achieve readiness for practicum in research skills.

COUN 8250 COLLOQUIUM IN COUNSELING PSYCHOLOGY III (2) SEM. 2. SU. Pr. COUN 8240. This course provides advanced training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to contribute to meaningful scholarship in Counseling Psychology.
COUN 8260 COLLOQUIUM IN COUNSELING PSYCHOLOGY IV (2) SEM. 2. SU. Pr. COUN 8250. This course provides advanced training in the development, conduct, and dissemination of social justice-oriented research and provides opportunities to demonstrate an ability to integrate concepts of equity and justice in the contribution to meaningful scholarship in Counseling Psychology.


COUN 8400 PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3) LEC. Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.

COUN 8510 CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3) LEC. 3. Departmental approval. History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives.

COUN 8520 CONTEMPORARY ISSUES IN SCHOOL PSYCHOLOGY (1-3) LEC. History, development, and current issues. Legal and ethical considerations, research and service initiatives, and new client populations. Course may be repeated for a maximum of 3 credit hours.

COUN 8530 CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3) LEC. 3. History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.

COUN 8540 COUN SUPERVISION-THEORY & PRAC (3) LEC. 3. Advanced theories, skills, models and methods used in counseling supervision including counselor development, supervisory processes and evaluation.

COUN 8550/8556 COUNSELOR EDUCATION PEDAGOGY (3) LEC. 3. Counselor Education pedagogical skills and knowledge including; theories, course and curriculum development methods, and professional responsibilities. May count either COUN 8550 or COUN 8556.

COUN 8610 ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3) LEC. 3. Theory and practice of humanistic/existential approaches to individual and group therapy.


COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3. Departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8700 DIVERSITY AND SOCIAL JUSTICE IN COUNSELOR EDUCATION (3) LEC. 3. Must be admitted to the Counselor Education Doctoral Program. This advanced course provides students with information about issues of diversity and social justice. Students apply this information to their roles in the counseling profession, specifically as future counselor educators, leaders of the profession, and advocates.

COUN 8800 PROFESSIONAL DEVELOPMENT INTERNSHIP SKILLS (3) LEC. 3. This three-hour required course is designed to help students solidify their professional identity and effectively apply for their one-year Counseling Psychology internship.

COUN 8910 PRACTICUM (3) LEC. 3. SU. Departmental approval. Advanced supervised experiences appropriate to student's program emphasis. Course may be repeated for a maximum of 9 credit hours.

COUN 8920 INTERNSHIP (1-9) INT. SU. Departmental approval. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8930 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Departmental approval. Supervised, full-time experience in Counseling Psychology at the doctoral level. May be repeated to satisfy 2000 clock hour accreditation requirement.

COUN 8970 SPECIAL TOPICS (1-3) SEM. SU. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8980 FIELD PROJECT (1-10) FLD. SU. Departmental approval. Required for completion of the Education Specialist degree. Course may be repeated for a maximum of 10 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSR.
Rehabilitation Special Ed Courses

RSED 3000/3003 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3. Pr. 2.00 GPA. Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings. May count either RSED 3000 or RSED 3003.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3. Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3030 INTRODUCTION TO SPEECH PATHOLOGY IN SPECIAL EDUCATION (3) LEC. 3. Emphasis on the role and function of speech pathologist with respect to best practices in the school setting.

RSED 3100/3103 ASSESSMENT IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Concepts and techniques for developmental screening, evaluation and assessment for young children (ages 3-8) with developmental delays and disabilities. Departmental approval. May count either RSED 3100 or RSED 3103.

RSED 3110/3113 ASSESSMENT: ELIGIBILITY FOR SPECIAL EDUCATION (3) LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special education. May count either RSED 3110 or RSED 3113.

RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3. Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3. Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4110 SUPPORTED EMPLOYMENT IN REHABILITATION (3) LEC. 3. Historical, legislative, theoretical, research and practical foundation of supported employment.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3. The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3. Departmental approval. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4140 ASSESSMENT: PROGRAM PLANNING IN SPECIAL EDUCATION (3) LEC. 3. Coreq. RSED 4920. A framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on application assessment of students with disabilities, and how to use assessment data to inform instructional planning and IEP goal development.

RSED 4900/4903 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours.

RSED 4910/4913 PRACTICUM (1-6) PRA. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4920/4923 CLINICAL RESIDENCY (9) AAB/INT. 9. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Departmental approval or admission to internship.

RSED 4970/4973 SPECIAL TOPICS (1-3) IND. Departmental approval. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 3 credit hours.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
<th>Notes</th>
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<tbody>
<tr>
<td>RSED 5000</td>
<td>ADVANCED SURVEY OF EXCEPTIONALITY (3)</td>
<td></td>
<td>LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.</td>
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<tr>
<td>RSED 5010</td>
<td>MEDICAL ASPECTS OF DISABILITY (3)</td>
<td></td>
<td>LEC. 3. Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each. May count RSED 5010, RSED 6010, or RSED 6016.</td>
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<tr>
<td>RSED 5020</td>
<td>PSYCHOSOCIAL ASPECTS OF DISABILITY (3)</td>
<td></td>
<td>LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 6020, or RSED 6026.</td>
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<tr>
<td>RSED 5030</td>
<td>MENTAL RETARDATION (3)</td>
<td></td>
<td>LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5030, RSED 6030, or RSED 6036.</td>
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<tr>
<td>RSED 5040</td>
<td>LEARNING DISABILITIES (3)</td>
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<td>LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.</td>
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<tr>
<td>RSED 5050</td>
<td>BEHAVIOR DISORDER (3)</td>
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<td>LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5050, RSED 6050, or RSED 6056.</td>
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<tr>
<td>RSED 5060</td>
<td>SEVERE DISABILITIES (3)</td>
<td></td>
<td>LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5060, RSED 6060, or RSED 6066.</td>
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<tr>
<td>RSED 5070</td>
<td>MILD DISABILITIES (3)</td>
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<td>LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count either RSED 5070 or RSED 6070.</td>
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<tr>
<td>RSED 5100</td>
<td>INFANTS AND TODDLERS WITH DISABILITIES (3)</td>
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<td>LEC. 3. Pr. RSED 3010. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.</td>
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<tr>
<td>RSED 5110</td>
<td>CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3)</td>
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<td>LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. Admission to Teacher Education. May count RSED 5110, RSED 6110, or RSED 6116.</td>
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<td>RSED 5120</td>
<td>CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3)</td>
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<td>LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.</td>
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<td>RSED 5130</td>
<td>CURRICULUM IN SECONDARY SPECIAL EDUCATION (3)</td>
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<td>LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities. Admission to Teacher Education. May count RSED 5130, RSED 6130, or RSED 6136.</td>
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<tr>
<td>RSED 5140</td>
<td>CURRICULUM IN SEVERE DISABILITIES (3)</td>
<td></td>
<td>LEC. 3. Pr. RSED 3010. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.</td>
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<tr>
<td>RSED 5150</td>
<td>ELEMENTARY TEACHING METHODS IN SPECIAL EDUCATION (3)</td>
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<td>LEC. 3. Admission to Teacher Education. Instructional strategies in reading and math for students who have learning and behavior problems. May count RSED 5150, RSED 6150, or RSED 6156.</td>
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<tr>
<td>RSED 5160</td>
<td>FRAMEWORK FOR COLLABORATION IN K-12 (3)</td>
<td></td>
<td>LEC. 3. Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 6160, or RSED 6166.</td>
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RSED 5170 TRANSITION FROM BIRTH TO ADULTHOOD (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on practices, programs, and services. May count RSED 5170, RSED 6170, or RSED 6176.

RSED 5180 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the theoretical basis and the practical application of classroom organizational and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management. May count RSED 5180, RSED 6180, or RSED 6186.

RSED 5190 COMMUNITY-BASED INSTRUCTION AND RELATED SERVICES (3) LEC. 3. Provides an in-depth study of transition programs and practices for youth with disabilities as they transition into adulthood. May count either RSED 6190 or RSED 6196.

RSED 5200/5203 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment. May count RSED 5220, RSED 6220, or RSED 6226.

RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 5340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 6000/6006 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 6010/6016 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count RSED 6010 or RSED 6016.

RSED 6020/6026 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 6020, or RSED 6026.

RSED 6030/6036 MENTAL RETARDATION (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5030, RSED 6030, or RSED 6036.

RSED 6040/6046 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 6050/6056 BEHAVIOR DISORDERS (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5050, RSED 6050, or RSED 6056.

RSED 6060/6066 SEVERE DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5060, RSED 6060, or RSED 6066.

RSED 6070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count RSED 5070 or RSED 6070.
RSED 6100/6106 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 6110/6116 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 6120/6126 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 6130/6136 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities. May count RSED 5130, RSED 6130, or RSED 6136.

RSED 6140/6146 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 6150/6156 ELEMENTARY TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading and math for students who have learning and behavior problems. May count RSED 5150, RSED 6150, or RSED 6156.

RSED 6160/6166 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 6160, or RSED 6166.

RSED 6170/6176 TRANSITION FROM BIRTH TO ADULTHOOD (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, programs, and services. May count RSED 5170, RSED 6170, or RSED 6176.

RSED 6180/6186 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the theoretical basis and the practical application of classroom organization and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management. May count RSED 5180, RSED 6180, or RSED 6186.

RSED 6190/6196 COMMUNITY-BASED INSTRUCTION AND RELATED SERVICES (3) LEC. 3. Provides an in-depth study of transition programs and practices for youth with disabilities as they transition into adulthood. May count either RSED 5190 or RSED 6196.

RSED 6200/6206 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 6210/6216 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 6220/6226 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count RSED 6220 or RSED 6226.

RSED 6230/6236 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 6340/6346 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 7010/7016 REHABILITATION PROFESSIONS, PROGRAMS AND ETHICS (3) LEC. 3. This course exposes students to the ethics, history and development of the rehabilitation counseling movement inclusive of its legal base, philosophies, concepts, and current socio-political trends. May count either RSED 7010 or RSED 7016.
RSED 7100/7106 ADVANCED ASSESSMENT AND INTERVENTION IN EARLY INTERVENTION (3) LEC. 3. Assessment and intervention strategies for special needs children, birth to age three. Departmental approval. May count either RSED 7100 or RSED 7106.

RSED 7110/7116 ADVANCED ASSESSMENT AND INTERVENTION EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Assessment and intervention strategies for special needs children, pre-k through 3rd grade. Departmental approval. May count either RSED 7110 or RSED 7116.

RSED 7120/7126 ADVANCED ASSESSMENT IN SPECIAL EDUCATION (3) LEC. 3. Advanced study of educational tests and procedures for diagnosing special training problems. Departmental approval. May count either RSED 7120 or RSED 7126.

RSED 7130/7136 ADVANCED ASSESSMENT I IN REHABILITATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130 or RSED 7136.

RSED 7140 ADVANCED ASSESSMENT II IN REHABILITATION (3) LEC. 3. Pr. RSED 7130 or RSED 7136. Interpretation of vocational evaluation data for prescriptive purposes and communication of that data through report writing and oral communication.

RSED 7150/7156 MULTICULTURAL ASPECTS OF DISABILITIES (3) LEC. 3. Study of three main areas relevant to multicultural competencies and standards for rehabilitation professionals: (a) acquisition of communication skills; (b) attitudes towards ethnic minorities, and (c) knowledge about minority populations. May count either RSED 7150 or RSED 7156.

RSED 7200/7206 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 7100 or RSED 7106. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support. Departmental approval. May count either RSED 7200 or RSED 7206.

RSED 7210/7216 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 7110 or RSED 7116. Curriculum methods, intervention plans, intervention methods, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes. Departmental approval. May count either RSED 7210 or RSED 7216.

RSED 7220/7226 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Applied study and practice in analyzing, designing, constructing and evaluating teaching sequences and programs with empirical emphasis for design of instructional principles. May count either RSED 7220 or RSED 7226.

RSED 7230/7236 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs. Departmental approval. May count either RSED 7230 or RSED 7236.

RSED 7246/7240 SEMINAR IN REHABILITATION RESEARCH AND DESIGN (3) LEC. 3. Research in rehabilitation counseling, with focus on acquisition of knowledge about traditional and recent developments in research methods, and skill application. May count either RSED 7240 or RSED 7246.

RSED 7300/7306 REHABILITATION COUNSELING TECHNIQUES (3) LEC. 3. Facilitative communication skills and systematic problem solving skills for effective clinical practice. May count either RSED 7300 or RSED 7306.

RSED 7310/7316 PROPRIETARY REHABILITATION (3) LEC. 3. Pr. (RSED 6210 or RSED 6216) and (RSED 7130 or RSED 7136). Vocational rehabilitation in private sector including case management and expert witness for workers compensation, personal injury litigation, and social security. May count either RSED 7310 or RSED 7316.

RSED 7320/7326 INDIVIDUAL COUNSELING APPROACHES IN REHABILITATION COUNSELING (3) LEC. 3. Survey of theoretical approaches involved in individual counseling with an emphasis on persons with disabilities using an eclectic point of view and psychoeducational approach. May count either RSED 7320 or RSED 7326.

RSED 7330/7336 GROUP COUNSELING IN REHABILITATION SETTINGS (3) LEC. 3. Pr. RSED 7320 or RSED 7326. Nature and function of group dynamics in rehabilitation settings including theories of groups, group structure, and psych-educational strategies used with rehabilitation clients. May count either RSED 7330 or RSED 7336.

RSED 7400/7406 CURRICULUM AND TEACHING IN SPECIALIZATION (3) LEC. 3. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (intellectual disability, learning disabilities, behavioral disorders, etc.). RSED 7400 and RSED 7406 may be repeated for a maximum combined total of 6 credit hours.
RSED 7410/7416 PROGRAM IMPLEMENTATION IN SPECIALIZATION (3) LEC. 3. Program organization and development of materials for curriculum improvement and teaching practices in a disability specialization area. RSED 7410 and RSED 7416 may be repeated for a maximum combined total of 9 credits with a change in disability specialization.

RSED 7420/7426 RESEARCH IN SPECIALIZATION (3) LEC. 3. Examination and interpretation of applied research in specialization area (intellectual disabilities, learning disabilities, behavioral disorders, etc.). Course may be repeated with a change in research area. May count either RSED 7420 or RSED 7426. Course may be repeated for a maximum of 6 credit hours.

RSED 7430/7436 RESEARCH INTO PRACTICE (3) LEC. 3. Applied opportunities for translating instructional and behavioral research into practice. The course may be repeated with a change in research topic. Departmental approval. May count either RSED 7430 or RSED 7436. Course may be repeated for a maximum of 6 credit hours.

RSED 7440/7446 SEMINAR IN SPECIALIZATION (3) SEM. 3. Departmental approval. Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topics.

RSED 7460/7466 POSITIVE BEHAVIOR SUPPORTS (3) LEC. 3. Evaluating and implementing Positive Behavior Interventions and Supports (PBIS) for students grades PK through 12 in traditional and alternative educational settings. May count either RSED 7460 or RSED 7466.

RSED 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 3 credit hours.

RSED 7910/7916 PRACTICUM (1-6) PRA. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 7920/7926 CLINICAL RESIDENCY (1-9) INT. SU. Departmental approval. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Course may be repeated for a maximum of 12 credit hours.

RSED 7940/7946 ADVANCED THEORIES IN REHABILITATION COUNSELING (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count either RSED 7940 or RSED 7946.

RSED 7950/7956 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. 3. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count either RSED 7950 or RSED 7956.

RSED 7980/7986 NON-THESIS PROJECT (1-3) IND. SU. Course may be repeated for a maximum of 10 credit hours.

RSED 7990/7996 RESEARCH AND THESIS (1-10) MST. Departmental approval. The content focus of the study area will be translated into specific objectives with the student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 10 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3. Departmental approval. History, principles, and methodology of single subject research on the various types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3. Departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030/8036 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3. Critical and contemporary issues regarding disability and its relationship to the leadership roles of professionals in special education and rehabilitation. May count either RSED 8030 or RSED 8036.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3. Departmental approval. Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities.
RSED 8050/8056 DISABILITIES AND THE LAW (3) LEC. 3. Departmental approval. Development of rehabilitation and special education laws from a historical, policy, leadership, and advocacy perspective.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3. Departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3. SU. Departmental approval. A series of doctoral seminars devoted to professional technical writing, grant writing, management, and research. Course may be repeated with change in topics.

RSED 8110/8116 ORGANIZATIONAL LEADERSHIP AND CHANGE REHABILITATION (3) LEC. 3. Organizational leadership for the public and private non-profit sectors of rehabilitation emphasizing individual qualities required for successful leadership. Departmental approval. May count either RSED 8110 or RSED 8116.

RSED 8120/8126 MANAGEMENT OF PUBLIC SECTOR ORGANIZATIONS (3) LEC. 3. Objective and analytical perspective of public sector management and organizational leadership skills as it relates to rehabilitation settings. Departmental approval. May count either RSED 8120 or RSED 8126.

RSED 8230 EXAMINING DISABILITY DATABASES (3) LEC. 3. Conducting descriptive and correlational research by using existing publicly available databases in the field of disabilities.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topics.

RSED 8950/8956 SEMINAR (1-3) SEM. Departmental approval. Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations. Course may be repeated for a maximum of 9 credit hours.

RSED 8980/8986 NON-THESIS PROJECT (1-10) IND. SU. Departmental approval. May be repeated with change in topic. Provides an opportunity for advanced graduate students to pursue a project of interest. Course may be repeated with change in topics.

RSED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Course may be repeated with change in topic.

Clinical Mental Health Counseling (option) - MEd/MS

Clinical Mental Health Counseling (option) - MEd/MS (http://www.education.auburn.edu/graduate-degree-cert/clinical-mental-health-counseling-m-ed)

Counselor Education – Clinical Mental Health (MS)

- COUN 7200 Introduction to Measurement and Assessment 3
- COUN 7230 Career Development and Vocational Appraisal 3
- COUN 7250 Advanced Assessment and Diagnosis in Counseling 3
- COUN 7310 Counseling Applications of Lifespan Development 3
- COUN 7320 Counseling Theories 3
- COUN 7330 Counseling Diverse Populations 3
- COUN 7340 Group Counseling 3
- COUN 7350 Introduction to Counseling Practice 3
- COUN 7360 Advanced Counseling Practice 3
- COUN 7400 Orientation to Professional Counseling 3
- COUN 7410 Orientation to Clinical Mental Health Counseling 3
- COUN 7500 Crisis Intervention in Counseling 3
- COUN 7510 Advanced Clinical Mental Health Counseling Interventions 3
- COUN 7910 Practicum 3
- COUN 7920 Internship 9
- COUN 7990 Research and Thesis 4-6
- ERMA 7200/7206 Basic Methods in Education Research 3
**Counseling - Minor**

The counseling minor will provide students interested in careers in the helping professions with a foundational understanding of the roles and activities of counselors and facilitate the development of the core professional values of the counseling and related fields.

15 semester hours in minor

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>COUN 2000</td>
<td>Living and Communicating in a Diverse Society</td>
</tr>
<tr>
<td>COUN 4000</td>
<td>Introduction to Counseling and Psychotherapy</td>
</tr>
<tr>
<td>COUN 4010</td>
<td>Introduction to Prevention and Mental Health Promotion</td>
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</table>

**Elective Courses** - See approved list below.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>COUN 2940</td>
<td>Directed Field Experience</td>
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<tr>
<td>COUN 3100</td>
<td>Counseling and Human Services</td>
</tr>
<tr>
<td>COUN 3980</td>
<td>Supervised Research Experience in Counseling</td>
</tr>
<tr>
<td>COUN 4970</td>
<td>Special Topics in Counseling</td>
</tr>
<tr>
<td>RSED 4100</td>
<td>Professional Communication in Rehabilitation</td>
</tr>
<tr>
<td>RSED 5020</td>
<td>Psychosocial Aspects of Disability</td>
</tr>
</tbody>
</table>

**Total Hours**

15

**Counseling Psychology MA, PhD**

[Counseling Psychology MA, PhD](http://www.education.auburn.edu/graduate-degree-cert/counseling-psychology-ph-d)

**Counseling Psychology - MA**

This degree program is only open to students simultaneously enrolled and first admitted to the Counseling Psychology Ph.D. program.

<table>
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<tr>
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<td>Contemporary Issues in Counseling Psychology</td>
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<tr>
<td>COUN 7250</td>
<td>Advanced Assessment and Diagnosis in Counseling</td>
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<tr>
<td>COUN 7320</td>
<td>Counseling Theories</td>
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<td>COUN 7330</td>
<td>Counseling Diverse Populations</td>
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<td>COUN 7340</td>
<td>Group Counseling</td>
</tr>
<tr>
<td>COUN 7350</td>
<td>Introduction to Counseling Practice</td>
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<tr>
<td>ERMA 8350</td>
<td>Advanced Measurement Theory</td>
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Select 6 Hours of COUN 7910 or COUN 8910

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>Stats courses approved by program</td>
<td>Stats courses approved by program</td>
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</table>

**Total Hours**

33

COUN 8910: Advanced Practicum can substitute for COUN 7910 (the student must still complete 6 credits total from COUN 7910 or COUN 8910).

In addition to the above stated requirements, students must submit documentation of their clinical hours (including hours of direct provision of psychotherapy services to clients), evaluation forms completing by external supervisors for the two semesters of COUN 7910 (COUN 8910, if used to substitute for COUN 7910), and annual self-evaluations required by the program using the program form.

The student must meet the following additional outcomes beyond completion of courses with grades of Satisfactory (for S/U) courses and a GPA of 3.0 or better for traditionally graded courses: (A) accumulate 100 hours of direct provision of psychotherapy services to clients; (B) receive ratings of "meets expectations" or better in two semesters of practicum (COUN 7910 or COUN 8910) for the following items on the student evaluation form completed by external supervisors: (1) ability to form good relationships with clients, (2) ability to work with diverse clients (a rating of "cannot judge" is acceptable for one of the two semesters of this particular outcome.
but no ratings of "below expectations" or worse are acceptable for the two semesters used to meet this required outcome for the MA degree), and (3) ability to handle cases more effectively as a result of supervision; (C) two semesters of practicum ratings in which they did not receive a rating suggesting that the supervisor believes the student violated ethical principles of psychologists (this criterion requires that, for two semesters of practicum, a supervisor not indicate "yes" in response to the question, "Do you have any reason to believe that the student has violated ethical principles of psychologists?" found on the rating form that is completed by external supervisors); (D) successful completion of an outcome assessment assignment used in COUN 7910 (successful completion is defined as "acceptable/meets expectations/satisfactory" or better); and (E) receive a rating of satisfactory on making progress in research from program faculty during annual faculty evaluations of students.

**Counseling Psychology MA, PhD**

The American Psychological Association (APA) is the accrediting body for this program. The APA implemented new standards (called the Standards of Accreditation) with corresponding Implementing Regulations (which specify how standards are to be met and can be modified more frequently) that became effective January 1, 2017. This curriculum is designed to meet those standards.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>COUN 7320</td>
<td>Counseling Theories</td>
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<td>COUN 8530</td>
<td>Contemporary Issues in Counseling Psychology</td>
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<td>COUN 7330</td>
<td>Counseling Diverse Populations</td>
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<tr>
<td>COUN 8230</td>
<td>Colloquium in Counseling Psychology I</td>
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<td>COUN 7350</td>
<td>Introduction to Counseling Practice</td>
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<td>COUN 7250</td>
<td>Advanced Assessment and Diagnosis in Counseling</td>
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<td>COUN 7340</td>
<td>Group Counseling</td>
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<td>COUN 8240</td>
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<td>Program approved second semester doctoral stats course</td>
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<tr>
<td>ERMA 8350</td>
<td>Advanced Measurement Theory</td>
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<tr>
<td>PSYC 7180</td>
<td>Social Psychology</td>
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<td>or COUN 8970</td>
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<tr>
<td>PSYC 7190</td>
<td>Cognitive Psychology</td>
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<td>COUN 7230</td>
<td>Career Development and Vocational Appraisal</td>
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<td>COUN 8120</td>
<td>Appraisal in Counseling and Psychology</td>
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<td>COUN 7910</td>
<td>Practicum (I)</td>
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<td>COUN 8250</td>
<td>Colloquium in Counseling Psychology III</td>
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<td>COUN 7910</td>
<td>Practicum (II)</td>
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<td>COUN 8260</td>
<td>Colloquium in Counseling Psychology IV</td>
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<td>COUN 8970</td>
<td>Special Topics (PSYC 7100 is an approved substitute, requires program approval)</td>
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<tr>
<td>A COUN advance theories course (all students must take at least one advance theories course):</td>
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**Advanced Counseling Theory courses include:**

- COUN 8610 Advanced Theories: Existential/Humanistic
- COUN 8620 Advanced Theories: Cognitive/Behavioral Theories
- COUN 8630 Advanced Theories: Psychodynamic Theories

**Other topics may be offered from time to time**

- PSYC 7150 Biological Psychology
- COUN 8910 Practicum (I)
- COUN 8910 Practicum (II)
- COUN 8300 Research Design in Counseling and Evaluation
- COUN 8400 Professional Seminar Counseling Psychology
- COUN 8200 Intellectual Assessment of Adults (or COUN 7220 Intellectual Assessment of Children and Adolescents, with permission from advisor)
- COUN 8210 Test Administration and Professional Practice

One program approved elective course of 3 hours or 3 hours of program approved electives
COUN 8220  Psychological Science and Health  3  
COUN 7310  Counseling Applications of Lifespan Development  3  
COUN 8540  Coun Supervision-Theory & Prac  3  
COUN 8800  Professional Development Internship Skills  3  
COUN 8930  Internship in Counseling Psychology  0  
COUN 8990  Research And Dissertation  10  
Total Hours  105  

Counselor Education - PhD

Counselor Education - PhD (http://www.education.auburn.edu/graduate-degree-cert/counselor-education-ph-d)

COUN 8100  Personality and Individual Differences  3  
COUN 8300  Research Design in Counseling and Evaluation  3  
COUN 8510  Contemporary Issues in Counselor Education  3  
COUN 8540  Coun Supervision-Theory & Prac  3  
COUN 8550  Counselor Education Pedagogy  3  
COUN 8620  Advanced Theories: Cognitive/Behavioral Theories  3  
COUN 8700  Diversity and Social Justice in Counselor Education  3  
COUN 8910  Practicum (Teaching)  3  
COUN 8910  Practicum (Advanced Counseling)  3  
COUN 8910  Practicum (Supervision)  3  
ERMA 7210  Theory and Methodology of Qualitative Research  3  
ERMA 7220  Applied Qualitative Research  3  
or ERMA 8200/8206  Survey Research Methods  3  
ERMA 7300/7306  Design and Analysis in Education I  3  
ERMA 7310/7316  Design and Analysis in Education II  3  
ERMA 8810  Program Evaluation  3  
COUN 8620  Advanced Theories: Cognitive/Behavioral Theories  9  
COUN 8990  Research And Dissertation  10  
Total Hours  64  

Curriculum in Collaborative Teacher Education

Freshman

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<tr>
<td>Core History I</td>
<td>3</td>
<td>Core History II</td>
<td>3</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Social Science</td>
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<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Math</td>
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<tr>
<td>COMM 1000 Public Speaking</td>
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<td>EDUC 1010 Orientation to Teacher Education</td>
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Sophomore

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<th>Fall</th>
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<tbody>
<tr>
<td>Core Literature</td>
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<td>Core Science II</td>
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<td>Course</td>
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<td>Core Science I</td>
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<td>MATH 2860 Mathematics for Elementary Education II</td>
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<td>Humanities Core</td>
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<td>Free Elective</td>
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<td>MATH 2850 Mathematics for Elementary Education I</td>
<td>3</td>
<td>Science Elective with Lab</td>
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<td>MATH 2870 Mathematics for Elementary Education III</td>
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### Junior

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>FOUN 3000 Diversity of Learners and Settings²</td>
<td>3</td>
<td>FOUN 3100/3103 Child Development, Learning, Motivation and Assessment²</td>
</tr>
<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners²</td>
<td>3</td>
<td>RSED 3110 Assessment: Eligibility for Special Education²</td>
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<tr>
<td>RSED 3010 Introduction to Special Education²</td>
<td>3</td>
<td>RSED 4910 Practicum¹,²</td>
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<td>RSED 5160 Framework for Collaboration in K-12²</td>
<td>3</td>
<td>RSED 5130 Curriculum in Secondary Special Education²</td>
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<tr>
<td>RSED 5180 Instructional Classroom Management²</td>
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<td>RSED 5140 Curriculum in Severe Disabilities²</td>
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<td>EDMD 3300 Utilization of Instructional Technology for Educators</td>
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### Senior

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<th>Course</th>
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<tbody>
<tr>
<td>RSED 4010 Behavior Management in Special Education²</td>
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<td>RSED 4920/4923 Clinical Residency²</td>
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<td>UNIV 4AA0 University Graduation</td>
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<td>RSED 5120 Curriculum in Elementary Special Education¹,²</td>
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<td>RSED 4140 Assessment: Program Planning in Special Education¹,³</td>
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<td>RSED 5150 Elementary Teaching Methods in Special Education¹,²</td>
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<td>RSED 5170 Transition from Birth to Adulthood²</td>
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<td>RSED 5190 Community-based Instruction and Related Services²</td>
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Total Hours: 122

1. Prerequisite: Admission to Teacher Education.
2. Prerequisite: Admission to Internship (application for internship is one year in advance).
3. Prerequisite for Admission to Internship.

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**Curriculum in Early Childhood/Elementary Special Education, P-6**
### Freshman

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3 ENGL 1120 English Composition II</td>
</tr>
<tr>
<td>Core History I</td>
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<tr>
<td>Core Fine Arts</td>
<td>3 Core Math</td>
</tr>
<tr>
<td>COMM 1000 Public Speaking</td>
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### Sophomore

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<tbody>
<tr>
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<tr>
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<td>4 Core Science II</td>
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<td>MATH 2850 Mathematics for Elementary Education I</td>
<td>3 Science Elective with Lab</td>
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<tr>
<td>MATH 2870 Mathematics for Elementary Education III</td>
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<td>or Math Elective</td>
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<td><strong>Total</strong></td>
<td>16</td>
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### Junior

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<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>FOUN 3000 Diversity of Learners and Settings(^2)</td>
<td>3 FOUN 3100/3103 Child Development, Learning, Motivation and Assessment(^{1,2})</td>
</tr>
<tr>
<td>RSED 3000/3003 Diversity and Exceptionality of Learners(^2)</td>
<td>3 RSED 3110 Assessment: Eligibility for Special Education(^2)</td>
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<tr>
<td>RSED 3010 Introduction to Special Education(^2)</td>
<td>3 RSED 5120 Curriculum in Elementary Special Education(^{1,2})</td>
</tr>
<tr>
<td>RSED 5160 Framework for Collaboration in K-12(^2)</td>
<td>3 RSED 5140 Curriculum in Severe Disabilities(^2)</td>
</tr>
<tr>
<td>RSED 5180 Instructional Classroom Management(^2)</td>
<td>3 RSED 4910 Practicum(^{1,2})</td>
</tr>
<tr>
<td>EDM 3300 Utilization of Instructional Technology for Educators</td>
<td>2 undefined</td>
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<tr>
<td><strong>Total</strong></td>
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### Senior

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>RSED 4010 Behavior Management in Special Education(^2)</td>
<td>3 RSED 4920/4923 Clinical Residency(^1)</td>
</tr>
<tr>
<td>RSED 4910 Practicum(^{1,2})</td>
<td>2 RSED 4140 Assessment: Program Planning in Special Education(^3)</td>
</tr>
<tr>
<td>RSED 5100 Infants and Toddlers with Disabilities(^1)</td>
<td>3 UNIV 4AA0 University Graduation</td>
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<tr>
<td>RSED 5110 Curriculum in Early Childhood Special Education(^{1,2})</td>
<td>3</td>
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<tr>
<td>RSED 5150 Elementary Teaching Methods in Special Education(^{1,2})</td>
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</tr>
<tr>
<td>Course Name</td>
<td>Credits</td>
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<tr>
<td>-------------</td>
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</tr>
<tr>
<td>RSED 5170 Transition from Birth to Adulthood</td>
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<td>Total Hours: 122</td>
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</table>

1 Prerequisite: Admission to Teacher Education.  
2 Prerequisite to RSED 4920  
3 Corequisite with RSED 4920

**Curriculum in Rehabilitation and Disability Studies**

**Freshman**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
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<td>Select one of the following:</td>
<td>4</td>
<td>Select one of the following:</td>
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<tr>
<td></td>
<td>BIOL 1000 Introduction to Biology</td>
<td></td>
<td>BIOL 1010 A Survey of Life</td>
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</tr>
<tr>
<td></td>
<td>&amp; BIOL 1001 Introduction to Biology Laboratory</td>
<td></td>
<td>&amp; BIOL 1011 A Survey of Life Laboratory</td>
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</tr>
<tr>
<td></td>
<td>BIOL 1020 Principles of Biology</td>
<td></td>
<td>BIOL 1030 Organismal Biology</td>
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<tr>
<td></td>
<td>&amp; BIOL 1021 Principles of Biology Laboratory</td>
<td></td>
<td>&amp; BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td></td>
<td>BIOL 1027 Honors Biology</td>
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<td>BIOL 1037 Honors Organismal Biology</td>
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<tr>
<td></td>
<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<tr>
<td></td>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Math</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Core Social Science</td>
<td>3</td>
<td>PSYC 2010 Introduction to Psychology</td>
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<td></td>
<td>Elective</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>PHIL 1030 Ethics and the Health Sciences</td>
<td>3</td>
<td>Core Literature or Core Humanities</td>
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<tr>
<td></td>
<td>Core Literature</td>
<td>3</td>
<td>Core History or Core Social Science</td>
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<tr>
<td></td>
<td>Core History</td>
<td>3</td>
<td>BIOL 2510 Human Anatomy and Physiology II</td>
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<tr>
<td></td>
<td>BIOL 2500 Human Anatomy and Physiology I</td>
<td>4</td>
<td>STAT 2010 Statistics for Social and Behavior Sciences</td>
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<tr>
<td></td>
<td>Elective</td>
<td>3</td>
<td>PSYC 3570 Theories of Personality</td>
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<td></td>
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</table>

**Junior**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>RSED 3020 Introduction to Rehabilitation</td>
<td>3</td>
<td>RSED 3120 Assessment in Rehabilitation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RSED 4120 Independent Living Services in Rehabilitation</td>
<td>3</td>
<td>RSED 4100 Professional Communication in Rehabilitation</td>
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</tr>
<tr>
<td></td>
<td>RSED 4910 Practicum</td>
<td>1</td>
<td>RSED 4910 Practicum</td>
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</tr>
<tr>
<td></td>
<td>RSED 5010 Medical Aspects of Disability</td>
<td>3</td>
<td>RSED 5210 Occupational Information</td>
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<tr>
<td></td>
<td>RSED 5200 Vocational Evaluation in Rehabilitation</td>
<td>3</td>
<td>RSED 5230 Rehabilitation Assistive Technology</td>
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</tr>
<tr>
<td></td>
<td>Elective</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>16</td>
<td>14</td>
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</tbody>
</table>
Inclusive Elementary Education Practices - Graduate Certificate

The program requires 15 hours of coursework. Everyone in the program will complete six hours of required coursework. Key assessments will be included in each class which will be used for program evaluation. Students will select nine additional hours of coursework from a given list.

**Required Courses (6 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEE 7010 Approaches to Teaching (Required) Spring</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or CTEE 7016 Approaches to Teaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSED 7400 Curriculum and Teaching in Specialization (required) Summer</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or RSED 7406 Curriculum and Teaching in Specialization</td>
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<td></td>
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</tbody>
</table>

**Choose 9 hours from options below**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7460 Positive Behavior Supports (Optional) Fall</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or RSED 7466 Positive Behavior Supports</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTEE 7420 Curriculum and Teaching in Language Arts (Grades K-6) (Optional) Summer</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or CTEE 7426 Curriculum and Teaching in Language Arts (K-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTEE 7440 Curriculum and Teaching in Mathematics (Grades K-6) (Optional) Summer</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or CTEE 7446 Curriculum and Teaching Mathematics (K-6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSED 6160 Framework for Collaboration in K-12 (Optional) Summer</td>
<td>3</td>
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</tr>
<tr>
<td>or RSED 6166 Framework for Collaboration in K-12</td>
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</tr>
</tbody>
</table>

**School Counseling (option) – MEd**

School Counseling (option) – MEd (http://www.education.auburn.edu/graduate-degree-cert/school-counseling-m-ed)

**Class A Program Checklist for School Counseling**

**Instructional Support Area: 33 hours**

At least 1/3 of the program shall be teaching field courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUN 7200 Introduction to Measurement and Assessment</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COUN 7230 Career Development and Vocational Appraisal</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COUN 7240 Counseling Children and Adolescents</td>
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<td></td>
</tr>
<tr>
<td>COUN 7310 Counseling Applications of Lifespan Development</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COUN 7320/7326 Counseling Theories</td>
<td>3</td>
<td></td>
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<tr>
<td>COUN 7330 Counseling Diverse Populations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COUN 7340 Group Counseling</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COUN 7350 Introduction to Counseling Practice</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

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1. Students must complete a history sequence or a literature sequence.
2. Students are required to complete four hours of practicum, which may be taken over 2-4 semesters.
COUN 7400  Orientation to Professional Counseling  3
COUN 7420  Orientation to School Counsel  3
COUN 7500  Crisis Intervention in Counseling  3

**Internship:** 9 hours

COUN 7920  Internship  9

**Practicum:** 3 hours

COUN 7910  Practicum  3

**Survey of Special Education/Diversity Course**

See RSED 6000/6 in Additional Courses AND COUN 7330 in Instructional Support Area

**Additional Courses: 15 hours**

**Required:** 6 hours

RSED 6180  Instructional Classroom Management  3
RSED 6340/6346  Foundations of Substance Use Counseling  3

Select 9 hours from the following:  9

RSED 6000/6006  Advanced Survey of Exceptionality  1
COUN 7250  Advanced Assessment and Diagnosis in Counseling  3
ERMA 7200/7206  Basic Methods in Education Research  3
Other advisor-approved supporting courses 6000 level and above  2

**Total Hours**  60

---

1. RSED 6000/6 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with COUN 7330 Counseling Diverse Populations.

2. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

---

**Samuel Ginn College of Engineering**

CHRIS ROBERTS, Dean
STEVE DUKE, Associate Dean
JEFFREY FERGUS, Associate Dean
STEVEN TAYLOR, Associate Dean
ROBERT KARCHER, Assistant Dean

ENGINEERS ARE FACED with worldwide problems and expectations awesome in responsibility, yet exciting as professional challenges. These range from the extremes of interplanetary exploration through earth orbiting systems to the problems arising from our population explosion: energy, better productivity, housing, transportation and environmental issues.

As a renewed appreciation develops for the contributions of science and technology, engineering leaders are calling for engineers who are better equipped to tackle the specific, technical problems of the future. They also are calling for engineers who by breadth of education and understanding of other disciplines can convince others of the role of engineers not only in technical matters but in policy decisions to ensure the use of technology to benefit mankind.

Engineering education at Auburn provides in a four-year curriculum both the technical knowledge and the broad general education necessary to equip engineers for their problem-solving challenges. Centered on mathematics and the physical sciences, the curricula also stress the importance of social sciences, humanities and communication skills. Auburn’s engineering programs enable individuals to develop their natural talents and provide knowledge, skills and understanding that will help them to find their places in society as well as in their vocations.
Admission
Freshmen eligibility is determined by the Office of Enrollment Services. However, since the requirements for engineering education necessitate high school preparatory work of high intellectual quality and of considerable breadth, the following program is recommended as minimum preparation: English, four units; mathematics (including algebra, geometry, and trigonometry), four units; chemistry, one unit; history, literature, social science, two or three units. Calculus, physics and foreign languages are recommended but not required.

Transfers from other institutions must apply through the Office of Enrollment Services. The exact placement in courses can be determined only upon review of the student's transcript by the Samuel Ginn College of Engineering. See Admission of Transfer Students for complete requirements.

The college allows credit for courses completed with satisfactory grades provided the courses correspond in time and content to courses offered at Auburn. Courses that are taught at the 3000-level or higher at Auburn are generally not transferable from junior colleges.

Many courses required by the Samuel Ginn College of Engineering are highly specialized in their content and potential transfer students need to select courses with care. Therefore, to ensure maximum transferability of credits, students are encouraged to contact the College as soon as possible about acceptable credits.

Transfers from on-campus must be approved by the Samuel Ginn College of Engineering. The requirements for a student to advance from the pre-engineering program into an engineering curriculum are subsequently described in the “Scholastic Requirements” section.

Programs
Pre-Engineering
The Pre-Engineering Program consists of a freshman program of studies to prepare students for curricula in the Samuel Ginn College of Engineering. It also provides academic and career counseling to assist students in determining the curriculum that best fulfills their personal and educational objectives.

Professional Programs

The undergraduate Computer Science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

These curricula are designed to meet the educational requirements of the engineering professions. The program in the fundamental sciences of mathematics, chemistry and physics is followed by a study of basic engineering sciences. Specialized or departmental courses are taken in the third and fourth years. Flexibility is provided in all degree programs through electives so that the individual may emphasize areas of personal interest.

An ecological engineering option and a forest engineering option are available under the biosystems engineering program. The forest engineering option is offered jointly by the Department of Biosystems Engineering and the School of Forestry and Wildlife Sciences. The environmental science curriculum is offered jointly by the College of Agriculture, the College of Engineering, and the College of Sciences and Mathematics.

Cooperative Education
The Cooperative Education Program is offered in all curricula of the Samuel Ginn College of Engineering. Refer to the program information in the Special Academic Opportunities section of the Bulletin. For additional information, contact: Cooperative Education (Co-Op) Program, 104 Ramsay Hall, Auburn, AL, 36849-5123. Telephone: (334) 844-5410. Website: cws.auburn.edu/coop/ .

Graduate
The Samuel Ginn College of Engineering offers masters (thesis and non-thesis) and PhD degrees in aerospace engineering, biosystems engineering, chemical engineering, civil engineering, computer science and software engineering, electrical and computer
engineering, industrial and systems engineering, materials engineering, mechanical engineering, and polymer and fiber engineering. The college also offers a dual-degree master of industrial and systems engineering and master of business administration.

**Continuing Education**

The Engineering Graduate Outreach Office extends the resources of the Samuel Ginn College of Engineering to the people, businesses and industries of the state. Programs in this service are technical assistance, short courses, conferences, workshops and seminars. For more information, contact: Director, Engineering Graduate Outreach, 217 Ramsay Hall, Auburn, AL 36849.

**Video-Based Off-Campus Courses**

The college offers graduate-level courses for credit and non-credit to off-campus students through its Graduate Outreach Program. Graduate-level courses are recorded in the classroom on the Auburn campus and delivered to off-campus students via streaming video. Students enrolled in the program are required to do the same homework assignments and take the same exams as the on-campus students enrolled in the course. For information on admission to the program, fees, course offerings and other particulars, write to the Graduate Outreach Program, 202 Ramsay Hall, Auburn, AL 36849 or call (334) 844-5300.

**Scholastic Requirements**

Pre-Engineering students are transferred to the curriculum of their choice in the Samuel Ginn College of Engineering upon meeting the following requirements:

Complete all appropriate freshman courses;

Earn an overall grade-point average of 2.2 on all required and approved elective course work.

Approval by the Samuel Ginn College of Engineering. A student who has not met the above criteria after four resident semesters is dropped from the college. Junior standing will not be granted to any student in the Pre-Engineering Program.

**Degree Requirements**

To earn the bachelor’s degree in the Samuel Ginn College of Engineering, students must complete the subjects in the curriculum, have a minimum grade-point average of 2.0 in all work attempted at Auburn University and have a cumulative grade-point average of 2.0 on courses passed in the major at Auburn. The major is defined as all course work shown in bold print on the relevant curriculum model. It is the student’s responsibility to keep informed of course requirements and scheduling. Failure to do so may jeopardize graduation.

**Military Science**

All curricula in the Samuel Ginn College of Engineering permit the use of six hours of basic or advanced ROTC courses passed at Auburn University. For the options, see the specific curriculum. For programs that do not have sufficient electives, credit will be determined on an individual basis. ROTC courses cannot be substituted for any university core or ABET-required courses.

**Majors**

- Aerospace Engineering (p. 587)
- Biosystems Engineering (p. 597)
- Biosystems Engineering (Bioprocess Engineering option) (p. 594)
- Biosystems Engineering (Ecological Engineering option) (p. 598)
- Biosystems Engineering (Forest Engineering option) (p. 596)
- Chemical Engineering (p. 608)
- Civil Engineering (p. 618)
- Computer Engineering (p. 644)
- Computer Science (p. 632)
- Computer Science (online) (p. 630)
- Electrical Engineering (p. 645)
- Industrial and Systems Engineering (p. 656)
- Materials Engineering (p. 668)
- Mechanical Engineering (p. 669)
- Software Engineering (p. 633)
• Wireless Engineering (Hardware Option) (p. 646)
• Wireless Engineering (Software Option) (p. 647)

Minors
• Automotive Engineering and Manufacturing (p. 655)
• Business-Engineering-Technology (p. 655)
• Computer Science (p. 632)
• Information Technology (p. 634)
• Materials Engineering (p. 671)
• Materials Science (p. 671)
• Nuclear Power Generation Systems (p. 657)
• Tribology (p. 671)

Program
• Aerospace Engineering - MAE., MS, PhD (p. 1332)
• Automotive Manufacturing Systems - Graduate Certificate (p. 1470)
• Biosystems Engineering - MS, PhD (p. 1348)
• Chemical Engineering - MChE, MS, PhD (p. 1355)
• Civil Engineering - MCE, MS, PhD (p. 1359)
• Computer Science and Software Engineering - MSwE, MS, PhD (p. 1367)
• Cybersecurity Engineering - MS (p. 1415)
• Electrical and Computer Engineering - MS, PhD (p. 1431)
• Engineering - MS (p. 676)
• Engineering Management - MS (p. 676)
• Industrial and Systems Engineering - MISE, MISE/MBA, MS, PhD (p. 1470)
• Materials Engineering - MmtIE, MS, PhD (p. 1482)
• Mechanical Engineering - MS, PhD (p. 1485)
• Occupational Safety & Ergonomics - Graduate Certificate (p. 1472)

Aerospace Engineering Courses
AERO 2200 AEROSPACE FUNDAMENTALS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607). C or better in PHYS 16000 Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

AERO 3040 ELEMENTARY METEOROLOGY (3) LEC. 3. Basic principles, causes, effects and phenomena of weather with fundamental techniques of forecasting.

AERO 3110 AERODYNAMICS I (3) LEC. 3. Pr. MATH 2650 and AERO 2200. C or better in AERO 2200. Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

AERO 3120 AERODYNAMICS II (3) LEC. 3. Pr. ENGR 2010 and MATH 2650 and AERO 2200. C or better in AERO 2200. Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

AERO 3130 AERODYNAMICS LABORATORY (2) LEC. 1. LAB. 3. Pr. P/C AERO 2200. C or better in AERO 2200. Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

AERO 3220 AEROSPACE SYSTEMS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.
AERO 3230 FLIGHT DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 3110 and ENGR 2350 and MATH 2650. C or better in ENGR 2350. Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

AERO 3310 ORBITAL MECHANICS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350. Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

AERO 3610 AEROSPACE STRUCTURES I (2) LEC. 1. LAB. 3. Pr. ENGR 2070. Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine material properties and structural response.

AERO 3970 SPECIAL TOPICS (1-3) AAB. SU. Departmental approval. Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.

AERO 4140 AERODYNAMICS III (3) LEC. 3. Pr. AERO 3110 and AERO 3120. Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.

AERO 4510 AEROSPACE PROPULSION (4) LEC. 3. LAB. 3. Pr. AERO 3120. Fundamental analysis of airbreathing jet propulsion. Introduction to chemical rocket propulsion.

AERO 4620 AEROSPACE STRUCTURES II (4) LEC. 3. LAB. 3. Pr. AERO 3610 and MATH 2660. Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.

AERO 4630 AEROSPACE STRUCTURAL DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 4620. Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.

AERO 4710 AEROSPACE DESIGN I (3) LEC. 2. LAB. 3. Pr. AERO 3120. Introduction to the principles required to design aerospace vehicles.

AERO 4720 AEROSPACE DESIGN II (3) LEC. 2. LAB. 3. Pr. AERO 4710. This course is continuation of AERO 4710.

AERO 4730 SPACE MISSION DESIGN I (3) LEC. 2. LAB. 3. Pr. AERO 3120. And permission of the department. Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.

AERO 4740 SPACE MISSION DESIGN II (3) LEC. 2. LAB. 3. Pr. AERO 4730. A continuation of AERO 4730, Space Mission Design I.

AERO 4970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) AAB. Departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours.

AERO 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours.

AERO 4AA0 PROGRAM ASSESSMENT (0) LAB. SU. Pr. P/C AERO 4710 or P/C AERO 4730. Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.

AERO 5110 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 5120 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.

AERO 5320 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Departmental approval. Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing and position accuracy.

AERO 5330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 5340 SATELLITE APPLICATION (3) LEC. 3. Pr. AERO 3310. AERO 3310 or departmental approval; Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.

AERO 5410 AEROACOUSTICS (3) LEC. 3. Pr. AERO 3120 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410 or AERO 6410.

AERO 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660 or Departmental approval. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 5520 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.


AERO 5630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 5750 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 6110/6116 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120/6126 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.


AERO 6320/6326 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Departmental approval. Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing, and position accuracy.

AERO 6330/6336 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6340/6346 SATELLITE APPLICATION (3) LEC. 3. Pr. AERO 3310. Departmental approval. Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.

AERO 6410/6416 AEROACOUSTICS (3) LEC. 3. Pr. AERO 4140 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410/5413 or AERO 6410/6416.
AERO 6460/6466 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660. Departmental approval. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 6520/6526 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530/6536 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.


AERO 6630/6636 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6750/6756 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 7100/7106 ADVANCED SUPERSONIC AERODYNAMICS (3) LEC. 3. Pr. AERO 4140. A rigorous development of linearized and nonlinear fluid flow theories and application. Lifting surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7110/7116 AIRFOIL AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Thin airfoil theory, Joukowski transformations, Karman Trefftz transformations, thick airfoil theory, panel methods and comparison with experimental data.

AERO 7120/7126 DYNAMICS OF VISCOUS FLUIDS I (3) LEC. 3. Pr. AERO 7100 or AERO 7106. Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130/7136 DYNAMICS OF VISCOUS FLUIDS II (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140/7146 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 5140 and AERO 6140. Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.


AERO 7160/7166 PHYSICAL FOUNDATIONS OF TURBULENCE (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to turbulence using classical descriptions with a focus on the physics of turbulence phenomena. May count either AERO 7160 or AERO 7166.


AERO 7210/7216 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles.

AERO 7230/7236 HELICOPTER DYNAMICS AND CONTROL (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of helicopters. Analysis of helicopter stability and controllability.

AERO 7330/7336 ORBIT DETERMINATION (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340/7346 ADVANCED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert's Problem; linear orbit theory and circumlunar trajectories.

AERO 7350/7356 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3. Pr. AERO 3220. Principles of optimization; Pontryagin's principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. AERO 3220 or equivalent.

AERO 7370/7376 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Pr. AERO 7330 or AERO 7336 or AERO 7230 or AERO 7236. Departmental approval. Principles of the Global Positioning System: GPS overview and historical development; modeling of pseudo-range and carrier phase measurements; positioning solution strategies using kinematic, dynamic, and reduced dynamic techniques.

AERO 7390/7396 SATELLITE REMOTE SENSING (3) LEC. 3. Departmental approval. Topics in satellite remote sensing principles and techniques including active and passive instruments, data processing, and geophysical parameter recovery algorithms.

AERO 7420/7426 PARTICLE IMAGE VELOCIMETRY (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to particle image velocimetry and its variations including conventional planar PIV, stereo PIV, stereo-PIV and torno-PIV. May count either AERO 7420 or AERO 7426.


AERO 7510/7516 THRUST GENERATION (3) LEC. 3. Pr. AERO 4510. Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to airbreathing and space propulsion.


AERO 7610/7616 ADVANCED AEROSTRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Development of the fundamental principles of the analysis of non-linear problems in solid mechanics. Structural problems involving non-linear deflections and/or material properties.

AERO 7620/7626 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three-dimensional solutions.

AERO 7630/7636 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STRUCTURAL DYNAMICS (3) LEC. 3. Pr. AERO 4630. Departmental approval. Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two- and three-dimensional structures.

AERO 7640/7646 ADAPTIVE AERO-STRUCTURES (4) LEC. 3. LAB. 3. Departmental approval. Basic material and manufacturing information for materials employed in adaptive structures. Shape-memory, magnetostrictive, magnetorheological-electrorheological and piezoelectric materials are examined.
AERO 7660/7666 AEROLASTICITY (3) LEC. 3. Pr. AERO 4630. Introduction to the field of aeroelasticity and the interaction therein of structural mechanics and fluid mechanics with dynamics as the "interface adhesive" between them. Flutter, divergence, aileron reversal and related phenomena.

AERO 7670/7676 INTRODUCTION TO LARGE SPACE STRUCTURES (3) LEC. 3. Pr. AERO 4630. Large space structures and their unique concepts, novel on-earth testing requirements, variety of damping schemes and analysis techniques. Concepts and analysis related to shape control, active and passive damping, and structural dynamics/controls interaction.

AERO 7950 SEMINAR (0) SEM. 0. SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers. Course may be repeated for a maximum of 1 credit hours.

AERO 7970/7976 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) LEC. Course may be repeated for a maximum of 9 credit hours.

AERO 7980/7986 AEROSPACE ENGINEERING PROJECT (3) LEC. 3. SU. Departmental approval. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student's major professor. Approval of the project and its final written report by the student's advisory committee is required. Course may be repeated with change in topic.

AERO 7990/7996 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

Bio Ag Technology Management Courses

BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3) LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

BATM 2110 SOLVING TECHNOLOGY PROBLEMS (3) LEC. 2. LAB. 3. Pr. BATM 1110. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculture principles and technology.

BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3. Pr. MATH 1130 or MATH 1133. Fundamental requirements for the design and operation of agricultural production and processing facilities.

BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.
BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

Biosystems Engineering Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. ELEC 3810 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1130 or MATH 1133. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4240 BULK BIOLOGICAL SOLIDS BEHAVIOR AND PROCESSING (3) LEC. 2. LAB. 3. Pr. BIOL 1020 and (STAT 2510 or STAT 3010 or BSEN 3310). The course is designed to enable students to develop fundamental understanding of the properties of bulk biological solids and how these properties influence the behavior and processability of bulk solids.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. BSEN 3230 and ENGR 2070 or Departmental approval. This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.
**BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3)** LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

**BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4)** AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

**BSEN 4967 HONORS SPECIAL PROBLEMS (1-3)** IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

**BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4)** LEC. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

**BSEN 4980 UNDERGRADUATE RESEARCH (2-4)** IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

**BSEN 4997 HONORS THESIS (1-3)** IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

**BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3)** LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043 or Departmental approval. Geopatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

**BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3)** LEC. 2. LAB. 3. Pr. CHEM 1040 and BIOL 3200 and P/C BSEN 3230. Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

**BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3)** LEC. 3. LAB. 2. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

**BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3)** LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

**BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3)** LEC. 3. Pr. BIOL 3200 and CHEM 1040. Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

**BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3)** LEC. 2. LAB. 3. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

**BSEN 5450 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3)** LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

**BSEN 5510 ECOLOGICAL ENGINEERING (3)** LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

**BSEN 5520 WATERSHED MODELING (3)** LEC. 3. Pr. BSEN 5510. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

**BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3)** LEC. 2. LAB. 3. Pr. CHEM 1040 and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.
BSEN 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1007) or PHYS 1500 or (PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 or CHEM 1041. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSEN 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. This course introduces the concept of life cycle assessment (LCA) in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6450 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 7016 QUANTITATIVE AGRICULTURAL REMOTE SENSING (3) LEC. 3. Departmental approval. Theory and application of remote sensing to quantifying soil and vegetation characteristics, with emphasis on agriculture but also relevant to natural biosystems.

BSEN 7020/7026 SITE-SPECIFIC TECHNOLOGIES FOR AGRICULTURE AND FORESTRY SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Introduction to advanced concepts of off-highway vehicle equipment for use in agricultural and forestry production with emphasis on site-specific management (Precision Agriculture/Forestry). The course will overview new concepts and technologies for equipment usage and technologies applied for site-specific crop management.
BSEN 7050 SOIL DYNAMICS OF TILLAGE AND TRACTION (3) LEC. 3. Pr. CIVL 4300 and CSES 7590. Departmental approval. Analyses and measurements of soil reactions as affected by physical properties of soil when subjected to forces imposed by tillage implements and traction devices.

BSEN 7110/7116 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7120 STOCHASTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. Pr. CIVL 3020. Departmental approval. Solving problems in biosystems engineering and related fields by modeling data with probability distributions, spatial statistics, autoregressive models, Monte-Carlo simulation, and reliability methods.

BSEN 7136 GIS APPLICATIONS IN PRECISION AGRICULTURE (1) LEC. 1. Departmental approval. Exploration of geographic information systems (GIS) and its applications in precision agriculture. Topics include file structure and formatting, interfacing with precision agriculture equipment, georeferencing maps, merging and clipping farm data, data field calculations, designing management zones, variable rate prescriptions, and basic data analysis.

BSEN 7162 BIOMASS TO RENEWABLE ENERGY PROCESSES (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2080 or CHEM 2087) or CHEM 5180 and BIOL 3200. Departmental approval. This will introduce fundamental principles and practical applications of biomass-to-renewable energy processes.

BSEN 7216 RENEWABLE ENERGY SYSTEMS DESIGN, ANALYSIS AND APPLICATIONS (3) LEC. 3. Pr. CIVL 3020. Understanding of the basic principles, applications, modeling, energetic and economic analysis of renewable energy resources namely solar, biomass, wind, hydropower and geothermal. Design of renewable energy systems.

BSEN 7220 BULK SOLIDS STORAGE, HANDLING AND TRANSPORTATION (3) LEC. 3. Sampleing of particulate materials, bulk solids characterization, flow properties, particle and bulk solid flow, dynamics of fluid/solids systems, hydraulic and pneumatic conveyor design, storage bin and hopper design and geometry, safety issues.

BSEN 7260 ADVANCED UNIT OPERATIONS IN BIOSYSTEMS ENGINEERING (3) LEC. 2. LAB. 3. The course is an advanced analysis of the unit operations used to process and enhance the value of biological materials.

BSEN 7280 FOOD THERMAL PROCESSING (3) LEC. 2. LAB. 3. Departmental approval. Insight of technologies and approaches used in food thermal processing for commercial purposes. Application of fundamentals of heat transfer, thermo-bacteriology, physical and chemical kinetics of food, and plant layout.

BSEN 7310 NONPOINT SOURCE POLLUTION (3) LEC. 3. Departmental approval. Non-point source (NPS) transport of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Basic concepts of pollutant transport through soils and with overland flow. Evaluation, management, and prevention of non-point pollution of surface and groundwater.

BSEN 7320 NON-POINT SOURCE POLLUTION MODELING (3) LEC. 3. Pr. BSEN 7310 or Departmental approval. Non-point source (NPS) modeling of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Underlying processes (climate, hydrology, nutrients and pesticides, erosion, channel), land cover/plants best management practices. Sensitivity and uncertainty analyses.

BSEN 7330 SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN (3) LEC. 3. Study of systems that incorporate plant uptake of nutrients and/or heavy metals for remediation of soil-based contaminants. Design applications of environmental remediation include constructed wetlands, drip irrigation of wastewater effluent, disposal of municipal sludge, and phytoremediation of contaminants in shallow groundwater.

BSEN 7350 ENGINEERING ANALYSIS OF LAKES AND RESERVOIRS (3) LEC. 3. Departmental approval. Knowledge and understanding of the causes, impacts, and methods of restoring water quality impairments, with emphasis placed on impounded water bodies and perennial streams.

BSEN 7366 INTEGRATING AUTOCAD CIVIL3D & GIS (3) LEC. 3. Departmental approval. Accessing and importing GIS data into C3D. Exporting C3D objects to GIS for subsequent manipulation and display. Emphasis on applications in environmental engineering projects such as stream restoration and wetland design.

BSEN 7516 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7526 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7536 DRAINMOD (3) LEC. 3. Pr. BSEN 3230. This course presents the principles of water movement and fate in shallow water table systems and application of the drainage water management model DRAINMOD to a wide variety of problems.

BSEN 7616 AGRICULTURAL WASTE MANAGEMENT (3) LEC. 3. This course covers principles of managing, handling, treating and applying animal and poultry manures and organic byproducts from an engineering perspective. Departmental approval

BSEN 7626 STORMWATER BMP DESIGN (3) LEC. 3. Pr. BSEN 3230. Departmental approval. This course is designed to introduce students to several innovative stormwater practices including stormwater wetlands, bioretention, green roofs, permeable pavement, cisterns, and others.

BSEN 7636 STREAM RESTORATION STRUCTURE RISK AND FAILURE ASSESS (1) LEC. 1. Pr. BSEN 3230. Departmental approval. Critical thinking about the use of various stream restoration structures and providing the tools needed to investigate further into failure analysis and risk assessment.

BSEN 7646 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. BSEN 3310. Departmental approval. Theory and application of hydraulics in open channels with an emphasis on natural systems (natural streams and rivers).

BSEN 7666 WETLANDS DESIGN AND RESTORATION (3) LEC. 3. Departmental approval. Fundamental understanding of hydrology, soils and ecology of natural wetland systems to serve as the basis of designing wetland systems for water treatment and restoring degraded natural wetlands.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Chemical Engineering Courses

CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. (CHEM 1110 or CHEM 1117 or CHEM 1030) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710) and (P/C CHEM 1120 or P/C CHEM 1127 or P/C CHEM 1040) and (P/C MATH 1620 or MATH 1623 or P/C MATH 1627 or P/C MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Application of multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 2610 TRANSPORT I (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and CHEN 2100 and (P/C MATH 2630 or P/C MATH 2637) and P/C ENGR 2010. CHEN 2100 requires a grade of C or better. Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

CHEN 2650 CHEMICAL ENGINEERING APPLICATIONS OF MATHEMATICAL TECHNIQUES (3) LEC. 3. Pr. P/C CHEN 2100 and P/C CHEN 2610 and MATH 2650 and COMP 1200. CHEN 2100 requires a grade of C or better. CHEN 2610 and MATH 2650 are Prerequisites with Concurrency. COMP 1200 should be the Matlab section. Application of a broad range of mathematical techniques to chemical engineering problems. Emphasis on engineering significance and interpretation of mathematical operations.
CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. P/C CHEN 2100. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances).

CHEN 3090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1110 or CHEM 1117) and ENGR 2010. An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and ENGR 2010 and CHEN 2100 and P/C CHEN 3600. Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications. (ENGR 2010 and CHEN 2100 require a grade of C or better).

CHEN 3410 CREATIVITY AND CRITICAL THINKING IN ENGINEERING (3) LEC. 3. Application of creativity and critical thinking principles to effectively approach solving engineering problems. Convincing presentation of information to technical audiences.

CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. COMP 1200 and MATH 2650 and CHEN 2650 and P/C CHEN 2650. CHEN 2650 is prerequisite with concurrency. General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis. (CHEN 2610 requires a grade of C or better).

CHEN 3620 TRANSPORT II (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and ENGR 2010 and CHEN 2610 and P/C CHEN 3600. Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification. (ENGR 2010 and CHEN 2610 require a grade of C or better).

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2. LAB. 3. Pr. CHEN 2650 and CHEN 3600 and CHEN 3620 and CHEN 2AA0. CHEN 2650, CHEN 3600 and CHEN 3620 all require a grade of C or better. Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3. Pr. CHEN 3370 and CHEN 3620. Separations processes including distillation, extraction, membrane separation, and other separation operations. (CHEN 3370 and CHEN 3620 require a grade of C or better).

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. MATH 2650 and CHEN 2610 and ENGR 2010 and P/C CHEN 3620. Design of chemical reactors with homogeneous reaction systems. (CHEN 2610 and ENGR 2010 require a grade of C or better).

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1. LAB. 3. Pr. CHEN 3600 and CHEN 3620. Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis.

CHEN 3AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. CHEN 2AA0 and P/C CHEN 3370 and P/C CHEN 3650 and P/C CHEN 3700 and P/C CHEN 3660. Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LAB. 6. Pr. CHEN 2610 and CHEN 3090 and CHEN 3820 or Departmental approval. Experimental study of pulping and papermaking operations. Departmental approval.

CHEN 4160 PROCESS DYNAMICS AND CONTROL (3) LEC. 2. LAB. 3. Pr. CHEN 3600 and (CHEN 3650 or CHEN 3653). Dynamic modeling of chemical processes, feedback systems and analog controller tuning and design, sequential control systems. (CHEN 3600 and CHEN 3650 require a grade of C or better).

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 3. Pr. CHEN 3650 or CHEN 3653. Introduction of basic concepts and principles for control system. Analysis of open loop and closed-loop processes using transfer functions.

CHEN 4180 ADVANCED DIGITAL PROCESS CONTROL (3) LEC. 2. LAB. 3. Pr. CHEN 4170. Application of sequential, closed loop and open loop process control principles to actual industrial and experimental control laboratory process. (CHEN 4170 requires a grade of C or better).
CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700. Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, chemical engineering principles for risk reduction. (CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3656 or CHEN 2087) and CHEN 3660 and CHEN 3700. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes. (CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4460. Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course.

CHEN 4560 PULP AND PAPER PROCESS SIMULATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3090 and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700 and P/C CHEN 4100 and P/C CHEN 5110. Fundamentals of microcomputer process simulation with applications to the pulp and paper industry. Design of pulp and paper unit operations and small scale processes using commercial simulation software. (CHEN 3090, CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4570 PULP AND PAPER PROCESS DESIGN (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4560. Application of process simulation and process economics to complex, open-ended design, retrofitting and operation problems in pulp and paper. Design of pulp and paper unit operations and processes. Screening of alternatives and economic optimization.

CHEN 4630 INTRODUCTION TO TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 3620 and (CHEN 3650 or CHEN 3653). Application of chemical engineering analysis to momentum, heat and mass transport problems for advanced undergraduate students preparing for graduate school. (CHEN 3620 and CHEN 3650 require a grade of C or better).

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1. LAB. 3. Pr. CHEN 3660 and CHEN 3820 and P/C CHEN 4450. Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis of data.

CHEN 4880 PULP AND PAPER ENGINEERING LABORATORY (3) LAB. 9. Pr. CHEN 4100 and CHEN 5110. Comprehensive open-ended projects on pulp and paper topics.

CHEN 4930 DIRECTED STUDIES (1) LEC. 1. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during preregistration. Project report.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) AAB. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr. 3.00 GPA. Departmental approval. GPA of 3.0 or higher. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3. Pr. CHEN 3090 and CHEN 3620 and CHEN 3700 and P/C CHEN 4450. Chemical and engineering principles in the manufacturing of pulp and paper. (CHEN 3090, CHEN 3620, and CHEN 3700 require a grade of C or better).

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Pr. CHEN 3620 and CHEN 4100. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits. (CHEN 3620 and CHEN 4100 require a grade of C or better).

CHEN 5400 MOLECULAR ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and P/C CHEN 3700. Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications. (CHEN 3370 requires a grade of C or better).
CHEN 5410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers. (CHEN 3370 requires a grade of C or better).

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and CHEN 3620 and CHEN 5410. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing. (CHEN 3620 and CHEN 5410 require a grade of C or better).

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Pr., Departmental Approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 5440 ELECTROCHEMICAL ENGINEERING (3) LEC. 3. Pr. CHEN 3370 and CHEN 3620 and CHEN 3700. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion. (CHEN 3370, CHEN 3620, and CHEN 3700 require a grade of C or better).

CHEN 5450 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2080 or CHEM 2087) and (CHEN 3820 or CIVL 5210). Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering principles for risk education.

CHEN 5460 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Departmental approval. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials.

CHEN 5470 POLLUTION PREVENTION ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and CHEN 3620 and CHEN 3660 and CHEN 3700. Chemical and engineering principles applied to pollution prevention. Theory and practice of basic separation methods, reaction engineering, process controls, and other fundamental chemical engineering disciplines as well as regulatory requirements to prevent unnecessary waste generation. Case studies. (CHEN 3370, CHEN 3620, CHEN 3660, and CHEN 3700 require a grade of C or better).

CHEN 5480 BIOCHEMICAL ENGINEERING (3) LEC. 3. Pr. CHEN 3700. Bioreactor design. Analysis of enzyme and microbial processes. (CHEN 3700 requires a grade of C or better).

CHEN 5490 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3620 and CHEN 3700. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer. (CHEN 3620 and CHEN 3700 require a grade of C or better).

CHEN 5500 ADVANCED SEPARATION PROCESSES (3) LEC. 3. Pr. CHEN 3370 and CHEN 3660. Advanced treatment of modern chemical engineering separation processes. Theory and practice of staged multi-component mass transfer operations, non-ideal multi-phase separations and continuous rate processes. (CHEN 3370 and CHEN 3660 require a grade of C or better).

CHEN 5510 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3620 and CHEN 3700. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer. (CHEN 3620 and CHEN 3700 require a grade of C or better).

CHEN 5520 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3. Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 5530 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 6090/6096 PULP AND PAPER TECHNOLOGY (3) LEC. 3. An introductory graduate level course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.CHEN Department Approval and Alabama Center for Paper and Bioresource Engineering Director approval.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3. Chemical and engineering principles in the manufacturing of pulp and paper.
CHEN 6120/6126 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits.

CHEN 6400/6406 MOLECULAR ENGINEERING (3) LEC. 3. Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications.

CHEN 6410/6416 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reptation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 6420/6426 POLYMER CHEMICAL ENGINEERING (3) LEC. 3. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing.

CHEN 6430/6436 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Departmental approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 6440/6446 ELECTROCHEMICAL ENGINEERING (3) LEC. 3. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion.

CHEN 6650/6656 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3. Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering, principles for risk education.

CHEN 6660/6666 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials. Or departmental approval. May count either CHEN 6660 or CHEN 6666.


CHEN 6810/6816 BIOMEDICAL ENGINEERING (3) LEC. 3. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy, and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 6820/6826 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 6970/6976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 7020/7026 INTERFACIAL PHENOMENA (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Fundamental analyses of interfacial phenomena at liquid/gas, liquid/liquid and solid/liquid interfaces.

CHEN 7110/7116 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106. Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7120/7126 ADVANCED TOPICS IN PAPER PROCESSING OPERATIONS (3) LEC. 3. Pr. CHEN 6120 or CHEN 6126. Surface and colloidal interactions in the wet end of paper manufacturing. Colloidal stability theory, absorption of macromolecules, flocculation and retention of particles. Wet-end chemistry process control.

CHEN 7130/7136 ADVANCED PULP AND PAPER ENGINEERING (3) LEC. 3. Topics in pulping, chemical recovery and papermaking.


CHEN 7250/7256 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. P/C CHEN 7100 or P/C CHEN 7106. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.

CHEN 7600/7606 ENVIRONMENTAL TRANSPORT (3) LEC. 3. Pr. (CHEN 7100 or CHEN 7106) and (CHEN 7200 or CHEN 7206) and (P/C CHEN 7110 or P/C CHEN 7116). Environmental chemodynamics, interphase equilibrium, reactions, boundary layers, transport mechanisms and models or movement of substances across natural interfaces (air-water-sediment-soil).

CHEN 7710 INTRODUCTION TO RESEARCH SEMINAR (1) LEC. 1. SU. Pr. P/C CHEN 7100 or P/C CHEN 7106. Introductory graduate research seminars for entering graduate students.

CHEN 7720 ADVANCED PROCESS DESIGN SEMINAR (1) LEC. 1. Pr. (P/C CHEN 7100 or P/C CHEN 7106) and (P/C CHEN 7200 or P/C CHEN 7206). Fundamentals of advanced process design including process synthesis, simulation, analysis, optimization and integration. Systematic process synthesis tools for screening potential flow sheets.

CHEN 7900/7906 INDEPENDENT STUDY (1-10) IND. SU. Departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970/7976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) IND. Departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 12 credit hours.

CHEN 7990 RESEARCH AND THESIS (1-20) MST. Credit hours to be arranged. Course may be repeated with change in topics.

CHEN 8000/8006 GRADUATE CHEMICAL ENGINEERING ANALYSIS (2) LEC. 2. Pr. CHEN 7100 or CHEN 7106. Applications of advanced numerical methods to the analysis of complex chemical engineering problems.

CHEN 8010 ADVANCED CHEMICAL ENGINEERING NUMERICAL ANALYSIS (2) LEC. 2. Pr. CHEN 7100 or CHEN 7106. Advanced numerical methods for the analysis of chemical engineering problems. Computer applications.

CHEN 8020 ADVANCED TOPICS IN THE CHARACTERIZATION OF SURFACE PROPERTIES OF MATERIALS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Nature of surface and intermolecular forces. Surface chemical characterization of solid surfaces. Adhesion and the role of chemical, physical and mechanical properties of solid surfaces. Modern characterization techniques including scanning probe microscopy, thermodynamic and spectroscopic methods.

CHEN 8100 ADVANCED TOPICS IN CHEMICAL ENGINEERING PROCESSES (3) LEC. 3. Pr. CHEN 7110 or CHEN 7116. Advanced concepts in fluid dynamics with special emphasis on applications to chemical engineering, creeping flow, multiphase instabilities, computational fluid mechanics and turbulence.

CHEN 8110 ADVANCED TOPICS IN HEAT AND MASS TRANSFER (3) LEC. 3. Pr. CHEN 7110 or CHEN 7116. Application of transport operations to chemical engineering problems containing physical and chemical rate processes. Chemically reacting boundary layers, heat and mass transfer, eddy diffusion, phase change and separation processes.

CHEN 8210 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Application of advanced thermodynamics to complex chemical engineering problems including advanced models for electrolyte solutions, critical and supercritical phenomena, high pressure equilibrium, non-equilibrium and surface thermodynamics and molecular modeling.
CHEN 8220 POLYMER THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Fundamentals and applications of macromolecular thermodynamics to industrial polymer problems.

CHEN 8230 CHEMICAL ENGINEERING STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Applications of molecular theory and models to the properties of non-ideal gases and liquids using advanced statistical mechanics and chemical thermodynamics.

CHEN 8270 HETEROGENEOUS CATALYSIS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Advanced concepts, techniques, applications and principles for the use of heterogeneous catalysts in chemical and environmental processes. Departmental approval.

CHEN 8280 SURFACE CHARACTERIZATION/SOLIDS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Advanced concepts and techniques in the physical and chemical characterization of solid surfaces by microscopic, spectroscopic and chemical methods including various photon and/or electron spectroscopies, thermal desorption.

CHEN 8300 PROCESS DYNAMICS AND CONTROL (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106 and (P/C CHEN 7110 or P/C CHEN 7116). Advanced linear and nonlinear chemical process dynamics and control systems.

CHEN 8310 PROCESS DYNAMICS AND CONTROL II (2) LEC. 2. Advanced chemical process dynamics and control.

CHEN 8320 ADVANCED TOPICS IN CHEMICAL PROCESS COMPUTER CONTROL SYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEN 7100 or CHEN 7106. Analysis and design of advanced digital control systems for chemical processes. Introduction to computer communications through dynamic data exchange and peripheral linkage. Experimental application of advanced digital control algorithms to chemical processes.

CHEN 8340/8346 PROCESS MODELING AND SIMULATION (3) LEC. 2. LAB. 3. Advances in computer-aided process synthesis, simulation, analysis and optimization including systematic process integration tools for developing and screening potential flow sheets using advanced process simulators.

CHEN 8990 RESEARCH AND DISSERTATION (1-20) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Civil Engineering Courses

CIVL 2010 SURVEYING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and COMP 1200. Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

CIVL 3010 CIVIL ENGINEERING ANALYSIS (4) LEC. 3. LAB. 3. Pr. MATH 2650 and COMP 1200 and (ENGR 2050 or ENGR 2053). Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized techniques and civil engineering software.

CIVL 3110 HYDRAULICS (4) LEC. 3. LAB. 3. Pr. (ENGR 2010 or ENGR 2200) and MATH 2650 and P/C ENGR 2350 and P/C CIVL 3010. Pr. ENGR 2010 is only allowed for students who transfer into Civil Engineering. Students already enrolled in Civil Engineering should take ENGR 2200. Introduction to fluid mechanics, fluid properties, hydrostatics, kinematics, dynamics, energy equation, ideal flow and energy losses. Applications of fluid mechanics, pipe flow, fluid measurements, pumps, open channel flow, dimensional analysis and theory of modeling.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and BIOL 3200. Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be given to students majoring in Civil Engineering.

CIVL 3230 ENVIRONMENTAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and (ENGR 2200 and P/C CIVL 3010) or P/C BSEN 3310. Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and ENGR 2070. Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geosynthetics.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3. Pr., Junior standing. Basic concepts of the construction industry, contractual methods, estimating and scheduling.
CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4. Pr. CIVL 2010. Introduction to transportation engineering practice with emphasis on highway facility design, traffic operations, and life-cycle costing.


CIVL 3820 CIVIL ENGINEERING MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3310. Introduction to common materials used in construction of civil facilities including highways; aggregate, concrete, asphalt, and steel.

CIVL 4210 WATER AND WASTEWATER TREATMENT AND DESIGN (3) LEC. 3. Pr. CIVL 3230. Departmental approval. The fundamentals of theory, design, and operation of water and wastewater treatment systems are covered.

CIVL 4211 WATER AND WASTEWATER LABORATORY (1) LAB. 3. Pr. CHEM 1040 and BIOL 3200. Coreq. CIVL 4210. Introduction to analytical techniques used to assess water quality. Credit will not be given to students majoring in Civil Engineering.

CIVL 4220 ENVIRONMENTAL ENGINEERING DESIGN (3) LEC. 3. Pr. CIVL 4210 or CIVL 4230. Process design of environmental engineering systems.

CIVL 4230 URBAN HYDRAULIC SYSTEM DESIGN (3) LEC. 3. Pr. CIVL 3230 and CIVL 3110. Engineering approaches to designing and managing urban water supply, sanitary sewer, storm water collection systems and flood control works.

CIVL 4310 GEOTECHNICAL ENGINEERING II (3) LEC. 3. Pr. CIVL 3310. Analysis and design in geotechnical engineering based on principles of soil mechanics and soil behavior. Problems of slope stability, earth pressure and design of earth retaining structures, foundation bearing capacity and settlement.

CIVL 4420 PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Planning and management of construction/engineering projects and organizations, project management techniques, skills, and applications.

CIVL 4490 DESIGN-BUILD PROJECT (3) LEC. 3. Pr. CIVL 4420. Develop a design-build proposal for a civil engineering improvement including engineering study, consideration of alternative designs, and formal written and oral presentation.

CIVL 4500 TRAFFIC ENGINEERING FUNDAMENTALS (3) LEC. 3. Pr. CIVL 3510. The fundamental elements of traffic engineering including traffic operations and traffic control devices.

CIVL 4520 AIRPORT DESIGN (3) LEC. 3. Pr. CIVL 3510. Departmental approval. An analysis of the elements affecting the design of airports including forecasting, runway configuration, capacity analyses, geometric design of runways and taxiways, pavement design and airfield drainage.

CIVL 4530 GEOMETRIC DESIGN (3) LEC. 3. Pr. CIVL 3510. An analysis of the elements affecting the location and design of rural highways, urban highways and arterial streets including design controls and criteria.

CIVL 4590 TRANSPORTATION DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4530. Individual senior design project requiring the development of plans for a roadway over a large land segment: horizontal and vertical curves in accord with State and AASHTO standards; topographic terrain features; historical preservation area; minimum elevation; intersection design; earthwork balance.

CIVL 4600 REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 3610. Concrete and reinforcing steel properties; analysis and design of reinforced concrete beams, one-way slabs, columns and footings; anchorage of reinforcement.


CIVL 4690 STRUCTURAL DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4600. Execution of a comprehensive design of a major structure. Emphasis on the design process, creative thinking, analysis, synthesis, teamwork and communications.

CIVL 4960 SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Individual student endeavor under staff supervision involving advanced special problems in civil engineering. Course may be repeated for a maximum of 6 credit hours.

CIVL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.
CIVL 5110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 5120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3010. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications. Departmental approval. May count either CIVL 5120 or CIVL 6120.

CIVL 5130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 5150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. Credit will not be given for both CIVL 5150 and CIVL 6150/CIVL 6156.

CIVL 5210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 5220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3. Pr. CIVL 3230. Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. Departmental approval. Credit will not be given for both CIVL 5220 and CIVL 6220.

CIVL 5230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 5240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling, theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 5250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 5260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 5330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 5340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 5350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 5410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.

CIVL 5430 CONSTRUCTION SAFETY AND HEALTH MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies for preventing worksite injuries and illness are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 5440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410 and CIVL 3310 and CIVL 3510. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 5450 EROSION & SEDIMENT CONTROL (3) LEC. 3. Pr. CIVL 3310 and CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 5460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 5480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 5500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 5510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 5560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations.

CIVL 5580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Introduction to intelligent transportation systems, covering applications of information and communication technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Credit will not be given for both CIVL 5580 and CIVL 6580/CIVL 6586.

CIVL 5600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 5620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable lay-out, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 5630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials; chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 5640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 5650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.

CIVL 5690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 5700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 5710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 5820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820 or CIVL 6820.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 6110/6116 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 6120/6126 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3110. Departmental approval. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications.

CIVL 6130 HYDRAULIC DESIGN (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.


CIVL 6210/6216 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 6220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3. Pr. CIVL 3230. Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. Departmental approval. May count either CIVL 5220 or CIVL 6220.

CIVL 6230/6236 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 6240/6246 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.
CIVL 6250/6256 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 6260/6266 SURFACE WATER QUALITY MODELING (3) LEC. 3. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 6330/6336 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 6340/6346 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 6350/6356 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.


CIVL 6430/6436 CONSTRUCTION SAFETY (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 6440/6446 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410 and CIVL 3310 and CIVL 3510. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 6450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3310 and CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 6480/6486 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 6500/6506 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 6510/6516 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants: hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 6560/6566 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Departmental approval. May count either CIVL 5560.
CIVL 6580/6586 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Departmental approval. May count either CIVL 5580 or CIVL 6580/CIVL 6586.

CIVL 6600/6606 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 6620/6626 PRE-STRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 6630/6636 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 6640/6646 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 6650/6656 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.


CIVL 6690/6696 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 6700/6706 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 6710/6716 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 6810/6816 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 6820/6826 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820, CIVL 6820 or CIVL 6826.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Departmental approval. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.


CIVL 7140/7146 ECODYNAMICS (3) LEC. 3. Pr. P/C CIVL 6120 or P/C CIVL 6126 or P/C GEOL 6100 or P/C FORY 7550. This course covers current theory, methods, and issues in ecology. Topics include the soil-plant-atmosphere continuum; stochastic modeling of soil moisture; vadose zone hydrology; theory, measurement, and modeling of evapotranspiration; ecological competition in water-limited systems; and current issues and research topics.
CIVL 7170/7176 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3) LEC. 3. Pr. CIVL 3230. Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7210/7216 METHODS OF POLLUTANT ANALYSIS IN ENVIRONMENTAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. CIVL 6210 or CIVL 6216. Fundamentals of identifying and quantifying environmental pollutants: review of pollutant chemistry, quality and quantity of pollutants, statistical basis of sampling, environmental sampling techniques, analytical techniques, and data analysis.


CIVL 7230/7236 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7240/7246 WATER AND WASTEWATER OPERATIONS AND PROCESSES III (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Design and analysis of unit operations and processes used in modern water and wastewater treatment systems are rigorously examined: adsorption, ion exchange, membrane filtration, reverse osmosis, gas transfer, corrosion, and treatment residuals processing.


CIVL 7260/7266 ENVIRONMENTAL NUTRIENT CONTROL PROCESSES (3) LEC. 3. Pr. CIVL 7250 or CIVL 7256. The nature, sources, and impacts of aquatic nutrients in the environment: microbial nutrient cycles, biological nutrient removal processes, chemical nutrient control processes, natural systems for nutrient removal.


CIVL 7280/7286 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Physical, chemical, biological and hydrological considerations relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation.

CIVL 7310/7316 FOUNDATION ENGINEERING (3) LEC. 3. Pr. CIVL 3310 and CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330/7336 SOIL PROPERTIES (3) LEC. 3. Pr. CIVL 3310. Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.

CIVL 7340/7346 SOIL DYNAMICS (3) LEC. 3. Pr. CIVL 3310. Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.


CIVL 7390/7396 IN SITU TESTING OF SOILS (3) LEC. 3. Pr. CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7410/7416 TEMPORARY STRUCTURES AND FACILITIES (3) LEC. 3. Pr. STAT 3010 and CIVL 3310 and CIVL 3610. Construction loads, applicable codes and standards, and design principles for temporary structures; planning and implementation of construction facilities; economic analysis of alternatives.

CIVL 7500/7506 TRAFFIC FLOW THEORY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Basic phenomena underlying traffic stream movement and individual vehicle behavior. Topics include flow parameters and relationships; microscopic and macroscopic flow models; equations of motion and state; single and multi-regime flow models.
CIVL 7520/7526 PUBLIC TRANSPORTATION (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Technology and characteristics of public transportation; transportation demand analysis; transit users; innovative technologies.

CIVL 7540/7546 TRANSPORTATION SAFETY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Transportation safety problems and the engineer's role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs.

CIVL 7550/7556 ROADSIDE DESIGN (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Concepts of roadside design that can prevent or reduce crash severity. Topics include design, selection, placement and construction of longitudinal barriers, crash cushions, bridge rails, transitions, end terminals, sign posts, and other roadside features.


CIVL 7620/7626 STRUCTURAL DYNAMICS II (3) LEC. 3. Pr. CIVL 7610 or CIVL 7616. Analysis of MDOF systems by direct numerical integration, continuous systems, nonlinear dynamics response, earthquake response of structures.

CIVL 7630/7636 ADVANCED STRESS ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Hooke's 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr's circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640/7646 STABILITY OF STRUCTURES (3) LEC. 3. Coreq. CIVL 6670. Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7650/7656 ADVANCED ANALYSIS OF FRAMED STRUCTURES (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Matrix analysis of framed structures, elastic supports, specified displacements, member end releases, principle of minimum potential energy, geometric non-linearity, frame stability, substructures.

CIVL 7660/7666 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigenvalue problems.

CIVL 7670/7676 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3. Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680/7686 FATIGUE AND FRACTURE MECHANICS (3) LEC. 3. Pr. CIVL 4650. Departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.

CIVL 7690/7696 ANALYSIS OF PLATE AND SHELL SYSTEMS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Analysis of isotropic and anisotropic plates with various shapes and boundary conditions due to lateral and in-plane loads; large deflection considerations; numerical techniques; bending and membrane behavior of isotropic shells.

CIVL 7710/7716 APPLIED ELASTICITY (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Analysis of stress-strain; generalized stress-strain relationships; solution of elasticity problem by potentials; thick cylinders, disks and spheres; energy principles and introduction of variational methods.

CIVL 7720/7726 EARTHQUAKE ENGINEERING (3) LEC. 3. Pr. (CIVL 7610 or CIVL 7616) and (CIVL 5670 or CIVL 6670 or CIVL 6676). Principles of earthquakes and earthquake engineering; Analysis and design of steel and reinforced concrete buildings for earthquakes. May count either CIVL 7720 or CIVL 7726.

CIVL 7770/7776 VARIATIONAL METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Calculus of variations; derivation of Euler's equations and boundary conditions; applications of energy principles to structures; variational approaches to finite element methods.

CIVL 7810/7816 ADVANCED CONSTRUCTION MATERIALS (4) LEC. 3. LAB. 3. Pr. CIVL 6810 or CIVL 6816. Departmental approval. Evaluate soils, unbound and stabilized materials, hot mix asphalt, and cement concrete products; stress-strain relationships; thermal expansion; design and testing of non-traditional construction products.
CIVL 7820/7826 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3. Pr. CIVL 7810 or CIVL 7816. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7830 ASPHALT CONCRETE MIX DESIGN (3) LEC. 2. LAB. 3. Marshall and Superpave mix design methods and QC/QA for asphalt concrete are covered. Topics include aggregate, asphalt and mix properties, laboratory testing and proportion optimization.

CIVL 7840/7846 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3. Pr. CIVL 3820. Departmental approval. Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices.

CIVL 7860/7866 PAVEMENT CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820. Operation, quality control and specifications of component construction processes for asphalt and concrete paving; and overview of major rehabilitation strategies.

CIVL 7870 ADVANCED CHARACTERIZATION OF PAVEMENT MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3820. This course introduces theories and procedures for determining fundamental properties of asphalt materials for advanced material evaluation and pavement design.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970/7976 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) LEC. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours.

CIVL 7980/7986 ENGINEERING PROJECT (1-10) LEC. Departmental approval. Directed study on an engineering project or research supervised by an individual graduate faculty member. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Credit to be arranged. Course may be repeated with change in topics.

Computer Sci Software En Courses

COMP 1000/1003 PERSONAL COMPUTER APPLICATIONS (2) LEC. 2. Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2) LEC. 2. Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1) LAB. 2. Coreq. COMP 1200. Laboratory activities focused on computer programming in a high-level language.

COMP 1210 FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1217 HONORS FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Pr. Honors College. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1AA0 COMPUTER COMPETENCY TEST (0) TST. SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3) LEC. 3. Pr. COMP 1000 or COMP 1003 or ENGR 1110 or ENGR 1113. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Pr., COMP 1000 or higher, or ENGR 1110.
COMP 2210 FUNDAMENTALS OF COMPUTING II (4) LEC. 3. LAB. 3. Pr. COMP 1210 or COMP 1217. Software development in the context of collections (e.g., lists, trees, graphs, hashtables). Communication, teamwork, and a design experience are integral course experience.

COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3. Pr. COMP 2210. Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; systems and event-driven programming.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr., Departmental approval. Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors.

COMP 3010/3013 SPREADSHEET-BASED APPLICATIONS WITH VISUAL BASIC (3) LEC. 2. LAB. 3. Pr. A grade of D or higher in COMP 1200-3000. COMP 1200 or higher. Design and implementation of applications such as simulations, spreadsheet front-ends for modeling, interfaces to databases, and multimedia applications.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 2210. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and examples; language translations.

COMP 3240 DISCRETE STRUCTURES (3) LEC. 3. Pr. COMP 1210 or COMP 1217. Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3. Pr. COMP 3240 and COMP 2210. Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3. Pr. ELEC 2200 or ELEC 2210. Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3. Pr. COMP 2710. Current processes, methods, and tools related to modeling and designing software systems. Communication, teamwork, and a design experience are integral course experiences.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3. Pr. COMP 2710. Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4000 SYSTEMS ADMINISTRATION FOR INFORMATION TECHNOLOGY (3) LEC. 3. Pr. COMP 2000 or Departmental approval. Principles and techniques of systems administration, including configuration of mail, file servers, print servers, databases systems, and networks.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3. Pr. COMP 3240. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models.

COMP 4270 ADVANCED ALGORITHMS (3) LEC. 3. Pr. COMP 3270 or Departmental approval. Fundamentals of designing and analyzing advanced algorithms. Algorithm design theory; computational complexity; relationship of data structures to algorithm design; study of design strategies including divide-and-conquer, the greedy method, and dynamic programming.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3. Pr. COMP 3350. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.
COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 3500 or COMP 3510 or Departmental approval. Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4650 INTERFACE DESIGN FOR WIRELESS APPLICATIONS (3) LEC. 3. Pr. COMP 3270. Principles of user interface design, usability, for wireless devices: Consequences of low bandwidth network connections for interface design; consequences of battery power, small screen, other limited resources on interface design; case studies; design project using technology such as WAP.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (1) LEC. 1. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027) or PHIL 1040. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity. Communication and teamwork are integral course experiences.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 4970 SPECIAL TOPICS (1-3) LEC. 1-3. Investigation of current topics in computer science and software engineering. Departmental approval Course may be repeated for a maximum of 12 credit hours.

COMP 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval. Individual student endeavor consisting of directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 5010 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.

COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures.

COMP 5030 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3. Pr. COMP 5000. Departmental approval. Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3. Pr. COMP 3270. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5130 DATA MINING (3) LEC. 3. Pr. COMP 3270. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 5200 THEORETICAL COMPUTER SCIENCE (3) LEC. 3. Pr. COMP 4200. Departmental approval. The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3. Pr. COMP 4200 and COMP 3220. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 5220 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 3220. Advanced topics in programming language concepts, design, and implementation.

COMP 5230 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Pr. COMP 3220. Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 5280 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Pr. COMP 3220. Object oriented language principles and study of the language support for these principles. Example languages and distributed object programming principles.

COMP 5330 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

COMP 5340 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3. Pr. COMP 4320 or ELEC 5220. Theoretical and practical aspects of network simulation and quality assurance.

COMP 5350 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or (MNGT 3080 or MNGT 3087). Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.


COMP 5380 PERSONAL AREA NETWORKS (3) LEC. 3. Pr. COMP 4320 or ELEC 5220. Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion.

COMP 5390 3G AND 4G WIRELESS (3) LEC. 3. Pr. P/C COMP 5360 or P/C ELEC 5110. Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

COMP 5400 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 2710 and MATH 2660. Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 5500 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 4320. Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 5510 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Basic concepts, architecture and design of networked multimedia systems.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Pr. COMP 4320. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.


COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 5600. Departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.


COMP 5630 MACHINE LEARNING (3) LEC. 3. Pr. COMP 3270. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 5640 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3. Pr. COMP 3270. Theory and design of intelligent and interactive software; treatments of intelligent agents and human-computer interaction.

COMP 5700 SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Process models of the software life cycle as well as methods and tools for software development.
COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 5970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 6000/6006 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 6010/6016 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.

COMP 6020/6026 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures. Fall, Spring.

COMP 6030/6036 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language.

COMP 6120/6126 DATABASE SYSTEMS I (3) LEC. 3. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 6130/6136 DATA MINING (3) LEC. 3. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 6200/6206 THEORETICAL COMPUTER SCIENCE (3) LEC. 3. Departmental approval. The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars, and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 6210/6216 COMPILER CONSTRUCTION (3) LEC. 3. Departmental approval. Compiler organization; lexical analysis; parsing; syntax-direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 6220/6226 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Departmental approval. Advanced topics in programming language concepts, design, and implementation.

COMP 6230/6236 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Departmental approval. Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 6280/6286 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Departmental approval. Object oriented language principles and study of the language support for these principles. Example languages distributed object programming principles.

COMP 6320/6326 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 6330/6336 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Departmental approval. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

COMP 6340/6346 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3. Departmental approval. Theoretical and practical aspects of network simulation and quality assurance.
COMP 6350/6356 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or (MNGT 3080 or MNGT 3087). Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 6360/6366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.


COMP 6380/6386 PERSONAL AREA NETWORKS (3) LEC. 3. Departmental approval. Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion.

COMP 6390/6396 3G AND 4G WIRELESS (3) LEC. 3. Pr. P/C COMP 6360 or COMP 6366 or P/C ELEC 6110 or ELEC 6116. Departmental approval. Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

COMP 6400/6406 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3. Departmental approval. Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 6500/6506 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 6510/6516 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3. Departmental approval. Basic concepts, architecture and design of networked multimedia systems.

COMP 6520/6526 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Departmental approval. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 6600/6606 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610/6616 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620/6626 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6630/6636 MACHINE LEARNING (3) LEC. 3. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 6640/6646 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3. Pr. COMP 3270. Theory and design of intelligent and interactive software; treatments of intelligent agents and human-computer interaction.

COMP 6700/6706 SOFTWARE PROCESS (3) LEC. 3. Departmental approval. Process models of the software life cycle as well as methods and tools for software development.

COMP 6710/6716 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720/6726 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Departmental approval. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 6970/6976 SPECIAL TOPICS (1-3) LEC. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.
COMP 7120/7126 DATABASE SYSTEMS II (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.


COMP 7270/7276 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3. Departmental approval. In-depth study of advanced topics in algorithms.


COMP 7300/7306 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3. Departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7310/7316 VLSI CAD TOOL DESIGN (3) LEC. 3. Pr. COMP 6210 or COMP 6216. Departmental approval. Design of CAD tools for VLSI design, including high-level synthesis and hardware-software co-design, logic synthesis, floor planning, optimization, placement and routing. Software development of a CAD tool as a comprehensive project.

COMP 7320/7326 ADVANCED COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Advanced network topics, including ISDN, ATM, active networks, security, Internet, wireless and mobile networks, and network management.

COMP 7330/7336 TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 6330 or COMP 6336. Departmental approval. Parallel programming languages, environments and tools, parallel algorithms performance issues, distributed memory systems, group communication, fault tolerance.

COMP 7340/7346 HIGH SPEED NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. High-speed networks design, including ATM and gigabit Ethernets, quality of service, ATM traffic, congestion control ATM switching, and signaling.

COMP 7350/7356 MULTIMEDIA NETWORKING (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Multimedia network requirements, coding, compression, multicast, traffic shaping and analysis, quality of service, scheduling, buffer design and congestion control.

COMP 7360/7366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP, personal communication systems, and GSM.

COMP 7370/7376 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 6370 or COMP 6376. Departmental approval. Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware; operating system vulnerabilities and safeguards.

COMP 7400/7406 ADVANCED COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 6400 or COMP 6406. Departmental approval. Advanced 3-D topics including visual realism issues, visible surface determination algorithms, illumination and shading models, surface and solid modeling, advanced modeling techniques, special purpose graphics architectures, and animation. Software projects will be assigned.

COMP 7440 SIMULATION OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Research-based examination of network simulation, including TCP/IP networks, wireless networks and verification and validation of a network simulation.

COMP 7500/7506 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Advanced topics in operating system concepts, design and implementation.
COMP 7600/7606 COMPUTATIONAL INTELLIGENCE (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. A study of computational intelligence with emphasis on the design and implementation of neural, genetic and fuzzy computing techniques.

COMP 7610/7616 COMPUTATIONAL COGNITION (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. Computational models of cognition, including knowledge representations and process mechanisms like means-ends analysis, semantic networks, frames.

COMP 7620/7626 HUMAN-COMPUTER INTERACTION (3) LEC. 3. Departmental approval. Coreq. COMP 6620. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7700/7706 SOFTWARE ARCHITECTURE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7710/7716 SOFTWARE ENVIRONMENTS (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Issues associated with the design, implementation, and use of software engineering environments.

COMP 7720/7726 SOFTWARE RE-ENGINEERING (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Process, methods and tools associated with re-engineering software systems.

COMP 7730/7736 FORMAL METHODS FOR SOFTWARE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Precise, abstract models for characterizing and reasoning about properties of software systems.

COMP 7740 AGENT-DIRECTED SIMULATION (3) LEC. 3. Pr. COMP 6700 or COMP 6706. Departmental approval. Covers entire simulation software development life cycle including problem formulation, system and objectives definition, conceptual modeling, model design, implementation, analysis of simulation data, and credibility assessment including verification and validation. Special emphasis is given to modeling aspects using agent-directed simulation methodology.

COMP 7930 DIRECTED STUDY (1-3) IND. Course may be repeated with change in topics.

COMP 7950/7956 INTRODUCTION TO GRADUATE STUDY IN COMPUTER SCIENCE AND SOFTWARE ENGINEERING (1) LEC. 1. SU. Introduction to graduate research and study topics in computer science and software engineering.

COMP 7970/7976 SPECIAL TOPICS (1-3) LEC. Course may be repeated with change in topics.

COMP 7980/7986 CAPSTONE ENGINEERING PROJECT (3) LEC. 3. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation.

COMP 7990/7996 RESEARCH AND THESIS (1-15) MST. May count either COMP 7990 or COMP 7996. Course may be repeated with change in topics.

COMP 8120 CURRENT TOPICS IN DATABASE SYSTEMS (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied research issues related to database systems. Topics will reflect current research in the field.

COMP 8220 RESEARCH TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 7220 or COMP 7226. Departmental approval. Topics of current research in the area of programming languages, their design, and implementation.


COMP 8330 ADVANCED TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 6330 or COMP 6336. Parallelizing compiler, theory of concurrency, advanced parallel algorithms, load balancing, migration, performance evaluation, distributed architectures. Departmental approval

COMP 8400 CURRENT TOPICS IN COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 7400 or COMP 7406. Departmental approval. In-depth study of current research topics in computer graphics. Topics may include theoretical, performance implementation, and system integration issues. Extensive literature survey, issue identification, performance comparison, and future research trends will be discussed.

COMP 8500 RESEARCH TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 7500 or COMP 7506. Departmental approval. Topics of current research in the area of operating systems their design, and implementation.
COMP 8600 ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. COMP 6610 or COMP 6616 or COMP 7600 or COMP 7606 or COMP 7610 or COMP 7616. Departmental approval. In-depth study of current research topics in Artificial Intelligence, e.g., reasoning mechanisms, heuristic search methods, cognitive modeling.

COMP 8620 ADVANCED TOPICS IN HUMAN-COMPUTER INTERACTION (3) LEC. 3. Pr. COMP 7620 or COMP 7626. Departmental approval. In-depth study of current research topics in Human-Computer Interaction, e.g., evaluation and assessment methods, multimodal interfaces, educational technology.

COMP 8700/8706 CURRENT TOPICS IN SOFTWARE ENGINEERING (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Current theoretical and applied research issues in software engineering.

COMP 8930 DIRECTED STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 8970 SPECIAL TOPICS (1-3) IND. Course may be repeated with change in topics.

COMP 8990/8996 RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Computer Science Courses

CPSC 1213 INTRODUCTION TO COMPUTER SCIENCE I (3) DSL. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 1223 INTRODUCTION TO COMPUTER SCIENCE II (3) DSL. 45. Pr. CPSC 1213. Admission into Bachelor of Computer Science Program. Continues the development of programming from an object-oriented perspective. Emphasizes sound software engineering principles and best practices.

CPSC 1233 DATA STRUCTURES (3) DSL. 45. Pr. CPSC 1223. Admission into Bachelor of Computer Science Program. Developing programs that use data structures and collections to efficiently store data. Emphasis will be placed on the interplay between effective data structures and efficient algorithms.

CPSC 2713 SOFTWARE CONSTRUCTION FUNDAMENTALS (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Development of graphical user interface-based, event-driven desktop/laptop computer application using a modern object-oriented language. Systematic testing, debugging, documentation, and maintenance programming.

CPSC 3223 PROGRAMMING LANGUAGES AND TRANSLATION (3) DSL. 45. Pr. CPSC 1233 and CPSC 3303. Admission into Bachelor of Computer Science Program. Fundamental concepts of programming language design, interpretation, and compilation.

CPSC 3243 DISCRETE STRUCTURES (3) DSL. 45. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and MATH 1710. Admission into Bachelor of Computer Science Program. Basics of set theory, propositional and predicate logic as used to describe algorithms, recurrence relations. Proving correctness and estimating running time for algorithms. Mathematical and structural induction.

CPSC 3273 ALGORITHMS I (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Introduction to algorithms as tools for computational problem solving, language of algorithms, understanding algorithms, approximately analyzing correctness and efficiency of algorithms, algorithms that solve fundamental computational problems, basic algorithm design techniques, steps of computational problem solving.

CPSC 3283 ALGORITHMS II (3) DSL. 45. Pr. CPSC 3273. Admission into Bachelor of Computer Science Program. Advanced complexity analysis techniques, notions of computational complexity, polynomial time hierarchy, computability, algorithms that solve advanced computational problems, advanced algorithm design techniques, computational problem solving.

CPSC 3303 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) DSL. 45. Pr. CPSC 3243 and CPSC 1213. Admission into Bachelor of Computer Science Program. Stored program computers, hardware and software components, data representations, instruction sets, addressing modes, assembly language programming, loaders, linkers and operating systems.

CPSC 3323 COMPUTER ARCHITECTURE (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Design of Computer Systems, emphasizing the relationship between computer hardware and software. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.
CPSC 3333 OPERATING SYSTEMS (3) DSL. 45. Pr. CPSC 1233 and CPSC 3303. Admission into Bachelor of Computer Science Program. Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

CPSC 3343 PARALLEL SYSTEMS (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, and parallel applications.

CPSC 3353 COMPUTER NETWORKS I (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Fundamentals of computer networks, TCP/IP layered model: application layer, transport layer, network layer, link layer, with examples of each layer, and explanation of design issues. IPv6.

CPSC 3363 COMPUTER NETWORKS II (3) DSL. 45. Pr. CPSC 3353. Admission into Bachelor of Computer Science Program. Computer network design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

CPSC 3373 WIRELESS AND MOBILE NETWORKS (3) DSL. 45. Pr. CPSC 3353. Admission into Bachelor of Computer Science Program. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and current mobile phone OTA protocols.

CPSC 3703 SOFTWARE ENGINEERING I (3) DSL. 45. Pr. CPSC 2713. Admission into Bachelor of Computer Science Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 3713 SOFTWARE ENGINEERING II (3) DSL. 45. Pr. CPSC 3703. Admission into Computer Science Online Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 4003 SYSTEM ADMINISTRATION (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science. Basics of system administration for Windows and Unix machines, including configuration of Performance measurement and enhancement.

CPSC 4203 FORMAL LANGUAGES (3) DSL. 45. Pr. CPSC 3273 and CPSC 3243. Admission into Bachelor of Computer Science Program. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Basics of interpretation and compilation.

CPSC 4733 COMPUTER ETHICS (3) DSL. 45. Admission into Bachelor of Computer Science Program. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

CPSC 5123 DATABASE I (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. The design and implementation of database applications, with a focus on relational database management systems.

CPSC 5133 DATABASE II (3) DSL. 45. Pr. CPSC 5123. Admission into Bachelor of Computer Science Program. Theory, design, and implementation of database systems.

CPSC 5203 DEVELOPING WEB APPLICATIONS WITH XML (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Comprehensive introduction to XML, working with XML and Databases, event-driven programming with XML, implementing Communication and Web Services with XML, working with XML, JQuery, XHTML and HML5.

CPSC 5213 WEB APPLICATION DEVELOPMENT WITH JSP (3) DSL. 40. Pr. CPSC 5203. Admission into Bachelor of Computer Science Program. Advanced course in web development using JSP, includes JCP fundamentals, JAP and web server software development, and applying JSP in the real world.

CPSC 5333 MOBILE APPLICATIONS I (3) DSL. 45. Pr. CPSC 2713. Admission into Computer Science Online Program. Software development for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

CPSC 5343 MOBILE APPLICATION DEVELOPMENT II (3) DSL. 3. Pr. CPSC 5333. Admission into Bachelor of Computer Science Program. Builds mastery of mobile application development and the skills necessary to stay current in this fast-moving field throughout one’s career by introducing a new programming language and application programmer interface and interface and requiring the student to master them.
Electrical and Computer En Courses

ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (COMP 1200 or COMP 1210 or COMP 1217) and (P/C ENGR 1110 or P/C ENGR 1113) and P/C MATH 2650. Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 LINEAR SIGNALS AND SYSTEMS ANALYSIS (3) LEC. 3. Pr. ELEC 2110 and MATH 2650. Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems.

ELEC 2200 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. COMP 1200 or COMP 1210 or COMP 1217. Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and ELEC 2200. History of electronics; semiconductors; biasing and operation of PN junction diodes; field-effect transistors and bipolar junction transistors; logic families and logic technologies; flip-flops and memory circuitry.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr. ELEC 2200. Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing, programming and multiprocessing.

ELEC 3030 RF SYSTEMS LAB (1) LAB. 3. Pr. ELEC 2210. Assembly, testing and analysis of a radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 3030 and P/C ELEC 3500. Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 EMBEDDED SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2210 and ELEC 2220. Integration of hardware and software in the design of an embedded computing system; development of professional skills.

ELEC 3060 WIRELESS DESIGN LAB (1) LAB. 3. Pr. ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr. MATH 2660 and ELEC 2110. Transmission lines are studied as a bridge to understanding electromagnetic theory. Then, electric and magnetic fields are studied using vector algebra, culminating in Maxwell's equations.

ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr. ELEC 3310. Maxwell's equations are used in the study of plane waves, guided waves, fiber optics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Analog and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr. ELEC 2110. Introduction to the basic concepts in electric power engineering.


ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.

ELEC 4000 SENIOR DESIGN PROJECTS (3) LEC. 3. Pr. ELEC 3040 or ELEC 3050 or ELEC 3060. A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional requisites.
ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.

ELEC 4800 INSTRUMENTATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. ELEC 3040 or ELEC 3050. Study and application of sensors, instrumentation and computer technology to research and industrial process control.

ELEC 4810 LONG TERM TECHNOLOGY DEVELOPMENT AND PROJECT MANAGEMENT (1-2) LAB. Pr. ELEC 2120. Departmental approval. Students participate in ongoing electrical, computer, or wireless engineering design projects and competitions while learning project management and organization strategies. May be repeated for up to three credit hours. Course may be repeated for a maximum of 2 credit hours.

ELEC 4980 SPECIAL PROJECTS (1-3) IND. Departmental approval. Supervised study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 5100 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3400. Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 5110 WIRELESS NETWORKS (3) LEC. 3. Pr. ELEC 3400. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr. ELEC 3400. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 5190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Pr. ELEC 3700. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on front-end design skills.

ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr. ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.


ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 5260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 5270 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Pr. ELEC 2210. Departmental approval. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits.
ELEC 5280 BUILT-IN-SELF-TEST (3) LEC. 3. Pr. ELEC 2210. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.

ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Pr. P/C ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR PRINCIPLES (3) LEC. 3. Pr. ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 5360 BIOMEDICAL APPLICATIONS OF ELECTROMAGNETICS (3) LEC. 3. Pr. ELEC 3310. Development of medical instrumentation using electromagnetic principles; focus on magnetic resonance imaging systems.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Pr. ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5530 MOBILE ROBOT DESIGN (3) LEC. 3. Pr. ELEC 3040 or ELEC 3050. Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization.


ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.


ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3. Pr. ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. Pr. ELEC 3600. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Pr. ELEC 3700. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5700. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 5740 ELECTRONICS MANUFACTURING (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 5750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Pr. ELEC 3320. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 5760 SOLID STATE SENSORS (3) LEC. 3. Pr. ELEC 3700. Theory, technology and design micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.
ELEC 5770 VLSI DESIGN (3) LEC. 3. Pr. ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 3700. Departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Departmental approval. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 6110/6116 WIRELESS NETWORKS (3) LEC. 3. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 6120/6126 TELECOMMUNICATION NETWORKS (3) LEC. 3. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 6130/6136 RF DEVICES AND CIRCUITS (3) LEC. 3. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150/6156 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 6190/6196 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on on front-end design skills.

ELEC 6200/6206 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 6220/6226 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 6230/6236 PARALLEL PROCESSING (3) LEC. 3. Hardware components of multiprocessor systems including processor, interconnection, memory and control architectures; software elements of parallel processing.


ELEC 6250/6256 COMPUTER AIDED DESIGN OF DIGITAL LOGIC CIRCUITS (3) LEC. 3. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 6260/6266 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6270/6276 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Departmental approval. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits.

ELEC 6280/6286 BUILT-IN-SELF-TEST (3) LEC. 3. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.
ELEC 6310/6316 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320/6326 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340/6346 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350/6356 RADAR PRINCIPLES (3) LEC. 3. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 6360/6366 BIOMEDICAL APPLICATIONS OF ELECTROMAGNETICS (3) LEC. 3. Development of medical instrumentation using electromagnetic principles; focus on magnetic resonance imaging systems.

ELEC 6410/6416 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6530/6536 MOBILE ROBOT DESIGN (3) LEC. 3. Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization. Departmental Approval.


ELEC 6620/6626 POWER SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.


ELEC 6650/6656 POWER SYSTEM PROTECTION (3) LEC. 3. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6670/6676 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 6700/6706 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710/6716 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6730/6736 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 6740/6746 ELECTRONICS MANUFACTURING (3) LEC. 2. LAB. 3. Departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 6750/6756 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760/6766 SOLID STATE SENSORS (3) LEC. 3. Theory, technology and design of micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 6770/6776 VLSI DESIGN (3) LEC. 3. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.
ELEC 6780/6786 ANALOG CIRCUIT DESIGN (3) LEC. 3. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6810/6816 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 6820/6826 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970/6976 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 24 credit hours.

ELEC 7190/7196 ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. Pr. ELEC 5190 or ELEC 6190 or ELEC 6196. Wireless standards and multi-standard transceiver architectures, SiGe and CMOS RFIC designs for wireless transceiver building blocks, software defined radios, phase array radars, ultra-high speed data converters, and MIMO wireless transceivers.

ELEC 7250/7256 VLSI TESTING (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Exponential nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.


ELEC 7320/7326 ADVANCED ELECTRODYNAMICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variational techniques.

ELEC 7340/7346 COMPUTATIONAL ELECTROMAGNETICS I (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Solution of electromagnetic scattering, radiation, and coupling problems using method of moments, finite-difference, finite-element, transmission-line matrix and other advanced computational methods.

ELEC 7350/7356 COMPUTATIONAL ELECTROMAGNETICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Solutions of electromagnetic scattering, radiation, and coupling problems using a variety of common asymptotic techniques.

ELEC 7410/7416 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.

ELEC 7420/7426 ADAPTIVE SIGNAL PROCESSING (3) LEC. 3. Coreq. ELEC 7410. Least mean square and recursive least square algorithms; adaptive FIR and IIR filters, lattice filters, Kalman filters; adaptive system identification and its application in communications and control.

ELEC 7430/7436 ADVANCED COMMUNICATION THEORY (3) LEC. 3. Principles of modern communication systems. Elements of information theory, source encoding, efficient signaling with coded waveforms, convolutional codes; carrier recovery and synchronization under AGN channel; adaptive equalization; maximum likelihood estimation, Viterbi algorithm. Departmental Approval.

ELEC 7440/7446 WIRELESS COMMUNICATION THEORY (3) LEC. 3. Pr. ELEC 3400 or ELEC 7410 or ELEC 7416. The basic of design, analysis and performance limits of wireless communication systems.

ELEC 7450/7456 DIGITAL IMAGE PROCESSING (3) LEC. 3. Departmental approval. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 7500/7506 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3. Departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.


ELEC 7560/7566 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Principles of nonlinear system modeling and analysis; nonlinear control systems design; nonlinear system state estimation.
ELEC 7610/7616 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3. Pr. (ELEC 5620 or ELEC 6620 or ELEC 6626) and (ELEC 5650 or ELEC 6650 or ELEC 6656). Departmental approval. Dynamic models of power systems and analysis of power system stability.

ELEC 7620/7626 POWER SYSTEM OPERATION (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Unit commitment, power system security, state estimation, power system control centers and real-time applications.

ELEC 7630/7636 ADVANCED ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 5630 or ELEC 6630 or ELEC 6636. Departmental approval. Advanced machine modeling, including Kron’s generalized machine theory, Park’s transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis.

ELEC 7640/7646 POWER SYSTEM TRANSIENTS (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710/7716 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern field-effect transistor: the state-of-the-art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720/7726 THE BIPOLAR TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7730/7736 ADVANCED PLASMA PROCESSING FOR MICROELECTRONIC FABRICATION (3) LEC. 3. Pr. ELEC 5750 or ELEC 6750 or ELEC 6756. Departmental approval. Plasma reactor design and process optimization, plasma-assisted etching and deposition processes, plasma-assisted oxidation and surface modification processes, plasma polymerization, plasma-induced damages to semiconductor devices.

ELEC 7740/7746 ELECTRONIC PACKAGING (3) LEC. 3. Pr. ELEC 5740 or ELEC 6740 or ELEC 6746. Departmental approval. Design issues in the packaging of electronics. Emphasis is placed on physical design, electrical performance, thermal characteristics and mechanical stress-induced failures.

ELEC 7750/7756 LOW TEMPERATURE ELECTRONICS (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.

ELEC 7760/7766 SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Departmental approval. Bandgap engineering, strained SiGe and Si, SiGe BiCMOS technology, noise, linearity, circuits applications.

ELEC 7770/7776 ADVANCED VLSI DESIGN (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Departmental approval. Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780/7786 RF MICROELECTRONICS (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7800/7806 ADVANCED COMPUTATIONAL TECHNIQUES FOR ELECTRICAL ENGINEERING (3) LEC. 3. Introduction to high level programming techniques in electrical engineering applications; topics include linear systems analysis, system identification, nonlinear dynamic systems, and electromagnetic applications. Departmental Approval.

ELEC 7830/7836 PHOTOVOLTAICS (3) LEC. 3. Departmental Approval. Theory, technology, design and application of photovoltaic devices and systems.

ELEC 7900 INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours.
ELEC 7970/7976 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change of topic. Course may be repeated for a maximum of 24 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120/8126 PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) LEC. 3. Pr. (ELEC 5120 or ELEC 6120 or ELEC 6126) and (ELEC 7410 or ELEC 7416). Data network performance analysis, queueing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8410 SPECTRAL ESTIMATION AND SYSTEM IDENTIFICATION (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Elements of parameter estimation theory; Nonparametric spectral estimation: periodogram and spectral windows; Parametric approaches; applications; higher-order spectral analysis; input-output system identification.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, non-random and random parameter estimation; signal estimation.


ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8780 CONTEMPORARY TOPICS IN ELECTRICAL CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Contemporary topics in electronic circuit design such as Delta-Sigma A/D and D/A conversion, switched capacitor circuitry, continuous time and discrete time filter design, communications electronics. Course may be repeated for a maximum of 6 credit hours.

ELEC 8900 ADVANCED INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 8970 ADVANCED SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 9 credit hours.

ELEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Engineering Courses

ENGR 1100 ENGINEERING ORIENTATION (0) LEC. 1. SU. Introduction to the College of Engineering and its resources, exploration of engineering careers, orientation to campus resources and facilities, and assistance with academics and transition to college.

ENGR 1110/1113 INTRODUCTION TO ENGINEERING (2) LEC. 1. LAB. 3. Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation. May count either ENGR 1110 or ENGR 1113.

ENGR 1200 GRAPHICAL COMMUNICATION AND DESIGN (3) LEC. 2. LAB. 3. Pr. P/C COMP 1200. Graphical concepts and projective geometry relating to special visualization and communication in design, including technical sketching, instrument drawing and computer-aided drafting and design.

ENGR 2010 THERMODYNAMICS (3) LEC. 2. LAB. 3. Pr. (CHEM 1030 or CHEM 1110 or CHEM 1117) and (MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Principles and applications of thermodynamics to engineering problems. Laboratory includes multi-disciplinary team projects on thermodynamics applications and fundamentals of engineering thermodynamics.

ENGR 2050/2053 STATICS (3) LEC. 3. Pr. PHYS 1600 or PHYS 1607 and P/C MATH 2630 or P/C MATH 2637. Principles of vectors, forces, moments, free body diagrams, force systems, 2-D and 3-D equilibrium, friction, geometric properties of plane areas.

ENGR 2070 MECHANICS OF MATERIALS (3) LEC. 3. Pr. (ENGR 2050 or ENGR 2053) and P/C MATH 2650. Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.
ENGR 2100 FUNDAMENTALS OF ENGINEERING MECHANICS (3) LEC. 3. Pr. P/C PHYS 1600 or P/C PHYS 1607. Basic principles of two-dimensional force systems, free body diagrams, concepts of stress and strain, centroids of composite areas, kinematics and kinetics of particles and rigid bodies.

ENGR 2200 INTRODUCTION TO THERMODYNAMICS, FLUIDS AND HEAT TRANSFER (3) LEC. 3. Pr. CHEM 1030 and (PHYS 1610 or PHYS 1617). Principles and applications of thermodynamics, fluids and heat transfer.

ENGR 2350 DYNAMICS (3) LEC. 3. Pr. ENGR 2050 or ENGR 2053. Fundamental principles of dynamics including kinematics and kinetics of particles, kinematics and kinetics of rigid bodies, mass moments of inertia, three-dimensional dynamics of rigid bodies, and simple harmonic motion.

ENGR 2700 NUCLEAR POWER OPERATIONS, SYSTEM AND CAREERS (1) LEC. 1. SU. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Overview of nuclear power generation systems including civilian and government career options.

ENGR 3510 INTRODUCTION TO BUSINESS AND ENGINEERING (3) LEC. 3. Principles of business and engineering issues in new product and business development.

ENGR 3520 INTEGRATING BUSINESS AND ENGINEERING THEORY WITH PRACTICE (3) LEC. 2. LAB. 3. Case study problems from business and engineering practice.

ENGR 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

ENGR 3710 BASIC NUCLEAR I: NUCLEAR AND MECHANICAL SYSTEMS (4) LEC. 3. LAB. 1. Pr. P/C ENGR 2700 and (P/C PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607). Multidisciplinary course teaching fundamental nuclear and mechanical principles as they are utilized in the nuclear power generation industry.

ENGR 3720 BASIC NUCLEAR II: MATERIALS, ELECTRIC, ELECTRONICS (4) LEC. 3. LAB. 2.5. Pr. ENGR 2700 and PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607. Multidisciplinary course teaching fundamental electronic and electrical theory and materials theory as practiced in nuclear power generation industry.

ENGR 3970 SPECIAL TOPICS: ENGINEERING, TECHNOLOGY AND SOCIETY - SPAIN (1-4) AAB/LLB. Special topics of interest within a global engineering context. Course may be repeated for a maximum of 9 credit hours.

ENGR 4710 ADVANCED REACTOR OPERATIONS I: HEALTH AND SAFETY (3) LEC. 3. Pr. P/C ENGR 2700. Advanced safety topics within regulatory and training structure of nuclear power industry.

ENGR 4720 ADVANCED REACTOR OPERATIONS II: SAFE OPERATIONS (3) LEC. 3. Pr. P/C ENGR 2700. Nuclear power plant operations are discussed in detail, with a strong emphasis on safety compliance and industry's safety culture.

ENGR 4721 ADVANCED REACTOR PLANT OPERATIONS II: LAB (1) LAB. 2.5. Pr. P/C ENGR 4710. Nuclear power plant operations are discussed with a strong emphasis on safety compliance and industry's safety culture. Focus is hands-on practical factors.

ENGR 4957 ENGINEERING HONORS SEMINAR (3) SEM. 3. Pr. Honors College. Departmental approval. Topics of interest to honors students and engineering faculty. Interaction with successful engineering alumni.

ENGR 5540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (BUSI 3510 or ENGR 3510) and (BUSI 3520 or ENGR 3520). Acceptance into the BET minor program. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be in BET minor program. Processes to develop and present design proposal for cooperating industry. Credit will not be given for both BUSI 5970 and ENGR 5970.

ENGR 5560 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 1. LAB. 6. Pr. (BUSI 5540 or ENGR 5540) and (BUSI 5550 or ENGR 5550). Must be accepted into BET minor. Cross-functional team design projects for sponsoring industry.

ENGR 6000/6006 ADVANCED ENGINEERING ANALYSIS (3) LEC. 3. Pr. MATH 2660. Analytical solutions of linear and nonlinear problems involving transcendental equations, ODEs/PDEs, Taylor/Fourier/asymptotic series, functional expansions, power series, and approximation methods. May count either ENGR 6000 or ENGR 6006.

ENGR 6540/6546 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Develop student skills for starting a new business and making strategic decisions concerning technology.
ENGR 6550/6556 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6560/6566 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 3. Pr. (BUSI 5540 or ENGR 6540) and (BUSI 5550 or ENGR 6550). Cross-functional team design projects for sponsoring industry.

ENGR 7940/7946 MASTER OF ENGINEERING PROGRAM ASSESSMENT (0) LEC. 0. SU. The course will require that students describe how well the program helped them to attain the outcomes that they articulated in their application to the program. In addition to a reflective description, students will provide examples of work that demonstrate the skills or knowledge that they gained as part of the degree program. These work examples will then be evaluated using a standardized rubric for program assessment purposes, only.

Industrial Sys Eng Courses

INSY 3010 PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3) LEC. 3. Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

INSY 3021 METHODS ENGINEERING AND WORK MEASUREMENT (3) LEC. 2. LAB. 3. Coreq. INSY 3020. Develops the student’s ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

INSY 3030 CAD FOR ENGINEERS WITH INDUSTRIAL APPLICATIONS (1) LAB. 3. Pr. COMP 1200 or COMP 1210 or COMP 1217 or COMP 3000 or ENGR 1110 or ENGR 1113. Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc.

INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660 and STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660. Formulation, solution, interpretation, and implementation of mathematical models in operations research including linear programming, integer programming and network flows.

INSY 3420 SIMULATION (3) LEC. 2. LAB. 3. Pr. INSY 3400 and (COMP 3010 or COMP 3013 or INSY 3010) and STAT 3610. with a grade of C or better in INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

INSY 3600 ENGINEERING ECONOMY (3) LEC. 3. Pr. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies.

INSY 3700 OPERATIONS PLANNING AND CONTROL (3) LEC. 3. Pr. INSY 3400 and INSY 3410 and STAT 3610. with a grade of C or better in both INSY 3400 and INSY 3410. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.

INSY 3800 MANUFACTURING SYSTEMS I (3) LEC. 2. LAB. 3. Introduction to the design, analysis, and operation of manufacturing systems, the first course in a required two-course sequence including Manufacturing Systems II.

INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL (3) LEC. 3. Pr. STAT 3610. Statistical process control and methods for quality improvement. Acceptance sampling for attributes and for variables.

INSY 4500 PROFESSIONAL PRACTICE (1) LEC. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering. Senior standing in INSY.

INSY 4700 MANUFACTURING SYSTEMS II (3) LEC. 3. Pr. INSY 3420 and INSY 3600 and INSY 3700 and INSY 3800. Continuation of the design, analysis, and operation of manufacturing systems, the second course in a required two-course sequence including Manufacturing Systems I.

INSY 4800 SENIOR DESIGN (3) LAB. 9. Pr. INSY 3021. Coreq. INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.
INSY 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-10) AAB. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 10 credit hours.

INSY 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student endeavor consisting of direct research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

INSY 5010 SAFETY ENGINEERING I (3) LEC. 3. Pr. INSY 3020. Departmental approval. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010/6016.

INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Pr. INSY 3700. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240/6246.

INSY 5250 SCHEDULING AND PROJECT MANAGEMENT (3) LEC. 3. Pr. INSY 3700. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250/6256.

INSY 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. INSY 4330 or departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both INSY 5330 and INSY 6330/6336.

INSY 5500 INFORMATION TECHNOLOGY FOR OPERATIONS (3) LEC. 3. Pr. (COMP 3010 or COMP 3013). Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process. Credit will not be given for both INSY 5500 and INSY 6500/6506.

INSY 5550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Pr. COMP 3010 or COMP 3013. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550/6556.

INSY 5600 MANUFACTURING AND PRODUCTION ECONOMICS (3) LEC. 3. Pr. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600/6606.

INSY 5630 REAL OPTIONS AND DECISION ANALYSIS (3) LEC. 3. Pr. INSY 3600 and STAT 3600. Analysis of engineering and business decisions under risk and contemporary risk management methods including statistical decision theory and real options. Credit will not be given for both INSY 5630 and INSY 6630/6636.

INSY 5753 INFORMATION TECHNOLOGY AUDITING (3) DSL. 3. Pr. ISMN 5730. In-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO.

INSY 5800 LEAN PRODUCTION (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800/6806.

INSY 5830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830/6836.

INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840/6846.
INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.

INSY 5860 AUTOMOTIVE MANUFACTURING SYSTEMS (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assembly plant. Credit will not be given for both INSY 5860 and INSY 6860/6866.

INSY 6010/6016 SAFETY ENGINEERING I (3) LEC. 3. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design and maintenance, and operation of effective safety programs. Departmental approval. Credit will not be given for both INSY 5010 and INSY 6010.

INSY 6240/6246 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240.

INSY 6250/6256 SCHEDULING AND PROJECT MANAGEMENT (3) LEC. 3. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250.

INSY 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Lean Six Sigma" and "Design for Six Sigma". Credit will not be given for both INSY 5330 and INSY 6330/6336.

INSY 6500/6506 INFORMATION TECHNOLOGY FOR OPERATIONS (3) LEC. 3. Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process. Credit will not be given for both INSY 5500 and INSY 6500.

INSY 6550/6556 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550.

INSY 6600/6606 MANUFACTURING AND PRODUCTION ECONOMICS (3) LEC. 3. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600.

INSY 6630/6636 REAL OPTIONS/DECISION ANALYSIS (3) LEC. 3. Analysis of engineering and business decisions under risk and contemporary risk management methods including statistical decision theory and real options. Credit will not be given for both INSY 5630 and INSY 6630/6636.

INSY 6800/6806 LEAN PRODUCTION (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800.

INSY 6830/6836 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

INSY 6840/6846 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

INSY 6850/6856 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850.

INSY 6860/6866 AUTOMOTIVE MANUFACTURING SYSTEMS (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assemble plant. Credit will not be given for both INSY 5860 and INSY 6860.

INSY 7020/7026 SAFETY ENGINEERING II (3) LEC. 3. Pr. (INSY 6010 or INSY 6016). Systems safety analysis techniques including human error and reliability, fault trees, and cost benefit analysis.

INSY 7050/7056 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of noise and vibration stress.

INSY 7060/7066 ERGONOMICS I (3) LEC. 3. Overview of the human body systems and evaluation of the physiological response of the human body to occupational activities with emphasis on task design.

INSY 7070/7076 ERGONOMICS II (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Use of biomechanics in the evaluation and design of work activities. Emphasis is placed on biomechanical modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 7080/7086 HUMAN FACTORS ENGINEERING (3) LEC. 3. Examination of human factors, ergonomics and safety research methodologies. Emphasis is on human information input, output and control processes with the objective of optimizing integration of the human into simple and complex systems.

INSY 7081 HUMAN FACTORS LABORATORY (1) LAB. 3. Coreq. INSY 7080. Laboratory experience in testing human factors principles and concepts covered in INSY 7080. Experience in proper writing of laboratory reports.

INSY 7100/7106 ADAPTIVE OPTIMIZATION (3) LEC. 3. Departmental approval. Adaptive search methods inspired by nature for continuous and combinatorial optimization. Methods include simulated annealing, genetic algorithms, evolutionary strategies, tabu search and ant colony systems.

INSY 7120/7126 DATA ANALYTICS FOR OPERATIONS (3) LEC. 3. Pr. INSY 6500 or equivalent. This course covers the broad topics of predictive analytics, data visualization, and big data in the context of operations analysis. Focus will be on the application of modern computer tools with previously learned statistical and mathematical modeling tools, culminating in a semester project.

INSY 7130/7136 DATA MINING TECHNIQUES AND APPLICATIONS FOR OPERATIONS (3) LEC. 3. Pr. INSY 6500 or equivalent. This introductory course will cover the most common techniques for extracting useful information and models from numerical or categorical data. Techniques include clustering and classification, regression and spline models, kriging, and artificial neural networks. Also considered are data pre-processing, model building and model validation. Modeling and validation under conditions of sparse data will be addressed as well. Applications include those in finance, manufacturing, health care, and more.

INSY 7190 OCCUPATIONAL SAFETY AND HEALTH FORUM I (1) LEC. 1.

INSY 7200/7206 ENGINEERING APPLICATIONS OF FUZZY SYSTEMS AND NEURAL NETWORKS (3) LEC. 3. Departmental approval. Introduction to fuzzy systems and neural networks with emphasis on their uses in engineering applications in clustering, modeling, optimization, control, forecasting, and classification.

INSY 7230/7236 ADVANCED LAYOUT AND LOCATION (3) LEC. 3. Facility layout algorithms and the facility design process. Facility location models and their relationship to strategic organization goals.

INSY 7240/7246 PRODUCTION AND INVENTORY CONTROL THEORY (3) LEC. 3. Theoretical foundations for the analysis and design of production and inventory control systems with emphasis on quantitative methods and current areas of research.


INSY 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Advanced concepts of experimental design including blocked designs, analysis of variance regression approach, and fractional factorials in base-2 designs. Emphasis throughout is on developing and improving industrial products and processes. Credit will not be given for both INSY 7300 and STAT 7300.

INSY 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both INSY 7310 and STAT 7310.
INSY 7330/7336 OFF-LINE AND ON-LINE QUALITY CONTROL (3) LEC. 3. Pr. STAT 7010 or (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Departmental approval. Taguchi's quality loss functions. Taguchi's orthogonal arrays and their relationships to fractional factorial designs. Taguchi's parameter and tolerance designs, on-line process control concepts and methods. Process capability. CUSUM charts and other process control charts.

INSY 7380/7386 RELIABILITY ENGINEERING (3) LEC. 3. Pr. STAT 7600 or (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Reliability, maintenance, replacement with emphasis on failure-rate estimation and life testing. Hazard functions, parameter estimation and reliability testing including exponential and Weibull distributions. Markov models and repairable systems. Credit is not given for both INSY 7380 and STAT 7780. Departmental permission.

INSY 7390 OCCUPATIONAL SAFETY AND HEALTH FORUM II (1) LEC. 1. Pr. INSY 7190. Continuation of OSH Forum I (contemporary interdisciplinary issues in occupational safety and health). Emphasis is placed on leadership and mentoring of other OSH students (INSY 7190).

INSY 7400/7406 SIMULATION MODELING AND ANALYSIS (3) LEC. 3. Introduction to discrete event modeling and simulation. Fundamental concepts of Monte Carlo and discrete event simulation and the application of those concepts using commercial simulation software.

INSY 7420/7426 LINEAR PROGRAMMING AND NETWORK FLOWS (3) LEC. 3. Linear programming and network flows emphasizing algorithms and theory.

INSY 7430/7436 INTEGER AND NONLINEAR PROGRAMMING (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Departmental approval. Integer and non linear programming, emphasizing algorithms and theory.

INSY 7440/7446 DYNAMIC PROGRAMMING (3) LEC. 3. Departmental approval. Aspects of sequential decision making with emphasis on formulation and solution using the dynamic programming algorithm. Approximation methods for problems involving large state spaces. Solution techniques for problems under uncertainty.

INSY 7470/7476 SEARCH METHODS FOR OPTIMIZATION (3) LEC. 3. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 7490 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM II (1) LEC. 1. Pr. INSY 7290. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions. Emphasis is placed on leadership and mentoring of other OSH students (INSY 7290).

INSY 7500/7506 ADVANCED SIMULATION (3) LEC. 3. Pr. INSY 7400 or INSY 7406. Coverage of advanced simulation and simulation language design concepts. Includes advanced input/output analysis, modeling concepts, and language design/implementation concepts.

INSY 7550/7556 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Stochastic operations research models with emphasis on model formulation, solution and interpretation of results. Emphasis on stochastic processes, queuing theory and their applications.


INSY 7710/7716 LIFE CYCLE ENGINEERING (3) LEC. 3. The life cycle engineering course focuses on various life cycle methodologies and tools like life cycle design, product life cycle, life cycle assessment (LCA) and inventory (LCI), service, reuse, re-manufacturing, sustainable design, risk assessment and management and other related topics. May count either INSY 7710 or INSY 7716.

INSY 7720/7726 SYSTEMS ENGINEERING I (3) LEC. 3. Processes and tools for engineering large-scale, complex complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity and documentation. May count either INSY 7720 or INSY 7726.

INSY 7730/7736 PRODUCT DESIGN, DEVELOPMENT, AND TEST (3) LEC. 3. This class teaches modern tools and methods for product design, development, and test of highly complex and large systems including technical specification, reliability, maintainability, manufacturability, testability, marketing, costs, etc. May count either INSY 7730 or INSY 7736.
INSY 7740/7746 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY (3) LEC. 3. This course teaches students the issues, strategies, and approaches related to launching, manufacturing, and delivering new products or services including customer focus, marketing, manufacturing and launch strategies, delivery and related tools and techniques.

INSY 7750/7756 INTELLECTUAL PROPERTY, LEGAL, AND VENTURE CAPITAL (3) LEC. 3. This course teaches students the US law of intellectual property with major emphasis on patents. Students also learn venture capital including stages of funding, funding presentations, various requirements of funding, types of partnership, exit plans, etc. May count either INSY 7750 or INSY 7756.

INSY 7940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 7950/7956 SEMINAR (1) LEC. 1. SU. Presentation and discussion of ISE research by graduate students, faculty and guests. Must be taken at least one term and cannot be used in the plan of study to apply towards the minimum number of hours for a degree.

INSY 7970/7976 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. 1. LAB. 1. Departmental approval. Special topics of a graduate nature pertinent to Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 7980/7986 MASTER’S IN INDUSTRIAL AND SYSTEMS ENGINEERING PROJECT (1-5) IND. SU. Non-thesis master's project. Course may be repeated for a maximum of 5 credit hours.

INSY 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

INSY 8010 ADVANCED SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 7020 or INSY 7026. Topics of current interest in occupational safety research. Occupational safety research methodology and research priorities.

INSY 8060/8066 ADVANCED ERGONOMICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Topics of current interest in occupational ergonomics and human factors research. Occupational ergonomics and human factors research methodology and research priorities.

INSY 8250 SCHEDULING THEORY (3) LEC. 3. Pr. (INSY 6250 or INSY 6256) and (INSY 7420 or INSY 7426). The theory for various scheduling methods and models is presented. Emphasis is on current research in the scheduling area.

INSY 8420/8426 TOPICS IN OPTIMIZATION (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Basic concepts and theory of optimization, including saddlepoint conditions for differentiable and non-differentiable programs, duality, approximation, decomposition and partitioning, illustrated by application to specific algorithms.

INSY 8970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. Departmental approval. Special topics of an advanced graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Materials Engineering Courses

MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3) LEC. 3. The science of solid materials and the relationship between this science and material properties.

MATL 2210 MATERIALS FOR SUSTAINABLE ENERGY PRODUCTION AND STORAGE (1) LEC. 1. Pr. CHEM 1030. Technologies for sustainable energy production and storage, renewable energy conversion, associated materials challenges.

MATL 2220 MATERIALS AND THE ENVIRONMENT (1) LEC. 1. Pr. CHEM 1030. Environmental impact of the production, use and disposal of materials.

MATL 2230 MINERAL RESOURCES: PROCESSING AND AVAILABILITY (1) LEC. 1. Pr. CHEM 1030. Mineral resources for engineering materials; processing and availability of mineral resources.

MATL 3100 ENGINEERING MATERIALS - METALS (3) LEC. 3. Pr. MATL 2100. The relationship among processing, microstructure, properties and engineering applications of metallic materials.
MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3. Coreq. MATL 3100. The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3. Pr. CHEM 1040. The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3. Coreq. MATL 3200. A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3. Pr. MATL 2100. The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.


MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1. LAB. 6. Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations.

MATL 5200 CRYSTALLOGRAPHY (2) LEC. 2. Pr. PHYS 1610 or PHYS 1617. Departmental approval. Principles of crystallography, reciprocal lattice X-ray diffraction techniques.

MATL 5201 X-RAY DIFFRACTION LABORATORY (1) LAB. 3. Coreq. MATL 5200. Laboratory on the use of x-ray diffraction for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Pr. MATH 2650 and ENGR 2200. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3. Pr. PHYS 1610 or PHYS 1617. Departmental approval. The physics of solid-state materials, including the electronic, optical and magnetic properties of materials.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Pr. MATL 5100 and P/C MATL 5300. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.


MATL 5720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Pr. P/C BIOL 1030 or P/C CHEM 2070. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Pr. MATL 2100 and (ENGR 2070 or MECH 3130). Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.
MATL 6100/6106 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations.

MATL 6200/6206 CRYSTALLOGRAPHY (2) LEC. 2. Departmental approval. Principles of crystallography, reciprocal lattice X-ray diffraction techniques.

MATL 6201 X-RAY DIFFRACTION LABORATORY (1) LAB. 3. Coreq. MATL 6200. Laboratory on the use of x-ray diffraction for materials characterization.

MATL 6300/6306 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology.

MATL 6400/6406 PHYSICS OF SOLIDS (3) LEC. 3. Departmental approval. The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials.

MATL 6500/6506 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.


MATL 6720/6726 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 6750/6756 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Departmental approval. Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7050/7056 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3. Departmental approval. Coreq. MATL 6200. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MATL 7110/7116 PHYSICAL METALLURGY AND APPLICATIONS IN METAL FABRICATION (3) LEC. 3. Departmental approval. The physical metallurgy underlying processing-structure- property relationships in metals and alloys, with examples from joining processes.

MATL 7120/7126 ADVANCED CERAMIC MATERIALS (3) LEC. 3. Departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MATL 7130/7136 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers.

MATL 7140/7146 ADVANCED COMPOSITE MATERIALS (3) LEC. 3. Departmental approval. Processing, mechanics structure and properties of composite materials. Emphasis will be placed on an understanding of processing-structure-property relationships in polymer-, ceramic-, and metal-matrix composites.


MATL 7210/7216 PLASTIC DEFORMATION AND STRENGTHENING OF METALLIC MATERIALS (3) LEC. 3. Departmental approval. Mechanisms of plastic deformation and strengthening in metals and alloys. The role of dislocations in plastic deformation.
MATL 7220/7226 RADIATION EFFECTS ON MATERIALS (3) LEC. 3. Departmental approval. Theoretical and experimental treatment of the radiation effects and damage in materials as related to the nuclear industry.

MATL 7230/7236 HIGH TEMPERATURE MATERIALS PERFORMANCE (3) LEC. 3. Departmental approval. Theoretical and experimental treatment of the behavior of metals at high temperature.

MATL 7310/7316 SOLIDIFICATION PROCESSING (3) LEC. 3. Departmental approval. Theoretical science and engineering principles that apply to semiconductor crystal growth, ingot solidification, metal casting, welding and rapid solidification processes.

MATL 7320/7326 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Structure, properties, characterization, processing and application of thin films.

MATL 7330 MATERIALS FOR ENERGY STORAGE (3) LEC. 3. Introduction of various electrochemical energy storage devices (Batteries, Supercapacitor, etc) and discussion of advancement in development of materials for these devices. Instructor's consent required for prerequisites.

MATL 7410/7416 CHEMICAL SENSORS (3) LEC. 3. Departmental approval. Fundamentals and application of chemical sensors. Includes electrolyte, semiconductor and acoustic wave-based sensors.

MATL 7420/7426 SMART MATERIALS AND STRUCTURES (3) LEC. 3. Departmental approval. An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures.

MATL 7430/7436 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3. Pr. (MATL 6100 or MATL 6106) and (MATL 6400 or MATL 6406). Departmental approval. Processing, structure, properties, and application of dielectrics, including physics of dielectrics, material/device design/fabrication processes, and application of dielectric materials in high-technological industry.

MATL 7440/7446 MATERIALS PROCESSES MICRO AND NANOSYSTEMS (3) LEC. 3. Departmental approval. Materials, processes, and principles involved in manufacturing of micro and nanoelectromechanical systems. Properties of materials used in micromachined transducers as a related to current and potential micro and nanofabrication processes.

MATL 7450/7456 HIGH TEMPERATURE ELECTROCHEMICAL DEVICES (3) LEC. 3. Departmental approval. Principles of solid-state electrochemistry, application to temperature devices including chemical sensors, fuel cells and batteries.

MATL 7510/7516 ELECTRON MICROSCOPY (3) LEC. 3. Departmental approval. Theory, instrumentation, techniques and applications of scanning and transmission electron microscopy.

MATL 7511 ELECTRON MICROSCOPY LABORATORY (1) LAB. 3. Coreq. MATL 7510. Laboratory on the use of electron microscopy for materials characterization.


MATL 7610/7616 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3. Departmental approval. Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance.

MATL 7620/7626 NANO/MICRO FLUIDIC SYSTEMS (3) LEC. 3. Departmental approval. Basic understanding of nano/microfluidics (typical volumes are nanoliters or picoliters) and practical applications in materials science and engineering, biotechnology, and other interdisciplinary fields of engineering and science.

MATL 7630/7636 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/medicine including nanostructured biomolecules and bioarrays as well as biomolecular nanoelectronics.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM. SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960/7966 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) IND. SU. Departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topics.
MATL 7970/7976 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7980/7986 MASTER MATERIALS ENGINEERING PROJECT (3) LEC. 3. SU. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee.

MATL 7990/7996 RESEARCH AND THESIS (1-15) MST. Individual master's thesis research. Course may be repeated with change in topics.

MATL 8990/8996 RESEARCH AND DISSERTATION (1-15) DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Mechanical Engineering Courses

MECH 2110 STATICS AND DYNAMICS (4) LEC. 3. LAB. 3. Pr. (MATH 1620 or MATH 1623 or MATH 1627) and (PHYS 1600 or PHYS 1607). Vectors, forces, moments and free body diagrams. Systems in mechanical equilibrium. Particles in motion.

MECH 2120 KINEMATICS AND DYNAMICS OF MACHINES (4) LEC. 3. LAB. 3. Pr. (MATH 2630 or MATH 2637) and MECH 2110. Kinematics and kinetics of rigid bodies. Kinematics and dynamics of mechanisms, cams and gears.

MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and COMP 1200 and P/C MATH 2650. The computer as a tool in mechanical engineering.

MECH 2AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT I (0) TST. SU. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics.


MECH 3030 FLUID MECHANICS (3) LEC. 3. Pr. MECH 2110 and ENGR 2010 and MATH 2650 and P/C MECH 3130. Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow.


MECH 3050 MEASUREMENT AND INSTRUMENTATION (3) LEC. 2. LAB. 3. Pr. MECH 3030 and P/C ELEC 3810 and P/C MECH 3040. Theory and practice of modern sensors and computer-based data acquisition techniques, uncertainty analysis, results reporting, filtering and signal processing.

MECH 3130 MECHANICS OF MATERIALS (4) LEC. 3. LAB. 1. Pr. MECH 2110 and MATL 2100 and MATH 2650 and MATH 2660 and (MECH 2220 or MECH 3220). Stress and strain concepts, stress-strain relationships, applications, uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories, strain energy, impact loading, cyclic loading.

MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. MECH 2120 and MATH 2650. System dynamics and automatic control theory.

MECH 3200 CONCEPTS IN DESIGN AND MANUFACTURING (2) LEC. 2. Pr. MECH 2110 and (P/C MECH 2220 or P/C MECH 3220). The mechanical design process, project based, with teamwork, project management and communication. Users’ needs, engineering requirements, concept generation and selection, design development.

MECH 3210 DESIGN AND MANUFACTURING LAB (1) LAB. 1. Manufacturing safety lab for introduction to manufacturing processes associated with cutting, forming, and joining of metals and other materials.

MECH 3230 MACHINE DESIGN (3) LEC. 3. Pr. MECH 3130 and (MECH 3210 or MECH 2210) and (MECH 3200 or MECH 2210) and (MECH 2220 or MECH 3220). Design of systems containing a variety of mechanical elements.

MECH 3AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT II (0) TST. SU. Pr. MECH 2AA0. Progress Assessment Examination in: Statistics, linear algebra, mechanical design, thermo-fluid design, social impact, contemporary issues.
MECH 4240 COMPREHENSIVE DESIGN I (2) LEC. 1. LAB. 3. Pr. (MECH 3AA0 and MECH 3230 and MECH 3040 and P/C MECH 3050 and P/C MECH 3140) or (MECH 3AA0 and MECH 3230 and P/C MECH 3040 and MECH 3050 and P/C MECH 3140) or (MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and MECH 3140). Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2) LEC. 1. LAB. 3. Pr. (MECH 4240 and MECH 3040 and MECH 3050 and P/C MECH 3140 and P/C INSY 3600) or (MECH 4240 and MECH 3050 and MECH 3140 and P/C MECH 3040 and P/C INSY 3600) or (MECH 4240 and MECH 3140 and MECH 3040 and P/C MECH 3050 and P/C INSY 3600). Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Operation, performance, maintenance, selection, design and optimization of mechanical equipment commonly found in industrial operations.

MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3. Pr. MECH 3040. Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.

MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040 and MATH 2660. Introduction to computational fluid dynamics and heat transfer techniques used to analyze thermal performance of devices and systems. Commercial software will be used.

MECH 4420 VEHICLE DYNAMICS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 2120. Ground vehicle resistance, propulsion, maneuvering, and control tires, suspensions, braking, aerodynamics, case studies.

MECH 4430 GROUND VEHICLE FUNDAMENTALS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 2120. Engineering fundamentals of ground vehicles and typical subsystems, including: power (engine and electrical); drivetrain; braking; steering; suspension; ergonomics; and structure.

MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1. LAB. 3. Pr. MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and P/C MECH 3140. Departmental approval. Team-based design of a ground vehicle, both whole-vehicle and subsystem; design evaluation and modification; oral and written communication.

MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2) LEC. 1. LAB. 3. Pr. MECH 4440. Departmental approval. Team-based fabrication, testing, modification and operation of a ground vehicle; oral and written communication; project management.

MECH 4510 INDUSTRIAL AND ENVIRONMENTAL NOISE CONTROL (3) LEC. 3. Pr. MECH 2120 and MECH 3220. Sources of industrial and community noise, criteria for control, noise measuring instrumentation, issues involved in the design of machinery for minimum noise, noise ordinances and regulations.

MECH 4520 MACHINERY NOISE AND VIBRATION DIAGNOSTICS (3) LEC. 3. Pr. MECH 2120 and MECH 3220. An introduction to machinery diagnostics through noise and vibration signatures. Fundamental principles and applications of predictive maintenance of machinery.

MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (3) LEC. 3. Pr. MECH 3200. Real world engineering management decision making, case studies from industry.

MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND/INT. Departmental approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.
MECH 5050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 2.5. Pr. ENGR 2010 or ENGR 2200. or permission of instructor. Overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles. May count one of: MECH 5050, MECH 6050, MECH 6056.

MECH 5110 INTERMEDIATE HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040. Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 5120 COMBUSTION (3) LEC. 3. Pr. MECH 3040. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Pr. MECH 3040 and ELEC 3810. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 5220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Pr. MECH 3030 and MECH 3230 or INSY 3800. Theory and techniques for considering friction, wear and lubrication, in the design of machine components, and other surface interactions.

MECH 5240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Pr. MECH 3030. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine components in order to control friction and wear.

MECH 5270 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 3210. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 3130. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 5310 MECHANICS OF ELECTRONIC PACK (3) LEC. 3. Pr. MECH 3130 and ELEC 3810. Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Pr. MECH 3040 and MECH 3130 and MATH 2660. Introduction to the fundamentals of the finite element method.

MECH 5410 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3. Pr. MECH 3140. Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Pr. MECH 3140. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3. Pr. MECH 3130. Basic concepts, fabrication and operation of micromachined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.


MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MATH 2650. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.

MECH 5610 MECHANICAL VIBRATION (3) LEC. 3. Pr. MECH 2120 and MATH 2650 and MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 5710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr. MECH 3140. Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.

MECH 5720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Pr. MECH 3140. Application of various algorithms for robot manipulators.

MECH 5810 MECHATRONICS (3) LEC. 3. Pr. MECH 2120 and ELEC 3810. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5820 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 5830 ENGINES (3) LEC. 3. Pr. (ENGR 2010 and MECH 3030) or ENGR 2200. or (ENGR 2010 plus any one of (AERO 3110, CHEN 2610, CIVL 3110, MECH 3030)). Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics, thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 6 credit hours.

MECH 6010/6016 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 6050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 2.5. An overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 6110/6116 INTERMEDIATE HEAT TRANSFER (3) LEC. 3. Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 6120/6126 COMBUSTION (3) LEC. 3. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210/6216 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 6230/6236 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance.

MECH 6240/6246 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine components in order to control friction and wear.

MECH 6270/6276 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 3210. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 6300/6306 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.


MECH 6390/6396 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Introduction to the fundamentals of the finite element method.
MECH 6410/6416 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3. Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 6420/6426 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430/6436 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.


MECH 6510/6516 ENGINEERING ACOUSTICS (3) LEC. 3. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics, and, noise control will be emphasized.

MECH 6610/6616 MECHANICAL VIBRATION (3) LEC. 3. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 6620/6626 STABILITY AND VIBRATION OF DISCRETE SYSTEMS (3) LEC. 3. Pr. MECH 6610 or MECH 6616. Principles of advanced dynamics, linear systems with multiple degrees of freedom, stability and boundedness, free and forced response of linear systems, parameter identification.

MECH 6710/6716 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.

MECH 6720/6726 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Application of various algorithms for robot manipulators.

MECH 6810/6816 MECHATRONICS (3) LEC. 3. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6820/6826 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 6830/6836 ENGINES (3) LEC. 3. Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 6930/6936 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7010/7016 ADVANCED THERMODYNAMICS (3) LEC. 3. Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.


MECH 7120/7126 ADVANCED FLUID MECHANICS II (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130/7136 BOUNDARY LAYER THEORY (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140/7146 TURBULENCE (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equatiion; Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.
MECH 7150/7156 FLUID MECHANICS OF PROCESSING (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Fluids; Governing Equations; Dimensional analysis; Particle-Laden Flows; Applications to specific processing problems such as liquid metal flows, polymers, surface deposition.

MECH 7210/7216 DIFFUSIVE TRANSFER (3) LEC. 3. Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220/7226 CONVECTION HEAT TRANSFER (3) LEC. 3. Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230/7236 THERMAL RADIATION (3) LEC. 3. Fundamentals of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240/7246 NUMERICAL METHODS IN HEAT TRANSFER (3) LEC. 3. Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.


MECH 7300/7306 FRACTURE MECHANICS (3) LEC. 3. Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.

MECH 7310/7316 SOLID MECHANICS (3) LEC. 3. Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320/7326 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.


MECH 7340/7346 INELASTIC STRESS ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360/7366 MECHANICS OF COMPOSITE MATERIALS (3) LEC. 3. Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370/7376 ANALYSIS OF PLATES AND SHELLS (3) LEC. 3. Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.


MECH 7410/7416 OPTICAL METHODS IN MECHANICS (3) LEC. 3. Measurement of stresses, strains, and deformations using optical methods; optical interference; Fourier optics; optical spatial filtering, white light methods; coherent optical methods.

MECH 7430/7436 OPTICAL PROPERTIES OF ADVANCED MATERIALS (3) LEC. 3. Pr. MECH 6430 or MECH 6436 or PHYS 7200. Linear and nonlinear optical properties, correlation with material-structure, electro-optic effects, lasers, frequency conversion, fiber-optics, technological applications.

MECH 7510/7516 ADVANCED ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MECH 6510 or MECH 6516. The fundamentals of advanced acoustics theory. Wave equation derivation from Navier-Stokes equations, spherical waves, monopoles, dipoles, quadrupoles. Duct Acoustics, Statistical Energy Analysis.


MECH 7630/7636 MECHANICAL IMPACT (3) LEC. 3. Departmental approval. Investigation of the fundamental concepts used to solve collision problems with friction.


MECH 7650/7656 RANDOM VIBRATION (3) LEC. 3. Pr. MECH 6610 or MECH 6616. Properties of random processes, review of linear systems with single and multiple degrees of freedom. Vibration of single and multiple degrees of freedom systems subjected to random excitations, design of structures subjected to random excitation. Parameter estimation.

MECH 7710/7716 CONTROL SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. Topics from control theory are introduced in the context of control systems analysis and design, including state variable feedback, modal control, optimal control and adaptive control for both continuous and discrete systems.

MECH 7930 ADVANCED DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Topics may vary. Will not fulfill degree requirements. Course may be repeated with change in topics.

MECH 7970/7976 ADVANCED SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7990 RESEARCH & THESIS (1-12) MST. Individual Master's thesis research. May be repeated for credit. Course may be repeated with change in topics.

MECH 8990 RESEARCH & DISSERTATION (1-12) DSR. Individual Doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Polymer Fiber Engineering Courses

PFEN 2270 INTRODUCTION TO ENGINEERED FIBROUS MATERIALS (4) LEC. 4. Pr. ENGR 1110 or ENGR 1113. The fundamentals of chemistry and engineering applied to fibrous assemblies illustrated using the properties required by end-use. Topics will include biomedical materials, architectural applications cables, ropes, and tethers, composite materials, filtration fabrics, ballistic protection, and health-care products.

PFEN 3100 FUNDAMENTALS OF POLYMERS (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Fundamentals of polymers: terminology, synthesis, structure, molecular weight, transitions of state, structure and uses.


PFEN 3500 STRUCTURE AND PROPERTIES OF POLYMERS AND FIBERS (3) LEC. 3. Pr. PFEN 3100. Exploration of the relationships between the chemical structure, properties and uses of polymers and fibers. Emphasis on the importance of judicious material selection for particular end use applications. Spring.

PFEN 3570 ENGINEERED PROTECTIVE MATERIALS (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and CHEM 1030 and CHEM 1040 and (P/C PHYS 1600 or P/C PHYS 1607). An engineering approach to the design of protective materials and structures based on analyses to counter kinetics, chemical and biological threat hazards to people, animals and valuable objects.
PFEN 4100 POLYMER CHARACTERIZATION (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (CHEM 2080 or CHEM 2087) and PFEN 3500. Study of the major techniques for the physical characterization of polymers. Topics to be covered include molecular weight determination, spectroscopy (light, vibrational, nuclear magnetic resonance, electron spin resonance), X-ray diffraction, microscopy (light, electron), optical methods, and thermal analysis.

PFEN 4300 ENGINEERED FIBROUS STRUCTURES (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Design and applications of high performance industrial fibrous structures for civil engineering, architecture and construction, filtration, medical, military and defense, pulp and paper industry, safety and protection, sports and recreation, transportation, agriculture and other industries. Fall.

PFEN 4400 MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and PFEN 2270. Analysis of mechanical behavior and physical properties of flexible structures such as fibers, yarns and fabrics.

PFEN 4500 FIBER REINFORCED MATERIALS (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and MATH 2660 and PFEN 2270. Material properties and manufacture of fiber reinforced materials; perform structures such as weaves and braids, analysis, design methodology and applications. Spring.

PFEN 4810 POLYMER AND FIBER ENGINEERING DESIGN I (3) LEC. 3, IND/LEC. 2. Pr. PFEN 3500. Departmental approval. Tools and skills needed to conduct an engineering design project.

PFEN 4820 POLYMER AND FIBER ENGINEERING DESIGN II (3) IND. 3. Undergraduate senior design project, second semester.

PFEN 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Reading course with varying emphasis to give opportunity for overview in specific areas of engineering and technology. Course may be repeated for a maximum of 12 credit hours.

PFEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Honors Thesis is a project-based course and may be presented in form of a written report or a conference-style presentation. Course may be repeated for a maximum of 6 credit hours.


PFEN 5200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 5300 RHEOLOGY (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and ENGR 2200 or MECH 3030. Departmental approval. Covers the most important aspects of elementary modern rheology, including elastic solids, viscoelastic behavior of polymeric systems, composite systems, concentrated solutions and suspension rheology.

PFEN 5510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, polymer characterizations, polymer classes, solubility and swelling, and structure/property relationships.


PFEN 6200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Departmental approval. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 6250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3) LEC. 3. Pr. PFEN 4300. Departmental approval. Application of advanced technology to the design, development and analysis of high performance industrial textiles.

PFEN 6510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, characterizations, classes, solubility and swelling, and structure/property relationships.

PFEN 6706 BIOMEDICAL APPLICATIONS OF POLYMER MATERIALS (3) LEC. 3. LAB. 10. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function. Departmental approval. May count either PFEN 5710, PFEN 6700 or PFEN 6706.

PFEN 7310 STRUCTURE AND PROPERTIES OF POLYMERS (4) LEC. 3. LAB. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. The inter-relationships between chemical structure of a polymer, polymer properties and uses. Plastics, elastomers and fibers-synthesis and property requirements.

PFEN 7320 POLYMER PHYSICS (3) LEC. 3. Departmental approval. Mechanical, optical, and transport properties of polymers with respect to the underlying physical chemistry of polymers in melt, solution, and solid state.

PFEN 7410 ADVANCED COLORATION AND INTERFACIAL PROCESSES (4) LEC. 3. LAB. 3. Pr. PFEN 3400. Departmental approval. Colorants and coloration principles for both fibrous and nonfibrous polymers; interfacial processes, such as sorption, adhesion, colloidal processes, surface tension.

PFEN 7500 MECHANICS OF TEXTILE REINFORCED MATERIALS (3) LEC. 3. Pr. PFEN 4500. Design methods for textile reinforced materials, including micro and macro-mechanics, finite element analysis. Fall.

PFEN 7610 ADVANCED POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Departmental approval. Aspects of natural, biodegradable polymers, including fibers, adhesives, films, coatings, their synthesis, their structure-properties relationships, and their microbial degradation.

PFEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. PFEN 4400. Recent advances in modeling and analysis of mechanical behavior of flexible structures. Spring.

PFEN 7700 ADVANCED METHODS IN POLYMER CHARACTERIZATION (4) LEC. 4. LAB. 3. Pr. PFEN 6510. Departmental approval. Important aspects and methods in polymer characterization.

PFEN 7770 INTRODUCTION TO CONDUCTING POLYMERS (3) LEC. 3. Pr. PFEN 6510. This “Introduction of Conducting Polymers” course covers the most up to date research and applications in the areas of conducting polymers. This course provides extensive background on: mechanism of electrical conductivity of conducting polymers, classification of conducting polymers, potential applications of conducting polymers, and recent advance of the researches in the fields of conducting polymers. For example, organic solar cells, and organic light emitting diodes.

PFEN 7910 POLYMER RHEOLOGY (3) LEC. 3. Pr. PFEN 6510. Departmental approval. Important aspects of elementary modern rheology.

PFEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Presentation of departmental research; practicing written and oral communication skills. Course may be repeated with change in topic. Fall.

PFEN 7960 SPECIAL PROBLEMS AND FIBER ENGINEERING (1-3) IND. Specialized project research with varying emphasis in particular areas of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7970 SPECIAL TOPICS (3) LEC. 3. Analysis of current issues in the area of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7980 GRADUATE PROJECT (1-3) IND. In-depth work in a particular project in polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Required of all students seeking an advanced degree in the department. Course may be repeated with change in topics.

PFEN 8200 ADVANCED TEXTILE STRUCTURE DESIGN AND DEVELOPMENT (3) LEC. 3. Technical fabric design and development of complex woven, knit, braided and tufted structures for high performance applications. Fall.

PFEN 8990 RESEARCH AND DISSERTATION (1-10) DSR. PhD Research and Dissertation. Course may be repeated with change in topics.
Department of Aerospace Engineering

Aerospace engineers are concerned with the application of scientific principles and engineering concepts and practices to design, build, test and operate aerospace systems. The curriculum is intended to provide students with a broad understanding of fundamental scientific and technological principles, and to develop the ability to use these principles in developing solutions to engineering problems.

The objectives of the aerospace engineering program are: (1) to help students develop written and oral communication skills and to acquire a knowledge of history, literature and society; (2) to provide students a solid foundation in and a sound working knowledge of basic engineering principles; (3) to help students obtain an understanding of the engineering principles and skills specifically needed in the aeronautical and astronautical disciplines; and (4) to assist and encourage each student to develop an enhanced ability to learn and think creatively.

Required courses cover aeronautical and astronautical subjects. Students may also choose to emphasize either aeronautical or astronautical systems. Technical electives allow concentration in such areas as aerodynamics, astronautics, flight dynamics and control, propulsion, structures, and structural dynamics. The design of aerospace components and systems is considered to be an integral part of the education of aerospace engineers. Hence, design is included throughout the curriculum, beginning with a sophomore course in aerospace fundamentals and culminating in the senior design course sequence. Students are required to apply their theoretical knowledge of aerodynamics, dynamics, structures and propulsion to solve open-ended problems and to produce portions of preliminary designs.

Major

- Aerospace Engineering (p. 587)

Courses

AERO 2200 AEROSPACE FUNDAMENTALS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607). C or better in PHYS 16000 Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

AERO 3040 ELEMENTARY METEOROLOGY (3) LEC. 3. Basic principles, causes, effects and phenomena of weather with fundamental techniques of forecasting.

AERO 3110 AERODYNAMICS I (3) LEC. 3. Pr. MATH 2650 and AERO 2200. C or better in AERO 2200. Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

AERO 3120 AERODYNAMICS II (3) LEC. 3. Pr. ENGR 2010 and MATH 2650 and AERO 2200. C or better in AERO 2200. Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

AERO 3130 AERODYNAMICS LABORATORY (2) LEC. 1. LAB. 3. Pr. P/C AERO 2200. C or better in AERO 2200. Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

AERO 3220 AEROSPACE SYSTEMS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.

AERO 3230 FLIGHT DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 3110 and ENGR 2350 and MATH 2650. C or better in ENGR 2350. Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

AERO 3310 ORBITAL MECHANICS (3) LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350. Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

AERO 3610 AEROSPACE STRUCTURES I (2) LEC. 1. LAB. 3. Pr. ENGR 2070. Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine material properties and structural response.
AERO 3970 SPECIAL TOPICS (1-3) AAB. SU. Departmental approval. Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.

AERO 4140 AERODYNAMICS III (3) LEC. 3. Pr. AERO 3110 and AERO 3120. Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.

AERO 4510 AEROSPACE PROPULSION (4) LEC. 3. LAB. 3. Pr. AERO 3120. Fundamental analysis of airbreathing jet propulsion. Introduction to chemical rocket propulsion.

AERO 4620 AEROSPACE STRUCTURES II (4) LEC. 3. LAB. 3. Pr. AERO 3610 and MATH 2660. Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.

AERO 4630 AEROSPACE STRUCTURAL DYNAMICS (4) LEC. 3. LAB. 3. Pr. AERO 4620. Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.

AERO 4710 AEROSPACE DESIGN I (3) LEC. 2. LAB. 3. Pr. AERO 3120. Introduction to the principles required to design aerospace vehicles.

AERO 4720 AEROSPACE DESIGN II (3) LEC. 2. LAB. 3. Pr. AERO 4710. This course is continuation of AERO 4710.

AERO 4730 SPACE MISSION DESIGN I (3) LEC. 2. LAB. 3. Pr. AERO 3120. And permission of the department. Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.

AERO 4740 SPACE MISSION DESIGN II (3) LEC. 2. LAB. 3. Pr. AERO 4730. A continuation of AERO 4730, Space Mission Design I.

AERO 4970 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) AAB. Departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours.

AERO 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours.

AERO 4AA0 PROGRAM ASSESSMENT (0) LAB. SU. Pr. P/C AERO 4710 or P/C AERO 4730. Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.

AERO 5110 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 5120 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.


AERO 5320 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Departmental approval. Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing and position accuracy.

AERO 5330 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 5340 SATELLITE APPLICATION (3) LEC. 3. Pr. AERO 3310. AERO 3310 or departmental approval; Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.
AERO 5410 AEROOACOUSTICS (3) LEC. 3. Pr. AERO 3120 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410 or AERO 6410.

AERO 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660 or Departmental approval. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 5520 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.


AERO 5630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 5750 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 6110/6116 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120/6126 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.


AERO 6320/6326 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Departmental approval. Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing, and position accuracy.

AERO 6330/6336 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6340/6346 SATELLITE APPLICATION (3) LEC. 3. Pr. AERO 3310. Departmental approval. Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.

AERO 6410/6416 AEROOACOUSTICS (3) LEC. 3. Pr. AERO 4140 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410/5413 or AERO 6410/6416.

AERO 6460/6466 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660. Departmental approval. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 6520/6526 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530/6536 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.

AERO 6630/6636 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 6750/6756 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 7100/7106 ADVANCED SUPERSONIC AERODYNAMICS (3) LEC. 3. Pr. AERO 4140. A rigorous development of linearized and nonlinear flow theories and application. Lifting surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7110/7116 AIRFOIL AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Thin airfoil theory, Joukowski transformations, Karman Trefftz transformations, thick airfoil theory, panel methods and comparison with experimental data.

AERO 7120/7126 DYNAMICS OF VISCOS FLUIDS I (3) LEC. 3. Pr. AERO 7100 or AERO 7106. Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130/7136 DYNAMICS OF VISCOS FLUIDS II (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140/7146 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 5140 and AERO 6140. Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.


AERO 7160/7166 PHYSICAL FOUNDATIONS OF TURBULENCE (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to turbulence using classical descriptions with a focus on the physics of turbulence phenomena. May count either AERO 7160 or AERO 7166.


AERO 7210/7216 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles.


AERO 7230/7236 HELICOPTER DYNAMICS AND CONTROL (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of helicopters. Analysis of helicopter stability and controllability.

AERO 7330/7336 ORBIT DETERMINATION (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340/7346 ADVANCED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert's Problem; linear orbit theory and circumlunar trajectories.

AERO 7350/7356 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3. Pr. AERO 3220. Principles of optimization; Pontryagin's principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. AERO 3220 or equivalent.
AERO 7370/7376 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Pr. AERO 7330 or AERO 7336 or AERO 7230 or AERO 7236. Departmental approval. Principles of the Global Positioning System: GPS overview and historical development; modeling of pseudo-range and carrier phase measurements; positioning solution strategies using kinematic, dynamic, and reduced dynamic techniques.

AERO 7390/7396 SATELLITE REMOTE SENSING (3) LEC. 3. Departmental approval. Topics in satellite remote sensing principles and techniques including active and passive instruments, data processing, and geophysical parameter recovery algorithms.

AERO 7410/7416 LIGHT-FIELD IMAGING (3) LEC. 3. Pr. AERO 7160 or AERO 7166. Departmental approval. An introduction to light-field imaging. Topics include light parameterization, light field cameras, computational photography and Fourier slice photography theorem. May count either AERO 7410 or AERO 7416.

AERO 7420/7426 PARTICLE IMAGE VELOCIMETRY (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to particle image velocimetry and its variations including conventional planar PIV, stereo PIV, stereo-PIV and toro-PIV. May count either AERO 7420 or AERO 7426.


AERO 7510/7516 THRUST GENERATION (3) LEC. 3. Pr. AERO 4510. Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to airbreathing and space propulsion.


AERO 7610/7616 ADVANCED AEROSTRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Development of the fundamental principles of the analysis of non-linear problems in solid mechanics. Structural problems involving non-linear deflections and/or material properties.

AERO 7620/7626 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three dimensional solutions.

AERO 7630/7636 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STRUCTURAL DYNAMICS (3) LEC. 3. Pr. AERO 4630. Departmental approval. Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two-and three-dimensional structures.

AERO 7640/7646 ADAPTIVE AERO-STRUCTURES (4) LEC. 3. LAB. 3. Departmental approval. Basic material and manufacturing information for materials employed in adaptive structures. Shape-memory, magnetostrictive, magnetorheological-electrorheological and piezoelectric materials are examined.

AERO 7660/7666 AEROLASTICITY (3) LEC. 3. Pr. AERO 4630. Introduction to the field of aeroelasticity and the interaction therein of structural mechanics and fluid mechanics with dynamics as the "interface adhesive" between them. Flutter, divergence, aileron reversal and related phenomena.

AERO 7670/7676 INTRODUCTION TO LARGE SPACE STRUCTURES (3) LEC. 3. Pr. AERO 4630. Large space structures and their unique concepts, novel on-earth testing requirements, variety of damping schemes and analysis techniques. Concepts and analysis related to shape control, active and passive damping, and structural dynamics/controls interaction.

AERO 7950 SEMINAR (0) SEM. 0. SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers. Course may be repeated for a maximum of 1 credit hours.

AERO 7970/7976 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) LEC. Course may be repeated for a maximum of 9 credit hours.
AERO 7980/7986 AEROSPACE ENGINEERING PROJECT (3) LEC. 3. SU. Departmental approval. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student's major professor. Approval of the project and its final written report by the student's advisory committee is required. Course may be repeated with change in topic.

AERO 7990/7996 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

AERO 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Curriculum in Aerospace Engineering

Freshman

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<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
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Sophomore

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<td>MATH 2650 Linear Differential Equations</td>
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<td>ENGR 2070 Mechanics of Materials</td>
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<td>PHYS 1610 Engineering Physics II</td>
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<td>ENGR 2010 Thermodynamics</td>
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<td>ENGR 2350 Dynamics</td>
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Junior

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<td>ELEC 3810 Fundamentals of Electrical Engineering</td>
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<td>AERO 3230 Flight Dynamics</td>
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<td>AERO 3310 Orbital Mechanics</td>
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Senior

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Core Social Science¹                        | 3     |                                             |       |

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Department of Biosystems Engineering

Biosystems Engineers ensure that we have the necessities of life: healthy food to eat, clean water to drink, renewable fuel and energy sources, and a healthy environment in which to live. Therefore, the mission of the Department of Biosystems Engineering at Auburn University is to develop and disseminate engineering knowledge to solve problems in biological systems, natural resources and the environment. It meets the resident instruction portion of that mission through the offering of a degree program which leads to a Bachelor of Biosystems Engineering. Options in Bioprocess Engineering, Options in Ecological Engineering and Forest Engineering are also available under the Biosystems Engineering degree program.

Biosystems Engineering

The Department of Biosystems Engineering offers the only accredited degree in Biosystems Engineering in Alabama. It is committed to preparing students for productive professional careers in the biosystems industries and related natural resource and environmental systems sectors. Specific program educational objectives of the Biosystems Engineering degree program can be found at:

http://www.eng.auburn.edu/programs/bsen/programs/undergraduate/educational-objectives.html

The Biosystems Engineering program curriculum is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the Pre-Biosystems Engineering program.

Bioprocess Engineering Option

The focus of the Bioprocess Engineering option is to produce engineers that seamlessly combine engineering and natural sciences to designing and developing systems, processes and equipment that convert biological and agricultural materials to value-added products such as food, nutraceuticals, polymers and pharmaceuticals. Bioprocess engineers provide a bridge between the research lab and the economic, large-scale implementation of technologies used to convert these biological materials to value-added products. The bioprocess engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the Bioprocess Engineering option portion of the Pre-Biosystems Engineering program.

Ecological Engineering Option

The Department of Biosystems Engineering offers an option in Ecological Engineering as part of the Bachelor of Biosystems Engineering degree. This option prepares students to solve environmental problems by applying engineering knowledge to natural ecological and biological systems. Ecological engineering combines basic and applied science from engineering, ecology, economics, and natural sciences to design, construct, and manage sustainable ecosystems that have value to both humans and the natural environment. The ecological engineering option is coordinated by the Samuel Ginn College of Engineering. Students should apply for admission to the Samuel Ginn College of Engineering and complete the Ecological Engineering option portion of the Pre-Biosystems Engineering program.

Forest Engineering Option

The Department of Biosystems Engineering in conjunction with the Samuel Ginn College of Engineering and School of Forestry and Wildlife Sciences offers an option in Forest Engineering as part of the Bachelor of Biosystems Engineering degree. This option prepares students for productive professional careers in the forest products industry and related natural resource and environmental systems sector.

The Forest Engineering option is coordinated by the Samuel Ginn College of Engineering and the School of Forestry and Wildlife Sciences, and is administered by the Department of Biosystems Engineering. Students can become registered foresters upon completion of a minor in forest resources. Beginning students should apply to the Samuel Ginn College of Engineering and complete the Forest Engineering option portion of the Pre-Biosystems Engineering program. Students pursuing the Forest Engineering option must meet School of Forestry and Wildlife Sciences requirements for admission to the Forestry Summer Field Practicum.
Major

- Biosystems Engineering (p. 597)
- Biosystems Engineering (Bioprocess Engineering option) (p. 594)
- Biosystems Engineering (Ecological Engineering option) (p. 598)
- Biosystems Engineering (Forest Engineering option (p. 596))

Bio Ag Technology Management Courses

**BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3)**
LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

**BATM 2110 SOLVING TECHNOLOGY PROBLEMS (3)**
LEC. 2. LAB. 3. Pr. BATM 1110. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

**BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3)**
LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

**BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3)**
LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculture principles and technology.

**BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3)**
LEC. 3. Pr. MATH 1130 or MATH 1133. Fundamental requirements for the design and operation of agricultural production and processing facilities.

**BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2)**
LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

**BATM 4110 TECHNOLOGY CAPSTONE (3)**
LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

**BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3)**
LEC. 2. LAB. 3. Pr. BATM 2110. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

**BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3)**
LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

**BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3)**
LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

**BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3)**
LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

Biosystems Engineering Courses

**BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2)**
LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.
BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. ELEC 3810 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1130 or MATH 1133. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.

BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4240 BULK BIOLOGICAL SOLIDS BEHAVIOR AND PROCESSING (3) LEC. 2. LAB. 3. Pr. BIOL 1020 and (STAT 2510 or STAT 3010 or BSEN 3310). The course is designed to enable students to develop fundamental understanding of the properties of bulk biological solids and how these properties influence the behavior and processability of bulk solids.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. BSEN 3230 and ENGR 2070 or Departmental approval. This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.
BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 and BIOL 3200 and P/C BSEN 3230. Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and CHEM 1040. Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 5450 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 5510. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. CHEM 1040 and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1007) or PHYS 1500 or (PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.
BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 or CHEM 1041. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and use of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. This course introduces the concept of life cycle assessment (LCA) in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6450 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.

BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 7016 QUANTITATIVE AGRICULTURAL REMOTE SENSING (3) LEC. 3. Departmental approval. Theory and application of remote sensing to quantifying soil and vegetation characteristics, with emphasis on agriculture but also relevant to natural biosystems.

BSEN 7020/7026 SITE-SPECIFIC TECHNOLOGIES FOR AGRICULTURE AND FORESTRY SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Introduction to advanced concepts of off-highway vehicle equipment for use in agricultural and forestry production with emphasis on site-specific management (Precision Agriculture/Forestry). The course will overview new concepts and technologies for equipment usage and technologies applied for site-specific crop management.

BSEN 7050 SOIL DYNAMICS OF TILLAGE AND TRACTION (3) LEC. 3. Pr. CIVL 4300 and CSES 7590. Departmental approval. Analyses and measurements of soil reactions as affected by physical properties of soil when subjected to forces imposed by tillage implements and traction devices.

BSEN 7110/7116 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.
BSEN 7120 STOCHASTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. Pr. CIVL 3020. Departmental approval. Solving problems in biosystems engineering and related fields by modeling data with probability distributions, spatial statistics, autoregressive models, Monte-Carlo simulation, and reliability methods.

BSEN 7136 GIS APPLICATIONS IN PRECISION AGRICULTURE (1) LEC. 1. Departmental approval. Exploration of geographic information systems (GIS) and its applications in precision agriculture. Topics include file structure and formatting, interfacing with precision agriculture equipment, georeferencing maps, merging and clipping farm data, data field calculations, designing management zones, variable rate prescriptions, and basic data analysis.

BSEN 7216 BIOMASS TO RENEWABLE ENERGY PROCESSES (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2080 or CHEM 2087) or CHEM 5180 and BIOL 3200. Departmental approval. This will introduce fundamental principles and practical applications of biomass-to-renewable energy processes.

BSEN 7220 RENEWABLE ENERGY SYSTEMS DESIGN, ANALYSIS AND APPLICATIONS (3) LEC. 3. Understanding of the basic principles, applications, modeling, energetic and economic analysis of renewable energy resources namely solar, biomass, wind, hydropower and geothermal. Design of renewable energy systems.

BSEN 7240 BULK SOLIDS STORAGE, HANDLING AND TRANSPORTATION (3) LEC. 3. Sampling of particulate materials, bulk solids characterization, flow properties, particle and bulk solid flow, dynamics of fluid/solids systems, hydraulic and pneumatic conveyor design, storage bin and hopper design and geometry, safety issues.

BSEN 7260 ADVANCED UNIT OPERATIONS IN BIOSYSTEMS ENGINEERING (3) LEC. 2. LAB. 3. The course is an advance analysis of the unit operations used to process and enhance the value of biological materials.

BSEN 7280 FOOD THERMAL PROCESSING (3) LEC. 2. LAB. 3. Departmental approval. Insight of technologies and approaches used in food thermal processing for commercial purposes. Application of fundamentals of heat transfer, thermo-bacteriology, physical and chemical kinetics of food, and plant layout.

BSEN 7310 NONPOINT SOURCE POLLUTION (3) LEC. 3. Departmental approval. Non-point source (NPS) transport of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Basic concepts of pollutant transport through soils and with overland flow. Evaluation, management, and prevention of non-point pollution of surface and groundwater.

BSEN 7320 NON-POINT SOURCE POLLUTION MODELING (3) LEC. 3. Pr. BSEN 7310 or Departmental approval. Non-point source (NPS) modeling of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Underlying processes (climate, hydrology, nutrients and pesticides, erosion, channel), land cover/plants best management practices. Sensitivity and uncertainty analyses.

BSEN 7330 SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN (3) LEC. 3. Study of systems that incorporate plant uptake of nutrients and/or heavy metals for remediation of soil-based contaminants. Design applications of environmental remediation include constructed wetlands, drip irrigation of wastewater effluent, disposal of municipal sludge, and phyto-remediation of contaminants in shallow groundwater.

BSEN 7350 ENGINEERING ANALYSIS OF LAKES AND RESERVOIRS (3) LEC. 3. Departmental approval. Knowledge and understanding of the causes, impacts, and methods of restoring water quality impairments, with emphasis placed on impounded water bodies and perennial streams.

BSEN 7366 INTEGRATING AUTOCAD CIVIL3D & GIS (3) LEC. 3. Departmental approval. Accessing and importing GIS data into C3D. Exporting C3D objects to GIS for subsequent manipulation and display. Emphasis on applications in environmental engineering projects such as stream restoration and wetland design.


BSEN 7516 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7526 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.
BSEN 7536 DRAINMOD (3) LEC. 3. Pr. BSEN 3230. This course presents the principles of water movement and fate in shallow water table systems and application of the drainage water management model DRAINMOD to a wide variety of problems.

BSEN 7616 AGRICULTURAL WASTE MANAGEMENT (3) LEC. 3. This course covers principles of managing, handling, treating and applying animal and poultry manures and organic byproducts from an engineering perspective. Departmental approval

BSEN 7626 STORMWATER BMP DESIGN (3) LEC. 3. Pr. BSEN 3230. Departmental approval. This course is designed to introduce students to several innovative stormwater practices including stormwater wetlands, bioretention, green roofs, permeable pavement, cisterns, and others.

BSEN 7636 STREAM RESTORATION STRUCTURE RISK AND FAILURE ASSESS (1) LEC. 1. Pr. BSEN 3230. Departmental approval. Critical thinking about the use of various stream restoration structures and providing the tools needed to investigate further into failure analysis and risk assessment.

BSEN 7646 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. BSEN 3310. Departmental approval. Theory and application of hydraulics in open channels with an emphasis on natural systems (natural streams and rivers).

BSEN 7666 WETLANDS DESIGN AND RESTORATION (3) LEC. 3. Departmental approval. Fundamental understanding of hydrology, soils and ecology of natural wetland systems to serve as the basis of designing wetland systems for water treatment and restoring degraded natural wetlands.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Biosystems Engineering (Bioprocess Engineering Option) - BBSE

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<td>PHYS 1600 Engineering Physics I</td>
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<td>BSEN 2240 Biological and Bioenvironmental Heat and Mass Transfer</td>
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**Junior**

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<td>CHEM 2070 Organic Chemistry I</td>
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<td>BSEN 3610 Instrumentation and Controls for Biological Systems</td>
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<td>BSEN 4310 Engineering Design for Biosystems</td>
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<td>BSEN 5230 Waste Management and Utilization for Biosystems</td>
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<td>BSEN 4300 Professional Practice in Biosystems Engineering</td>
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<td>BSEN 5220 Geospatial Technologies in Biosystems</td>
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Total Hours: 126

1. The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization Course sequence to ensure that all SLOs are met by students by the time of graduation.

2. ECON 2020 preferred.
Approved list of Bioprocess Engineering electives.
- BSEN 4970: Metabolic Engineering for Bioprocess
- BSEN 5260: Renewable Energy Engineering in Biosystems
- BSEN 5220: Geospatial Tech for Biosystems
- BSEN 5450 Commercial Poultry and Livestock Housing
- CHEN 3660: Chemical Engineering Separations
- CHEN 3380: Phase and Reaction Equilibria
- MATL 5700 Biomaterials
- MATL 5720 Biomedical Applications of Polymers
- MATL 5750 Microstructure and Mechanics of Skeletal Tissues
- PFEN 3100 Fundamentals of Polymers
- PFEN 4200 Polymers from Renewable Resources
- INSY 3600: Engineering Economy

## Curriculum in Biosystem Engineering (Forest Engineering option)

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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### Sophomore

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<td>ENGR 2350 Dynamics</td>
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<td>STAT 3010 Statistics for Engineers and Scientists</td>
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<td>FORY 3050 Field Mensuration</td>
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<td>BSEN 2210 Engineering Methods for Biological Systems</td>
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<td>ENGR 2070 Mechanics of Materials</td>
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</table>
The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization Course sequence to ensure that all SLOs are met by students by the time of graduation.

ECON 2020 preferred.

Forest Engineering Elective: see adviser for approved course listing.

Curriculum in Biosystems Engineering

Freshman

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<thead>
<tr>
<th>Fall</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>MATH 1610 Calculus I</td>
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<td>HIST 1220 Technology And Civilization II or 1020 World History II</td>
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<tr>
<td>HIST 1210 Technology and Civilization I or 1010 World History I</td>
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<td>MATH 1620 Calculus II</td>
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<tr>
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16

16
## Curriculum in Biosystems Engineering (Ecological Engineering option)

### Sophomore

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<th>Fall</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology</td>
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<tr>
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<td>ENGR 2010 Thermodynamics</td>
<td>3</td>
<td>ENGR 2070 Mechanics of Materials</td>
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<td>ENGR 2350 Dynamics</td>
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<td>4</td>
<td>MATH 2650 Linear Differential Equations</td>
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<tr>
<td>BSEN 2210 Engineering Methods for Biological Systems</td>
<td>2</td>
<td>BSEN 2240 Biological and Bioenvironmental Heat and Mass Transfer</td>
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**Total Hours: 16**

### Junior

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<tbody>
<tr>
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<td>Social Science Core^{2}</td>
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<tr>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>STAT 3010 Statistics for Engineers and Scientists</td>
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</tr>
<tr>
<td>BSEN 3310 Hydraulic Transport in Biological Systems</td>
<td>4</td>
<td>BSEN 3230 Natural Resource Conservation Engineering</td>
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<tr>
<td>BIOL 3200 General Microbiology</td>
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<td>BSEN 3240 Process Engineering in Biosystems</td>
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<tr>
<td>BIOL 3201 General Microbiology Laboratory</td>
<td>1</td>
<td>BSEN 3610 Instrumentation and Controls for Biological Systems</td>
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**Total Hours: 15**

### Senior

<table>
<thead>
<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>BSEN 3210 Mechanical Power for Biosystems</td>
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<td>Literature Core^{1}</td>
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<td>BSEN 4210 Irrigation System Design</td>
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<td>Fine Arts Core</td>
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<td>BSEN 4300 Professional Practice in Biosystems Engineering</td>
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<td>BSEN 4310 Engineering Design for Biosystems</td>
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<tr>
<td>PHIL 1040 Business Ethics or 1020 Introduction to Ethics</td>
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<td>BSEN 5230 Waste Management and Utilization for Biosystems</td>
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<td>BSEN 5220 Geospatial Technologies in Biosystems</td>
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**Total Hours: 17**

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2. ECON 2020 preferred.

Biosystems Electives: see adviser for approved course listing.
## Freshman

### Fall
<table>
<thead>
<tr>
<th>Course</th>
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<td>PHYS 1600 Engineering Physics I</td>
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<tr>
<td>HIST 1210 Technology and Civilization I or HIST 1210 World History I</td>
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<td>ENGR 1110 Introduction to Engineering</td>
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<td>ENGR 1100 Engineering Orientation</td>
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<tr>
<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
<td>2</td>
<td>HIST 1220 Technology And Civilization II or HIST 1020 World History I</td>
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<td>ENGL 1100 English Composition I</td>
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<tr>
<td>MATH 1610 Calculus I</td>
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### Hours
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<th>Hours</th>
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### Spring
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## Sophomore

### Fall
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<tr>
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<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1030 Organismal Biology</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<td>BSEN 2240 Biological and Bioenvironmental Heat and Mass Transfer</td>
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### Hours
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### Spring
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## Junior

### Fall
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<td>CSES 2040 Basic Soil Science</td>
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<td>Social Science Core</td>
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<td>BSEN 3310 Hydraulic Transport in Biological Systems</td>
<td>4</td>
<td>CIVL 3230 Environmental Engineering</td>
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<td>BIOL 3200 General Microbiology</td>
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<td>STAT 3010 Statistics for Engineers and Scientists</td>
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<td>BIOL 3201 General Microbiology Laboratory</td>
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<td>BSEN 3230 Natural Resource Conservation Engineering</td>
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<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>BSEN 3610 Instrumentation and Controls for Biological Systems</td>
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### Hours
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### Spring
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## Senior

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<td>BSEN 4310 Engineering Design for Biosystems</td>
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<td>BSEN 5560 Site Design for Biosystems</td>
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<td>BSEN 5230 Waste Management and Utilization for Biosystems</td>
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<td>Ecological Engineering Elective</td>
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<td>BSEN 5520 Watershed Modeling</td>
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### Hours
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### Spring
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<th>Course</th>
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<th>Course</th>
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</table>
The University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Biosystems Engineering should complete the World History or Technology and Civilization Course to ensure that all SLOs are met by students by the time of graduation.

ECON 2020 preferred.

Biosystems Electives: see adviser for approved course listing.

Chemical Engineering

Chemical engineers contribute to society through the useful application of knowledge and understanding of chemistry, physics, biology, and mathematics. Chemical engineers traditionally have participated in many decisions crucial to the preservation and improvement of society, including energy, fuel, commodity chemical and food production, resource management, and the design of necessary pollution control measures. Emerging new areas such as biotechnology, space technology, nanofabrication technology, semiconductor devices and modern construction materials also utilize the unique capabilities of the chemical engineer. Many technologies to improve public health depend significantly on chemical engineering such as biomaterials, biomedical devices, medical diagnostics, the chemical design and synthesis of drugs, the genetic engineering of therapeutic materials, drug delivery systems and medical imaging technology. Finally, chemical engineering plays an essential role in important environmental technologies such as atmospheric chemistry, product life cycle analysis, bioremediation, environmental risk and impact analysis, environmental friendly manufacturing technology and products, separation and conversion technologies for waste reduction and the cleanup of contaminated sites.

The instructional mission of the department is to provide its chemical engineering graduates with the tools, skills and competencies necessary to understand and apply today's technologies and, through life-long learning, successfully develop and employ tomorrow's technologies.

The Program Educational Objectives and Student Outcomes can be found at the following URL:
http://www.eng.auburn.edu/chen/academics/undergraduate/educational-objectives-outcomes.html

Because of their broad training and education, chemical engineers contribute to society in many functions, such as pure research, development, environmental protection, process design, plant operation and manufacturing, marketing, sales, and corporate or government administration.

The program is specially designed to assure all students have demonstrated capabilities in the core chemical engineering topics including material and energy balances, thermodynamics, chemical equilibria, heat, mass and momentum transfer, chemical reaction engineering, continuous and stagewise separation operations, process dynamics, statistics and control. The design experience is interwoven throughout the curriculum from elementary design principles in material and energy balances to the capstone senior process design and process control sequence employing advanced computer process and control simulators and experimental control systems.

The curriculum is specifically designed to enable graduates to model and design chemical and physical processes, design and conduct experiments, analyze and interpret chemical engineering data, and to determine capital and operating costs for chemical and physical processes. The curriculum prepares graduates to understand the need for professional integrity and ethical decision making in the practice of chemical engineering as well as providing an understanding of contemporary issues including business practices, environmental, health, and safety and other public interests. Students are also prepared for graduate study in chemical engineering, medicine, business and law.

Because of the breadth of chemical engineering opportunities, the department offers a number of specially designed program specializations that provide unique training and course selection to those students who wish to concentrate in a particular area or technology. The current program specializations are biochemical engineering, biomedical engineering, computer-aided chemical engineering, environmental chemical engineering, pre-medicine specialization and pulp, paper and bio-resource engineering.

Biochemical Engineering Specialization

Chemical engineers trained in biochemical engineering and biotechnology are the key to successful commercialization of new biologically based processes ranging from high value pharmaceuticals to new food processes. This program specialization provides a
strong biology and chemistry fundamental background for graduate work in biochemical engineering and a plan of study to meet these objectives.

Students in this specialization take CHEN 5800 and Biochemical Engineering Technical Electives (9 hours). These courses replace Technical Electives I-IV.

**Biomedical Engineering Specialization**

This specialization provides the necessary preparation for students wanting to do graduate work in biomedical engineering or work in a career with an emphasis of medical applications of chemical engineering.

Students in this specialization take:

<table>
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<th>Course Name</th>
<th>Credits</th>
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<tbody>
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<td>Ethics and the Health Sciences</td>
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<tr>
<td>CHEN 5810</td>
<td>Biomedical Engineering</td>
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<tr>
<td>or CHEN 5970</td>
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Biomedical Engineering Technical Electives 9

In the table above CHEN 5970 is listed as Advanced Special Topics in Chemical Engineering, which is the generic title for CHEN 5970. Students in this specialization are required to take either CHEN 5810 Biomedical Engineering or CHEN 5970 with the specific title Cell & Tissue Engineering. These courses replace Technical Electives I-IV and PHIL 1040.

**Computer-Aided Chemical Engineering Specialization**

Chemical engineers with expertise in the application of advanced computer-aided tools in areas like process systems engineering, process control, and advanced process technology are highly sought after by all process industries. The program specialization provides appropriate courses for an individual with interests in advanced use of computers for solving chemical and biological engineering problems.

Students in this specialization take Computer-Aided Chemical Engineering Technical Electives (12 hours). These courses replace Technical Electives I-IV.

**Environmental Chemical Engineering Specialization**

The environmental specialization in chemical engineering prepares students for careers in the expanding environmental arena. Students specializing in this area learn about the chemical processes and reactions that affect the environment, pollution prevention, the latest standards for air, water and land quality, as well as, hazardous materials management. This specialization prepares students for environmental positions in a broad range of manufacturing and service industries all of which must comply with increasingly complex environmental standards, and in various state and federal agencies.

Students in this specialization take Environmental Chemical Engineering Technical Electives (12 hours). These courses replace Technical Electives I-IV.

**Pre-Medicine Specialization**

This specialization provides the necessary preparation for students wanting to go to medical school. A Pre-Med series of courses, when completed, provides a chemical engineering degree while simultaneously meeting medical school requirements.

Students in this specialization take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tr>
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<td>CHEM 2081</td>
<td>Organic Chemistry II Laboratory</td>
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<td>BCHE 5180</td>
<td>Biochemistry I</td>
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<td>CHEN 5810</td>
<td>Biomedical Engineering</td>
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<td>or CHEN 5970</td>
<td>Advanced Special Topics in Chemical Engineering</td>
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Pre-Medicine Technical Electives 5

In the table above CHEN 5970 is listed as Advanced Special Topics in Chemical Engineering, which is the generic title for CHEN 5970. Students in this specialization are required to take either CHEN 5810 Biomedical Engineering or CHEN 5970 with the specific title Cell & Tissue Engineering. These courses replace Technical Electives I-IV and PHIL 1040. Students in this program specialization who are interested in medical school must also work with the director for Pre-Health Professions in the College of Science and Mathematics.
Pulp, Paper and Bio-Resource Engineering Specialization

This specialization prepares students for challenging and rewarding careers in the pulp, paper and bio-resource industries. These industries are unique in being capable of sustainable development with a renewable raw material base, recyclable products, and processing technology able to achieve energy self-sufficiency and environmental compatibility. This specialization prepares students for a broad range of career paths in process engineering, product development, bio-technology and sustainable engineering.

Students in this specialization take:

- CHEM 2081 Organic Chemistry II Laboratory 1
- CHEN 3090 Pulp and Paper Technology 3
- CHEN 4100 Pulp and Paper Processing Laboratory 2
- CHEN 5110 Pulp and Paper Engineering 3
- CHEN 5800 Biochemical Engineering 3

These courses replace Technical Electives I-IV.

Major

- Chemical Engineering (p. 608)

Courses

- CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. (CHEM 1110 or CHEM 1117 or CHEM 1030) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710) and (P/C CHEM 1120 or P/C CHEM 1127 or P/C CHEM 1040) and (P/C MATH 1620 or MATH 1623 or P/C MATH 1627 or P/C MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Application of multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

- CHEN 2610 TRANSPORT I (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and CHEN 2100 and (P/C MATH 2630 or MATH 2637) and P/C ENGR 2010. CHEN 2100 requires a grade of C or better. Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

- CHEN 2650 CHEMICAL ENGINEERING APPLICATIONS OF MATHEMATICAL TECHNIQUES (3) LEC. 3. Pr. P/C CHEN 2100 and P/C MATH 2650 and CHEN 2610 and P/C CHEN 2650 and COMP 1200. CHEN 2100 requires a grade of C or better. CHEN 2610 and MATH 2650 are Prerequisites with Concurrency. COMP 1200 should be the Matlab section. Application of a broad range of mathematical techniques to chemical engineering problems. Emphasis on engineering significance and interpretation of mathematical operations.

- CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. P/C CHEN 2100. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances).

- CHEN 3090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1100 or CHEM 1117) and ENGR 2010. An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

- CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and ENGR 2010 and CHEN 2100 and P/C CHEN 3600. Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications. (ENGR 2010 and CHEN 2100 require a grade of C or better).

- CHEN 3410 CREATIVITY AND CRITICAL THINKING IN ENGINEERING (3) LEC. 3. Application of creativity and critical thinking principles to effectively approach solving engineering problems. Convincing presentation of information to technical audiences.

- CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. COMP 1200 and MATH 2650 and CHEN 2610 and P/C CHEN 2650. CHEN 2650 is prerequisite with concurrency. General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis. (CHEN 2610 requires a grade of C or better).
CHEN 3620 TRANSPORT II (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and ENGR 2010 and CHEN 2610 and P/C CHEN 3600. Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification. (ENGR 2010 and CHEN 2610 require a grade of C or better).

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2. LAB. 3. Pr. CHEN 2650 and CHEN 3600 and CHEN 3620 and CHEN 2AA0. CHEN 2650, CHEN 3600 and CHEN 3620 all require a grade of C or better. Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3. Pr. CHEN 3370 and CHEN 3620. Separations processes including distillation, extraction, membrane separation, and other separation operations. (CHEN 3370 and CHEN 3620 require a grade of C or better).

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. MATH 2650 and CHEN 2610 and ENGR 2010 and P/C CHEN 3620. Design of chemical reactors with homogeneous reaction systems. (CHEN 2610 and ENGR 2010 require a grade of C or better).

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1. LAB. 3. Pr. CHEN 3600 and CHEN 3620. Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis.

CHEN 3A00 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. CHEN 2AA0 and P/C CHEN 3370 and P/C CHEN 3650 and P/C CHEN 3660. Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LAB. 6. Pr. CHEN 2610 and CHEN 3090 and CHEN 3820 or Departmental approval. Experimental study of pulping and papermaking operations. Departmental approval.

CHEN 4160 PROCESS DYNAMICS AND CONTROL (3) LEC. 2. LAB. 3. Pr. CHEN 3600 and (CHEN 3650 or CHEN 3653). Dynamic modeling of chemical processes, feedback systems and analog controller tuning and design, sequential control systems. (CHEN 3600 and CHEN 3650 require a grade of C or better).

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 3. Pr. CHEN 3650 or CHEN 3653. Introduction of basic concepts and principles for control system. Analysis of open loop and closed-loop processes using transfer functions.

CHEN 4180 ADVANCED DIGITAL PROCESS CONTROL (3) LEC. 2. LAB. 3. Pr. CHEN 4170. Application of sequential, closed loop and open loop process control principles to actual industrial and experimental control laboratory process. (CHEN 4170 requires a grade of C or better).

CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700. Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, chemical engineering principles for risk reduction. (CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3655 or CHEM 2080) and CHEN 3650 and CHEN 3660 and CHEN 3700. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes. (CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4460. Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course.

CHEN 4560 PULP AND PAPER PROCESS SIMULATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3090 and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700 and P/C CHEN 4100 and P/C CHEN 5110. Fundamentals of microcomputer process simulation with applications to the pulp and paper industry. Design of pulp and paper unit operations and small scale processes using commercial simulation software. (CHEN 3090, CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).
CHEN 4570 PULP AND PAPER PROCESS DESIGN (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4560. Application of process simulation and process economics to complex, open-ended design, retrofitting and operation problems in pulp and paper. Design of pulp and paper unit operations and processes. Screening of alternatives and economic optimization.

CHEN 4630 INTRODUCTION TO TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 3620 and (CHEN 3650 or CHEN 3653). Application of chemical engineering analysis to momentum, heat and mass transport problems for advanced undergraduate students preparing for graduate school. (CHEN 3620 and CHEN 3650 require a grade of C or better).

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1. LAB. 3. Pr. CHEN 3660 and CHEN 3820 and P/C CHEN 3700. Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis of data.

CHEN 4880 PULP AND PAPER ENGINEERING LABORATORY (3) LAB. 9. Pr. CHEN 4100 and CHEN 5110. Comprehensive open-ended projects on pulp and paper topics.

CHEN 4930 DIRECTED STUDIES (1) LEC. 1. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during preregistration. Project report.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) AAB. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr. 3.00 GPA. Departmental approval. GPA of 3.0 or higher. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3. Pr. CHEN 3090 and CHEN 3620 and CHEN 3700 and P/C CHEN 4450. Chemical and engineering principles in the manufacturing of pulp and paper. (CHEN 3090, CHEN 3620, and CHEN 3700 require a grade of C or better).

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Pr. CHEN 3620 and CHEN 4100. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits. (CHEN 3620 and CHEN 4100 require a grade of C or better).

CHEN 5400 MOLECULAR ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and P/C CHEN 3700. Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications. (CHEN 3370 requires a grade of C or better).

CHEN 5410 MACROMOLEULAR SCIENCE AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3700 and P/C CHEN 3700. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers. (CHEN 3700 requires a grade of C or better).

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and CHEN 3370 and CHEN 5410. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing. (CHEN 3620 and CHEN 5410 require a grade of C or better).

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Pr., Departmental Approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 5440 ELECTROCHEMICAL ENGINEERING (3) LEC. 3. Pr. CHEN 3370 and CHEN 3620 and CHEN 3700. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion. (CHEN 3370, CHEN 3620, and CHEN 3700 require a grade of C or better).
CHEN 5650 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2080 or CHEM 2087) and (CHEN 3820 or CIVL 5210). Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering principles for risk education.

CHEN 5660 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Departmental approval. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials.

CHEN 5670 POLLUTION PREVENTION ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and CHEN 3660 and CHEN 3700. Chemical and engineering principles applied to pollution prevention. Theory and practice of basic separation methods, reaction engineering, process controls, and other fundamental chemical engineering disciplines as well as regulatory requirements to prevent unnecessary waste generation. Case studies. (CHEN 3370, CHEN 3620, CHEN 3660, and CHEN 3700 require a grade of C or better).

CHEN 5700 ADVANCED SEPARATION PROCESSES (3) LEC. 3. Pr. CHEN 3370 and CHEN 3660. Advanced treatment of modern chemical engineering separation processes. Theory and practice of staged multi-component mass transfer operations, non-ideal multi-phase separations and continuous rate processes. (CHEN 3370 and CHEN 3660 require a grade of C or better).

CHEN 5800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Pr. CHEN 3700. Bioreactor design. Analysis of enzyme and microbial processes. (CHEN 3700 requires a grade of C or better).

CHEN 5810 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3620 and CHEN 3700. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer. (CHEN 3620 and CHEN 3700 require a grade of C or better).

CHEN 5820 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3. Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 5970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 6090/6096 PULP AND PAPER TECHNOLOGY (3) LEC. 3. An introductory graduate level course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background, CHEN Department Approval and Alabama Center for Paper and Bioresources Engineering Director approval.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3. Chemical and engineering principles in the manufacturing of pulp and paper.

CHEN 6120/6126 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits.

CHEN 6400/6406 MOLECULAR ENGINEERING (3) LEC. 3. Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications.

CHEN 6410/6416 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reptation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.

CHEN 6420/6426 POLYMER CHEMICAL ENGINEERING (3) LEC. 3. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing.

CHEN 6430/6436 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Departmental approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.
CHEN 6440/6446 ELECTROCHEMICAL ENGINEERING (3) LEC. 3. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion.

CHEN 6650/6656 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3. Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering, principles for risk education.

CHEN 6660/6666 MACROSacle ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials. Or departmental approval. May count either CHEN 6660 or CHEN 6666.


CHEN 6810/6816 BIOMEDICAL ENGINEERING (3) LEC. 3. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy, and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 6820/6826 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 6970/6976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 7020/7026 INTERFACIAL PHENOMENA (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Fundamental analyses of interfacial phenomena at liquid/gas, liquid/liquid and solid/liquid interfaces.


CHEN 7110/7116 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106. Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7120/7126 ADVANCED TOPICS IN PAPER PROCESSING OPERATIONS (3) LEC. 3. Pr. CHEN 6120 or CHEN 6126. Surface and colloidal interactions in the wet end of paper manufacturing. Colloidal stability theory, absorption of macromolecules, flocculation and retention of particles. Wet-end chemistry process control.

CHEN 7130/7136 ADVANCED PULP AND PAPER ENGINEERING (3) LEC. 3. Topics in pulping, chemical recovery and papermaking.


CHEN 7250/7256 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. P/C CHEN 7100 or P/C CHEN 7106. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.

CHEN 7600/7606 ENVIRONMENTAL TRANSPORT (3) LEC. 3. Pr. (CHEN 7100 or CHEN 7106) and (CHEN 7200 or CHEN 7206) and (P/C CHEN 7110 or P/C CHEN 7116). Environmental chemodynamics, interphase equilibrium, reactions, boundary layers, transport mechanisms and models or movement of substances across natural interfaces (air-water-sediment-soil).

CHEN 7710 INTRODUCTION TO RESEARCH SEMINAR (1) LEC. 1. SU. Pr. P/C CHEN 7100 or P/C CHEN 7106. Introductory graduate research seminars for entering graduate students.
CHEN 7720 ADVANCED PROCESS DESIGN SEMINAR (1) LEC. 1. Pr. (P/C CHEN 7100 or P/C CHEN 7106) and (P/C CHEN 7200 or P/C CHEN 7206). Fundamentals of advanced process design including process synthesis, simulation, analysis, optimization and integration. Systematic process synthesis tools for screening potential flow sheets.

CHEN 7900/7906 INDEPENDENT STUDY (1-10) IND. SU. Departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970/7976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) IND. Departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 12 credit hours.

CHEN 7990 RESEARCH AND THESIS (1-20) MST. Credit hours to be arranged. Course may be repeated with change in topics.

CHEN 8000/8006 GRADUATE CHEMICAL ENGINEERING ANALYSIS (2) LEC. 2. Pr. CHEN 7100 or CHEN 7106. Applications of advanced numerical methods to the analysis of complex chemical engineering problems.

CHEN 8010 ADVANCED CHEMICAL ENGINEERING NUMERICAL ANALYSIS (2) LEC. 2. Pr. CHEN 7100 or CHEN 7106. Advanced numerical methods for the analysis of chemical engineering problems. Computer applications.

CHEN 8020 ADVANCED TOPICS IN THE CHARACTERIZATION OF SURFACE PROPERTIES OF MATERIALS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Nature of surface and intermolecular forces. Surface chemical characterization of solid surfaces. Adhesion and the role of chemical, physical and mechanical properties of solid surfaces. Modern characterization techniques including scanning probe microscopy, thermodynamic and spectroscopic methods.

CHEN 8100 ADVANCED TOPICS IN CHEMICAL ENGINEERING PROCESSES (3) LEC. 3. Pr. CHEN 7110 or CHEN 7116. Advanced concepts in fluid dynamics with special emphasis on applications to chemical engineering, creeping flow, multiphase instabilities, computational fluid mechanics and turbulence.

CHEN 8110 ADVANCED TOPICS IN HEAT AND MASS TRANSFER (3) LEC. 3. Pr. CHEN 7110 or CHEN 7116. Application of transport operations to chemical engineering problems containing physical and chemical rate processes. Chemically reacting boundary layers, heat and mass transfer, eddy diffusion, phase change and separation processes.

CHEN 8210 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Application of advanced thermodynamics to complex chemical engineering problems including advanced models for electrolyte solutions, critical and supercritical phenomena, high pressure equilibrium, non-equilibrium and surface thermodynamics and molecular modeling.

CHEN 8220 POLYMER THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Fundamentals and applications of macromolecular thermodynamics to industrial polymer problems.

CHEN 8230 CHEMICAL ENGINEERING STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Applications of molecular theory and models to the properties of non-ideal gases and liquids using advanced statistical mechanics and chemical thermodynamics.

CHEN 8270 HETEROGENEOUS CATALYSIS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Advanced concepts, techniques, applications and principles for the use of heterogeneous catalysts in chemical and environmental processes. Departmental approval.

CHEN 8280 SURFACE CHARACTERIZATION/SOLIDS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Advanced concepts and techniques in the physical and chemical characterization of solid surfaces by microscopic, spectroscopic and chemical methods including various photon and/or electron spectroscopies, thermal desorption.

CHEN 8300 PROCESS DYNAMICS AND CONTROL (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106 and (P/C CHEN 7110 or P/C CHEN 7116). Advanced linear and nonlinear chemical process dynamics and control systems.

CHEN 8310 PROCESS DYNAMICS AND CONTROL II (2) LEC. 2. Advanced chemical process dynamics and control.

CHEN 8320 ADVANCED TOPICS IN CHEMICAL PROCESS COMPUTER CONTROL SYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEN 7100 or CHEN 7106. Analysis and design of advanced digital control systems for chemical processes. Introduction to computer communications through dynamic data exchange and peripheral linkage. Experimental application of advanced digital control algorithms to chemical processes.
**CHEN 8340/8346 PROCESS MODELING AND SIMULATION (3)** LEC. 2. LAB. 3. Advances in computer-aided process synthesis, simulation, analysis and optimization including systematic process integration tools for developing and screening potential flow sheets using advanced process simulators.

**CHEN 8990 RESEARCH AND DISSERTATION (1-20)** DSR. Credit hours to be arranged. Course may be repeated with change in topics.

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## Curriculum in Chemical Engineering

### Freshman

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<td>CHEM 1120 General Chemistry for Scientists and Engineers II</td>
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<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
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### Sophomore

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### Junior

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<td>PHIL 1040 Business Ethics</td>
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¹ Core Social Science: One course from the following: American Studies, Comparative Literature, Economics, English, History, Modern Languages, Philosophy, Political Science, Sociology, or Women's Studies.

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**Curriculum in Chemical Engineering**
### Civil Engineering

Civil engineers conceive, plan, design, construct, operate, and maintain the civil infrastructure systems that meet societal needs in our practical world. The Auburn University Department of Civil Engineering seeks to prepare graduates who value honesty, hard work, and sustainability, and—after the first few years of their professional career—have

- Functioned as efficient, reliable team members in the evaluation, planning and design, construction, or operation and maintenance of civil infrastructure systems,
- Demonstrated their belief in lifelong education by expanding their body of knowledge, maturing professionally, and progressing toward licensure as professional engineers,
- Assumed leadership roles in their workplace by exercising initiative and responsible stewardship, and
- Employed the human touch in engaged involvement in their professions and communities.

The first two years of the undergraduate program focus on basic principles, which are then applied in the last two years in required and elective courses in these civil engineering specialty areas:

- Construction Engineering and Management
- Environmental Engineering
- Geotechnical Engineering
- Hydraulic and Hydrological Engineering
- Pavements and Materials Engineering
- Structural Engineering
- Transportation Engineering

Engineering science and design are integrated throughout, with a gradual shift in emphasis from introduction of fundamental concepts, principles, and tools to analysis and design in increasingly realistic situations. The curriculum culminates in the capstone senior design experience. Bachelor of Civil Engineering graduates are prepared for a variety of entry-level civil engineering positions or graduate/professional schools.

### Major

- Civil Engineering (p. 618)
Courses

CIVL 2010 SURVEYING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and COMP 1200. Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

CIVL 3010 CIVIL ENGINEERING ANALYSIS (4) LEC. 3. LAB. 3. Pr. MATH 2650 and COMP 1200 and (ENGR 2050 or ENGR 2053). Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized techniques and civil engineering software.

CIVL 3110 HYDRAULICS (4) LEC. 3. LAB. 3. Pr. (ENGR 2010 or ENGR 2200) and MATH 2650 and P/C ENGR 2350 and P/C CIVL 3010. Pr. ENGR 2010 is only allowed for students who transfer into Civil Engineering. Students already enrolled in Civil Engineering should take ENGR 2200. Introduction to fluid mechanics, fluid properties, hydrostatics, kinematics, dynamics, energy equation, ideal flow and energy losses. Applications of fluid mechanics, pipe flow, fluid measurements, pumps, open channel flow, dimensional analysis and theory of modeling.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and BIOL 3200. Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be given to students majoring in Civil Engineering.

CIVL 3230 ENVIRONMENTAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and (ENGR 2200 and P/C CIVL 3010) or P/C BSEN 3310. Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and ENGR 2070. Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geosynthetics.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3. Pr., Junior standing. Basic concepts of the construction industry, contractual methods, estimating and scheduling.

CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4. Pr. CIVL 2010. Introduction to transportation engineering practice with emphasis on highway facility design, traffic operations, and life-cycle costing.


CIVL 3820 CIVIL ENGINEERING MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3310. Introduction to common materials used in construction of civil facilities including highways; aggregate, concrete, asphalt, and steel.

CIVL 4210 WATER AND WASTEWATER TREATMENT AND DESIGN (3) LEC. 3. Pr. CIVL 3230. Departmental approval. The fundamentals of theory, design, and operation of water and wastewater treatment systems are covered.

CIVL 4211 WATER AND WASTEWATER LABORATORY (1) LAB. 3. Pr. CHEM 1040 and BIOL 3200. Coreq. CIVL 4210. Introduction to analytical techniques used to assess water quality. Credit will not be given to students majoring in Civil Engineering.

CIVL 4220 ENVIRONMENTAL ENGINEERING DESIGN (3) LEC. 3. Pr. CIVL 4210 or CIVL 4230. Process design of environmental engineering systems.

CIVL 4230 URBAN HYDRAULIC SYSTEM DESIGN (3) LEC. 3. Pr. CIVL 3230 and CIVL 3110. Engineering approaches to designing and managing urban water supply, sanitary sewer, storm water collection systems and flood control works.

CIVL 4310 GEOTECHNICAL ENGINEERING II (3) LEC. 3. Pr. CIVL 3310. Analysis and design in geotechnical engineering based on principles of soil mechanics and soil behavior. Problems of slope stability, earth pressure and design of earth retaining structures, foundation bearing capacity and settlement.

CIVL 4420 PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Planning and management of construction/engineering projects and organizations, project management techniques, skills, and applications.

CIVL 4490 DESIGN-BUILD PROJECT (3) LEC. 3. Pr. CIVL 4420. Develop a design-build proposal for a civil engineering improvement including engineering study, consideration of alternative designs, and formal written and oral presentation.
CIVL 4500 TRAFFIC ENGINEERING FUNDAMENTALS (3) LEC. 3. Pr. CIVL 3510. The fundamental elements of traffic engineering including traffic operations and traffic control devices.

CIVL 4520 AIRPORT DESIGN (3) LEC. 3. Pr. CIVL 3510. Departmental approval. An analysis of the elements affecting the design of airports including forecasting, runway configuration, capacity analyses, geometric design of runways and taxiways, pavement design and airfield drainage.

CIVL 4530 GEOMETRIC DESIGN (3) LEC. 3. Pr. CIVL 3510. An analysis of the elements affecting the location and design of rural highways, urban highways and arterial streets including design controls and criteria.

CIVL 4590 TRANSPORTATION DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4530. Individual senior design project requiring the development of plans for a roadway over a large land segment: horizontal and vertical curves in accord with State and AASHTO standards; topographic terrain features; historical preservation area; minimum elevation; intersection design; earthwork balance.

CIVL 4600 REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 3610. Concrete and reinforcing steel properties; analysis and design of reinforced concrete beams, one-way slabs, columns and footings; anchorage of reinforcement.


CIVL 4690 STRUCTURAL DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4600. Execution of a comprehensive design of a major structure. Emphasis on the design process, creative thinking, analysis, synthesis, teamwork and communications.

CIVL 4960 SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Individual student endeavor under staff supervision involving advanced special problems in civil engineering. Course may be repeated for a maximum of 6 credit hours.

CIVL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

CIVL 5110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/ CIVL 6116.

CIVL 5120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3010. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications. Departmental approval. May count either CIVL 5120 or CIVL 6120.

CIVL 5130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 5150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. Credit will not be given for both CIVL 5150 and CIVL 6150/CIVL 6156.

CIVL 5210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 5220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3. Pr. CIVL 3230. Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. Departmental approval. Credit will not be given for both CIVL 5220 and CIVL 6220.

CIVL 5230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 5240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling, theory and design of control devices; legal/ administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.
CIVL 5250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 5260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 5330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 5340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 5350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 5410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.


CIVL 5430 CONSTRUCTION SAFETY AND HEALTH MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies for preventing worksite injuries and illness are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 5440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410 and CIVL 3310 and CIVL 3510. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 5450 EROSION & SDIMENT CONTROL (3) LEC. 3. Pr. CIVL 3310 and CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 5460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 5480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 5500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 5510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 5560 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Departmental approval. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior; development and evaluation of alternate plans; multimodal applications, including railway operations.
CIVL 5580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Introduction to intelligent transportation systems, covering applications of information and communication technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Credit will not be given for both CIVL 5580 and CIVL 6580/CIVL 6586.

CIVL 5600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 5620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable lay-out, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 5630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials; chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 5640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 5650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.


CIVL 5690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 5700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 5710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 5820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820 or CIVL 6820.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 6110/6116 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 6120/6126 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3110. Departmental approval. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications.
CIVL 6130 HYDRAULIC DESIGN (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 6150/6156 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy’s law, confined and unconfined flow, steady and transient flow, groundwater transport. May count either CIVL 5150 or CIVL 6150/CIVL 6156.

CIVL 6210/6216 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 6220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3. Pr. CIVL 3230. Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. Departmental approval. May count either CIVL 5220 or CIVL 6220.

CIVL 6230/6236 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 6240/6246 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 6250/6256 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 6260/6266 SURFACE WATER QUALITY MODELING (3) LEC. 3. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.

CIVL 6330/6336 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 6340/6346 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 6350/6356 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.


CIVL 6430/6436 CONSTRUCTION SAFETY (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 6440/6446 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410 and CIVL 3310 and CIVL 3510. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.
CIVL 6450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3310 and CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 6480/6486 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 6500/6506 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 6510/6516 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 6560/6566 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Departmental approval. May count either CIVL 5560.

CIVL 6580/6586 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Departmental approval. May count either CIVL 5580 or CIVL 6580/CIVL 6586.

CIVL 6600/6606 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 6620/6626 PRE-STRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 6630/6636 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 6640/6646 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 6650/6656 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.


CIVL 6690/6696 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 6700/6706 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.
CIVL 6710/6716 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 6810/6816 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 6820/6826 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820, CIVL 6820 or CIVL 6826.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Departmental approval. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.


CIVL 7140/7146 ECOCYDROLOGY (3) LEC. 3. Pr. P/C CIVL 6120 or P/C CIVL 6126 or P/C GEOL 6100 or P/C FORY 7550. This course covers current theory, methods, and issues in ecohydrology. Topics include the soil-plant-atmosphere continuum; stochastic modeling of soil moisture; vadose zone hydrology; theory, measurement, and modeling of evapotranspiration; ecological competition in water-limited systems; and current issues and research topics.

CIVL 7170/7176 NUMERICAL METHODS IN HYdraulics AND HYDROLOGY (3) LEC. 3. Pr. CIVL 3230. Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7210/7216 METHODS OF POLLUTANT ANALYSIS IN ENVIRONMENTAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. CIVL 6210 or CIVL 6216. Fundamentals of identifying and quantifying environmental pollutants: review of pollutant chemistry, quality and quantity of pollutants, statistical basis of sampling, environmental sampling techniques, analytical techniques, and data analysis.


CIVL 7230/7236 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7240/7246 WATER AND WASTEWATER OPERATIONS AND PROCESSES III (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Design and analysis of unit operations and processes used in modern water and wastewater treatment systems are rigorously examined: adsorption, ion exchange, membrane filtration, reverse osmosis, gas transfer, corrosion, and treatment residuals processing.


CIVL 7260/7266 ENVIRONMENTAL NUTRIENT CONTROL PROCESSES (3) LEC. 3. Pr. CIVL 7250 or CIVL 7256. The nature, sources, and impacts of aquatic nutrients in the environment: microbial nutrient cycles, biological nutrient removal processes, chemical nutrient control processes, natural systems for nutrient removal.


CIVL 7280/7286 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Physical, chemical, biological and hydrological considerations relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation.
CIVL 7310/7316 FOUNDATION ENGINEERING (3) LEC. 3. Pr. CIVL 3310 and CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330/7336 SOIL PROPERTIES (3) LEC. 3. Pr. CIVL 3310. Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.

CIVL 7340/7346 SOIL DYNAMICS (3) LEC. 3. Pr. CIVL 3310. Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.


CIVL 7390/7396 IN SITU TESTING OF SOILS (3) LEC. 3. Pr. CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7410/7416 TEMPORARY STRUCTURES AND FACILITIES (3) LEC. 3. Pr. STAT 3010 and CIVL 3310 and CIVL 3610. Construction loads, applicable codes and standards, and design principles for temporary structures; planning and implementation of construction facilities; economic analysis of alternatives.

CIVL 7500/7506 TRAFFIC FLOW THEORY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Basic phenomena underlying traffic stream movement and individual vehicle behavior. Topics include flow parameters and relationships; microscopic and macroscopic flow models; equations of motion and state; single and multi-regime flow models.

CIVL 7520/7526 PUBLIC TRANSPORTATION (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Technology and characteristics of public transportation; transportation demand analysis; transit users; innovative technologies.

CIVL 7540/7546 TRANSPORTATION SAFETY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Transportation safety problems and the engineer's role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs.

CIVL 7550/7556 ROADSIDE DESIGN (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Concepts of roadside design that can prevent or reduce crash severity. Topics include design, selection, placement and construction of longitudinal barriers, crash cushions, bridge rails, transitions, end terminals, sign posts, and other roadside features.


CIVL 7620/7626 STRUCTURAL DYNAMICS II (3) LEC. 3. Pr. CIVL 7610 or CIVL 7616. Analysis of MDOF systems by direct numerical integration, continuous systems, nonlinear dynamics response, earthquake response of structures.

CIVL 7630/7636 ADVANCED STRESS ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Hooke's 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr's circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640/7646 STABILITY OF STRUCTURES (3) LEC. 3. Coreq. CIVL 6670. Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7650/7656 ADVANCED ANALYSIS OF FRAMED STRUCTURES (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Matrix analysis of framed structures, elastic supports, specified displacements, member end releases, principle of minimum potential energy, geometric non-linearity, frame stability, substructures.

CIVL 7660/7666 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigenvalue problems.

CIVL 7670/7676 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3. Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680/7686 FATIGUE AND FRACTURE MECHANICS (3) LEC. 3. Pr. CIVL 4650. Departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.
CIVL 7690/7696 ANALYSIS OF PLATE AND SHELL SYSTEMS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Analysis of isotropic and anisotropic plates with various shapes and boundary conditions due to lateral and in-plane loads; large deflection considerations; numerical techniques; bending and membrane behavior of isotropic shells.

CIVL 7710/7716 APPLIED ELASTICITY (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Analysis of stress-strain; generalized stress-strain relationships; solution of elasticity problem by potentials; thick cylinders, disks and spheres; energy principles and introduction of variational methods.

CIVL 7720/7726 EARTHQUAKE ENGINEERING (3) LEC. 3. Pr. (CIVL 7610 or CIVL 7616) and (CIVL 5670 or CIVL 6670 or CIVL 6676). Principles of earthquakes and earthquake engineering; Analysis and design of steel and reinforced concrete buildings for earthquakes. May count either CIVL 7720 or CIVL 7726.

CIVL 7770/7776 VARIATIONAL METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Calculus of variations; derivation of Euler's equations and boundary conditions; applications of energy principles to structures; variational approaches to finite element methods.

CIVL 7810/7816 ADVANCED CONSTRUCTION MATERIALS (4) LEC. 3. LAB. 3. Pr. CIVL 6810 or CIVL 6816. Departmental approval. Evaluate soils, unbound and stabilized materials, hot mix asphalt, and cement concrete products; stress-strain relationships; thermal expansion; design and testing of non-traditional construction products.

CIVL 7820/7826 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3. Pr. CIVL 7810 or CIVL 7816. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7830 ASPHALT CONCRETE MIX DESIGN (3) LEC. 2. LAB. 3. Marshall and Superpave mix design methods and QC/QA for asphalt concrete are covered. Topics include aggregate, asphalt and mix properties, laboratory testing and proportion optimization.

CIVL 7840/7846 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3. Pr. CIVL 3820. Departmental approval. Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices.

CIVL 7860/7866 PAVEMENT CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820. Operation, quality control and specifications of component construction processes for asphalt and concrete paving; and overview of major rehabilitation strategies.

CIVL 7870 ADVANCED CHARACTERIZATION OF PAVEMENT MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3820. This course introduces theories and procedures for determining fundamental properties of asphalt materials for advanced material evaluation and pavement design.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970/7976 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) LEC. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours.

CIVL 7980/7986 ENGINEERING PROJECT (1-10) LEC. Departmental approval. Directed study on an engineering project or research supervised by an individual graduate faculty member. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Credit to be arranged. Course may be repeated with change in topics.

Curriculum in Civil Engineering

Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>PHYS 1600 Engineering Physics I</td>
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<td>PHYS 1610 Engineering Physics II</td>
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Auburn University

MATH 1610 Calculus I 4  MATH 1620 Calculus II 4  
ENGR 1100 Engineering Orientation 0  ENGR 1110 Introduction to Engineering 2  
COMP 1200 Introduction to Computing for Engineers and Scientists 2  STAT 3010 Statistics for Engineers and Scientists 3  
Core History\(^1\) 3  

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<tr>
<th></th>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>CHEM 1040 Fundamental Chemistry II 3</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>ENGR 2070 Mechanics of Materials 3</td>
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<tr>
<td>Core Literature I</td>
<td>3</td>
<td>ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer 3</td>
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<td>ENGR 2050 Statics</td>
<td>3</td>
<td>ENGR 2350 Dynamics 3</td>
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<td>MATH 2630 Calculus III</td>
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<td>MATH 2650 Linear Differential Equations 3</td>
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<tr>
<td>CIVL 2010 Surveying</td>
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<td>POLI 1090 American Government in Multicultural World 3</td>
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2016 2016

Junior

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<tr>
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<tr>
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<td>CIVL 3110 Hydraulics 4</td>
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<tr>
<td>CIVL 3310 Geotechnical Engineering I</td>
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<td>CIVL 3230 Environmental Engineering 4</td>
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<tr>
<td>CIVL 3410 Construction Engineering</td>
<td>3</td>
<td>CIVL 3510 Transportation Engineering 4</td>
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<tr>
<td>CIVL 3610 Structural Analysis</td>
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<td>CIVL 3820 Civil Engineering Materials 3</td>
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2017 2018

Senior

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<td>Core Fine Arts 3</td>
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<td>Science Elective(^2)</td>
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16 15

Total Hours: 128

\(^1\) The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline-specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

\(^2\) Science electives, technical electives, the science elective, and the senior design project must be selected from lists of approved courses available from the Department of Civil Engineering. Each student must take a specialty elective in at least three of the seven specialty areas: construction, environmental, geotechnical, hydraulic, pavements and materials, structural, and transportation engineering.
Computer Science and Software Engineering

Software Engineering

The focus of the software engineering curriculum, which leads to the bachelor of software engineering, is on the analysis, design, verification, validation, construction, application, and maintenance of software systems. The degree program prepares students for professional careers and graduate study with a balance of computer science theory and practical application of software engineering methodology using modern software engineering environments and tools. The curriculum is based on a strong core of topics including software modeling and design, construction, process and quality assurance, intelligent and interactive systems, networks, operating systems, and computer architecture. The curriculum also enriches each student’s general education with a range of courses from science, mathematics, the humanities and the social sciences. Through advanced elective courses, the curriculum allows students to specialize in core areas of computer science and software engineering. Engineering design theory and methodology, as they apply to software systems, form an integral part of the curriculum, beginning with the first course in computing and culminating with a comprehensive senior design project, which gives students the opportunity to work in one or more significant application domains. The curriculum also emphasizes oral and written communication skills, the importance of ethical behavior, and the need for continual, lifelong learning. The overall educational objectives of the Software Engineering program are for graduates of the program to attain success in their chosen profession and/or post-undergraduate studies.

The undergraduate Software Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. (http://www.abet.org.)

Computer Science

The computer science curriculum, which leads to the bachelor of science in computer science degree, provides an excellent preparation for students seeking careers as software professionals and in computing-related fields, as well for those planning to pursue graduate study. The curriculum builds on a strong foundation in science, mathematics, social sciences, humanities and computer science with advanced course work in theoretical computer science, human-computer interaction, and net-centric computing. Course work ensures that students receive hands-on exposure to a variety of computer systems, tools and techniques. Elective courses allow students to specialize in core areas of computer science such as networking, database systems, and artificial intelligence. In addition, students select a concentration of 9 semester credit hours outside computer science (e.g., business, mathematics, physics, etc.). This concentration enriches students’ educational experience and adds breadth of knowledge by providing an opportunity to explore a second field of study to which computer science can be applied. The curriculum also emphasizes oral and written communication skills, the importance of ethical behavior, and the need for continual, lifelong learning. The overall educational objectives of the Computer Science program are for graduates of the program to attain success in their chosen profession and/or post-undergraduate studies.

The undergraduate Computer Science program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org. (http://www.abet.org.)

Computer Science (online)

The Bachelor of Computer Science (CPSC) program prepares students for careers as software professionals and in computing-related fields via an entirely online distance-education-based curriculum. The curriculum builds on a foundation of science, mathematics, social science, and humanities. It provides basic coursework in computer software development and theoretical foundations of computer science. This is followed by advanced coursework in computer systems, software engineering, and applications development, including web software design, database, and mobile applications development (such as smartphone and tablet software). The curriculum is rounded out by advanced electives in areas such as wireless and mobile networks, parallel computing, computer architecture, and formal languages.

The program can be completed in two ways: (1) as a second bachelor’s degree, requiring only the 60 hours of CPSC content outlined in the curriculum model, or (2) as a first bachelor’s degree, by completing the other requirements outlined in the curriculum model in addition to the CPSC content. These other requirements can be completed either by transfer credit or by completing the relevant Auburn University courses either online (if available) or on-campus. Courses from the CPSC curriculum cannot be transferred to any other graduate or undergraduate program in the Samuel Ginn College of Engineering. Likewise courses from the online Computer Science and Software Engineering department programs, such as Computer Science (CSCI), Software Engineering (SWEN), and Wireless Engineering, Software Option (WIRS) cannot be given transfer credit in the CPSC program. Students in the CPSC program do not have to take the pre-engineering required courses.

The CPSC content is delivered online in the form of recorded presentations, multimedia content, websites, programming exercises, quizzes and examinations, online discussions, and any other electronic means the instructor finds appropriate. The courses are offered in eight-week terms, with five terms per year. The start dates of the five terms are roughly: start of fall semester, middle of fall semester,
start of spring semester, middle of spring semester, and during summer semester. Each 8-week course is worth 3 semester credit hours. Thus, taking two courses per 8-week term would correspond in workload to taking four courses on-campus during a regular semester. An 8-week online 3-credit-hour CPSC course will have the same academic work load as an on-campus 3-credit-hour course (roughly twice as many hours per week as a fall or spring semester course). Whereas an on-campus student is expected to complete an average of 3-3.5 hours of academic work per week over the length of a 15 week semester, a student in the CPSC degree program will be expected to complete an average of 6-7 hours of academic work per week over the length of an 8 week semester. Students are expected to watch all recorded content in a timely fashion, interact with the instructor and teaching assistants as needed via electronic means, and complete and submit all assignments electronically. A student must have access to a computer on which they can access the internet to view content, complete programming assignments, download and install needed software, and access remote resources such as virtual machines necessary to complete some programming projects and lab assignments.

Taking two courses per term, the CPSC content can be completed in ten 8-week terms, or two years. The coursework consists of eighteen required courses and two electives.

**Majors**

- Software Engineering (p. 633)
- Computer Science (p. 632)
- Computer Science (Online) (p. 630)
- Wireless Engineering (Hardware Option) (p. 646)
- Wireless Engineering (Software Option) (p. 647)

**Minor**

- Computer Science (p. 632)
- Information Technology (p. 634)

**Computer Sci Software En Courses**

**COMP 1000/1003 PERSONAL COMPUTER APPLICATIONS (2)** LEC. 2. Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications.

**COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2)** LEC. 2. Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

**COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1)** LAB. 2. Coreq. COMP 1200. Laboratory activities focused on computer programming in a high-level language.

**COMP 1210 FUNDAMENTALS OF COMPUTING I (3)** LEC. 2. LAB. 3. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

**COMP 1217 HONORS FUNDAMENTALS OF COMPUTING I (3)** LEC. 2. LAB. 3. Pr. Honors College. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

**COMP 1AA0 COMPUTER COMPETENCY TEST (0)** TST. SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003.

**COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3)** LEC. 3. Pr. COMP 1000 or COMP 1003 or ENGR 1110 or ENGR 1113. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Pr., COMP 1000 or higher, or ENGR 1110.

**COMP 2210 FUNDAMENTALS OF COMPUTING II (4)** LEC. 3. LAB. 3. Pr. COMP 1210 or COMP 1217. Software development in the context of collections (e.g., lists, trees, graphs, hashtables). Communication, teamwork, and a design experience are integral course experience.
COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3. Pr. COMP 2210. Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; systems and event-driven programming.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr., Departmental approval. Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors.

COMP 3010/3013 SPREADSHEET-BASED APPLICATIONS WITH VISUAL BASIC (3) LEC. 2. LAB. 3. Pr. A grade of D or higher in COMP 1200-3000. COMP 1200 or higher. Design and implementation of applications such as simulations, spreadsheet front-ends for modeling, interfaces to databases, and multimedia applications.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 2210. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and examples; language translations.

COMP 3240 DISCRETE STRUCTURES (3) LEC. 3. Pr. COMP 1210 or COMP 1217. Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3. Pr. COMP 3240 and COMP 2210. Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3. Pr. ELEC 2200 or ELEC 2210. Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.

COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3. Pr. COMP 2710. Current processes, methods, and tools related to modeling and designing software systems. Communication, teamwork, and a design experience are integral course experiences.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3. Pr. COMP 2710. Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4000 SYSTEMS ADMINISTRATION FOR INFORMATION TECHNOLOGY (3) LEC. 3. Pr. COMP 2000 or Departmental approval. Principles and techniques of systems administration, including configuration of mail, file servers, print servers, databases systems, and networks.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3. Pr. COMP 3240. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models.

COMP 4270 ADVANCED ALGORITHMS (3) LEC. 3. Pr. COMP 3270 or Departmental approval. Fundamentals of designing and analyzing advanced algorithms. Algorithm design theory; computational complexity; relationship of data structures to algorithm design; study of design strategies including divide-and-conquer, the greedy method, and dynamic programming.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3. Pr. COMP 3350. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 3500 or COMP 3510 or Departmental approval. Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.
COMP 4650 INTERFACE DESIGN FOR WIRELESS APPLICATIONS (3) LEC. 3. Pr. COMP 3270. Principles of user interface design, usability, for wireless devices: Consequences of low bandwidth network connections for interface design; consequences of battery power, small screen, other limited resources on interface design; case studies; design project using technology such as WAP.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (1) LEC. 1. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027) or PHIL 1040. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity. Communication and teamwork are integral course experiences.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 4970 SPECIAL TOPICS (1-3) LEC. 1-3. Investigation of current topics in computer science and software engineering. Departmental approval Course may be repeated for a maximum of 12 credit hours.

COMP 4997 HONORS ThESIS (3-6) IND. Pr. Honors College. Departmental approval. Individual student endeavor consisting of directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 5010 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.

COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures.

COMP 5030 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3. Pr. COMP 5000. Departmental approval. Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3. Pr. COMP 3270. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5130 DATA MINING (3) LEC. 3. Pr. COMP 3270. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 5200 THEORETICAL COMPUTER SCIENCE (3) LEC. 3. Pr. COMP 4200. Departmental approval. The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3. Pr. COMP 4200 and COMP 3220. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 5220 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 3220. Advanced topics in programming language concepts, design, and implementation.

COMP 5230 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Pr. COMP 3220. Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 5280 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Pr. COMP 3220. Object oriented language principles and study of the language support for these principles. Example languages and distributed object programming principles.

COMP 5330 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

COMP 5340 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3. Pr. COMP 4320 or ELEC 5220. Theoretical and practical aspects of network simulation and quality assurance.

COMP 5350 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or (MNGT 3080 or MNGT 3087). Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.


COMP 5380 PERSONAL AREA NETWORKS (3) LEC. 3. Pr. COMP 4320 or ELEC 5220. Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion.

COMP 5390 3G AND 4G WIRELESS (3) LEC. 3. Pr. P/C COMP 5360 or P/C ELEC 5110. Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

COMP 5400 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 2710 and MATH 2660. Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 5500 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 4320. Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 5510 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Basic concepts, architecture and design of networked multimedia systems.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Pr. COMP 4320. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.


COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 5600. Departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.


COMP 5630 MACHINE LEARNING (3) LEC. 3. Pr. COMP 3270. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 5640 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3. Pr. COMP 3270. Theory and design of intelligent and interactive software; treatments of intelligent agents and human-computer interaction.

COMP 5700 SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Process models of the software life cycle as well as methods and tools for software development.

COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.
COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 5970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 6000/6006 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 6010/6016 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.

COMP 6020/6026 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures. Fall, Spring.

COMP 6030/6036 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language.

COMP 6120/6126 DATABASE SYSTEMS I (3) LEC. 3. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 6130/6136 DATA MINING (3) LEC. 3. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 6200/6206 THEORETICAL COMPUTER SCIENCE (3) LEC. 3. Departmental approval. The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars, and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 6210/6216 COMPILER CONSTRUCTION (3) LEC. 3. Departmental approval. Compiler organization; lexical analysis; parsing; syntax-direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 6220/6226 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Departmental approval. Advanced topics in programming language concepts, design, and implementation.

COMP 6230/6236 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Departmental approval. Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 6280/6286 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Departmental approval. Object oriented language principles and study of the language support for these principles. Example languages distributed object programming principles.

COMP 6320/6326 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 6330/6336 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Departmental approval. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

COMP 6340/6346 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3. Departmental approval. Theoretical and practical aspects of network simulation and quality assurance.

COMP 6350/6356 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or (MNGT 3080 or MNGT 3087). Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.
COMP 6360/6366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.


COMP 6380/6386 PERSONAL AREA NETWORKS (3) LEC. 3. Departmental approval. Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion.

COMP 6390/6396 3G AND 4G WIRELESS (3) LEC. 3. Pr. P/C COMP 6360 or COMP 6366 or P/C ELEC 6110 or ELEC 6116. Departmental approval. Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

COMP 6400/6406 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3. Departmental approval. Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 6500/6506 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 6510/6516 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3. Departmental approval. Basic concepts, architecture and design of networked multimedia systems.

COMP 6520/6526 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Departmental approval. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 6600/6606 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610/6616 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620/6626 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6630/6636 MACHINE LEARNING (3) LEC. 3. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 6640/6646 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3. Pr. COMP 3270. Theory and design of intelligent and interactive software; treatments of intelligent agents and human-computer interaction.

COMP 6700/6706 SOFTWARE PROCESS (3) LEC. 3. Departmental approval. Process models of the software life cycle as well as methods and tools for software development.

COMP 6710/6716 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720/6726 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Departmental approval. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 6970/6976 SPECIAL TOPICS (1-3) LEC. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 7120/7126 DATABASE SYSTEMS II (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.


COMP 7270/7276 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3. Departmental approval. In-depth study of advanced topics in algorithms.


COMP 7300/7306 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3. Departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7310/7316 VLSI CAD TOOL DESIGN (3) LEC. 3. Pr. COMP 6210 or COMP 6216. Departmental approval. Design of CAD tools for VLSI design, including high-level synthesis and hardware-software co-design, logic synthesis, floor planning, optimization, placement and routing. Software development of a CAD tool as a comprehensive project.

COMP 7320/7326 ADVANCED COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Advanced network topics, including ISDN, ATM, active networks, security, Internet, wireless and mobile networks, and network management.

COMP 7330/7336 TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 6330 or COMP 6336. Departmental approval. Parallel programming languages, environments and tools, parallel algorithms performance issues, distributed memory systems, group communication, fault tolerance.

COMP 7340/7346 HIGH SPEED NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. High-speed networks design, including ATM and gigabit Ethernets, quality of service, ATM traffic, congestion control ATM switching, and signaling.

COMP 7350/7356 MULTIMEDIA NETWORKING (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Multimedia network requirements, coding, compression, multicast, traffic shaping and analysis, quality of service, scheduling, buffer design and congestion control.

COMP 7360/7366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP, personal communication systems, and GSM.

COMP 7370/7376 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 6370 or COMP 6376. Departmental approval. Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware; operating system vulnerabilities and safeguards.

COMP 7400/7406 ADVANCED COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 6400 or COMP 6406. Departmental approval. Advanced 3-D topics including visual realism issues, visible surface determination algorithms, illumination and shading models, surface and solid modeling, advanced modeling techniques, special purpose graphics architectures, and animation. Software projects will be assigned.

COMP 7440 SIMULATION OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Research-based examination of network simulation, including TCP/IP networks, wireless networks and verification and validation of a network simulation.

COMP 7500/7506 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Advanced topics in operating system concepts, design and implementation.

COMP 7600/7606 COMPUTATIONAL INTELLIGENCE (3) LEC. 3. Pr. COMP 6600 or COMP 6806. Departmental approval. A study of computational intelligence with emphasis on the design and implementation of neural, genetic and fuzzy computing techniques.
COMP 7610/7616 COMPUTATIONAL COGNITION (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. Computational models of cognition, including knowledge representations and process mechanisms like means-ends analysis, semantic networks, frames.

COMP 7620/7626 HUMAN-COMPUTER INTERACTION (3) LEC. 3. Departmental approval. Coreq. COMP 6620. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7700/7706 SOFTWARE ARCHITECTURE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7710/7716 SOFTWARE ENVIRONMENTS (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Issues associated with the design, implementation, and use of software engineering environments.

COMP 7720/7726 SOFTWARE RE-ENGINEERING (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Process, methods and tools associated with re-engineering software systems.

COMP 7730/7736 FORMAL METHODS FOR SOFTWARE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Precise, abstract models for characterizing and reasoning about properties of software systems.

COMP 7740 AGENT-DIRECTED SIMULATION (3) LEC. 3. Pr. COMP 6700 or COMP 6706. Departmental approval. Covers entire simulation software development life cycle including problem formulation, system and objectives definition, conceptual modeling, model design, implementation, analysis of simulation data, and credibility assessment including verification and validation. Special emphasis is given to modeling aspects using agent-directed simulation methodology.

COMP 7930 DIRECTED STUDY (1-3) IND. Course may be repeated with change in topics.

COMP 7950/7956 INTRODUCTION TO GRADUATE STUDY IN COMPUTER SCIENCE AND SOFTWARE ENGINEERING (1) LEC. 1. SU. Introduction to graduate research and study topics in computer science and software engineering.

COMP 7970/7976 SPECIAL TOPICS (1-3) LEC. Course may be repeated with change in topics.

COMP 7980/7986 CAPSTONE ENGINEERING PROJECT (3) LEC. 3. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation.

COMP 7990/7996 RESEARCH AND THESIS (1-15) MST. May count either COMP 7990 or COMP 7996. Course may be repeated with change in topics.

COMP 8120 CURRENT TOPICS IN DATABASE SYSTEMS (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied research issues related to database systems. Topics will reflect current research in the field.

COMP 8220 RESEARCH TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 7220 or COMP 7226. Departmental approval. Topics of current research in the area of programming languages, their design, and implementation.


COMP 8330 ADVANCED TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 6330 or COMP 6336. Parallelizing compiler, theory of concurrency, advanced parallel algorithms, load balancing, migration, performance evaluation, distributed architectures. Departmental approval

COMP 8400 CURRENT TOPICS IN COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 7400 or COMP 7406. Departmental approval. In-depth study of current research topics in computer graphics. Topics may include theoretical, performance implementation, and system integration issues. Extensive literature survey, issue identification, performance comparison, and future research trends will be discussed.

COMP 8500 RESEARCH TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 7500 or COMP 7506. Departmental approval. Topics of current research in the area of operating systems their design, and implementation.

COMP 8600 ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. COMP 6610 or COMP 6616 or COMP 7600 or COMP 7606 or COMP 7610 or COMP 7616. Departmental approval. In-depth study of current research topics in Artificial Intelligence, e.g., reasoning mechanisms, heuristic search methods, cognitive modeling.
### Auburn University

**COMP 8620 ADVANCED TOPICS IN HUMAN-COMPUTER INTERACTION (3)** LEC. 3. Pr. COMP 7620 or COMP 7626. Departmental approval. In-depth study of current research topics in Human-Computer Interaction, e.g., evaluation and assessment methods, multimodal interfaces, educational technology.

**COMP 8700/8706 CURRENT TOPICS IN SOFTWARE ENGINEERING (3)** LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Current theoretical and applied research issues in software engineering.

**COMP 8930 DIRECTED STUDY (1-3) IND.** Course may be repeated for a maximum of 6 credit hours.

**COMP 8970 SPECIAL TOPICS (1-3) IND.** Course may be repeated with change in topics.

**COMP 8990/8996 RESEARCH AND DISSERTATION (1-15) DSR.** Course may be repeated with change in topics.

### Computer Science Courses

**CPSC 1213 INTRODUCTION TO COMPUTER SCIENCE I (3)** DSL. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

**CPSC 1223 INTRODUCTION TO COMPUTER SCIENCE II (3)** DSL. 45. Pr. CPSC 1213. Admission into Bachelor of Computer Science Program. Continues the development of programming from an object-oriented perspective. Emphasizes sound software engineering principles and best practices.

**CPSC 1233 DATA STRUCTURES (3)** DSL. 45. Pr. CPSC 1223. Admission into Bachelor of Computer Science Program. Developing programs that use data structures and collections to efficiently store data. Emphasis will be placed on the interplay between effective data structures and efficient algorithms.

**CPSC 2713 SOFTWARE CONSTRUCTION FUNDAMENTALS (3)** DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Development of graphical user interface-based, event-driven desktop/laptop computer application using a modern object-oriented language. Systematic testing, debugging, documentation, and maintenance programming.

**CPSC 3223 PROGRAMMING LANGUAGES AND TRANSLATION (3)** DSL. 45. Pr. CPSC 1233 and CPSC 3303. Admission into Bachelor of Computer Science Program. Fundamental concepts of programming language design, interpretation, and compilation.

**CPSC 3243 DISCRETE STRUCTURES (3)** DSL. 45. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and MATH 1710. Admission into Bachelor of Computer Science Program. Basics of set theory, propositional and predicate logic as used to describe algorithms, recurrence relations. Proving correctness and estimating running time for algorithms. Mathematical and structural induction.

**CPSC 3273 ALGORITHMS I (3)** DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Introduction to algorithms as tools for computational problem solving, language of algorithms, understanding algorithms, approximately analyzing correctness and efficiency of algorithms, algorithms that solve fundamental computational problems, basic algorithm design techniques, steps of computational problem solving.

**CPSC 3283 ALGORITHMS II (3)** DSL. 45. Pr. CPSC 3273. Admission into Bachelor of Computer Science Program. Advanced complexity analysis techniques, notions of computational complexity, polynomial time hierarchy, computability, algorithms that solve advanced computational problems, advanced algorithm design techniques, computational problem solving.

**CPSC 3303 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3)** DSL. 45. Pr. CPSC 3243 and CPSC 1213. Admission into Bachelor of Computer Science Program. Stored program computers, hardware and software components, data representations, instruction sets, addressing modes, assembly language programming, loaders, linkers and operating systems.

**CPSC 3323 COMPUTER ARCHITECTURE (3)** DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Design of Computer Systems, emphasizing the relationship between computer hardware and software. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

**CPSC 3333 OPERATING SYSTEMS (3)** DSL. 45. Pr. CPSC 1233 and CPSC 3303. Admission into Bachelor of Computer Science Program. Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.
CPSC 3343 PARALLEL SYSTEMS (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, and parallel applications.

CPSC 3353 COMPUTER NETWORKS I (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Fundamentals of computer networks, TCP/IP layered model: application layer, transport layer, network layer, link layer, with examples of each layer, and explanation of design issues. IPv6.

CPSC 3363 COMPUTER NETWORKS II (3) DSL. 45. Pr. CPSC 3353. Admission into Bachelor of Computer Science Program. Computer network design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

CPSC 3373 WIRELESS AND MOBILE NETWORKS (3) DSL. 45. Pr. CPSC 3353. Admission into Bachelor of Computer Science Program. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and current mobile phone OTA protocols.

CPSC 3703 SOFTWARE ENGINEERING I (3) DSL. 45. Pr. CPSC 2713. Admission into Bachelor of Computer Science Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 3713 SOFTWARE ENGINEERING II (3) DSL. 45. Pr. CPSC 3703. Admission into Computer Science Online Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 4003 SYSTEM ADMINISTRATION (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science. Basics of system administration for Windows and Unix machines, including configuration of Performance measurement and enhancement.

CPSC 4203 FORMAL LANGUAGES (3) DSL. 45. Pr. CPSC 3273 and CPSC 3243. Admission into Bachelor of Computer Science Program. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Basics of interpretation and compilation.

CPSC 4733 COMPUTER ETHICS (3) DSL. 45. Admission into Bachelor of Computer Science Program. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

CPSC 5123 DATABASE I (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. The design and implementation of database applications, with a focus on relational database management systems.

CPSC 5133 DATABASE II (3) DSL. 45. Pr. CPSC 5123. Admission into Bachelor of Computer Science Program. Theory, design, and implementation of database systems.

CPSC 5203 DEVELOPING WEB APPLICATIONS WITH XML (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Comprehensive introduction to XML, working with XML and Databases, event-driven programming with XML, implementing Communication and Web Services with XML, working with XML, JQuery, XHTML and HML5.

CPSC 5213 WEB APPLICATION DEVELOPMENT WITH JSP (3) DSL. 40. Pr. CPSC 5203. Admission into Bachelor of Computer Science Program. Advanced course in web development using JSP, includes JCP fundamentals, JAP and web server software development, and applying JSP in the real world.

Bachelor of Computer Science (On-line)

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<td></td>
</tr>
<tr>
<td>CPSC 5133</td>
<td>Database II</td>
<td>3</td>
<td></td>
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<tr>
<td>CPSC 5203</td>
<td>Web Development I</td>
<td>3</td>
<td></td>
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<tr>
<td>CPSC Elective</td>
<td></td>
<td>3</td>
<td></td>
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<tr>
<td>CPSC Elective</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. This is a completer (a first bachelor’s degree in which non-major coursework is completed at another institution) or second bachelor's degree program.

2. The CPSC courses are offered completely on-line in 7.5 week terms (5 terms/year).

3. The credit hours for each course are indicated name to the right of the course name in the table above (In-Major Courses). All courses are three credit hour courses.

4. If taken as a first bachelor’s degree, the total number of credit hours required is 120. The core and general studies requirements (see Non-Major Course table below) can be satisfied by acceptable transfer credit, using standard university policies for accepting transfer credit as is used for the on-campus CSCI program, or by taking the Auburn University courses, either on campus or online, if online versions are available. If taken as a second bachelor’s degree, only the CPSC courses indicated in the table above are required.

5. For first bachelor’s degree students, courses for CPSC Elective and Core Science Sequence must meet CPSC degree policies. Students must consult with the CPSC Academic Advisor when selecting these courses. For first bachelor’s students, the Humanities and Social Science courses, if taken at Auburn, must be chosen from the set of courses designated as Humanities or Social Sciences in the Auburn University Core Curriculum.

**Math (Core)**
- MATH 1610: Calculus I | 4
- STAT 3010: Statistics for Engineers and Scientists | 3

**Science (Core)**
- Core Science Sequence I | 4
- Core Science Sequence II | 4

**Composition and Humanities (Core)**
- ENGL 1100: English Composition I | 3
- ENGL 1120: English Composition II | 3
- ENGL 2200: World Literature before 1600 | 3
- ENGL 2210: World Literature after 1600 | 3
- Core Fine Art | 3
- Additional Core Humanities | 3

**Social Sciences (Core)**
- 12

**Other**
- COMM 1000: Public Speaking | 3
Computer Science Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COMP 1210</td>
<td>Fundamentals of Computing I</td>
<td>3</td>
</tr>
<tr>
<td>COMP 2210</td>
<td>Fundamentals of Computing II</td>
<td>4</td>
</tr>
<tr>
<td>COMP 2710</td>
<td>Software Construction</td>
<td>3</td>
</tr>
<tr>
<td>COMP 3240</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>COMP 3270</td>
<td>Introduction to Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>COMP 3700</td>
<td>Software Modeling and Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours: 19

Curriculum in Computer Science

Freshman

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100</td>
<td>3</td>
<td>ENGL 1120</td>
</tr>
<tr>
<td>World History or Technology &amp; Civilization</td>
<td>3</td>
<td>MATH 1620</td>
</tr>
<tr>
<td>MATH 1610</td>
<td>4</td>
<td>Core Science Sequence II</td>
</tr>
<tr>
<td>Core Science Sequence II</td>
<td>4</td>
<td>COMP 1210</td>
</tr>
<tr>
<td>ENGR 1110</td>
<td>2</td>
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</tbody>
</table>

16 14

Sophomore

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Social Science</td>
</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>ELEC 2200</td>
</tr>
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<td>COMM 1000</td>
<td>3</td>
<td>MATH 2660</td>
</tr>
<tr>
<td>Science Elective</td>
<td>4</td>
<td>COMP 2710</td>
</tr>
<tr>
<td>COMP 2210</td>
<td>4</td>
<td>COMP 3240</td>
</tr>
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</table>

17 15

Junior

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>PHIL 1020 Introduction to Ethics or 1040 Business Ethics</td>
</tr>
<tr>
<td>STAT 3600</td>
<td>3</td>
<td>Concentration</td>
</tr>
<tr>
<td>COMP 3220</td>
<td>3</td>
<td>Humanities / Social Science Elective</td>
</tr>
<tr>
<td>COMP 3270</td>
<td>3</td>
<td>COMP 3500 Introduction to Operating Systems</td>
</tr>
<tr>
<td>COMP 3350</td>
<td>3</td>
<td>COMP 3700 Software Modeling and Design</td>
</tr>
</tbody>
</table>

15 15

Senior

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>Free Elective (or ROTC)</td>
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<td>Concentration</td>
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1
**Concentration**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 4200 Formal Languages</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMP 4320 Introduction to Computer Networks</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMP Elective</td>
<td>2</td>
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</tbody>
</table>

Total Hours: 15

1. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2. Courses for COMP Elective, Math Elective, Core Science Sequence, Science Elective, or Concentration credit must be chosen in accordance with CSSE department policies and approved course listings. Students must consult with the CSSE Academic Advisor when selecting these courses.

3. The Humanities / Social Science Elective must be chosen from the set of courses designated as Humanities or Social Sciences in the Auburn University Core Curriculum.

The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering.

The course in bold-face are those used to calculate in-major GPA.

### Curriculum in Software Engineering

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>World History or Technology &amp; Civilization</td>
<td>3</td>
<td>MATH 1620 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>PHYS 1610 Engineering Physics II</td>
<td>4</td>
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<tr>
<td>PHYS 1600 Engineering Physics I</td>
<td>4</td>
<td>COMP 1210 Fundamentals of Computing I</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 1110 Introduction to Engineering</td>
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<td></td>
</tr>
<tr>
<td>ENGR 1100 Engineering Orientation</td>
<td>0</td>
<td></td>
<td></td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>14</strong></td>
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</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Social Science¹</td>
<td>3</td>
<td>Core Social Science¹</td>
<td>3</td>
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<tr>
<td>Core Literature¹</td>
<td>3</td>
<td>MATH 2660 Topics in Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>ELEC 2200 Digital Logic Circuits</td>
<td>3</td>
</tr>
<tr>
<td>MATH 2630 Calculus III</td>
<td>4</td>
<td>COMP 2710 Software Construction</td>
<td>3</td>
</tr>
<tr>
<td>COMP 2210 Fundamentals of Computing II</td>
<td>4</td>
<td>COMP 3240 Discrete Structures</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>15</strong></td>
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</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 2100 Fundamentals of Engineering Mechanics (or ROTC)</td>
<td>3</td>
<td>PHIL 1020 Introduction to Ethics or 1040 Business Ethics</td>
<td>3</td>
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<tr>
<td>MATH 2650 Linear Differential Equations</td>
<td>3</td>
<td>STAT 3600 Probability and Statistics I</td>
<td>3</td>
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<tr>
<td>COMP 3220 Principles of Programming Languages</td>
<td>3</td>
<td>Humanities / Social Science Elective³</td>
<td>3</td>
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<tr>
<td>COMP 3270 Introduction to Algorithms</td>
<td>3</td>
<td>COMP 3500 Introduction to Operating Systems</td>
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</table>
Information Technology Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 3350 Computer Organization and Assembly Language Programming</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>COMP 3700 Software Modeling and Design</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>COMP 4300 Computer Architecture</td>
<td>3</td>
<td>3</td>
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<tr>
<td>COMP 4320 Introduction to Computer Networks</td>
<td>3</td>
<td>3</td>
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<tr>
<td>COMP 5700 Software Process</td>
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<td>3</td>
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<td>COMP Elective</td>
<td>6</td>
<td>3</td>
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<tr>
<td>Free Elective (or ROTC)</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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Total Hours: 120

1. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2. Courses for COMP Elective credit must be chosen in accordance with CSSE department policies and approved course listings. Students must consult with the CSSE Academic Advisor when selecting these courses.

3. The Humanities / Social Science Elective must be chosen from the set of courses designated as Humanities or Social Sciences in the Auburn University Core Curriculum.

The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering.

Courses in bold-face are those used to calculate in-major GPA.

Information Technology Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above)

Select three of the following: 9

- COMP 3000 Object-Oriented Programming for Engineers and Scientists
- COMP 4000 Systems Administration for Information Technology
- COMP 4730 Computer Ethics
- COMP 5000 Web Application Development
- COMP 5010 Interactive Applications in Visual Basic
- COMP 5020 Advanced Web Application Development
- COMP 5030 Object-Oriented Technologies

Electives Courses: see advisor for approved course listing. 6

Total Hours 15

Electrical and Computer Engineering

The Electrical and Computer Engineering curricula produce well-educated graduates prepared to practice engineering at a professional level in an era of rapid and challenging technological development. The educational objectives of the Electrical Engineering curriculum include developing within our graduates a basic foundation in seven fundamental areas of electrical engineering (circuits and systems, electromagnetics, electronics, digital systems, communications and signal processing, control systems, and power engineering) to provide the technical proficiency needed for the professional practice of electrical engineering. The educational objectives of the Computer Engineering curriculum include developing within our graduates a basic foundation in both electrical engineering (circuits and systems, electronics, and digital systems) and computer science to provide the technical proficiency needed for the professional practice of computer engineering, including the design and application of computer components and systems. In addition, both curricula have as educational objectives to develop within our graduates the ability to communicate their ideas effectively to technical and nontechnical audiences and work effectively in multidisciplinary teams, to prepare them to take their places in society as responsible
citizens, and to provide them with the basis for, and instill within them an appreciation of and enthusiasm for, lifelong scientific inquiry, learning and creativity.

The goal of the professional portion of each curriculum is to emphasize basic areas of study while providing the flexibility to accommodate a diversity of interests and talents. To this end, each curriculum emphasizes engineering design, hands-on laboratory experience, knowledgeable use of digital computer systems, oral and written communication skills, the importance of business, economic, social and global forces on engineering, appreciation of the need to maintain the highest ethical standards, and the maintenance of professional competence through continued self-improvement after graduation.

Each curriculum builds upon a solid foundation in mathematics and science. In the Electrical Engineering curriculum, topics in the seven fundamental areas of electrical engineering are introduced early and are carefully coordinated to provide the principles necessary for the practice of electrical engineering. In the Computer Engineering curriculum, fundamental topics in both electrical engineering and computer science are introduced early and are carefully coordinated to provide the principles necessary for the design and application of computer components and systems. In each case, design experience is interwoven throughout the curriculum by introducing basic design concepts early, emphasizing design experiences in the laboratories, and culminating with a capstone design project in the senior year. The senior year elective structure provides students with the flexibility to pursue a range of career options.

Major

- Computer Engineering (p. 643)
- Electrical Engineering (p. 645)
- Wireless Engineering (Hardware Option) (p. 646)
- Wireless Engineering (Software Option) (p. 647)

Courses

ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (COMP 1200 or COMP 1210 or COMP 1217) and (P/C ENGR 1110 or P/C ENGR 1113) and P/C MATH 2650. Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 LINEAR SIGNALS AND SYSTEMS ANALYSIS (3) LEC. 3. Pr. ELEC 2110 and MATH 2650. Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems.

ELEC 2200 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. COMP 1200 or COMP 1210 or COMP 1217. Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and ELEC 2200. History of electronics; semiconductors; biasing and operation of PN junction diodes; field-effect transistors and bipolar junction transistors; logic families and logic technologies; flip-flops and memory circuitry.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr. ELEC 2200. Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing, programming and multiprocessing.

ELEC 3030 RF SYSTEMS LAB (1) LAB. 3. Pr. ELEC 2210. Assembly, testing and analysis of a radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2220 and ELEC 3030 and P/C ELEC 3500. Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 EMBEDDED SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2210 and ELEC 2220. Integration of hardware and software in the design of an embedded computing system; development of professional skills.

ELEC 3060 WIRELESS DESIGN LAB (1) LAB. 3. Pr. ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr. MATH 2660 and ELEC 2110. Transmission lines are studied as a bridge to understanding electromagnetic theory. Then, electric and magnetic fields are studied using vector algebra, culminating in Maxwell's equations.
ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr. ELEC 3310. Maxwell's equations are used in the study of plane waves, guided waves, fiber optics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Analog and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr. ELEC 2110. Introduction to the basic concepts in electric power engineering.


ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.

ELEC 4000 SENIOR DESIGN PROJECTS (3) LEC. 3. Pr. ELEC 3040 or ELEC 3050 or ELEC 3060. A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional requisites.

ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.

ELEC 4800 INSTRUMENTATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. ELEC 3040 or ELEC 3050. Study and application of sensors, instrumentation and computer technology to research and industrial process control.

ELEC 4810 LONG TERM TECHNOLOGY DEVELOPMENT AND PROJECT MANAGEMENT (1-2) LAB. Pr. ELEC 2120. Departmental approval. Students participate in ongoing electrical, computer, or wireless engineering design projects and competitions while learning project management and organization strategies. May be repeated for up to three credit hours. Course may be repeated for a maximum of 2 credit hours.

ELEC 4980 SPECIAL PROJECTS (1-3) IND. Departmental approval. Supervised study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 5100 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3400. Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 5110 WIRELESS NETWORKS (3) LEC. 3. Pr. ELEC 3400. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr. ELEC 3400. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 5190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Pr. ELEC 3700. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on front-end design skills.
ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr. ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.


ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 5260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and system programming. Embedded system application examples.

ELEC 5270 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Pr. ELEC 2210. Departmental approval. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits.

ELEC 5280 BUILT-IN-SELF-TEST (3) LEC. 3. Pr. ELEC 2210. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.

ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Pr. P/C ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR PRINCIPLES (3) LEC. 3. Pr. ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 5360 BIOMEDICAL APPLICATIONS OF ELECTROMAGNETICS (3) LEC. 3. Pr. ELEC 3310. Development of medical instrumentation using electromagnetic principles; focus on magnetic resonance imaging systems.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Pr. ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5530 MOBILE ROBOT DESIGN (3) LEC. 3. Pr. ELEC 3040 or ELEC 3050. Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization.


ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.

ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3. Pr. ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. Pr. ELEC 3600. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Pr. ELEC 3700. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5700. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 5740 ELECTRONICS MANUFACTURING (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 5750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Pr. ELEC 3320. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 5760 SOLID STATE SENSORS (3) LEC. 3. Pr. ELEC 3700. Theory, technology and design micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 5770 VLSI DESIGN (3) LEC. 3. Pr. ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 3700. Departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Departmental approval. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 6110/6116 WIRELESS NETWORKS (3) LEC. 3. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 6120/6126 TELECOMMUNICATION NETWORKS (3) LEC. 3. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 6130/6136 RF DEVICES AND CIRCUITS (3) LEC. 3. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150/6156 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 6190/6196 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on on front-end design skills.

ELEC 6200/6206 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.
ELEC 6220/6226 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 6230/6236 PARALLEL PROCESSING (3) LEC. 3. Hardware components of multiprocessor systems including processor, interconnection, memory and control architectures; software elements of parallel processing.


ELEC 6250/6256 COMPUTER AIDED DESIGN OF DIGITAL LOGIC CIRCUITS (3) LEC. 3. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 6260/6266 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6270/6276 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Departmental approval. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits.

ELEC 6280/6286 BUILT-IN-SELF-TEST (3) LEC. 3. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.

ELEC 6310/6316 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320/6326 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340/6346 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350/6356 RADAR PRINCIPLES (3) LEC. 3. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 6360/6366 BIOMEDICAL APPLICATIONS OF ELECTROMAGNETICS (3) LEC. 3. Development of medical instrumentation using electromagnetic principles; focus on magnetic resonance imaging systems.

ELEC 6410/6416 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6530/6536 MOBILE ROBOT DESIGN (3) LEC. 3. Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization. Departmental Approval.


ELEC 6620/6626 POWER SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.


ELEC 6650/6656 POWER SYSTEM PROTECTION (3) LEC. 3. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6670/6676 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.
ELEC 6700/6706 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710/6716 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6730/6736 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 6740/6746 ELECTRONICS MANUFACTURING (3) LEC. 2. LAB. 3. Departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 6750/6756 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760/6766 SOLID STATE SENSORS (3) LEC. 3. Theory, technology and design of micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 6770/6776 VLSI DESIGN (3) LEC. 3. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 6780/6786 ANALOG CIRCUIT DESIGN (3) LEC. 3. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6810/6816 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 6820/6826 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970/6976 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 24 credit hours.

ELEC 7190/7196 ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. Pr. ELEC 5190 or ELEC 6190 or ELEC 6196. Wireless standards and multi-standard transceiver architectures, SiGe and CMOS RFIC designs for wireless transceiver building blocks, software defined radios, phase array radars, ultra-high speed data converters, and MIMO wireless transceivers.

ELEC 7250/7256 VLSI TESTING (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Exponential nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.


ELEC 7320/7326 ADVANCED ELECTRODYNAMICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variational techniques.

ELEC 7340/7346 COMPUTATIONAL ELECTROMAGNETICS I (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Solution of electromagnetic scattering, radiation, and coupling problems using method of moments, finite-difference, finite-element, transmission-line matrix and other advanced computational methods.

ELEC 7350/7356 COMPUTATIONAL ELECTROMAGNETICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Solutions of electromagnetic scattering, radiation, and coupling problems using a variety of common asymptotic techniques.

ELEC 7410/7416 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.
ELEC 7420/7426 ADAPTIVE SIGNAL PROCESSING (3) LEC. 3. Coreq. ELEC 7410. Least mean square and recursive least square algorithms; adaptive FIR and IIR filters, lattice filters, Kalman filters; adaptive system identification and its application in communications and control.

ELEC 7430/7436 ADVANCED COMMUNICATION THEORY (3) LEC. 3. Principles of modern communication systems. Elements of information theory, source encoding, efficient signaling with coded waveforms, convolutional codes; carrier recovery and synchronization under AGN channel; adaptive equalization; maximum likelihood estimation, Viterbi algorithm. Departmental Approval.

ELEC 7440/7446 WIRELESS COMMUNICATION THEORY (3) LEC. 3. Pr. ELEC 3400 or ELEC 7410 or ELEC 7416. The basic of design, analysis and performance limits of wireless communication systems.

ELEC 7450/7456 DIGITAL IMAGE PROCESSING (3) LEC. 3. Departmental approval. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 7500/7506 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3. Departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.


ELEC 7560/7566 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Principles of nonlinear system modeling and analysis; nonlinear control systems design; nonlinear system state estimation.

ELEC 7610/7616 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3. Pr. (ELEC 5620 or ELEC 6620 or ELEC 6626) and (ELEC 5650 or ELEC 6650 or ELEC 6656). Departmental approval. Dynamic models of power systems and analysis of power system stability.

ELEC 7620/7626 POWER SYSTEM OPERATION (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Unit commitment, power system security, state estimation, power system control centers and real-time applications.

ELEC 7630/7636 ADVANCED ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 5630 or ELEC 6630 or ELEC 6636. Departmental approval. Advanced machine modeling, including Kron's generalized machine theory, Park's transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis.

ELEC 7640/7646 POWER SYSTEM TRANSIENTS (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710/7716 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern field-effect transistor: the state-of-the-art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720/7726 THE BIPOLAR TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7730/7736 ADVANCED PLASMA PROCESSING FOR MICROELECTRONIC FABRICATION (3) LEC. 3. Pr. ELEC 5750 or ELEC 6750 or ELEC 6756. Departmental approval. Plasma reactor design and process optimization, plasma-assisted etching and deposition processes, plasma-assisted oxidation and surface modification processes, plasma polymerization, plasma-induced damages to semiconductor devices.

ELEC 7740/7746 ELECTRONIC PACKAGING (3) LEC. 3. Pr. ELEC 5740 or ELEC 6740 or ELEC 6746. Departmental approval. Design issues in the packaging of electronics. Emphasis is placed on physical design, electrical performance, thermal characteristics and mechanical stress-induced failures.

ELEC 7750/7756 LOW TEMPERATURE ELECTRONICS (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.
ELEC 7760/7766 SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Departmental approval. Bandgap engineering, strained SiGe and Si, SiGe BiCMOS technology, noise, linearity, circuits applications.

ELEC 7770/7776 ADVANCED VLSI DESIGN (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Departmental approval. Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780/7786 RF MICROELECTRONICS (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7800/7806 ADVANCED COMPUTATIONAL TECHNIQUES FOR ELECTRICAL ENGINEERING (3) LEC. 3. Introduction to high level programming techniques in electrical engineering applications; topics include linear systems analysis, system identification, nonlinear dynamic systems, and electromagnetic applications. Departmental Approval.

ELEC 7830/7836 PHOTOVOLTAICS (3) LEC. 3. Departmental Approval. Theory, technology, design and application of photovoltaic devices and systems.

ELEC 7900 INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours.

ELEC 7970/7976 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change of topic. Course may be repeated for a maximum of 24 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120/8126 PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) LEC. 3. Pr. (ELEC 5120 or ELEC 6120 or ELEC 6126) and (ELEC 7410 or ELEC 7416). Data network performance analysis, queueing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8410 SPECTRAL ESTIMATION AND SYSTEM IDENTIFICATION (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Elements of parameter estimation theory; Nonparametric spectral estimation; periodogram and spectral windows; Parametric approaches; applications; higher-order spectral analysis; input-output system identification.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, non-random and random parameter estimation; signal estimation.


ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8780 CONTEMPORARY TOPICS IN ELECTRICAL CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Contemporary topics in electronic circuit design such as Delta-Sigma A/D and D/A conversion, switched capacitor circuitry, continuous time and discrete time filter design, communications electronics. Course may be repeated for a maximum of 6 credit hours.

ELEC 8900 ADVANCED INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 8970 ADVANCED SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 9 credit hours.

ELEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.
## Curriculum in Computer Engineering

### Freshman

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>PHYS 1610 Engineering Physics II</td>
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<tr>
<td>ENGR 1110 Introduction to Engineering</td>
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<td>COMP 1210 Fundamentals of Computing I</td>
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Total Hours: 16

### Sophomore

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<th>Fall</th>
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<tr>
<td>MATH 2650 Linear Differential Equations</td>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>MATH 2630 Calculus III</td>
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<td>ELEC 2200 Digital Logic Circuits</td>
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<td>COMP 2710 Software Construction</td>
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Total Hours: 14

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<tr>
<td>Core History(^1)</td>
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<tr>
<td>COMP 3240 Discrete Structures</td>
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<td>ELEC 3800 Random Signals and Systems</td>
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<td>ELEC 4200 Digital System Design</td>
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Total Hours: 16

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<td>Core Literature(^1)</td>
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<td>PHIL 1020 Introduction to Ethics or 1040 Business Ethics</td>
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<td>Core Social Science(^1)</td>
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<td>ELEC 4000 Senior Design Projects</td>
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<td>INSY 3600 Engineering Economy(^2)</td>
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<td>ECE Elective</td>
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<td>ELEC 5200 Computer Architecture and Design</td>
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<td>Free Elective(^2)</td>
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<td>ELEC 5220 Information Networks and Technology</td>
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<td>UNIV 4AA0 University Graduation</td>
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Total Hours: 15

Total Hours: 122

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1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.
For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for INSY 3600.

ECE elective - see adviser for approved course listing.

## Curriculum in Computer Engineering

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<tr>
<td>INSY 3600 Engineering Economy</td>
<td>3</td>
<td>ELEC 4000 Senior Design Projects</td>
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<td>ELEC 5200 Computer Architecture and Design</td>
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<td>ELEC 5220 Information Networks and Technology</td>
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<tr>
<td>Core Literature</td>
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<td>PHIL 1020 Introduction to Ethics or 1040 Business Ethics</td>
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Total Hours: 122
Comments:

1. The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2. For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for INSY 3600.

3. ECE elective - see adviser for approved course listing.

**Curriculum in Electrical Engineering**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>PHYS 1610 Engineering Physics II</td>
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<td>PHYS 1600 Engineering Physics I</td>
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<td>ENGR 1110 Introduction to Engineering</td>
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<td>Core Fine Arts¹</td>
<td>3</td>
<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
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<td>ENGL 1120 English Composition II</td>
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<td>MATH 1620 Calculus II</td>
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<tr>
<td>Sophomore</td>
<td>MATH 2650 Linear Differential Equations</td>
<td>3</td>
<td>Core Literature¹</td>
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<td>4</td>
<td>MATH 2660 Topics in Linear Algebra</td>
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<td>MATH 2630 Calculus III</td>
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<td>ELEC 2120 Linear Signals and Systems Analysis</td>
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<td>ELEC 2200 Digital Logic Circuits</td>
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<td>ELEC 2210 Digital Electronics</td>
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<td>ELEC 2220 Computer Systems</td>
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<td>Junior</td>
<td>Core History¹</td>
<td>3</td>
<td>Core History or Core Social Science¹</td>
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<td></td>
<td>ELEC 3310 Fundamentals of Applied Electromagnetics</td>
<td>3</td>
<td>ELEC 3320 Electromagnetics for Wireless Communication</td>
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<td>ELEC 3600 Electric Power Engineering</td>
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<td>ELEC 3400 Communication Systems</td>
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<td>Senior</td>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>ENGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer²</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>PHIL 1020 Introduction to Ethics or 1040 Business Ethics</td>
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ENGR 2100 Fundamentals of Engineering Mechanics 3  ELEC 4000 Senior Design Projects 3
INSY 3600 Engineering Economy 3  ELEC Elective 3
ELEC Elective 3  Free Elective 3
Math/Science Elective 3  UNIV 4AA0 University Graduation 0

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Total Hours:</td>
<td>122</td>
</tr>
</tbody>
</table>

1. The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2. For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for ENGR 2200.

ELEC Elective, Math/Science Elective: see adviser for approved course listing.

### Joint Wireless Engineering-Hardware Option

#### Freshman

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Fine Arts</td>
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<td>ENGL 1100 English Composition I</td>
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<td>MATH 1610 Calculus I</td>
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<td>ENGR 1100 Engineering Orientation</td>
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<tr>
<td>PHYS 1600 Engineering Physics I</td>
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<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
<td>2</td>
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<tr>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1620 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 1110 Introduction to Engineering</td>
<td>2</td>
</tr>
<tr>
<td>PHYS 1610 Engineering Physics II</td>
<td>4</td>
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**Hours**

14 15

#### Sophomore

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MATH 2630 Calculus III</td>
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<tr>
<td>MATH 2650 Linear Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 2110 Electric Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>ELEC 2200 Digital Logic Circuits</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Spring</th>
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<tbody>
<tr>
<td>MATH 2660 Topics in Linear Algebra</td>
<td>3</td>
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<tr>
<td>ELEC 2120 Linear Signals and Systems Analysis</td>
<td>3</td>
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<tr>
<td>ELEC 2210 Digital Electronics</td>
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<td>ELEC 2220 Computer Systems</td>
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<td>Core Literature 1</td>
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**Hours**

14 15

#### Junior

**Fall**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>COMP 3000 Object-Oriented Programming for Engineers and Scientists</td>
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<td>ELEC 3030 RF Systems Lab</td>
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<td>ELEC 3310 Fundamentals of Applied Electromagnetics</td>
<td>3</td>
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<td>ELEC 3700 Analog Electronics</td>
<td>3</td>
</tr>
<tr>
<td>ELEC 3800 Random Signals and Systems</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Core History or Core Social Science 1</td>
<td>3</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>INSY 3600 Engineering Economy (or ROTC) 4</td>
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<tr>
<td>ELEC 3320 Electromagnetics for Wireless Communication</td>
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</table>

**Hours**

14 16
The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

Hardware Specialization requires ELEC 5130, ELEC 5410, and a Math/Science Elective

Network Specialization requires ELEC 5120, ELEC 5220, and INSY 3410

For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for INSY 3600.

Joint Wireless Engineering-Software Option

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>ENGR 1110 Introduction to Engineering</td>
<td>2</td>
</tr>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>MATH 1620 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 1100 Engineering Orientation</td>
<td>0</td>
<td>COMP 1210 Fundamentals of Computing I</td>
<td>3</td>
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<tr>
<td>PHYS 1600 Engineering Physics I</td>
<td>4</td>
<td>PHYS 1610 Engineering Physics II</td>
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**Total Hours:** 14

### Sophomore

<table>
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<th>Fall</th>
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<tbody>
<tr>
<td>MATH 2630 Calculus III</td>
<td>4</td>
<td>Core History¹</td>
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<tr>
<td>MATH 2650 Linear Differential Equations</td>
<td>3</td>
<td>MATH 2660 Topics in Linear Algebra</td>
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**Total Hours:** 16
COMP 2210 Fundamentals of Computing II 4
ELEC 2110 Electric Circuit Analysis 4

Junior

Fall | Comp 3270 Introduction to Algorithms 3 | COMP 3510 Embedded Systems Development 3
Core Social Science 1 | COMP 3710 Wireless Software Engineering 3
Core History or Social Science 1 | INSY 3600 Engineering Economy (or ROTC) 4
COMP 3240 Discrete Structures | 3
COMP 3350 Computer Organization and Assembly Language Programming | 3
ELEC 3800 Random Signals and Systems | 3

Senior

Fall | COMP 5710 Software Quality Assurance 2 | COMP 5700 Software Process 2
Core Literature 1 | COMP 5340 Network Quality Assurance and Simulation 3
Select one of the following: | INSY 3410 Deterministic Operations Research 3
Math/Science Elective 2 | PHIL 1020 Introduction to Ethics or 1040 Business Ethics
INSY 3410 Deterministic Operations Research 3 | COMP 4710 Senior Design Project 3
PHIL 1020 Introduction to Ethics or 1040 Business Ethics | COMP 5360 Wireless and Mobile Networks 3
ELEC 3060 Wireless Design Lab | Wireless Elective 3
Select one of the following: | Free Elective/ROTC 4
COMP 5700 Software Process 2 | UNIV 4AA0 University Graduation 0
ELEC 5120 Telecommunication Networks 3

Total Hours: 122

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.
2 Software Specialization requires COMP 5700, COMP 5710, and a Math/Science Elective
3 Network Specialization requires INSY 3410, COMP 5340, ELEC 5120
4 For students completing the ROTC program, the first ROTC course may be used as the 3-hour free elective, and the second ROTC course may be substituted for INSY 3600.

Industrial and Systems Engineering

Industrial and Systems Engineers plan, design, implement, and analyze systems. This engineering discipline is where technology, people, business and information intersect. The degree provides graduates with broad, flexible career opportunities with manufacturing, consulting, service or governmental organizations. The degree can also provide the foundation and background for further studies in engineering and business as well as professions such as law or medicine. The curriculum builds on a solid engineering mathematics
and science core and adds courses in production and manufacturing, ergonomics and safety, engineering management, operations research, statistics, quality control, and information technologies. The curriculum graduates students who have:

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- An ability to communicate effectively with a range of audiences
- An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

**Major**

- Industrial and Systems Engineering (p. 656)

**Minor**

- Automotive Engineering and Manufacturing (p. 655)
- Business-Engineering-Technology (p. 655)
- Nuclear Power Generation Systems (p. 657)

**Courses**

**INSY 3010 PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3)** LEC. 3. Pr. COMP 1200. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

**INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3)** LEC. 3. Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

**INSY 3021 METHODS ENGINEERING AND WORK MEASUREMENT (3)** LEC. 2. LAB. 3. Coreq. INSY 3020. Develops the student’s ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

**INSY 3030 CAD FOR ENGINEERS WITH INDUSTRIAL APPLICATIONS (1)** LAB. 3. Pr. COMP 1200 or COMP 1210 or COMP 1217 or COMP 3000 or ENGR 1110 or ENGR 1113. Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc.

**INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3)** LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660 and STAT 3600. with a grade of C or better in STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

**INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3)** LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660. Formulation, solution, interpretation, and implementation of mathematical models in operations research including linear programming, integer programming and network flows.

**INSY 3420 SIMULATION (3)** LEC. 2. LAB. 3. Pr. INSY 3400 and (COMP 3010 or COMP 3013 or INSY 3010) and STAT 3610. with a grade of C or better in INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

**INSY 3600 ENGINEERING ECONOMY (3)** LEC. 3. Pr. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies.

**INSY 3700 OPERATIONS PLANNING AND CONTROL (3)** LEC. 3. Pr. INSY 3400 and INSY 3410 and STAT 3610. with a grade of C or better in both INSY 3400 and INSY 3410. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.
INSY 3800 MANUFACTURING SYSTEMS I (3) LEC. 2. LAB. 3. Introduction to the design, analysis, and operation of manufacturing systems, the first course in a required two-course sequence including Manufacturing Systems II.

INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL (3) LEC. 3. Pr. STAT 3610. Statistical process control and methods for quality improvement. Acceptance sampling for attributes and for variables.

INSY 4500 PROFESSIONAL PRACTICE (1) LEC. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering. Senior standing in INSY.

INSY 4700 MANUFACTURING SYSTEMS II (3) LEC. 3. Pr. INSY 3420 and INSY 3600 and INSY 3700 and INSY 3800. Continuation of the design, analysis, and operation of manufacturing systems, the second course in a required two-course sequence including Manufacturing Systems I.

INSY 4800 SENIOR DESIGN (3) LAB. 9. Pr. INSY 3021. Coreq. INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.

INSY 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-10) AAB. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 10 credit hours.

INSY 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student endeavor consisting of direct research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

INSY 5010 SAFETY ENGINEERING I (3) LEC. 3. Pr. INSY 3020. Departmental approval. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010/6016.

INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Pr. INSY 3700. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240/6246.

INSY 5250 SCHEDULING AND PROJECT MANAGEMENT (3) LEC. 3. Pr. INSY 3700. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250/6256.

INSY 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. INSY 4330 or departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both INSY 5330 and INSY 6330/6336.

INSY 5500 INFORMATION TECHNOLOGY FOR OPERATIONS (3) LEC. 3. Pr. (COMP 3010 or COMP 3013). Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process. Credit will not be given for both INSY 5500 and INSY 6500/6506.

INSY 5550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Pr. COMP 3010 or COMP 3013. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550/6556.

INSY 5600 MANUFACTURING AND PRODUCTION ECONOMICS (3) LEC. 3. Pr. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600/6606.

INSY 5630 REAL OPTIONS AND DECISION ANALYSIS (3) LEC. 3. Pr. INSY 3600 and STAT 3600. Analysis of engineering and business decisions under risk and contemporary risk management methods including statistical decision theory and real options. Credit will not be given for both INSY 5630 and INSY 6630/6636.
INSY 5753 INFORMATION TECHNOLOGY AUDITING (3) DSL. 3. Pr. ISMN 5730. In-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO.

INSY 5800 LEAN PRODUCTION (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800/6806.

INSY 5830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830/6836.

INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multi-disciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840/6846.

INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.

INSY 5860 AUTOMOTIVE MANUFACTURING SYSTEMS (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assembly plant. Credit will not be given for both INSY 5860 and INSY 6860/6866.

INSY 6010/6016 SAFETY ENGINEERING I (3) LEC. 3. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design and maintenance, and operation of effective safety programs. Departmental approval. Credit will not be given for both INSY 5010 and INSY 6010.

INSY 6240/6246 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240.

INSY 6250/6256 SCHEDULING AND PROJECT MANAGEMENT (3) LEC. 3. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250.

INSY 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Lean Six Sigma" and "Design for Six Sigma". Credit will not be given for both INSY 5330 and INSY 6330/6336.

INSY 6500/6506 INFORMATION TECHNOLOGY FOR OPERATIONS (3) LEC. 3. Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process. Credit will not be given for both INSY 5500 and INSY 6500.

INSY 6550/6556 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550.

INSY 6600/6606 MANUFACTURING AND PRODUCTION ECONOMICS (3) LEC. 3. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600.

INSY 6630/6636 REAL OPTIONS/DECISION ANALYSIS (3) LEC. 3. Analysis of engineering and business decisions under risk and contemporary risk management methods including statistical decision theory and real options. Credit will not be given for both INSY 5630 and INSY 6630/6636.

INSY 6800/6806 LEAN PRODUCTION (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800.
INSY 6830/6836 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

INSY 6840/6846 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multidisciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

INSY 6850/6856 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850.

INSY 6860/6866 AUTOMOTIVE MANUFACTURING SYSTEMS (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assemble plant. Credit will not be given for both INSY 5860 and INSY 6860.

INSY 7020/7026 SAFETY ENGINEERING II (3) LEC. 3. Pr. (INSY 6010 or INSY 6016). Systems safety analysis techniques including human error and reliability, fault trees, and cost benefit analysis.


INSY 7050/7056 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of noise and vibration stress.

INSY 7060/7066 ERGONOMICS I (3) LEC. 3. Overview of the human body systems and evaluation of the physiological response of the human body to occupational activities with emphasis on task design.

INSY 7070/7076 ERGONOMICS II (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Use of biomechanics in the evaluation and design of work activities. Emphasis is placed on biomechanical modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 7080/7086 HUMAN FACTORS ENGINEERING (3) LEC. 3. Examination of human factors, ergonomics and safety research methodologies. Emphasis is on human information input, output and control processes with the objective of optimizing integration of the human into simple and complex systems.

INSY 7081 HUMAN FACTORS LABORATORY (1) LAB. 3. Coreq. INSY 7080. Laboratory experience in testing human factors principles and concepts covered in INSY 7080. Experience in proper writing of laboratory reports.

INSY 7100/7106 ADAPTIVE OPTIMIZATION (3) LEC. 3. Departmental approval. Adaptive search methods inspired by nature for continuous and combinatorial optimization. Methods include simulated annealing, genetic algorithms, evolutionary strategies, tabu search and ant colony systems.

INSY 7120/7126 DATA ANALYTICS FOR OPERATIONS (3) LEC. 3. Pr. INSY 6500. or equivalent. This course covers the broad topics of predictive analytics, data visualization, and big data in the context of operations analysis. Focus will be on the application of modern computer tools with previously learned statistical and mathematical modeling tools, culminating in a semester project.

INSY 7130/7136 DATA MINING TECHNIQUES AND APPLICATIONS FOR OPERATIONS (3) LEC. 3. Pr. INSY 6500. or equivalent. This introductory course will cover the most common techniques for extracting useful information and models from numerical or categorical data. Techniques include clustering and classification, regression and spline models, kriging, and artificial neural networks. Also considered are data pre-processing, model building and model validation. Modeling and validation under conditions of sparse data will be addressed as well. Applications include those in finance, manufacturing, health care, and more.

INSY 7190 OCCUPATIONAL SAFETY AND HEALTH FORUM I (1) LEC. 1.

INSY 7200/7206 ENGINEERING APPLICATIONS OF FUZZY SYSTEMS AND NEURAL NETWORKS (3) LEC. 3. Departmental approval. Introduction to fuzzy systems and neural networks with emphasis on their uses in engineering applications in clustering, modeling, optimization, control, forecasting, and classification. A
INSY 7230/7236 ADVANCED LAYOUT AND LOCATION (3) LEC. 3. Facility layout algorithms and the facility design process. Facility location models and their relationship to strategic organization goals.

INSY 7240/7246 PRODUCTION AND INVENTORY CONTROL THEORY (3) LEC. 3. Theoretical foundations for the analysis and design of production and inventory control systems with emphasis on quantitative methods and current areas of research.


INSY 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Advanced concepts of experimental design including blocked designs, analysis of variance regression approach, and fractional factorials in base-2 designs. Emphasis throughout is on developing and improving industrial products and processes. Credit will not be given for both INSY 7300 and STAT 7300.

INSY 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both INSY 7310 and STAT 7310.

INSY 7330/7336 OFF-LINE AND ON-LINE QUALITY CONTROL (3) LEC. 3. Pr. STAT 7010 or (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Departmental approval. Taguchi’s quality loss functions. Taguchi’s orthogonal arrays and their relationships to fractional factorial designs. Taguchi’s parameter and tolerance designs, on-line process control concepts and methods. Process capability. CUSUM charts and other process control charts.

INSY 7380/7386 RELIABILITY ENGINEERING (3) LEC. 3. Pr. STAT 7600 or (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Reliability, maintenance, replacement with emphasis on failure-rate estimation and life testing. Hazard functions, parameter estimation and reliability testing including exponential and Weibull distributions. Markov models and repairable systems. Credit is not given for both INSY 7380 and STAT 7780. Departmental permission.

INSY 7390 OCCUPATIONAL SAFETY AND HEALTH FORUM II (1) LEC. 1. Pr. INSY 7190. Continuation of OSH Forum I (contemporary interdisciplinary issues in occupational safety and health). Emphasis is placed on leadership and mentoring of other OSH students (INSY 7190).

INSY 7400/7406 SIMULATION MODELING AND ANALYSIS (3) LEC. 3. Introduction to discrete event modeling and simulation. Fundamental concepts of Monte Carlo and discrete event simulation and the application of those concepts using commercial simulation software.

INSY 7420/7426 LINEAR PROGRAMMING AND NETWORK FLOWS (3) LEC. 3. Linear programming and network flows emphasizing algorithms and theory.

INSY 7430/7436 INTEGER AND NONLINEAR PROGRAMMING (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Departmental approval. Integer and non linear programming, emphasizing algorithms and theory.

INSY 7440/7446 DYNAMIC PROGRAMMING (3) LEC. 3. Departmental approval. Aspects of sequential decision making with emphasis on formulation and solution using the dynamic programming algorithm. Approximation methods for problems involving large state spaces. Solution techniques for problems under uncertainty.

INSY 7470/7476 SEARCH METHODS FOR OPTIMIZATION (3) LEC. 3. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 7490 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM II (1) LEC. 1. Pr. INSY 7290. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions. Emphasis is placed on leadership and mentoring of other OSH students (INSY 7290).

INSY 7500/7506 ADVANCED SIMULATION (3) LEC. 3. Pr. INSY 7400 or INSY 7406. Coverage of advanced simulation and simulation language design concepts. Includes advanced input/output analysis, modeling concepts, and language design/implementation concepts.

INSY 7550/7556 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Stochastic operations research models with emphasis on model formation, solution and interpretation of results. Emphasis on stochastic processes, queuing theory and their applications.

INSY 7710/7716 LIFE CYCLE ENGINEERING (3) LEC. 3. The life cycle engineering course focuses on various life cycle methodologies and tools like life cycle design, product life cycle, life cycle assessment (LCA) and inventory (LCI), service, reuse, re-manufacturing, sustainable design, risk assessment and management and other related topics. May count either INSY 7710 or INSY 7716.

INSY 7720/7726 SYSTEMS ENGINEERING I (3) LEC. 3. Processes and tools for engineering large-scale, complex complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity and documentation. May count either INSY 7720 or INSY 7726.

INSY 7730/7736 PRODUCT DESIGN, DEVELOPMENT, AND TEST (3) LEC. 3. This class teaches modern tools and methods for product design, development, and test of highly complex and large systems including technical specification, reliability, maintainability, manufacturability, testability, marketing, costs, etc. May count either INSY 7730 or INSY 7736.

INSY 7740/7746 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY (3) LEC. 3. This course teaches students the issues, strategies, and approaches related to launching, manufacturing, and delivering new products or services including customer focus, marketing, manufacturing and launch strategies, delivery and related tools and techniques.

INSY 7750/7756 INTELLECTUAL PROPERTY, LEGAL, AND VENTURE CAPITAL (3) LEC. 3. This course teaches students the US law of intellectual property with major emphasis on patents. Students also learn venture capital including stages of funding, funding presentations, various requirements of funding, types of partnership, exit plans, etc. May count either INSY 7750 or INSY 7756.

INSY 7940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 7950/7956 SEMINAR (1) LEC. 1. SU. Presentation and discussion of ISE research by graduate students, faculty and guests. Must be taken at least one term and cannot be used in the plan of study to apply towards the minimum number of hours for a degree.

INSY 7970/7976 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. 1. LAB. 1. Departmental approval. Special topics of a graduate nature pertinent to Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 7980/7986 MASTER’S IN INDUSTRIAL AND SYSTEMS ENGINEERING PROJECT (1-5) IND. SU. Non-thesis master’s project. Course may be repeated for a maximum of 5 credit hours.

INSY 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

INSY 8010 ADVANCED SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 7020 or INSY 7026. Topics of current interest in occupational safety research. Occupational safety research methodology and research priorities.

INSY 8060/8066 ADVANCED ERGONOMICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Topics of current interest in occupational ergonomics and human factors research. Occupational ergonomics and human factors research methodology and research priorities.

INSY 8250 SCHEDULING THEORY (3) LEC. 3. Pr. (INSY 6250 or INSY 6256) and (INSY 7420 or INSY 7426). The theory for various scheduling methods and models is presented. Emphasis is on current research in the scheduling area.

INSY 8420/8426 TOPICS IN OPTIMIZATION (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Basic concepts and theory of optimization, including saddlepoint conditions for differentiable and non-differentiable programs, duality, approximation, decomposition and partitioning, illustrated by application to specific algorithms.

INSY 8970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. Departmental approval. Special topics of an advanced graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.
**INSY 8990 RESEARCH AND DISSERTATION (1-10)** DSR. Course may be repeated with change in topics.

## Automotive Engineering and Manufacturing Minor

Students in any engineering major may choose to minor in automotive engineering and manufacturing. Three curriculum tracks are available: industrial and systems engineering, mechanical engineering, and car team tracks. The courses required for the minor may require prerequisites that will not count toward the student’s major or toward the minor.

The minor requires successful completion of 15-16 semester credit hours as shown below:

### Industrial and Systems Engineering Track

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MECH 4430</td>
<td>Ground Vehicle Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>INSY 5800</td>
<td>Lean Production</td>
<td>3</td>
</tr>
<tr>
<td>INSY 5840</td>
<td>Control of the Manufacturing Floor and Processes</td>
<td>3</td>
</tr>
<tr>
<td>INSY 5860</td>
<td>Automotive Manufacturing Systems</td>
<td>3</td>
</tr>
<tr>
<td>INSY 5330</td>
<td>Data Based Decision Making Using Six Sigma</td>
<td>3</td>
</tr>
<tr>
<td>or INSY 5830</td>
<td>Vehicle Technology and Trends</td>
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### Mechanical Engineering Track

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<tr>
<td>MECH 4420</td>
<td>Vehicle Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>MECH 4430</td>
<td>Ground Vehicle Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>MECH 5830</td>
<td>Engines</td>
<td>3</td>
</tr>
<tr>
<td>INSY 5800</td>
<td>Lean Production</td>
<td>3</td>
</tr>
<tr>
<td>INSY 5860</td>
<td>Automotive Manufacturing Systems</td>
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<td><strong>Total Hours</strong></td>
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### SAE Team Track

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<tbody>
<tr>
<td>MECH 4430</td>
<td>Ground Vehicle Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>MECH 4440</td>
<td>Automotive Design Experience I</td>
<td>2</td>
</tr>
<tr>
<td>MECH 4450</td>
<td>Automotive Design Experience II</td>
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<tr>
<td>INSY 5800</td>
<td>Lean Production</td>
<td>3</td>
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<tr>
<td>INSY 5840</td>
<td>Control of the Manufacturing Floor and Processes</td>
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<tr>
<td>INSY 5860</td>
<td>Automotive Manufacturing Systems</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
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</table>

1. Approval of department and car team advisor required.

## Business-Engineering-Technology

Students who minor in Business-Engineering-Technology learn, practice, and integrate entrepreneurship, engineering, and business management skills demanded by the technology-driven global economy, solve real-world case study and design problems, and work in cross-functional teams. The minor is a joint offering by the Colleges of Business and Engineering. Admission to the minor is competitive. To remain in the program, the cumulative GPA must be equal to or greater than 3.0.

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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BUSI/ENGR 3510</td>
<td>Introduction to Business and Engineering</td>
<td>3</td>
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<tr>
<td>BUSI/ENGR 3520</td>
<td>Integrating Business and Engineering Theories with Practice</td>
<td>3</td>
</tr>
<tr>
<td>BUSI/ENGR 3560</td>
<td>Leadership for Business and Engineers</td>
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Curriculum in Industrial and Systems Engineering

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BUSI/ENGR 5540</td>
<td>Entrepreneurship and Strategic Management of Technology and Innovation</td>
<td>4</td>
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<tr>
<td>BUSI/ENGR 5550</td>
<td>Product/Process Design and Development I</td>
<td>2</td>
</tr>
<tr>
<td>BUSI/ENGR 5560</td>
<td>Product/Process Design and Development II</td>
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### Freshman

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<tbody>
<tr>
<td>ENGL 1100</td>
<td>English Composition I</td>
<td>3</td>
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<tr>
<td></td>
<td>Core Fine Arts</td>
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<tr>
<td>MATH 1610</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1030</td>
<td>Fundamentals Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1031</td>
<td>Fundamental Chemistry I Laboratory</td>
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<td>ENGR 1100</td>
<td>Engineering Orientation</td>
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<td>ENGR 1110</td>
<td>Introduction to Engineering</td>
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<tbody>
<tr>
<td>ENGL 1120</td>
<td>English Composition II</td>
<td>3</td>
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<tr>
<td>Core History</td>
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<tr>
<td>MATH 1620</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>PHYS 1600</td>
<td>Engineering Physics I</td>
<td>4</td>
</tr>
<tr>
<td>COMP 1200</td>
<td>Introduction to Computing for Engineers and Scientists</td>
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### Sophomore

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<tbody>
<tr>
<td>PHYS 1610</td>
<td>Engineering Physics II</td>
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<tr>
<td>MATH 2660</td>
<td>Topics in Linear Algebra</td>
<td>3</td>
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<tr>
<td>MATH 2630</td>
<td>Calculus III</td>
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<tr>
<td>MATH 2650</td>
<td>Linear Differential Equations</td>
<td>3</td>
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<tr>
<td>STAT 3600</td>
<td>Probability and Statistics I</td>
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<tr>
<td>STAT 3610</td>
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<td>STAT 3611</td>
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<tbody>
<tr>
<td>INSY 3020</td>
<td>Occupational Safety Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>INSY 3021</td>
<td>Methods Engineering and Work Measurement</td>
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<tr>
<td>STAT 3610</td>
<td>Probability and Statistics II</td>
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<td>STAT 3611</td>
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<tr>
<td>Core Social Science</td>
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<tr>
<td>INSY 3010</td>
<td>Programming and Database Applications for ISE</td>
<td>3</td>
</tr>
<tr>
<td>INSY 3400</td>
<td>Stochastic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>INSY 3410</td>
<td>Deterministic Operations Research</td>
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<tr>
<td>INSY 3600</td>
<td>Engineering Economy</td>
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<tbody>
<tr>
<td>INSY 3420</td>
<td>Simulation</td>
<td>3</td>
</tr>
<tr>
<td>INSY 3700</td>
<td>Operations Planning and Control</td>
<td>3</td>
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<tr>
<td>INSY 3800</td>
<td>Manufacturing Systems I</td>
<td>3</td>
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<td><strong>hours</strong></td>
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### Senior

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<tr>
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<tr>
<td>PHIL 1020</td>
<td>Introduction to Ethics (Core Humanities)</td>
<td>3</td>
</tr>
<tr>
<td>INSY 4800</td>
<td>Senior Design</td>
<td>3</td>
</tr>
</tbody>
</table>
Auburn University

PHIL 1030 Ethics and the Health Sciences (Core Humanities)  
PHIL 1040 Business Ethics (Core Humanities)  
ELEC 3810 Fundamentals of Electrical Engineering  
INSY 4330 Statistical Quality Design and Control  
INSY 4500 Professional Practice  
INSY 4700 Manufacturing Systems II  
INSY Elective 3, 4  
Technical Elective 3, 4  
ELEC Elective

Total Hours: 120

1. The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2. ENGR 2050, ENGR 2200, ENGR 2100, MECH 2110, MATL 2100 (ENGR 2100 must be taken if completing Automotive Minor).

3. Any 3-hour ISE course not required for major or COMP 5000, ELEC 5150, MATL 3100, MECH 2220, MECH 5510, STAT 4610, STAT 4620, STAT 4630, STAT 5630, STAT 4670, STAT 5690, or a course with ISE department approval.

4. Six hours of ROTC required courses can be substituted for the ENGR and one TECH Elective. Three hours of minor or major required courses in BET, Nuclear, Supply Chain, Computer Science, or Information Systems Management count as one TECH elective.

5. General Note: Bold classes represent major classes. Total Hours for degree = 120. (P) Denotes courses required to complete pre-engineering.

6. Grade of C or better is required in these courses.

Nuclear Power Generation Systems Minor

This 16-hour minor prepares Auburn engineering students for careers specializing in the support and service of America’s nuclear power generation industry. Students who complete this minor will have demonstrated an understanding of the industry’s basic construction techniques, power plant models, integration into the national electrical grid and common reactor plant operations. Coursework for the minor will take place in the classroom as well as on-site at nuclear power generating facilities, and will be led by faculty and nuclear industry leaders. Areas of emphasis include: regulation, safety, reliability and dependability, radiological health and work control practices, and training requirements for operators and maintenance technicians.

ENGR 2700 Nuclear Power Operations, System and Careers 1
ENGR 3710 Basic Nuclear I: Nuclear and Mechanical Systems 4
ENGR 3720 Basic Nuclear II: Materials, Electric, Electronics 4
ENGR 4710 Advanced Reactor Operations I: Health and Safety 3
ENGR 4720 Advanced Reactor Operations II: Safe Operations 3
ENGR 4721 Advanced Reactor Plant Operations II: Lab 1

Total Hours 16

Mechanical Engineering

The curriculum in Mechanical Engineering focuses on the analysis, design, manufacturing, and maintenance of mechanical components and systems. Emphasis is placed on the fundamental concepts of engineering science and design needed in a variety of industries, including automotive, aerospace, biotechnology, material and chemical processing, microsystems and sensors, nanotechnology, machinery and robotics, pharmaceutical, energy production and distribution, heating and refrigeration, food production and processing, entertainment, pulp and paper, weapons systems, and many others. Mechanical engineering students take courses in several areas of engineering including: mechanics of rigid and deformable solids, thermo-fluid sciences, energy systems, dynamic systems and controls, design and manufacturing, materials, and electronics.

In compliance with the Engineering Accreditation Commission (EAC) of ABET, the Department of Mechanical Engineering at Auburn University has developed and maintained a well-defined set of Program Educational Objectives to assure the quality of our program
and graduates. These objectives are broad statements that describe the career and professional accomplishments that the mechanical engineering degree program is preparing the graduates to achieve a few years after graduation. The objectives are consistent with the needs and expectations of the program constituencies, and are reviewed and updated regularly using an annual assessment process. The current program educational objectives are:

- Our graduates have rewarding careers where they use their technical proficiency and mechanical engineering education for the professional practice of mechanical engineering or any other career path they choose.
- Our graduates contribute to their chosen field by effectively leveraging a broad array of professional skills such as oral and written communication, leadership, and teamwork.
- Our graduates are life-long learners through a variety of means including self study, continuing education courses, and graduate level education.
- Our graduates maintain awareness of a broad range of contemporary issues and global concerns especially as they relate to the field of mechanical engineering.

Students are able to concentrate on areas of special interest through technical elective courses taken in the senior year. In addition, specialized concentrations are offered in Automotive Engineering and in Pulp and Paper Engineering. Minors are offered in Tribology, Business Engineering and Technology, and in Automotive Engineering and Manufacturing.

### Materials Engineering

The curriculum in Materials Engineering (MATL) is structured to address problems associated with the design of materials and materials processes to meet specific needs for a variety of industries. Emphasis is on the basic sciences and principles of engineering with applications of these principles to materials behavior. The student must obtain a broad foundation in chemistry, physics and mathematics, which is applied in engineering courses. Within materials engineering courses, students obtain a foundation in the major areas of materials science and to the major classes of engineering materials, which is applied in courses in materials properties and selection, computational methods and in a capstone design course. Students gain in-depth experience in another engineering discipline through coordinated technical elective sequences. Students may design alternative cross-disciplinary sequences, but they must be coordinated and approved by the Materials Engineering Curriculum Committee. The objective of the MATL program is to produce graduates who are engaged in careers through which they apply materials engineering proficiency, effective communication and lifelong learning to provide technical, economic, or other benefits to society.

### Major

- Materials Engineering (p. 668)
- Mechanical Engineering (p. 669)

### Minor

- Automotive Engineering and Manufacturing (p. 655)
- Tribology (p. 671)
- Materials Engineering Minor (p. 671)
- Materials Science Minor (p. 671)

### Materials Engineering Courses

**MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3)** LEC. 3. The science of solid materials and the relationship between this science and material properties.

**MATL 2210 MATERIALS FOR SUSTAINABLE ENERGY PRODUCTION AND STORAGE (1)** LEC. 1. Pr. CHEM 1030. Technologies for sustainable energy production and storage, renewable energy conversion, associated materials challenges.

**MATL 2220 MATERIALS AND THE ENVIRONMENT (1)** LEC. 1. Pr. CHEM 1030. Environmental impact of the production, use and disposal of materials.

**MATL 2230 MINERAL RESOURCES: PROCESSING AND AVAILABILITY (1)** LEC. 1. Pr. CHEM 1030. Mineral resources for engineering materials; processing and availability of mineral resources.

**MATL 3100 ENGINEERING MATERIALS - METALS (3)** LEC. 3. Pr. MATL 2100. The relationship among processing, microstructure, properties and engineering applications of metallic materials.
MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3. Coreq. MATL 3100. The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3. Pr. CHEM 1040. The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3. Coreq. MATL 3200. A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3. Pr. MATL 2100. The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.


MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1. LAB. 6. Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations.

MATL 5200 CRYSTALLOGRAPHY (2) LEC. 2. Pr. PHYS 1610 or PHYS 1617. Departmental approval. Principles of crystallography, reciprocal lattice X-ray diffraction techniques.

MATL 5201 X-RAY DIFFRACTION LABORATORY (1) LAB. 3. Coreq. MATL 5200. Laboratory on the use of x-ray diffraction for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Pr. MATH 2650 and ENGR 2200. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3. Pr. PHYS 1610 or PHYS 1617. Departmental approval. The physics of solid-state materials, including the electronic, optical and magnetic properties of materials.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Pr. MATL 5100 and P/C MATL 5300. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.


MATL 5720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Pr. P/C BIOL 1030 or P/C CHEM 2070. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Pr. MATL 2100 and (ENGR 2070 or MECH 3130). Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.
MATL 6100/6106 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations.

MATL 6200/6206 CRYSTALLOGRAPHY (2) LEC. 2. Departmental approval. Principles of crystallography, reciprocal lattice X-ray diffraction techniques.

MATL 6201 X-RAY DIFFRACTION LABORATORY (1) LAB. 3. Coreq. MATL 6200. Laboratory on the use of x-ray diffraction for materials characterization.

MATL 6300/6306 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology.

MATL 6400/6406 PHYSICS OF SOLIDS (3) LEC. 3. Departmental approval. The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials.

MATL 6500/6506 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.


MATL 6720/6726 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 6750/6756 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Departmental approval. Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7050/7056 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3. Departmental approval. Coreq. MATL 6200. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MATL 7110/7116 PHYSICAL METALLURGY AND APPLICATIONS IN METAL FABRICATION (3) LEC. 3. Departmental approval. The physical metallurgy underlying processing-structure- property relationships in metals and alloys, with examples from joining processes.

MATL 7120/7126 ADVANCED CERAMIC MATERIALS (3) LEC. 3. Departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MATL 7130/7136 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers.

MATL 7140/7146 ADVANCED COMPOSITE MATERIALS (3) LEC. 3. Departmental approval. Processing, mechanics structure and properties of composite materials. Emphasis will be placed on an understanding of processing-structure-property relationships in polymer-, ceramic-, and metal-matrix composites.


MATL 7210/7216 PLASTIC DEFORMATION AND STRENGTHENING OF METALLIC MATERIALS (3) LEC. 3. Departmental approval. Mechanisms of plastic deformation and strengthening in metals and alloys. The role of dislocations in plastic deformation.
MATL 7220/7226 RADIATION EFFECTS ON MATERIALS (3) LEC. 3. Departmental approval. Theoretical and experimental treatment of the radiation effects and damage in materials as related to the nuclear industry.

MATL 7230/7236 HIGH TEMPERATURE MATERIALS PERFORMANCE (3) LEC. 3. Departmental approval. Theoretical and experimental treatment of the behavior of metals at high temperature.

MATL 7310/7316 SOLIDIFICATION PROCESSING (3) LEC. 3. Departmental approval. Theoretical science and engineering principles that apply to semiconductor crystal growth, ingot solidification, metal casting, welding and rapid solidification processes.

MATL 7320/7326 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Structure, properties, characterization, processing and application of thin films.

MATL 7330 MATERIALS FOR ENERGY STORAGE (3) LEC. 3. Introduction of various electrochemical energy storage devices (Batteries, Supercapacitor, etc) and discussion of advancement in development of materials for these devices. Instructor’s consent required for prerequisites.

MATL 7410/7416 CHEMICAL SENSORS (3) LEC. 3. Departmental approval. Fundamentals and application of chemical sensors. Includes electrolyte, semiconductor and acoustic wave-based sensors.

MATL 7420/7426 SMART MATERIALS AND STRUCTURES (3) LEC. 3. Departmental approval. An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures.

MATL 7430/7436 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3. Pr. (MATL 6100 or MATL 6106) and (MATL 6400 or MATL 6406). Departmental approval. Processing, structure, properties, and application of dielectrics, including physics of dielectrics, material/device design/fabrication processes, and application of dielectric materials in high-technological industry.

MATL 7440/7446 MATERIALS PROCESSES MICRO AND NANOSYSTEMS (3) LEC. 3. Departmental approval. Materials, processes, and principles involved in manufacturing of micro and nanoelectromechanical systems. Properties of materials used in micromachined transducers as a related to current and potential micro and nanofabrication processes.

MATL 7450/7456 HIGH TEMPERATURE ELECTROCHEMICAL DEVICES (3) LEC. 3. Departmental approval. Principles of solid-state electrochemistry, application to temperature devices including chemical sensors, fuel cells and batteries.

MATL 7510/7516 ELECTRON MICROSCOPY (3) LEC. 3. Departmental approval. Theory, instrumentation, techniques and applications of scanning and transmission electron microscopy.

MATL 7511 ELECTRON MICROSCOPY LABORATORY (1) LAB. 3. Coreq. MATL 7510. Laboratory on the use of electron microscopy for materials characterization.


MATL 7610/7616 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3. Departmental approval. Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance.

MATL 7620/7626 NANO/MICRO FLUIDIC SYSTEMS (3) LEC. 3. Departmental approval. Basic understanding of nano/microfluidics (typical volumes are nanoliters or picoliters) and practical applications in materials science and engineering, biotechnology, and other interdisciplinary fields of engineering and science.

MATL 7630/7636 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/medicine including nanostructured biomolecules and bioarrays as well as biomolecular nanoelectronics.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM. SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960/7966 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) IND. SU. Departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topics.
MATL 7970/7976 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7980/7986 MASTER MATERIALS ENGINEERING PROJECT (3) LEC. 3. SU. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee.

MATL 7990/7996 RESEARCH AND THESIS (1-15) MST. Individual master's thesis research. Course may be repeated with change in topics.

MATL 8990/8996 RESEARCH AND DISSERTATION (1-15) DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.

Mechanical Engineering Courses

MECH 2110 STATICS AND DYNAMICS (4) LEC. 3. LAB. 3. Pr. (MATH 1620 or MATH 1623 or MATH 1627) and (PHYS 1600 or PHYS 1607). Vectors, forces, moments and free body diagrams. Systems in mechanical equilibrium. Particles in motion.

MECH 2120 KINEMATICS AND DYNAMICS OF MACHINES (4) LEC. 3. LAB. 3. Pr. (MATH 2630 or MATH 2637) and MECH 2110. Kinematics and kinetics of rigid bodies. Kinematics and dynamics of mechanisms, cams and gears.

MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and COMP 1200 and P/C MATH 2650. The computer as a tool in mechanical engineering.

MECH 2AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT I (0) TST. SU. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics.


MECH 3030 FLUID MECHANICS (3) LEC. 3. Pr. MECH 2110 and ENGR 2010 and MATH 2650 and P/C MECH 3130. Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow.


MECH 3050 MEASUREMENT AND INSTRUMENTATION (3) LEC. 2. LAB. 3. Pr. MECH 3030 and P/C ELEC 3810 and P/C MECH 3040. Theory and practice of modern sensors and computer-based data acquisition techniques, uncertainty analysis, results reporting, filtering and signal processing.

MECH 3130 MECHANICS OF MATERIALS (4) LEC. 3. LAB. 1. Pr. MECH 2110 and MATL 2100 and MATH 2650 and MATH 2660 and (MECH 2220 or MECH 3220). Stress and strain concepts, stress-strain relationships, applications, uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories, strain energy, impact loading, cyclic loading.

MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. MECH 2120 and MATH 2650. System dynamics and automatic control theory.

MECH 3200 CONCEPTS IN DESIGN AND MANUFACTURING (2) LEC. 2. Pr. MECH 2110 and (P/C MECH 2220 or P/C MECH 3220). The mechanical design process, project based, with teamwork, project management and communication. Users' needs, engineering requirements, concept generation and selection, design development.

MECH 3210 DESIGN AND MANUFACTURING LAB (1) LAB. 1. Manufacturing safety lab for introduction to manufacturing processes associated with cutting, forming, and joining of metals and other materials.

MECH 3230 MACHINE DESIGN (3) LEC. 3. Pr. MECH 3130 and (MECH 3210 or MECH 2210) and (MECH 3200 or MECH 2210) and (MECH 2220 or MECH 3220). Design of systems containing a variety of mechanical elements.

MECH 3AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT II (0) TST. SU. Pr. MECH 2AA0. Progress Assessment Examination in: Statistics, linear algebra, mechanical design, thermo-fluid design, social impact, contemporary issues.
MECH 4240 COMPREHENSIVE DESIGN I (2) LEC. 1. LAB. 3. Pr. (MECH 3AA0 and MECH 3230 and MECH 3040 and P/C MECH 3050 and P/C MECH 3140) or (MECH 3AA0 and MECH 3230 and P/C MECH 3040 and MECH 3050 and P/C MECH 3140) or (MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and MECH 3140). Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2) LEC. 1. LAB. 3. Pr. (MECH 4240 and MECH 3040 and MECH 3050 and P/C MECH 3140 and P/C INSY 3600) or (MECH 4240 and MECH 3050 and MECH 3140 and P/C MECH 3040 and P/C INSY 3600) or (MECH 4240 and MECH 3140 and MECH 3040 and P/C MECH 3050 and P/C INSY 3600). Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Operation, performance, maintenance, selection, design and optimization of mechanical equipment commonly found in industrial operations.

MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3. Pr. MECH 3040. Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.

MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040 and MATH 2660. Introduction to computational fluid dynamics and heat transfer techniques used to analyze thermal performance of devices and systems. Commercial software will be used.

MECH 4420 VEHICLE DYNAMICS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 2120. Ground vehicle resistance, propulsion, maneuvering, and control tires, suspensions, braking, aerodynamics, case studies.

MECH 4430 GROUND VEHICLE FUNDAMENTALS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 2120. Engineering fundamentals of ground vehicles and typical subsystems, including: power (engine and electrical); drivetrain; braking; steering; suspension; ergonomics; and structure.

MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1. LAB. 3. Pr. MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and P/C MECH 3140. and Departmental Approval. Team-based design of a ground vehicle, both whole-vehicle and subsystem; design evaluation and modification; oral and written communication.

MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2) LEC. 1. LAB. 3. Pr. MECH 4440. Departmental approval. Team-based fabrication, testing, modification and operation of a ground vehicle; oral and written communication; project management.

MECH 4510 INDUSTRIAL AND ENVIRONMENTAL NOISE CONTROL (3) LEC. 3. Pr. MECH 2120 and MECH 3220. Sources of industrial and community noise, criteria for control, noise measuring instrumentation, issues involved in the design of machinery for minimum noise, noise ordinances and regulations.

MECH 4520 MACHINERY NOISE AND VIBRATION DIAGNOSTICS (3) LEC. 3. Pr. MECH 2120 and MECH 3220. An introduction to machinery diagnostics through noise and vibration signatures. Fundamental principles and applications of predictive maintenance of machinery.

MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (3) LEC. 3. Pr. MECH 3200. Real world engineering management decision making, case studies from industry.

MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND/INT. Departmental approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.
MECH 5050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 2.5. Pr. ENGR 2010 or ENGR 2200 or permission of instructor. Overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles. May count one of: MECH 5050, MECH 6050, MECH 6056.

MECH 5110 INTERMEDIATE HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040. Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 5120 COMBUSTION (3) LEC. 3. Pr. MECH 3040. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Pr. MECH 3040 and ELEC 3810. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 5220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three-dimensional simple and complex mechanical systems.

MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Pr. MECH 3030 and MECH 3230 or INSY 3800. Theory and techniques for considering friction, wear and lubrication, in the design of machine components, and other surface interactions.

MECH 5240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Pr. MECH 3030. Theory and techniques for designing and modeling of the different regimes of lubrication between surfaces and machine components in order to control friction and wear.

MECH 5270 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 3210. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 3130. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 5310 MECHANICS OF ELECTRONIC PACK (3) LEC. 3. Pr. MECH 3130 and ELEC 3810. Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Pr. MECH 3040 and MECH 3130 and MATH 2660. Introduction to the fundamentals of the finite element method.

MECH 5410 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3. Pr. MECH 3140. Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Pr. MECH 3140. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3. Pr. MECH 3130. Basic concepts, fabrication and operation of micromachined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.


MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MATH 2650. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.

MECH 5610 MECHANICAL VIBRATION (3) LEC. 3. Pr. MECH 2120 and MATH 2650 and MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 5710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr. MECH 3140. Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.

MECH 5720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Pr. MECH 3140. Application of various algorithms for robot manipulators.

MECH 5810 MECHATRONICS (3) LEC. 3. Pr. MECH 2120 and ELEC 3810. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5820 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 5830 ENGINES (3) LEC. 3. Pr. (ENGR 2010 and MECH 3030) or ENGR 2200. or (ENGR 2010 plus any one of (AERO 3110, CHEN 2610, CIVL 3110, MECH 3030)). Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics, thermochemistry, stress, vibration, noise, mechanisms.

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 6 credit hours.

MECH 6010/6016 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 6050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 2.5. An overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 6110/6116 INTERMEDIATE HEAT TRANSFER (3) LEC. 3. Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 6120/6126 COMBUSTION (3) LEC. 3. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210/6216 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 6230/6236 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance.

MECH 6240/6246 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine components in order to control friction and wear.

MECH 6270/6276 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 3210. Theory and optimization techniques for tool life and surface finish concerning friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 6300/6306 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke’s law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.


MECH 6390/6396 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Introduction to the fundamentals of the finite element method.
MECH 6410/6416 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3. Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 6420/6426 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430/6436 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.


MECH 6510/6516 ENGINEERING ACOUSTICS (3) LEC. 3. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics, and, noise control will be emphasized.

MECH 6610/6616 MECHANICAL VIBRATION (3) LEC. 3. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 6620/6626 STABILITY AND VIBRATION OF DISCRETE SYSTEMS (3) LEC. 3. Pr. MECH 6610 or MECH 6616. Principles of advanced dynamics, linear systems with multiple degrees of freedom, stability and boundedness, free and forced response of linear systems, parameter identification.

MECH 6710/6716 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.

MECH 6720/6726 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Application of various algorithms for robot manipulators.

MECH 6810/6816 MECHATRONICS (3) LEC. 3. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6820/6826 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 6830/6836 ENGINES (3) LEC. 3. Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 6930/6936 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7010/7016 ADVANCED THERMODYNAMICS (3) LEC. 3. Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.


MECH 7120/7126 ADVANCED FLUID MECHANICS II (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130/7136 BOUNDARY LAYER THEORY (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140/7146 TURBULENCE (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equation; Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.
MECH 7150/7156 FLUID MECHANICS OF PROCESSING (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Fluids; Governing Equations; Dimensional analysis; Particle-Laden Flows; Applications to specific processing problems such as liquid metal flows, polymers, surface deposition.

MECH 7210/7216 DIFFUSIVE TRANSPORT (3) LEC. 3. Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220/7226 CONVECTION HEAT TRANSFER (3) LEC. 3. Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230/7236 THERMAL RADIATION (3) LEC. 3. Fundamentals of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240/7246 NUMERICAL METHODS IN HEAT TRANSFER (3) LEC. 3. Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.


MECH 7300/7306 FRACTURE MECHANICS (3) LEC. 3. Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.

MECH 7310/7316 SOLID MECHANICS (3) LEC. 3. Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320/7326 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.


MECH 7340/7346 INELASTIC STRESS ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360/7366 MECHANICS OF COMPOSITE MATERIALS (3) LEC. 3. Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370/7376 ANALYSIS OF PLATES AND SHELLS (3) LEC. 3. Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.


MECH 7410/7416 OPTICAL METHODS IN MECHANICS (3) LEC. 3. Measurement of stresses, strains, and deformations using optical methods; optical interference; Fourier optics; optical spatial filtering, white light methods; coherent optical methods.

MECH 7430/7436 OPTICAL PROPERTIES OF ADVANCED MATERIALS (3) LEC. 3. Pr. MECH 6430 or MECH 6436 or PHYS 7200. Linear and nonlinear optical properties, correlation with material-structure, electro-optic effects, lasers, frequency conversion, fiber-optics, technological applications.

MECH 7510/7516 ADVANCED ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MECH 6510 or MECH 6516. The fundamentals of advanced acoustics theory. Wave equation derivation from Navier-Stokes equations, spherical waves, monopoles, dipoles, quadrupoles. Duct Acoustics, Statistical Energy Analysis.

MECH 7620/7626 NONLINEAR SYSTEMS (3) LEC. 3. Introduction, geometrical concepts, analytical methods, Poincare' maps, strange attractors, bifurcation, normal forms, center manifold theory, Liapunov stability, Liapunov exponents, linearization about periodic orbits, Floquet theory, bifurcation analysis.

MECH 7630/7636 MECHANICAL IMPACT (3) LEC. 3. Departmental approval. Investigation of the fundamental concepts used to solve collision problems with friction.


MECH 7650/7656 RANDOM VIBRATION (3) LEC. 3. Pr. MECH 6610 or MECH 6616. Properties of random processes, review of linear systems with single and multiple degrees of freedom. Vibration of single and multiple degrees of freedom systems subjected to random excitations, design of structures subjected to random excitation. Parameter estimation.

MECH 7710/7716 CONTROL SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. Topics from control theory are introduced in the context of control systems analysis and design, including state variable feedback, modal control, optimal control and adaptive control for both continuous and discrete systems.

MECH 7930 ADVANCED DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Topics may vary. Will not fulfill degree requirements. Course may be repeated with change in topics.

MECH 7970/7976 ADVANCED SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7990 RESEARCH & THESIS (1-12) MST. Individual Master's thesis research. May be repeated for credit. Course may be repeated with change in topics.

MECH 8990 RESEARCH & DISSERTATION (1-12) DSR. Individual Doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Curriculum in Materials Engineering

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<tr>
<td>MATH 1610 Calculus I</td>
<td></td>
<td>4</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>3</td>
</tr>
<tr>
<td>ENGR 1100 Engineering Orientation</td>
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<tr>
<td>Core History¹</td>
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<td>ENGR 1110 Introduction to Engineering</td>
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Sophomore

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<tr>
<td>MATH 2630 Calculus III</td>
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<td>MATH 2650 Linear Differential Equations</td>
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<tr>
<td>MATL 2100 Introduction to Materials Science</td>
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<td>STAT 3010 Statistics for Engineers and Scientists</td>
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<tr>
<th>Total Hours</th>
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Auburn University

COMP 1200 Introduction to Computing for Engineers and Scientists  2  ENGR 2070 Mechanics of Materials  3  
ENGR 2050 Statics  3  ELEC 3810 Fundamentals of Electrical Engineering  3  
PHYS 1610 Engineering Physics II  4  ECON 2020 Principles of Microeconomics  3  

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<tr>
<th>Course Name</th>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>MATH 2660 Topics in Linear Algebra</td>
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<tr>
<td>PHIL 1020 Introduction to Ethics</td>
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<td>EGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer</td>
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<tr>
<td>MATL 3101 Metallography Laboratory</td>
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<td>MATL 3201 Polymer and Composites Laboratory  1</td>
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<tr>
<td>MATL 5200 Crystallography</td>
<td>2</td>
<td>MATL 3300 Engineering Materials - Ceramics  3</td>
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<tr>
<td>MATL 5201 X-Ray Diffraction Laboratory</td>
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<td>Technical Elective  2</td>
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<thead>
<tr>
<th>Course Name</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>Core Literature</td>
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<tr>
<td>MATL 4500 Materials Properties and Selection</td>
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<td>MATL 4980 Senior Design Project  3</td>
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<td>MATL 5100 Thermodynamics of Materials Systems</td>
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<td>MATL 5300 Phase Transformations in Material Processing  3</td>
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<td>MATL 5400 Physics of Solids</td>
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<td>MATL 5500 Numerical Simulation of Materials Processing  3</td>
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Junior

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<tr>
<th>Course Name</th>
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<tbody>
<tr>
<td>MATH 2660 Topics in Linear Algebra</td>
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<td></td>
</tr>
<tr>
<td>PHIL 1020 Introduction to Ethics</td>
<td>3</td>
<td>EGR 2200 Introduction To Thermodynamics, Fluids And Heat Transfer</td>
</tr>
<tr>
<td>MATL 3101 Metallography Laboratory</td>
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<td>MATL 3201 Polymer and Composites Laboratory  1</td>
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<td>MATL 5200 Crystallography</td>
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<td>MATL 3300 Engineering Materials - Ceramics  3</td>
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<tr>
<td>MATL 5201 X-Ray Diffraction Laboratory</td>
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<td>Technical Elective  2</td>
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Senior

<table>
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<tr>
<th>Course Name</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>Core Literature</td>
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<tr>
<td>MATL 4500 Materials Properties and Selection</td>
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<td>MATL 4980 Senior Design Project  3</td>
</tr>
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<td>MATL 5100 Thermodynamics of Materials Systems</td>
<td>3</td>
<td>MATL 5300 Phase Transformations in Material Processing  3</td>
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<tr>
<td>MATL 5400 Physics of Solids</td>
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<td>MATL 5500 Numerical Simulation of Materials Processing  3</td>
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<tr>
<td>Technical Electives III</td>
<td>3</td>
<td>UNIV 4AA0 University Graduation  0</td>
</tr>
</tbody>
</table>

Total Hours: 122

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. Because of the discipline specific requirements for the Humanities courses, it is recommended that a History sequence be completed in the Social Sciences courses.

2 Technical elective are chosen form a list of coordinated cross-disciplinary sequences. Sequences other than those specified must be approved by the material engineering curriculum committee.

Curriculum in Mechanical Engineering

Freshman

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>MATH 1620 Calculus II  4</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>PHYS 1600 Engineering Physics I  4</td>
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<tr>
<td>Core History</td>
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<td>ENGL 1120 English Composition II  3</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>Core Social Science  1</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>ENGR 1110 Introduction to Engineering  2</td>
</tr>
<tr>
<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
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Curriculum in Mechanical Engineering

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>PHYS 1610</td>
<td>4</td>
<td>MATH 2660</td>
<td>Topics in Linear Algebra</td>
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<td>MATH 2630</td>
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<td>Introduction to Materials Science</td>
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<tr>
<td>MECH 2110</td>
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<td>MECH 210</td>
<td>Kinematics and Dynamics of Machines</td>
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<td>Computer-Aided Engineering</td>
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<table>
<thead>
<tr>
<th>Junior</th>
<th>Fall</th>
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<td>INSY 3600</td>
<td>Engineering Economy</td>
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<td>MECH 3020</td>
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<td>MECH 3AA0</td>
<td>Mechanical Engineering Progress Assessment II</td>
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<tr>
<td>MECH 3030</td>
<td>3</td>
<td>MECH 3040</td>
<td>Heat Transfer</td>
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<td>MECH 3130</td>
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<td>Measurement and Instrumentation</td>
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<td>MECH 3200</td>
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<td>MECH 3140</td>
<td>System Dynamics and Controls</td>
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<td>MECH 3210</td>
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<td>Machine Design</td>
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<th>Senior</th>
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<td>Core Literature2</td>
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</table>

Total Hours: 122

1 The AU Bulletin lists the University Core Curriculum requirements for students in the College of Engineering. Students must complete a sequence in either Literature or History. In order to complete the degree in 122 credits, because of the Mechanical Engineering specific requirements for the Humanities and Fine Arts courses, it is recommended that a two course History sequence (HIST 1010, HIST 1020, HIST 1017, HIST 1027, HIST 1210, HIST 1220 or HIST 1217- HIST 1227) be completed in the Social Sciences.

2 Core Literature: ENGL 2200, ENGL 2207, ENGL 2210, ENGL 2217, ENGL 2230, ENGL 2240, ENGL 2250 or ENGL 2260.

Technical Elective - see adviser for approved course listing.
### Material Engineering Minor

Students completing this 15-hour minor will have an understanding structure-property relationships of different types of materials and be able to apply this understanding to the processing and selection of materials for engineering applications. The minor includes courses that focus on each of the major classes of materials (metals, polymer and ceramics) and includes an elective to allow students to pursue their particular areas of interest. The minor will provide students in other disciplines with a better understanding of materials related to their particular interests.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATL 2100</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>MATL 3100</td>
<td>Engineering Materials - Metals</td>
<td>3</td>
</tr>
<tr>
<td>MATL 3200</td>
<td>Engineering Materials Polymers</td>
<td>3</td>
</tr>
<tr>
<td>MATL 3300</td>
<td>Engineering Materials - Ceramics</td>
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**Elective Courses (at least 3 credit hours from the following)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATL 2210</td>
<td>Materials for Sustainable Energy Production and Storage</td>
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</tr>
<tr>
<td>MATL 2220</td>
<td>Materials and the Environment</td>
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<tr>
<td>MATL 2230</td>
<td>Mineral Resources: Processing and Availability</td>
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<tr>
<td>MATL 3101</td>
<td>Metallography Laboratory</td>
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<tr>
<td>MATL 3201</td>
<td>Polymer and Composites Laboratory</td>
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<td>MATL 4500</td>
<td>Materials Properties and Selection</td>
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<td>MATL 5500</td>
<td>Corrosion</td>
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<td>MATL 5700</td>
<td>Biomaterials</td>
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<tr>
<td>MATL 5750</td>
<td>Microstructure and Mechanics of Skeletal Tissues</td>
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</table>

1 These courses aren't offered every year.

### Materials Science Minor

Students completing this 15-hour minor will have an understanding science underlying the structure-property relationships in solid state materials. The minor provides students with understanding of the solid state chemistry and physics that are applied to control materials properties and design fabrication processes. The minor can provide complementary scientific understanding to engineering students or demonstrate application of science to materials properties to students from the sciences.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>MATL 2100</td>
<td>Introduction to Materials Science</td>
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<td>Thermodynamics of Materials Systems</td>
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<td>Crystallography</td>
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<td>MATL 5201</td>
<td>X-Ray Diffraction Laboratory</td>
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<tr>
<td>MATL 5300</td>
<td>Phase Transformations in Material Processing</td>
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**Elective Courses (3 credit hours from the following)**

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<th>Title</th>
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<tbody>
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<td>MATL 5400</td>
<td>Physics of Solids</td>
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</tr>
<tr>
<td>PHYS 5610</td>
<td>Introduction to Solid State Physics</td>
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</table>

### Tribology Minor

This 15-hour multidisciplinary minor prepares students from various science and engineering majors for careers that require a background in friction, wear and lubrication (tribology). Students will be prepared for not only the lubricant and bearing manufacturing industry, but for design and maintenance in the power generation, vehicle, and manufacturing industries. Students who complete this minor will acquire the skills necessary to identify critical parameters in a tribological system, design a tribological system for the needs of a specific application, including geometry, lubricant, and surface properties. Students will also understand the chemical formulation and operating mechanisms of lubricants and additives.

**Courses required**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 5230</td>
<td>Friction, Wear and Lubrication</td>
<td>3</td>
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</tbody>
</table>
Polymer and Fiber Engineering

Bachelor of Polymer and Fiber Engineering

Polymers and fibers are high performance materials utilized in such diverse fields as plastics, elastomers (rubber), adhesives, surface coatings (paints), films, paper, packaging, insulation, filtration, aerospace, automotive, biomedical, composite, construction, environmental, industrial, marine, nonwoven, recreational, and safety materials.

Polymer and fiber engineering prepares graduates to work in research and development, product development, process engineering, composite engineering, quality engineering, industrial engineering, or technical sales; or to proceed to advanced studies in engineering, science, medicine, law, computer, business, or related fields.

Research and instruction in polymer and fiber engineering includes:

- Polymer synthesis and processing.
- Characterization and evaluation of structure and properties of polymeric materials using advanced techniques and state-of-the-art instrumentation.
- Modeling of structure-property-performance relationships emphasizing correlation of properties with the structure across nano-, micro-, and macro-length scales.
- Design, analysis, engineering, and assembly of polymeric fibrous materials into advanced engineered materials with novel compositions and tailored microstructures.
- Product, mold, and die design.

A solid foundation in mathematics, chemistry, and physics is applied in engineering and major courses during junior and senior years. Engineering design is integrated throughout the curriculum in major courses, laboratories, and a capstone design project which is completed during the senior year.

To accommodate the broad range of polymer and fiber opportunities, the undergraduate program offers two options leading to the bachelor of polymer and fiber engineering. The polymer option emphasizes polymer characterization, processing, and chemistry. The fiber option emphasizes the mechanics of composite materials and other fibrous structures.

Graduates will be actively engaged in one or more of the following:

The practice of engineering:

- Evidence of increasing responsibilities in the form of promotions, management or leadership duties, or other professional activities while employed in industrial, governmental, educational or consulting positions.
- Evidence of recognitions and awards.
- Evidence of contributing to their chosen field of practice through the development and dissemination of technical knowledge, presentations, publications, patents, or other means.
- Evidence of meeting professional responsibilities in the form of mentoring, professional society activities, peer review, editorial work, or similar activities.
- The acquisition of new knowledge and skills.
- Evidence of pursuit of an advanced degree.
- Evidence of participation in ongoing professional development activities.
- Activities which meet their ethical responsibilities for public service.
• Evidence of involvement in community service.
• Evidence of involvement in K-12 education.
• Evidence of providing input to policy makers.

Major

Courses

PFEN 2270 INTRODUCTION TO ENGINEERED FIBROUS MATERIALS (4) LEC. 4. Pr. ENGR 1110 or ENGR 1113. The fundamentals of chemistry and engineering applied to fibrous assemblies illustrated using the properties required by end-use. Topics will include biomedical materials, architectural applications cables, ropes, and tethers, composite materials, filtration fabrics, ballistic protection, and health-care products.

PFEN 3100 FUNDAMENTALS OF POLYMERS (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Fundamentals of polymers: terminology, synthesis, structure, molecular weight, transitions of state, structure and uses.


PFEN 3500 STRUCTURE AND PROPERTIES OF POLYMERS AND FIBERS (3) LEC. 3. Pr. PFEN 3100. Exploration of the relationships between the chemical structure, properties and uses of polymers and fibers. Emphasis on the importance of judicious material selection for particular end use applications. Spring.

PFEN 3570 ENGINEERED PROTECTIVE MATERIALS (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and CHEM 1030 and CHEM 1040 and (P/C PHYS 1600 or P/C PHYS 1607). An engineering approach to the design of protective materials and structures based on analyses to counter kinetics, chemical and biological threat hazards to people, animals and valuable objects.

PFEN 4100 POLYMER CHARACTERIZATION (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (CHEM 2080 or CHEM 2087) and PFEN 3500. Study of the major techniques for the physical characterization of polymers. Topics to be covered include molecular weight determination, spectroscopy (light, vibrational, nuclear magnetic resonance, electron spin resonance), X-ray diffraction, microscopy (light, electron), optical methods, and thermal analysis.

PFEN 4300 ENGINEERED FIBROUS STRUCTURES (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Design and applications of high performance industrial fibrous structures for civil engineering, architecture and construction, filtration, medical, military and defense, pulp and paper industry, safety and protection, sports and recreation, transportation, agriculture and other industries. Fall.

PFEN 4400 MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and PFEN 2270. Analysis of mechanical behavior and physical properties of flexible structures such as fibers, yarns and fabrics.

PFEN 4500 FIBER REINFORCED MATERIALS (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and MATH 2660 and PFEN 2270. Material properties and manufacture of fiber reinforced materials; perform structures such as weaves and braids, analysis, design methodology and applications. Spring.

PFEN 4810 POLYMER AND FIBER ENGINEERING DESIGN I (3) LEC. 3, IND/LEC. 2. Pr. PFEN 3500. Departmental approval. Tools and skills needed to conduct an engineering design project.

PFEN 4820 POLYMER AND FIBER ENGINEERING DESIGN II (3) IND. 3. Undergraduate senior design project, second semester.

PFEN 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Reading course with varying emphasis to give opportunity for overview in specific areas of engineering and technology. Course may be repeated for a maximum of 12 credit hours.

PFEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Honors Thesis is a project-based course and may be presented in form of a written report or a conference-style presentation. Course may be repeated for a maximum of 6 credit hours.

PFEN 5200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 5300 RHEOLOGY (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and ENGR 2200 or MECH 3030. Departmental approval. Covers the most important aspects of elementary modern rheology, including elastic solids, viscoelastic behavior of polymeric systems, composite systems, concentrated solutions and suspension rheology.

PFEN 5510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, polymer characterizations, polymer classes, solubility and swelling, and structure/property relationships.


PFEN 6200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Departmental approval. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 6250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3) LEC. 3. Pr. PFEN 4300. Departmental approval. Application of advanced technology to the design, development and analysis of high performance industrial textiles.

PFEN 6510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, characterizations, classes, solubility and swelling, and structure/property relationships.

PFEN 6706 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 10. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function. Departmental approval. May count either PFEN 5710, PFEN 6700 or PFEN 6706.


PFEN 7310 STRUCTURE AND PROPERTIES OF POLYMERS (4) LEC. 3. LAB. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. The inter-relationships between chemical structure of a polymer, polymer properties and uses. Plastics, elastomers and fibers-synthesis and property requirements.

PFEN 7320 POLYMER PHYSICS (3) LEC. 3. Departmental approval. Mechanical, optical, and transport properties of polymers with respect to the underlying physical chemistry of polymers in melt, solution, and solid state.

PFEN 7410 ADVANCED COLORATION AND INTERFACIAL PROCESSES (4) LEC. 3. LAB. 3. Pr. PFEN 3400. Departmental approval. Colorants and coloration principles for both fibrous and nonfibrous polymers; interfacial processes, such as sorption, adhesion, colloidal processes, surface tension.

PFEN 7500 MECHANICS OF TEXTILE REINFORCED MATERIALS (3) LEC. 3. Pr. PFEN 4500. Design methods for textile reinforced materials, including micro and macro-mechanics, finite element analysis. Fall.

PFEN 7610 ADVANCED POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Departmental approval. Aspects of natural, biodegradable polymers, including fibers, adhesives, films, coatings, their synthesis, their structure/properties relationships, and their microbial degradation.

PFEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. PFEN 4400. Recent advances in modeling and analysis of mechanical behavior of flexible structures. Spring.

PFEN 7700 ADVANCED METHODS IN POLYMER CHARACTERIZATION (4) LEC. 4. LAB. 3. Pr. PFEN 6510. Departmental approval. Important aspects and methods in polymer characterization.
PFEN 7770 INTRODUCTION TO CONDUCTING POLYMERS (3) LEC. 3. Pr. PFEN 6510. This “Introduction of Conducting Polymers” course covers the most up to date research and applications in the areas of conducting polymers. This course provides extensive background on: mechanism of electrical conductivity of conducting polymers, classification of conducting polymers, potential applications of conducting polymers, and recent advance of the researches in the fields of conducting polymers. For example, organic solar cells, and organic light emitting diodes.

PFEN 7910 POLYMER RHEOLOGY (3) LEC. 3. Pr. PFEN 6510. Departmental approval. Important aspects of elementary modern rheology.

PFEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Presentation of departmental research; practicing written and oral communication skills. Course may be repeated with change in topic. Fall.

PFEN 7960 SPECIAL PROBLEMS AND FIBER ENGINEERING (1-3) IND. Specialized project research with varying emphasis in particular areas of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7970 SPECIAL TOPICS (3) LEC. 3. Analysis of current issues in the area of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7980 GRADUATE PROJECT (1-3) IND. In-depth work in a particular project in polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Required of all students seeking an advanced degree in the department. Course may be repeated with change in topics.

PFEN 8200 ADVANCED TEXTILE STRUCTURE DESIGN AND DEVELOPMENT (3) LEC. 3. Technical fabric design and development of complex woven, knit, braided and tufted structures for high performance applications. Fall.

PFEN 8990 RESEARCH AND DISSERTATION (1-10) DSR. PhD Research and Dissertation. Course may be repeated with change in topics.

Wireless Engineering

The wireless engineering curriculum is a joint offering of the Department of Electrical and Computer Engineering and the Department of Computer Science and Software Engineering, leading to the bachelor of wireless engineering (BWE). To meet the need for engineers that can improve life and business in these times of a mobile society, the program has the following educational objectives. Within a few years of graduation, alumni of the wireless engineering program are expected to have (1) contributed positively to the development and application of new wireless technologies and systems as an individual contributor, a member of one or more project teams, and/or as a leader of one or more project teams, (2) achieved success in their chosen profession as evidenced by career satisfaction, promotions/raises, and leadership at levels appropriate to their experience, and/or (3) achieved success in post-undergraduate studies as evidenced by satisfaction with the decision to further their education, advanced degrees earned, professional registration, and professional visibility (e.g. publications, presentations, awards, etc.) The program is designed to develop within its graduates a basic foundation in wireless engineering and either electrical engineering, software engineering, or communication networks that will provide the technical proficiency needed for the professional practice of engineering in the wireless industry; the ability to communicate their ideas effectively within the technical community and to the general public; the basis for, and an appreciation of and enthusiasm for lifelong scientific inquiry, learning and creativity; and preparation to take their places in society as responsible citizens, with an appreciation of and understanding for the need to maintain the highest ethical standards in their personal and professional lives. Graduates of this program will be able to analyze, develop, design, test, administer and support wireless network systems, communication devices, and other components used in wireless computer and telecommunication networks.

The BWE curriculum has two formal options - wireless engineering-hardware (WIRE), emphasizing a hardware design-oriented approach to wireless engineering, and wireless engineering-software (WIRS), emphasizing a software-oriented approach. There is a network specialization within each option. Students interested in designing wireless hardware, such as integrated circuit chips, wireless communication devices, and wireless network switching equipment, should choose the WIRE hardware specialization option. Students interested in application software development, including server-side, client-side, and embedded applications, should choose the WIRS software specialization option. Students interested in pursuing a career with wireless service providers and other companies that develop and maintain wireless networks and sell service, can choose the Network Specialization within either the WIRE option or the WIRS option.

Each curriculum builds upon a solid foundation in mathematics, science, and electrical or software engineering fundamentals to introduce wireless communications theories, devices, circuits, systems, networks, standards, management, and applications.
Design experience is interwoven throughout the curriculum by introducing basic design concepts early, emphasizing hands-on design experiences in the laboratories, including effective use of computers and other modern engineering tools, and culminating with a capstone design project in the senior year. In addition to its technical aspects, the curriculum emphasizes oral and written communication skills, the importance of business, economic, social and global forces on engineering, appreciation of the need to maintain the highest ethical standards, and the maintenance of professional competence through continued self-improvement after graduation.

**Major**

- Wireless Engineering (Hardware Option) (p. 646)
- Wireless Engineering (Software Option) (p. 647)

**Master of Engineering**

This is an interdisciplinary degree which allows each student the opportunity to design an individual curriculum that is aligned with specific career or personal objectives. This degree requires a coordinated program of 30 credit hours of graduate level coursework. In coordination with an engineering faculty advisory committee, each student in the program will design a plan of study to meet his or her specific needs and interests. The plan must identify multiple outcomes, each of which should be supported by multiple courses in the plan of study. The plan must contain at least 21 hours of 6000#level and above engineering courses. There is no thesis requirement, and research and thesis credits cannot be used to meet the requirements of this degree.

**Master of Engineering Management**

This degree allows those who are currently working in an engineering-related field to expand their career potential and earn a degree that will pay dividends toward their future. The degree is applicable to individuals working in the aerospace, biosystems, chemical, civil, computer science and software, electrical and computer, industrial and systems, materials, mechanical and wireless industries.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
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<td>INSY 6600</td>
<td>Manufacturing and Production Economics</td>
<td>3</td>
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<tr>
<td>INSY 7980</td>
<td>Master's in Industrial and Systems Engineering Project</td>
<td>3</td>
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<tr>
<td>or INSY 7986</td>
<td>Master's in Industrial and Systems Engineering Project</td>
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<tr>
<td>INSY 6800</td>
<td>Lean Production</td>
<td>3</td>
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<tr>
<td>or INSY 6806</td>
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<td>INSY 7080</td>
<td>Human Factors Engineering</td>
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<tr>
<td>INSY 6330</td>
<td>Data Based Decision Making Using Six Sigma</td>
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<tr>
<td>INSY 6840</td>
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<tr>
<td>BUSI 7140</td>
<td>Organizational Leadership, Ethics and Change</td>
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Select 9 Credits in INSY 6000-8999 or INSY-related @6000-8999 (Electives) 9

Total Hours 30

**Master of Engineering Management-Occupational Safety and Ergonomics Option**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>INSY 6600</td>
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<td>or INSY 6606</td>
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<td>INSY 7980</td>
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<td>or INSY 7986</td>
<td>Master's in Industrial and Systems Engineering Project</td>
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<tr>
<td>INSY 6800</td>
<td>Lean Production</td>
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<tr>
<td>or INSY 6806</td>
<td>Lean Production</td>
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<tr>
<td>INSY 7080</td>
<td>Human Factors Engineering</td>
<td>3</td>
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<td>Human Factors Engineering</td>
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### Master of Engineering Management-Product Innovation Option

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<th>Hours</th>
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<td>or INSY 6016</td>
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<tr>
<td>INSY 7020</td>
<td>Safety Engineering II</td>
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<td>or INSY 7026</td>
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<tr>
<td>INSY 7060</td>
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<td>Dist-Ed Ergonomics I</td>
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<td>INSY 7070</td>
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<tr>
<td>INSY 7050</td>
<td>Industrial Hygiene and Environmental Hazards</td>
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<td>BUSI 7140</td>
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<td>3</td>
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<tr>
<td>or BUSI 7146</td>
<td>Organizational Leadership, Ethics and Change</td>
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<tr>
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### Master of Engineering Management-Systems Option

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<th>Hours</th>
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<td>Safety Engineering I</td>
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<td>INSY 7020</td>
<td>Safety Engineering II</td>
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<td>or INSY 7026</td>
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<td>INSY 7060</td>
<td>Ergonomics I</td>
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<td>INSY 7070</td>
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<tr>
<td><strong>Total Hours</strong></td>
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School of Forestry and Wildlife Sciences

JANAKI ALAVALAPATI, Dean

THE SCHOOL OF FORESTRY AND WILDLIFE SCIENCES has a long tradition of offering educational programs that prepare graduates for employment in a wide variety of natural resource professions. Natural areas, forests and their associated resources play a unique and increasingly important role in contemporary society. They enhance both economic development and environmental quality. The School’s programs emphasize a comprehensive understanding of interrelationships between the functions and values of diverse renewable natural resources. This awareness is essential to effective management and, ultimately, to meeting society’s needs.

In keeping with the University’s land-grant mission, the School’s goals are to pursue excellence in education, research, and extension (including outreach and public service activities) focused on the forests, wildlife, and associated resources of Alabama and the southeastern United States. With respect to undergraduate education, this focus is on preparing graduates who have the necessary skills for initial employment, with the breadth and depth of educational background to support professional growth and continued career advancement. The result of this directed effort from an energized faculty and administration are motivated graduates who have the foundation to master the art and science of managing wild lands for the betterment of both the local and global communities.

If you would like to speak to someone about the programs in the school of Forestry and Wildlife Sciences, please call the Director of Student Services at (334) 844-1050, the Coordinator of Student Recruitment at (334) 844-1094 or send an email to workingwithnature@auburn.edu.

Web Site

Students are encouraged to visit the school’s website (http://www.auburn.edu/sfws) which provides information on the school’s programs and faculty, as well as updates on courses, scheduling, practicum details, and events of interest to School.

Course Prefixes for the School of Forestry and Wildlife Sciences

Course prefixes for courses in the School of Forestry and Wildlife Sciences (SFWS) are FORY (forestry), FOEN (forestry engineering), FOPR (forest products), NATR (Natural Resources), WILD (wildlife) and FOWS (SFWS common courses).

Curricula and Options

The School of Forestry and Wildlife Sciences offers undergraduate curricula leading to bachelor of science (BS) degrees in forestry, geospatial and environmental informatics, natural resources management, wildlife ecology and management, and a wildlife sciences-pre-veterinary medicine concentration. A forest engineering option is available under the bachelor of biosystems engineering (BSEN) degree program. It is offered in conjunction with the Samuel Ginn College of Engineering. Links to more information and the curricula models for each of these majors are found at the bottom of this page.

Students in the SFWS with exceptional academic qualifications should also consider enrollment in the University’s Honors College. This opportunity is described under Special Academic Opportunities in the Academic Policies section of the Bulletin and carries a number of significant benefits to qualified students.

Accreditation

The bachelor’s programs in forestry and the forest engineering option in biosystems engineering (the latter with addition of the forest resources minor) are accredited by the Society of American Foresters (SAF). SAF is the accrediting body recognized by the Council on Higher Education Accreditation as the accrediting agency for forestry education in the United States. Graduation from such SAF-accredited programs is required of all applicants for Registered Forester status in Alabama and several other states. The biosystems engineering program with the forest engineering option is accredited by the Engineering Accreditation Commission of the Accreditation
Board for Engineering and Technology (ABET). Completion of the wildlife sciences degree program qualifies the graduates for certification as associate wildlife biologists by The Wildlife Society. Completion of the wildlife pre-vet concentration prepares students for continuing to a college of veterinary medicine or other health-oriented study.

Forest Engineering Option

The Department of Biosystems Engineering in conjunction with the Samuel Ginn College of Engineering and the School of Forestry and Wildlife Sciences offers an accredited degree in biosystems engineering with a forest engineering option. Graduates are qualified to pursue Professional Engineering (PE) credentials. To receive a Society of American Foresters accredited degree and be eligible to become a registered forester in the state of Alabama, students must complete the forest track in Biosystems Engineering and the forest resources minor in the School of Forestry and Wildlife Sciences.

This program is committed to preparing students for productive professional careers in the forest products industry and related natural resource and environmental systems sectors. Specific educational objectives of the program are: 1) graduates solve engineering problems such as those associated with the environment and natural resources, and the production, processing, storage, manufacture, utilization, and recycling of biological products; 2) graduates develop solutions to problems that combine engineering and biological sciences; 3) graduates develop environmentally and economically feasible and practical design solutions; and 4) graduates expand the role of engineering in society, communicate effectively, practice in a professional and ethical manner, and provide leadership in the profession.

The curriculum is coordinated by the Samuel Ginn College of Engineering and the School of Forestry and Wildlife Sciences. Students register in the Samuel Ginn College of Engineering and are assigned academic advisors in Biosystems Engineering and in Forestry. Beginning students should apply to the Samuel Ginn College of Engineering and complete the Pre-Forestry Engineering, program. (See the Samuel Ginn College of Engineering, Department of Biosystems Engineering section for the curriculum model, and detailed admission and degree requirements.)

Military Science

In all curricula within the School of Forestry and Wildlife Sciences, electives may include any number of Basic ROTC or Advanced ROTC. In curricula which do not provide sufficient electives for this purpose, ROTC may be taken in lieu of required courses outside of the major and not in the university core, to be selected with the approval of a School advisor. Common courses selected are Natural Resource Electives in the Wildlife curriculum, and forestry restricted electives.

Admission Requirements and Academic Standards

General Requirements

Freshman eligibility for the School of Forestry and Wildlife Sciences is determined by Enrollment Services. They may be reached at their website or by phone at (334) 844-6425. However, since the requirements for forestry and wildlife education necessitate high school preparatory work of high intellectual quality and considerable breadth, the following program is recommended: English (4 units), mathematics (including algebra, geometry, trigonometry and analytic geometry) (4 units), chemistry (1 unit), biology (1 unit), physics (1 unit), history, literature or social science (2 or 3 units), and foreign languages (1 unit). Freshmen in Forestry are admitted to the Pre-Forestry (PFOR) curriculum. Wildlife Ecology and Management students are admitted directly into the Wildlife Ecology and Management curricula (WLDE) and Natural Resources Management students are admitted directly into the Natural Resources Management curricula (NATR) and Geospatial and Environmental Informatics students are admitted directly into the Geospatial and Environmental curricula (GSEI).

Transfers from other institutions must apply through Enrollment Services. The exact placement of transfer students can be determined only upon review of their transcripts by the Registrar’s Office and the School of Forestry and Wildlife Sciences.

Credit toward a degree in the School of Forestry and Wildlife Sciences will not be allowed for mathematics or chemistry courses at a lower level than those specified in the curriculum for the degree sought. Students who are not prepared to take the courses prescribed should take lower level remedial courses without degree credit.

Transfer Credits

Transfer credit for forestry and wildlife courses not considered equivalent to those required in the chosen curriculum may be substituted for elective credit. However, duplication of credit will not be allowed. Equivalency of forestry and wildlife courses will be determined by the Dean’s Office. Students also may obtain credit for FORY, FOWS, GSEI and WILD courses on the basis of validating examinations. Arrangements for validating examinations must be made with the Dean’s Office. Transfer credit for upper-division courses in the major (greater than or equal to 3000-level) generally are not accepted for substitution.
Forestry Specific Requirements
The Professional Curriculum in Forestry (FORB) begins with the courses in the School of Forestry and Wildlife Sciences Summer Field Practicum as detailed in the major link at the bottom of this page. Students are admitted to this curriculum once a year during spring semester. To be considered for admission, a student must have completed, or be enrolled in all required courses in mathematics, statistics, biology, and English in the Pre-Forestry curriculum (PFOR).

To remain enrolled in the professional Forestry curriculum, students must maintain minimum GPA standards established by Auburn University. Students also must complete designated courses in the major with at least a 2.0 cumulative GPA. These major courses are designated in the curriculum model in the link at the bottom of this page.

Students in the FORY curriculum must attend the Forestry Practicum, which is scheduled for the summer term preceding the junior year and is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama. Prerequisite classes needed to qualify to attend are ENGL 1100 and ENGL 1120, BIOL 1020 & 1030, MATH 1130 or higher, STATS 2510.

Forest Engineering Option Specific Requirements
Students are admitted to the professional Biosystems Engineering with Forest Engineering Option curriculum (FOEN) upon successful completion of the Pre-Forest Engineering (PFOE) program in the Samuel Ginn College of Engineering. Additional details on the Forest Engineering Option are available on the [Samuel Ginn College of Engineering Biosystem page](http://example.com). Students pursuing the Forest Engineering Option must meet School of Forestry and Wildlife Sciences requirements for admission to the Forestry Summer Field Practicum, and must attend the Forestry Practicum. This summer hands-on experience is scheduled for the summer term preceding the junior year and is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama.

Geospatial and Environmental Informatics Specific Requirements
Geospatial and Environmental Informatics curricula (GSEI) are the same as for other SFWS majors and are set to match the requirements of Auburn University for any given year. To remain enrolled in the GSEI curriculum, students must maintain minimum GPA standards established by Auburn University. In addition to these standards, all required Geospatial and Environmental Informatics courses in the major with the prefix of FORY, FORS and GSEI listed in bold must be completed with a grade of C or better. Grades lower than a C will not satisfy prerequisite requirements of successive listed courses and the course must be re-taken for credit toward the degree. Students also must complete designated courses in the major with at least a 2.0 cumulative GPA.

Natural Resources Management Specific Requirements
Admission requirements for the Natural Resources Management curricula (NATR) are the same as for other SFWS majors and are set to match the requirements of Auburn University for any given year.

Students in the NATR curriculum must have a sequence of courses and selected embedded minor approved by their faculty advisor. This highly flexible curriculum should be customized to include the coursework for individual outdoor careers within the increasingly large number of jobs outside of the traditional forestry and wildlife fields.

To remain enrolled in the Natural Resources Management curriculum, students must maintain minimum GPA standards established by Auburn University. In addition to these standards, all required Natural Resources Management courses in the major with the prefix of FORY, WILD or FOWS listed in the sophomore, junior and senior years must be completed with a grade of C or better. Grades lower than a C will not satisfy prerequisite requirements of successive listed courses and the course must be re-taken for credit toward the degree. Students also must complete designated courses in the major with at least a 2.0 cumulative GPA. These major courses are designated in the curriculum model in the link at the bottom of this page.

Wildlife Specific Requirements
Admission requirements for the Wildlife Ecology and Management curricula (WLDE) are the same as for other SFWS majors and are set to match the requirements of Auburn University for any given year.

Students in the WILD curriculum, as described by the model in the link below, must attend WILD 4910 Wildlife Summer Practicum, which is scheduled for the summer term preceding the senior year and is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama in the south-central section of the state. To be considered for admission to practicum, students must complete all prerequisites including: WILD 3280, BIOL 3060, WILD 5400 and WILD 3750.

To remain enrolled in Wildlife Ecology and Management or the Wildlife Science, Pre-Veterinary Medicine Concentration curricula, students must maintain minimum GPA standards established by Auburn University. In addition to these standards, all required wildlife courses in Wildlife Ecology and Management (WILD and FOWS) listed in the sophomore, junior and senior years and all required
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wildlife courses in Wildlife Science, Pre-Veterinary Medicine Concentration (WILD) must be completed with a grade of C or better. Grades lower than a C will not satisfy prerequisite requirements of successive listed courses and the course must be re-taken for credit toward the degree. Students also must complete designated courses in the major with at least a 2.0 cumulative GPA. These major courses are designated in the curriculum model in the link at the bottom of this page.

Minor

- Forest Resources (p. 703)
- Nature-Based Recreation (p. 704)
- Natural Resources Ecology (p. 704)
- Urban Environmental Science (p. 705)
- Watershed Sciences (p. 706)

Programs

- Economics - PhD (Forestry) (p. 1417)
- Forestry - MNR, MS, PhD (p. 1453)
- Natural Resources - MNR, MS (p. 1488)
- Restoration Ecology - Graduate Certificate (p. 1523)
- Wildlife Sciences - MS, PhD (p. 1538)

Biomaterials and Packaging Courses

BIOP 2120 FRONTIERS FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to the sustainability of biomaterials and resource efficiency to produce materials, food, energy and services, that decrease society's dependency on fossil fuels.

BIOP 3390 INTRODUCTION TO FOREST PRODUCTS AND PACKAGING (3) LEC. 3. LAB. 2. Pr. FORY 3020. Basic properties of wood and their impact on the manufacture of forest products. Identification of important products and woods.

BIOP 3391 FOREST AND MANUFACTURING OPERATIONS (1) LEC. 3, FLD/LEC. 32. Pr. FORY 3050. Introduction to basic field operations in Forestry including site preparation and planting, harvesting and primary manufacturing processes relative to specific geographic locations. Four-day continuous field trip prior to spring or fall semester.

BIOP 4050 BIOMASS PROCESSING CHEMISTRY (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bioenergy and bio-products.

BIOP 4060 ECONOMICS OF SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Pr. ECON 2020. The course will familiarize students with the economic theory of resource allocation in a market economy as applied to the specific sustainable biomaterials and packaging industry. This will include; production and consumption theory, engineering and financial decision making.

BIOP 4070 PERFORMANCE AND DURABILITY OF PRODUCTS AND PACKAGING (3) LEC. 3. Examines the performance and durability of products and packaging, including physics and mechanics properties of solid wood and wood- and bio-based products and packaging materials, as well as notions about durability, thermal, electric and acoustic properties.

BIOP 4080 BUSINESS MANAGEMENT FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to key forest products and sustainable biomaterials business management topics including supply chain management policies and limitations specific to the forest products, sustainable biomaterials and packaging industry.

BIOP 4360 SUSTAINABLE BIOMATERIALS TRADE AND MARKETING (3) LEC. 3. Covers the general structure of the sustainable bioproducts/biomaterials industry and the major product markets. Students will be provided an overview of structure of both traditional forest products as well as emerging sustainable biomaterial industry segments.

BIOP 4400 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT I (1) LEC. 1. Examines the initial stages of product development, providing a blend of economics, engineering, marketing, and sustainability to design a product that meets the needs of a chosen/participating customer.

BIOP 4410 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT II (1) LAB. 1. Pr. BIOP 4400. Continues and completes the final stages of product development (initiated in BIOP 4400), providing a blend of economics, engineering, marketing, and sustainability to finalize the product design that meets the needs of a chosen/participating customer.
BIOP 4800 BIOPOLYMERS FOR SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Introduction to engineering principals applied to sustainable biomaterials and packaging materials. Students will analyze the morphological, physical and thermal properties, processing methods, and polymerization of traditional, natural and sustainable biomaterials used in packaging.

BIOP 4840 LIFE CYCLE ASSESSMENT FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Examines the performance and durability of products and packaging, including sustainability of raw materials and society energy needs, the use of sustainable materials to meet these needs and reduce impact on environment, and associated methods.

BIOP 5250 WOOD COMPOSITES FOR BIOMATERIALS & PACKAGING (3) LEC. 3. Pr. FOPR 3390. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.

Earth System Science Courses

ESSI 8000 EARTH SYSTEM SCIENCE AND GLOBAL CHANGE (3) LEC. 3. The course explores the Earth system as a whole, with an emphasis on the interrelationships between geological, biological, climatological, and human systems on regional and global scales.

ESSI 8100 EARTH SYSTEM OBSERVATIONS AND ANALYSIS (3) LEC. 2. LAB. 2. Pr. GSEI 1200 and GSEI 2070. Course reviews recent advances in earth system observations and provides students opportunity to develop holistic understanding of key parameters and processes of the earth system including biosphere, atmosphere, and oceans processes using observations.

ESSI 8200 EARTH SYSTEM SCIENCE SEMINAR (1) SEM. 1. SU. Students deliver oral presentations based upon their research and provide constructive criticism of their peers' presentations. Topics of presentations may include student's dissertation research areas or critical examination of current research problems in Earth system science.

ESSI 8990 RESEARCH AND DISSERTATION (1-3) DSR. Theoretical and practical aspects of designing dissertation research in the interdisciplinary Earth System Science program. The course is designed to assist students through the proposal and dissertation writing and presentation processes and to prepare for the dissertation defense. Course may be repeated for a maximum of 10 credit hours.

Forest Engineering Courses

FOEN 3040 FOREST SURVEYING (2) PRA. 2. Basic land surveying concepts and procedures as applied to Forestry. Use of basic surveying instruments and calculations for land areas, boundaries, and topographic features. Summer.

FOEN 4730 APPLICATION OF TIMBER HARVESTING TECHNIQUES (2) LEC. 1. LAB. 3. Pr. FOEN 5700. Business considerations including safety, regulations, contracts, deeds and cost accounting and analysis combined with equipment operation and maintenance. Fall.

FOEN 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in forest engineering. Course may be repeated for a maximum of 6 credit hours.

FOEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Topics of an undergraduate nature pertinent to Forest Engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 3 credit hours.

FOEN 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 8 credit hours.

FOEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and Honors Thesis. Fall, Spring, and Summer. Course may be repeated for a maximum of 6 credit hours.

FOEN 5230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2. LAB. 3. Pr. ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction. Fall.

FOEN 5700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact. Spring.

FOEN 5710 OPERATIONS ANALYSIS IN BIOSYSTEMS AND FORESTRY (3) LEC. 2. LAB. 3. Pr. BSEN 2210 and (STAT 3010 or STAT 2510). Junior standing. Junior standing or greater. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling. Spring.
FOEN 6230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2. LAB. 3. Pr. ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction. Fall.

FOEN 6700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact. Spring.

FOEN 6710 OPERATIONS ANALYSIS IN BIOSYSTEMS AND FORESTRY (3) LEC. 2. LAB. 3. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling. Spring.

FOEN 7930 DIRECTED STUDIES (1-3) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 9 credit hours.

FOEN 7970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of an advanced specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

Forest Products Courses
FOPR 4930 DIRECTED STUDY (1-3) IND. Departmental approval. Study of timely topics in forest products on an as needed or as available basis. Fall, Spring, and Summer. Course may be repeated for a maximum of 6 credit hours.

FOPR 6050 BIOMASS PROCESSING CHEMISTRY AND BIOENERGY (3) LEC. 3. Departmental approval. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bioenergy and bio-products.

FOPR 6250 BIOCOMPOSITES (3) LEC. 3. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.


FOPR 7060 ADVANCED FOREST PRODUCTS PRODUCTION AND OPERATIONS MANAGEMENT (3) LEC. 3. Pr. FOPR 5350 or FOPR 6350. Analysis of production/operations management problem situations in wood products manufacturing through systems approach and quantitative modeling techniques. Spring.

FOPR 7930 DIRECTED STUDIES (1-3) IND. Departmental approval. Study of timely topics in forest products on an as needed or as available basis. Fall, Spring, and Summer. Course may be repeated for a maximum of 9 credit hours.

FOPR 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

FOPR 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged. Course may be repeated with change in topics.

FOPR 8930 DIRECTED STUDIES (1-3) IND. Departmental approval. Study of timely topics in forest products on an as needed or as available basis. Course may be repeated for a maximum of 9 credit hours.

FOPR 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

FOPR 8990 RESEARCH AND DISSERTATION (1-15) DSR. Credit to be arranged. Course may be repeated with change in topics.
Forestry Wildlife Sci. Courses

FOWS 1010 INTRODUCTION TO RENEWABLE NATURAL RESOURCES (1) LEC. 1. Introduction to the wealth and breadth of renewable natural resources in the state, region, nation, and world. Speakers cover topics in forestry, wildlife, water, and soil. Fall, Spring.

FOWS 2033 INTRO TO ENVIRON EDUCATION (3) LEC. 3. Students will learn about the historical and theoretical foundations of environmental education while participating in experiential learning exercises.

FOWS 2060 INTRODUCTION TO FORESTED LANDSCAPES (2) LEC. 2. Pr. BIOL 1020 or BIOL 1027. This course will serve as an introduction to forest tree biology, forest types of North America, forest ecology and tree identification. The overall course objective is to introduce students to important concepts in forest ecosystem science and management.

FOWS 3015 INTERNATIONAL ISSUES IN NATURAL RESOURCE MANAGEMENT (3) FLD. 3. Examination of contemporary natural and cultural resource management practices and conservation programs through national and international program placements. Spring, Summer and Fall.

FOWS 3025 INTERNATIONAL ISSUES IN COMMUNITY DEVELOPMENT (3) FLD. 3. Examination of contemporary natural and cultural resource management practices and conservation programs through national and international program placements. Spring, Summer and Fall.

FOWS 3800 INTRODUCTION TO THE ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MA (1) LEC. 1. This course is intended to prepare students for the study abroad trip to South Africa and Madagascar (FOWS 3810). Students will gain knowledge as to cultural practices of South Africa and Madagascar, issues faced by communities and the role forests play in livelihoods and human health. Knowledge and theoretical approaches to various issues to ensure the well-being of people, animals and environment through collaborative multidisciplinary problem solving will be introduced and discussed.

FOWS 3810 ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MADAGASCAR (4) AAB. 4. Pr. FOWS 3800. This is a study abroad course, students will travel to South Africa and Madagascar to learn about the importance of trees for rural community livelihood and human health. Using the knowledge obtained in the pre-requisite theoretical course (FOWS 3800) students will interact with communities and researchers in South Africa and Madagascar to witness and learn about putting theory into action. Students will witness how issues, discussed in FOWS 3800, are addressed through collaborative, multi-disciplinary problem solving that results in unique approaches to ensure the well-being of people, animals and the environment.

FOWS 3950 UNDERGRADUATE SEMINAR (1) LEC. 1. Students will practice speaking in front of a scientific audience, learn to research topics, and organize presentations for professional audiences, faculty, and other students.

FOWS 4310 ECOTOURISM (3) LEC. 3. Principles, business considerations, and issues surrounding ecotourism, with emphasis on critique and connections to other industries. Spring.

FOWS 4970 SPECIAL TOPICS (1-4) LEC. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and sustainable management. Course may be repeated for a maximum of 8 credit hours.

FOWS 4980 UNDERGRADUATE RESEARCH (1-4) IND. Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 4 credit hours.

FOWS 5140 WATERSHED SERVICES (2) LEC. 2. This class examines the livelihoods and ecological impacts of Costa Rica's program of payments for watershed services. Travel required. Senior. Fall. May count either FOWS 5140 or FOWS 6140.

FOWS 5220 LANDSCAPE ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. Spring Even Years. May count either FOWS 5220 or FOWS 6220.

FOWS 5270 NATURAL RESOURCE POLICY (3) LEC. 3. Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource. Spring.

FOWS 5320 ENVIRONMENTAL SERVICES (3) LEC. 3. Environmental services provided by ecosystems, with emphasis on human well-being and livelihood, and emerging market mechanisms. Spring.
FOWS 5453 CONFLICT AND COLLABORATION IN NATURAL RESOURCES MANAGEMENT (3) DSL. 45. Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.

FOWS 5620 NATURAL RESOURCE FINANCE AND INVESTMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. May count one of: FORY 5620, FOWS 5620, FOWS 6620.

FOWS 6140 WATERSHED SERVICES (2) LEC. 2. This class examines the livelihoods and ecological impacts of Costa Rica’s program of payments for watershed services. Travel required. Graduate Standing. Fall. May count either FOWS 5140 or FOWS 6140.

FOWS 6220 LANDSCAPE ECOLOGY (3) LEC. 3. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. Spring Even Years. May count either FOWS 5220 or FOWS 6220.

FOWS 6270 NATURAL RESOURCE POLICY (3) LEC. 3. Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource.

FOWS 6320 ENVIRONMENTAL SERVICES (3) LEC. 3. Environmental services provided by ecosystems, with emphasis on human well-being and livelihood, and emerging market mechanisms. Spring.

FOWS 6456 CONFLICT AND COLLABORATION IN NATURAL RESOURCE MANAGEMENT (3) DSL. 45. Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.

FOWS 6620 NATURAL RESOURCE FINANCE AND INVESTMENT (3) LEC. 3. Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. Spring. May count either FORY 5620 or FORY 6620.

FOWS 7006 INFLUENCES OF NATURAL AND ALTERED ENVIRONMENTS ON ONE HEALTH (3) DSL. 3. The course will emphasize relationships among natural environments, anthropogenic influences on those environments, and vectors of human and animal diseases.

FOWS 7106 HUMAN DIMENSIONS OF ONE HEALTH (2) DSL. 2. Discussion platform for advanced concepts regarding the human dimensions aspects of One Health. The information will be based on human behavior and how it applies within a One Health framework.

FOWS 7150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LEC. 3. LAB. 1. Applications of spatial statistics in the natural resources. Three types of spatial data including point pattern data, geostatistical data and lattice (areal) data will be covered to introduce basic concepts, theories and methodology of spatial (spatial-tempo) data analyses and modeling.

FOWS 7206 DISEASE ECOLOGY (3) DSL. 3. Discusses the critical importance of relationships between human and animal diseases and the ecology of vectors, pathogens and the environment.

FOWS 7216 RESTORATION ECOLOGY (3) DSL. 3. Overview of the history, science, ethics, and current practice of restoration ecology to recognize and understand the need for restoration.

FOWS 7226 FOREST HISTORY OF ALABAMA AND THE SOUTHEASTERN UNITED STATES (3) DSL. 3. This course will focus on the natural, human and societal factors that influenced forests and land management in the southeastern United States from the 1700s to present. FOWS 7220 or FOWS 7226.

FOWS 7236 FOREST STAND DYNAMICS (3) DSL. 3. Forest stand dynamics studies the changes in stand structure over time. Examines phases of stand development and how we can help and aid forest, wildlife and restoration management decisions.

FOWS 7246 FIRE ECOLOGY (3) DSL. 3. Examines history of fire management, fire behavior, fuel management and models, ignition techniques, fire suppression techniques, urban interface, smoke management, fire weather, elements of a prescribed burn plan, fire and wildlife, and outreach.
FOWS 7256 LONGLEAF PINE ECOLOGY, MANAGEMENT, AND RESTORATION (3) DSL. 3. Covers the ecology of the once-dominant species, the role fire played in maintaining these ecosystems, management possibilities, conversion to longleaf pine, and an overview of the current restoration efforts.

FOWS 7266 FOREST WETLANDS RESTORATION ECOLOGY (3) DSL. 3. This course will cover the history and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 7306 CURRENT TOPICS IN ONE HEALTH (1) DSL. 1. An undergraduate degree in a Biology-related field. The One Health concept refers to connections among health of people, animals and ecosystems and is used as a framework for addressing health related problems. Course explores the concept from the perspective of current and relevant health issues.

FOWS 7480 ADVANCED NATURAL RESOURCE POLICY (3) LEC. 3. Pr. FORY 5400 or FORY 6400. Policy process and players, theory and evolution of property rights, public choice theory, land ethics, policy analysis, programs and statutory laws, forest policy in an international context. Spring odd years.

FOWS 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Students develop ability and confidence in making oral presentations based upon research and provide constructive criticism of their peers' presentations.

Forestry Courses

FORY 3010 FOREST SOILS (3) LEC. 2. LAB. 3. Pr. CHEM 1010 or CHEM 1030. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and management.

FORY 3020 FOREST BIOLOGY (3) LEC. 1. LAB. 3. Field exposure to important principles of forest biology and some examples of their applications to forest resources; identification of major tree species and critical analysis of forest stand structure. Summer.

FORY 3050 FIELD MENSURATION (4) LEC. 1. LAB. 3. Basic concepts and procedures for measuring trees, stands and other forest resources; units of measure, log rules, volume tables, condition class mapping and timber estimation. Summer.

FORY 3060 INTRODUCTION TO FOREST MANAGEMENT STRATEGIES (1) LEC. 1. LAB. 3. Biological, social, and economic principles underlying forest management strategies, the diversity of forestry enterprises, and the complexities facing forest managers. Summer.

FORY 3100 DENDROLOGY (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or FORY 3020 or higher. Taxonomy and identification of important forest trees of the U.S., including cover types of forest regions. Fall.

FORY 3180 FOREST RESOURCE SAMPLING (3) LEC. 2. LAB. 3. Pr. FORY 3050. Theoretical and empirical estimates of tree and log volumes, tree taper, and yield tables. Sampling design and analysis to estimate current conditions of timber stands.

FORY 3200 FOREST TREE PHYSIOLOGY (3) LEC. 3. Pr. FORY 3020. Relationship between cultural, environmental and genetic factors that affect metabolism and growth of individual trees. Fall.

FORY 3500 FORESTRY FOR SMALL WOODLAND OWNERS (3) LEC. 3. An appreciation of forest trees and the environment, the environmental functions of trees, and the economic potential of a balanced land-use plan. Spring.

FORY 3640 TAXATION OF TIMBER AND OTHER NATURAL RESOURCES (2) LEC. 2. Income taxation of natural resources, including passive loss rules, depletion and capital gains, and an introduction to taxation of businesses. Fall.


FORY 4230 FOREST ECOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Forests as functional systems, the biotic and abiotic environment, temporal changes in ecosystem structure and function, application of ecological information. Spring.

FORY 4260 LONGLEAF PINE: HISTORY, ECOLOGY, MANAGEMENT, AND RESTORATION (2) LEC. 2. History of forestry in the south, focusing on the longleaf pine ecosystem. Also, information on species that are part of the longleaf ecosystem, comparisons with other southern pines, and management and restoration techniques.

FORY 4440 FOREST FIRE MANAGEMENT (3) LEC. 1. LAB. 5. Pr. FORY 4230 or BIOL 3060. The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration. Spring.
FORY 4450 FOREST SECTOR ECONOMICS (3) LEC. 3. Pr. FORY 5400. Status, trend, employment and other fundamentals of forest industry. Timber supply and demand, forest products supply and demand, technological change, international trade. Spring.

FORY 4500 NATURAL RESOURCES LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic causes, rationale, and consequences of natural resources. Summer.

FORY 4820 FORESTRY IN THE PRIVATE SECTOR (2) SEM. 4. Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills. Spring.

FORY 4830 INDUSTRIAL WOOD PROCUREMENT PRACTICUM (1) PRA. 2. SU. Pr. FORY 3050. Strategies, field and office procedures involved in purchasing wood for an industrial forestry firm. Taught as a weekend field exercise at Solon Dixon Forest Education Center. Course may be repeated for a maximum of 2 credit hours.

FORY 4930 DIRECTED STUDY (1-3) AAB/IND. Departmental approval. Fall, Spring, and Summer. Course may be repeated for a maximum of 6 credit hours.

FORY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Topics of an undergraduate nature pertinent to Forestry. Course may be repeated for a maximum of 3 credit hours.

FORY 4970 SPECIAL TOPICS (1-4) AAB/LEC. Course may be repeated for a maximum of 8 credit hours.

FORY 4980 SENIOR CAPSTONE PROJECT (1-4) LAB. Pr. FORY 5230 and FORY 5410. Integrated study of Forest Resource Management using a case-study approach through development of a comprehensive plan related to the declared emphasis. Spring. Course may be repeated for a maximum of 4 credit hours.

FORY 4990 SCHOLARS PROJECT (1-3) IND. Departmental approval. A problem in the student's area of interest. To promote independent work, library research, field work, data analysis or other tasks. Course may be repeated for a maximum of 3 credit hours.

FORY 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.


FORY 5150 FOREST HEALTH (3) LEC. 3. Pr. FORY 3020 or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products. Fall.

FORY 5151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 5150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151. Fall.

FORY 5230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 5140 or BIOL 3060 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives. Fall.

FORY 5310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.


FORY 5410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. FORY 5400 and FORY 4190. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies. Fall.

FORY 5440 INTERNATIONAL FORESTRY (3) LEC. 3. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 5470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussion of the basic components of a GIS and how GIS are used in forestry applications.
FORY 5480 GIS DATABASE DESIGN AND ANALYSIS (2) LEC. 2. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring.

FORY 5520 CHOICE OF BUSINESS ENTITY (3) LEC. 3. Characteristics of business entities and the criteria to choose between sole proprietorships, partnerships, limited liability companies and corporations. May count either FORY 5520 or FORY 6520.

FORY 5530 ESTATE PLANNING (3) LEC. 3. Probate process; disposition of assets; wills and trusts; the transfer tax system; and strategies to minimize the taxable estate. May count either FORY 5530 or 6530.

FORY 5540/5543 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and waste. May count either FORY 5540 or FORY 6540.

FORY 5550/5553 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 5620 FOREST FINANCE AND INVESTMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Principles of corporate and real estate finance as applied to commercial timberland and its place in individual and institutional portfolios. Spring. May count either FORY 5620 or FORY 6620.

FORY 5650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3220. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented. Spring.


FORY 6150 FOREST HEALTH (3) LEC. 3. Pr. FORY 3020 or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products. Fall.

FORY 6151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 6150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151.

FORY 6230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 3060 or BIOL 5140 or BIOL 6140 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives. Fall.

FORY 6310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.


FORY 6410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. (FORY 5400 or FORY 6400) and FORY 4190. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies. Fall.

FORY 6440 INTERNATIONAL FORESTRY (3) LEC. 30. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 6470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussions of the components of a GIS and how GIS are used in natural resource applications.

FORY 6480 GIS DATABASE DESIGN AND ANALYSIS (2) LEC. 2. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring.

FORY 6520 CHOICE OF BUSINESS ENTITY (3) LEC. 3. Characteristics of business entities and the criteria to choose between sole proprietorships, partnerships, limited liability companies and corporations. May count either FORY 5520 or FORY 6520.

FORY 6530 ESTATE PLANNING (3) LEC. 3. Probate process; disposition of assets; wills and trusts; the transfer tax system; and strategies to minimize the taxable estate. May count either FORY 5530 or FORY 6530.
FORY 6540 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statutes on water, air, toxins and wastes. May count either FORY 5540 or FORY 6540.

FORY 6550 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 6650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3220. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented. Spring.

FORY 7110 FOREST BIOGEOCHEMISTRY (3) LEC. 2. LAB. 3. Pr. FORY 6230. Fundamental and applied aspects of forest biogeochemical processes at scales of the individual tree, forest community, and forest ecosystem.

FORY 7160 ECOSYSTEM RESPONSES TO CHEMICAL CLIMATE CHANGE (3) LEC. 2. LAB. 3. Plant responses to changes in the chemical climate. Emphasis on sources, effects, methodologies used and ecosystem and global effects. Even years.

FORY 7170 ECOPHYSIOLOGY OF FOREST TREES (3) LEC. 3. Pr. BIOL 3100 or FORY 3200. Interactions among the environment, silvicultural practices, physiological mechanisms and tree growth. Integration of root, shoot and foliar functions and leaf, tree and stand level processes. Spring odd years.

FORY 7210 ECOSYSTEM ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230 or BIOL 5140 or BIOL 6140. To create a conceptual model of the terrestrial ecosystem including spatial distributions over time; and the impact of human activity and natural disturbance. Spring.

FORY 7250 ADVANCED ECOSYSTEM MODELING (3) LEC. 3. Pr. FORY 4230 or BIOL 3060. Exploration of the theory and rationale in modeling the structure and functions of ecological ecosystems.

FORY 7326 FOREST GROWTH, SILVICULTURE, AND MANAGEMENT (3) DSL. 3. Understanding of forest growth and yield, measurements, management practices and methods, and optimization techniques necessary to make management decisions that maximize objectives.

FORY 7330 ECOLOGY AND SILVICULTURE OF EASTERN HARDWOOD FORESTS (3) LEC. 2. LAB. 3. Pr. FORY 4230. Silvical characteristics of major hardwood species and community composition, dynamics, site relationships, and silviculture of Southern and Eastern deciduous forests, emphasizing oaks. Fall odd years.

FORY 7406 FOREST VALUATION AND ECONOMICS (3) DSL. 3. Forest valuation and the economic theory of forest resource allocation. Topics covered include forest valuation and appraisal, analysis of consumer behavior, production, market structure and the role of government, economics of forest management and policy, international trade, and financial analysis.

FORY 7450 FOREST SECTOR ECONOMICS (4) LEC. 4. Pr. FORY 5400 or FORY 6400. Fundamentals of forest industry, timber supply and demand, forest products supply and demand, technological change, international trade and development, sophisticated forest sector modelling. Spring.

FORY 7460 LAND ECONOMICS (3) LEC. 3. Evolution of the role of economics in forestry, policy and production analysis methods, non-market valuation, and regional analysis. Spring.

FORY 7510/7516 RESEARCH METHODS (2) LEC. 1. LAB. 3. Overview of the scientific method and its application in forestry/natural resources research. Evaluation and preparation of project proposals with emphasis on research quality and written communication skills. Fall.

FORY 7550 WATERSHED HYDROLOGY (3) LEC. 3. Departmental approval. In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed. Spring.

FORY 7560 MODELING ENVIRONMENTAL CHANGE AT MULTIPLE SCALES (3) LEC. 2. LAB. 1. Pr. FORY 7550 and (FORY 5470 or FORY 5480 or GEOG 5830). Modeling fundamentals to solve environmental change problems at multiples scales driven by (i) climate variability/change and (ii) land use/cover change. Problems will be tackled at both temporal (event-based and continuous) and spatial (small and large watersheds) scales to predict streamflow and water quality and develop abatement strategies.

FORY 7580 NATURAL RESOURCE POLICY ANALYSIS AND ADMINISTRATION (3) LEC. 3. The policy-making process, the history of natural resource and environmental policy, and applied techniques in policy analysis. Summer.
FORY 7626 FOREST FINANCE, ACCOUNTING AND TAXATION (3) DSL. 3. Course will provide students with an overview of core concepts in finance, accounting and taxation and how these concepts can be specifically applied to various types of forest operations.

FORY 7850 URBAN FORESTRY SEMINAR (1) SEM. 1. Presentation and discussion of research, scientific papers and issues related to urban forest establishment, care and planning. Credit will not be given for both FORY 7850 and HORT 7850. Fall.

FORY 7910 PRACTICUM IN COLLEGE TEACHING (1) PRA. 1. SU. Techniques and practice of collegiate teaching at the level of Graduate Assistant. Students work under direct supervision and tutelage of the instructor. Fall, Spring, and Summer.

FORY 7930 DIRECTED STUDIES (1-3) AAB/IND. Course may be repeated for a maximum of 9 credit hours.

FORY 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 7980 MASTER OF NATURAL RESOURCES PAPER (2) IND. In-depth study involving library review, data collection and/or data analysis. Departmental Program.

FORY 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged.

FORY 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

FORY 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 8990 RESEARCH AND DISSERTATION (1-15) DSR. Credit to be arranged.

Geospatial and Env Informatics Courses

GSEI 1200 DIGITAL EARTH (3) LEC. 2. LAB. 2. Introduction to geospatial technologies, spatial thinking, and job markets in these areas. Exploration of location-based services, global positioning systems, geographic information systems, remote sensing, virtual globes, and web based mapping. Skills and techniques for spatial thinking and environmental analysis.

GSEI 2070 INTRODUCTION TO ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 2. Pr. GSEI 1200. Introduction to the environment as a system of linked, interactive components. Application of information science to environmental management. Skills and techniques required for collecting, collating, archiving, modeling, analyzing, visualizing, and communicating information in support of natural resource management.

GSEI 4360 ENVIRONMENTAL MODELING (3) LEC. 2. LAB. 2. Pr. FORY 5470 and FORY 5480 and GSEI 1200. Fundamental concepts, strategies, methods, or techniques of environmental systems modeling and simulation. Models will be constructed using STELLA, an intuitive modeling package that requires little prior experience with computer modeling.

GSEI 4430 APPLICATIONS IN ENVIRONMENTAL INFORMATICS (3) LEC. 2. LAB. 2. Pr. GSEI 1200 and FORY 5470. Applications of earth observations to forestry, wildlife, environment and natural resources including water, land and atmosphere.

GSEI 5150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LEC. 3. Pr. GSEI 1200 or GSEI 2070 and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513). Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and spatial prediction.

GSEI 6150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3) LAB. 3. Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and spatial prediction.

GSEI 7200 LAND PROCESSES AND CLIMATE INTERACTIONS (3) LEC. 2. LAB. 2. This is an advanced graduate level course designed to teach the modeling of land surface processes and study its impact on local, regional and global climate. Students will also perform global/regional climate model simulations using supercomputers.

GSEI 7500 DIGITAL EARTH AND BIG DATA (3) LEC. 2. LAB. 2. This is an advanced graduate-level course designed to teach the modeling of digital earth and study its impact on local, regional and global climate. Students will also perform global/regional geographic model simulations using supercomputers.
GSEI 7600 CLIMATE MODELING (3) LEC. 2. LAB. 2. Teaches modeling of the Earth’s climate system. Students will also perform global climate model simulations using supercomputers, and analyze climate model outputs using NCAR Command Language.

Natural Resources Management Courses

NATR 2010 ENVIRONMENTAL INTERPRETATION (3) LEC. 3. NATR major/ Nature-based Recreation minor or departmental approval. Communication theory as management and public relations tool for natural resource management. Fall.

NATR 2020 NATURAL RESOURCES FIELD METHODS (3) LEC. 2. LAB. 4. Sampling methods relevant to the evaluation of the environment. Topics include sampling methods, quality assurance procedures, and data management.

NATR 2050 PEOPLE AND THE ENVIRONMENT: AN INTRODUCTION TO CONSERVATION SOCIAL SCIENCES (3) LEC. 3. Introduction to the variety of social sciences used to understand the relationships of people and their environment. Students will develop a deeper and broader understanding of the challenges and potential solutions to natural resource issues facing society today.

NATR 3310 NATURE BASED RECREATION (3) LEC. 3. Introduction to fundamentals of nature-based recreation; recreationist motivations, society benefits, and management of the outdoor recreational environment. Spring.

NATR 4240 WATERSHED MANAGEMENT (3) LEC. 3. Pr. BIOL 1030. Introduction to watersheds, effects of land management on erosion and water quality, and mitigation techniques to reduce adverse effects. Spring.

NATR 5050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. Junior standing. May count either NATR 5050 or NATR 6050.

NATR 5250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife. Spring.

NATR 5310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

NATR 5430 HUMAN DIMENSIONS OF WILDLIFE AND NATURAL RESOURCES (3) LEC. 3. Pr. NATR 2050. Forests, wildlife, wetlands, and wilderness - sustaining and managing our natural resources ultimately depends on understanding people. Students will investigate the paradigms and theoretical foundations regarding our values, beliefs, attitudes and behaviors concerning human-environment interactions.

NATR 5630 CONSERVATION PLANNING (3) LEC. 3. Pr. NATR 2050 and BIOL 3060 and (STAT 2510 or STAT 2010). Trains students in how to build plans for conservation and management of natural resources. Covers established processes associated with developing conservation plans while addressing human concerns. Includes how to establish measurable objectives, utilize data, frame problems, and determine uncertainty/risk.

NATR 5880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues. Spring.

NATR 6050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. May count either FOWS 5050 or FOWS 6050.

NATR 6250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife. Spring.

NATR 6310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

NATR 6880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues. Spring.

NATR 7106 HUMAN DIMENSIONS OF ONE HEALTH (2) DSL. 2. An introduction to advanced concepts regarding human behavior and the role of human dimensions under the One Health framework.

NATR 7990 RESEARCH AND THESIS (1-15) RES. 0. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.
### Wildlife Sciences Courses

**WILD 1100 WILDLIFE FOOD PLOT ESTABLISHMENT (2)** LEC. 2. Fundamental concepts, issues, and concerns related to wildlife food plots and practical procedures for establishment of wildlife food plots. Fall.

**WILD 1200 HUNTING AND FISHING THE WORLD (3)** LEC. 3. Provides students with an introduction to the diversity of hunting and fishing opportunities available worldwide, the types of businesses that cater to these opportunities, and how these recreational activities contribute to game conservation and management.

**WILD 2050 WILDLIFE CONSERVATION HISTORY AND LAW (3)** LEC. 3. The history of wildlife conservation in North America, the conservation problems that have arisen since European settlement, and the laws and practices that have evolved to remedy them. Fall.

**WILD 2400 SPORTING FIREARMS AND ARCHERY (2)** LEC. 2. Provides students with a thorough understanding of the role of sporting firearms and archery equipment in hunting and the wildlife enterprise management field, including the variety of equipment available and their effectiveness with different game species.

**WILD 3280 WILDLIFE ECOLOGY, CONSERVATION, AND MANAGEMENT (3)** LEC. 3. Pr. BIOL 1030 or BIOL 1037. Fundamentals of wildlife management theory, application, and administration. Fall.

**WILD 3500 OUTDOOR SAFETY AND LIABILITY (1)** LEC. 1. Exposes students to the safety and liability risks associated with outdoor activities that are common in the wildlife enterprise industry. Students will learn techniques to meet the needs of clientele, while maximizing revenue and minimizing risks.

**WILD 3600 WILDLIFE ENTERPRISE FIELD TECHNIQUES (3)** LEC. 2. LAB. 2. Pr. WILD 3280. Equip students majoring in wildlife enterprise management with the technical skills to complete a variety of tasks related to wildlife habitat and population management on private properties used in recreational or lodge enterprises.

**WILD 3800 INTRODUCTION TO WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (1)** LEC. 1. Pr. WILD 2050 and WILD 3280. Provide students with knowledge of important wildlife management issues in southern Africa. Students will develop an understanding of pressing wildlife management issues in the region and learn how to apply that knowledge to future learning.

**WILD 3810 STUDY ABROAD - WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (3)** AAB. 60. Pr. WILD 3800. Travel overseas to Swaziland and South Africa to engage in many of southern Africa's most pressing wildlife management issues.

**WILD 4310 WILDLIFE MANAGEMENT TECHNIQUES (3)** LEC. 1. LAB. 6. Pr. WILD 5280 or WILD 5290. Intensive study of field and laboratory techniques used to manage wildlife populations, including censusing, habitat mapping, prescribed burning, GIS and computer simulation.

**WILD 4400 PROBLEM SOLVING IN WILDLIFE SCIENCES (2)** LEC. 2. Pr. WILD 3280. "C" or better in WILD 3280. Applied training and tools used to solve problems in wildlife science. Spring.

**WILD 4500 ADVANCED WILDLIFE ENTERPRISE MANAGEMENT (3)** LEC. 3. Pr. WILD 3280 or MKTG 3310 or ACCT 2810 or HOSP 2400. Integration and synthesis of the skills learned throughout the Wildlife Enterprise Management curriculum. Because wildlife enterprises are unique in the business world, students will learn to apply various material from previous courses to managing a wildlife enterprise.

**WILD 4890 WILDLIFE POPULATION SCIENCE (3)** LEC. 2. LAB. 2. Pr. WILD 3280 or WILD 3750 and BIOL 3060. WILD 3280 & WILD 3750 with a C or better. Principles of wildlife population dynamics, estimation of population parameters, and application of these principles and techniques to wildlife conservation and management.

**WILD 4910 WILDLIFE SCIENCES SUMMER PRACTICUM (8)** PRA. 8. Pr. WILD 3750 and WILD 4400 and BIOL 3060 and (FORY 3100 or BIOL 5120) and (BIOL 5740 or BIOL 5760 or FISH 5380). "C" or better in WILD 3750 and WILD 5400. Training and tools for wildlife ecology, conservation, and management, with emphasis on applied problem-solving. Summer.

**WILD 4920 WILDLIFE MANAGEMENT INTERNSHIP (4)** PRA. 4. SU. Departmental approval. Practical job experience under joint supervision of the Internship advisor and appropriate state, federal, or private agency. Training will prepare student for potential career employment.

**WILD 4930 DIRECTED STUDIES (1-3)** IND. Course may be repeated for a maximum of 6 credit hours.

**WILD 4967 HONORS SPECIAL PROBLEMS (1-3)** IND. Pr. Honors College. Topics of an undergraduate nature pertinent to wildlife sciences. Course may be repeated for a maximum of 3 credit hours.
WILD 4970 SPECIAL TOPICS (1-4) AAB. Course may be repeated for a maximum of 8 credit hours.

WILD 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

WILD 5280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280 and BIOL 3060. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants. Fall.

WILD 5290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280 and BIOL 3060. WILD 3280 (C or better) and BIOL 3060. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps. Spring.

WILD 5410 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. Pr. WILD 3280. Familiarizes students with basic philosophy, biology, and techniques related to managing negative human wildlife interactions.

WILD 5750 ANALYSIS FOR WILDLIFE SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010. Applied training in data analysis tools commonly used in wildlife sciences. Spring.

WILD 5880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. WILD 3280 and BIOL 3060. BIOL 3060 and C or better in WILD 3280. The wildlife value, management, and restoration of common southeastern habitats.

WILD 5950 SEMINAR (1) SEM. 1. Pr. BIOL 3060 or WILD 3280 or FORY 4230. Discussion of scientific publications from a selected area in wildlife sciences. Course may be repeated for a maximum of 6 credit hours.

WILD 6280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants. Fall.

WILD 6290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps. Fall.

WILD 6410/6416 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. This course is designed to familiarize students with the basic philosophy, biology, and techniques related to managing negative human wildlife interactions. Spring.

WILD 6750 ANALYSIS FOR WILDLIFE SCIENCES (4) LEC. 2. LAB. 2. Applied training in data analysis tools commonly used in wildlife sciences. Spring.

WILD 6880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (3) LEC. 2. LAB. 4. Pr. WILD 3280. C or better in WILD 3280. The wildlife value, management, and restoration of common southeastern habitats.

WILD 7070 UPLAND WILDLIFE ECOLOGY (4) LEC. 3. LAB. 6. Pr. WILD 5280 or WILD 6280. Application of wildlife ecological theories and methods with emphasis on upland species and habitats. Several overnight field trips may be made. Fall.

WILD 7080 FOREST WILDLIFE ECOLOGY AND MANAGEMENT (4) LEC. 4. Pr. WILD 5280 or WILD 6280. In-depth discussions into life history, biology, ecology, and management of important wildlife species of forested ecosystems. Management strategies for each species emphasized. Summer.

WILD 7100 APPLIED ECOLOGICAL MODELING (2) LEC. 2. Principles and techniques for modeling ecological systems in applied, management decision oriented contexts.

WILD 7150 ADVANCED ANALYSIS FOR ECOLOGICAL SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 7000. Applied training in advanced analytical procedures commonly used in ecological sciences including modeling of survival, reproduction, habitat selection, population growth, density-dependence, and morphometrics. Spring.

WILD 7200 WILDLIFE NUTRITIONAL ECOLOGY (3) LEC. 3. Exploration of the basic nutrient requirements of free-ranging wildlife and comparison of requirements to related domestic species. Fall of odd years.

WILD 7250 WILDLIFE POPULATION ANALYSIS (3) LEC. 2. LAB. 3. Pr. WILD 6400 and WILD 7150. Estimation of survival and success rates for wildlife and fisheries populations. Theoretical approaches for model selection and population modeling. Spring, even years.
WILD 7350 WATERFOWL BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 3. Pr. WILD 5280 or WILD 6280. Taxonomy, biology and management of waterfowl with emphasis on North American species. Spring of odd years.

WILD 7650 INTRODUCTION TO BAYESIAN MODELING IN NATURAL RESOURCES (2) LEC. 1. LAB. 2. Pr. WILD 7150 or instructor approval. Bayesian hierarchical modeling of ecological data. Advantages and criticisms of such models. Use of software for hierarchical modeling.

WILD 7930 DIRECTED STUDIES (1-3) IND/LEC. Departmental approval. Directed studies in subject matter not covered by an existing course or to supplement knowledge gained from existing course offerings. Course may be repeated for a maximum of 9 credit hours.

WILD 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Provides graduate students seeking the master's degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 7990 RESEARCH AND THESIS (1-12) MST. Credit to be arranged.

WILD 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

WILD 8970 SPECIAL TOPICS (1-4) RES. Departmental approval. Provides graduate students seeking the doctoral degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 8990 RESEARCH AND DISSERTATION (1-12) DSR.

**Majors**

**Curriculum in Natural Resources Management**

**Requirements**

Admission requirements for the Natural Resources Management Bachelor of Science Degree (NATR) are the same as those for entering Auburn University.

The Natural Resources Management degree program was approved in 2011 as a flexible major that includes core natural resource management courses plus a required minor, concentrating coursework on one of many diverse outdoor careers. Examples of minors that can be embedded in the degree include Nature-Based Recreation, Watershed Sciences, Urban Environmental Science, Natural Resource Ecology, International Business, or Sustainability. The curriculum is designed to meet the needs of students and employers who are interested in the extensive variety of positions within the natural resources community outside of traditional careers within forestry and wildlife sciences. Employers and positions include, but are not restricted to, Park Service Manager, Ecotourism Entrepreneur, Reclamation and Development Manager, Wetlands Manager, or Sustainability Officer. The degree may also be followed by pursuit of additional degrees such as obtaining a law degree to practice law for non-governmental organizations or advanced degrees for teaching and/or research.

Students in Natural Resources Management must select a faculty advisor to help with the many choices within the major, including selection of the embedded minor. Any minor may be considered, but the student will need to be able to explain how the minor supports a particular field within natural resources management. Students must also demonstrate the existence of sufficient employment options with the chosen electives by identifying and contacting future employers. It is strongly recommended that any student who enrolls in Natural Resources Management be proactive in promoting themselves and the degree, as there is no single certifying body for the broad range of careers.

To remain enrolled in Natural Resources Management a student must make timely progress toward completion of the degree and maintain minimum GPA standards established by Auburn University.

**Freshman**

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<th>Fall</th>
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<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
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FOWS 1010 Introduction to Renewable Natural Resources 1  
ENGL 1120 English Composition II 3  
Fine Arts 3  
History 3  
ENGL 1100 English Composition I 3  
NATR 2020 Natural Resources Field Methods 3  
3  

14  

Sophomore  

Fall  

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<td>Literature or Humanities 2 3</td>
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</table>

14  

Junior  

Fall  

<table>
<thead>
<tr>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 5470 GIS Applications in Natural Resources 1 2</td>
<td>FORY 5480 GIS Database Design and Analysis 1 2</td>
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<tr>
<td>FORY 3010 Forest Soils 1</td>
<td>Minor 6</td>
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<tr>
<td>FORY 3100 Dendrology 1</td>
<td>Restricted Management Elective 1,3 3</td>
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<tr>
<td>Social Science 3 STAT 2510 Statistics for Biological and Health Sciences or 2010 Statistics for Social and Behavior Sciences</td>
<td>3</td>
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</tr>
<tr>
<td>Minor 3</td>
<td>Electives 2</td>
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16  

Senior  

Fall  

<table>
<thead>
<tr>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Minor 3</td>
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<tr>
<td>Restricted Management Elective 1,3 3</td>
<td>Electives 3</td>
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<tr>
<td>NATR 5310 Environmental Ethics 3</td>
<td>Restricted Management Elective 1,3 3</td>
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<tr>
<td>NATR 5430 Human Dimensions of Wildlife and Natural Resources (3) 1</td>
<td>NATR 5630 Conservation Planning 1 3</td>
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<td>FOWS 5270 Natural Resource Policy 1 3</td>
<td>UNIV 4AA0 University Graduation 0</td>
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</tr>
<tr>
<td>NATR 5880 Ecological Economics 3</td>
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</tbody>
</table>

15  

Total Hours: 120  

1 These courses are part of the NATR major and must be completed with a grade of “C” or better  
2 Students must complete either a history or literature sequence.  
3 Select from: FORY 4260, FORY 5230, NATR 3310, NATR 4240, NATR 5250, or WILD 3280  

Click here for restricted elective: http://wp.auburn.edu/sfws/wp-content/uploads/2014/03/2016-NATR.pdf
Curriculum in Forestry

The objectives of the forestry curriculum are to provide: 1) the fundamental knowledge regarding the resources that professional foresters typically manage and the multiple uses, sustaining, and conservation of those resources; 2) a general education integrating physical, social and biological sciences to prepare the forester for the role as steward of public and private forest resources; and 3) training and skills needed for initial forestry employment, as well as for advancement to higher levels of managerial responsibility. The forestry degree is appropriate for students who seek employment in any aspect of forest resource management, from forest industry lands where timber production is typically the primary objective, to private non-industrial properties where multiple use predominates, to public lands where recreation or environmental protection is often paramount. The curriculum emphasizes biological, ecological, environmental, social, economic, and ethical considerations in forest management.

The required courses in the professional forestry curriculum (FORB, see below) are designed to be taken in sequence and as a block. The work is integrated among courses in each semester and between semesters. Students must pay careful attention to the prerequisites of the junior and senior year courses, which are strictly enforced by the school, to ensure successful completion of the forestry program.

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>4</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>FOWS 1010 Introduction to Renewable Natural Resources</td>
<td>1</td>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1130 Pre-Calculus Trigonometry (or higher)</td>
<td>3</td>
<td>History or Social Science¹,²</td>
<td>3</td>
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<tr>
<td>History¹,²</td>
<td>3</td>
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</table>

### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CHEM 1010 Survey of Chemistry I</td>
<td>3</td>
<td>ECON 2020 Principles of Microeconomics</td>
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<tr>
<td>CHEM 1011 Survey of Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1020 Survey of Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>Literature¹,²</td>
<td>3</td>
<td>CHEM 1021 Survey of Chemistry II Laboratory</td>
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<tr>
<td>Fine Arts</td>
<td>3</td>
<td>FORY 5470 GIS Applications in Natural Resources</td>
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<td>COMM 1000 Public Speaking</td>
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<td>FOWS 3950 Undergraduate Seminar</td>
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<tr>
<td>Social Science¹</td>
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<td>Humanities or Literature¹,²</td>
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</table>

Total Hours: 56

Courses in bold type above are required for admission to Forestry (FORB) curriculum.

Curriculum in Professional Forestry (FORB)
Sophomore

Summer Hours

The Forestry Summer Practicum is held at the Solon Dixon Forestry Education Center near Andalusia, Alabama.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>FORY 3060 Introduction to Forest Management Strategies</td>
<td>1</td>
</tr>
<tr>
<td>FORY 3050 Field Mensuration</td>
<td>4</td>
</tr>
<tr>
<td>FORY 3020 Forest Biology</td>
<td>3</td>
</tr>
<tr>
<td>FOEN 3040 Forest Surveying</td>
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</tr>
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10

Junior

Fall Hours Spring Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 3100 Dendrology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>FORY 3180 Forest Measurements I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>FOPR 3390 Introduction to Wood Science and Forest Products</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>FORY 3010 Forest Soils</td>
<td>3</td>
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<tr>
<td>Restricted Electives</td>
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15

Senior

Fall Hours Spring Hours

<table>
<thead>
<tr>
<th>Course</th>
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<th>Spring Hours</th>
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<tbody>
<tr>
<td>FORY 5150 Forest Health</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>FORY 5410 Forest Management and Administration</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>FOWS 5270 Natural Resource Policy (or restricted elective)</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>FORY 5151 Forest Health Laboratory</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>FORY 5230 Silviculture</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Elective (or FOWS 5270 Natural Resource Policy)</td>
<td>3</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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</table>

14

Total Hours: 68

Courses in bold type above are components of the Forestry major.

1 SLO9 must be completed in one of the Humanities, Social Science, or History core courses.

2 Student must complete a sequence in either Literature or History.

3 3 hours must be completed from each of the 3 categories of restricted electives.

**TOTAL HOURS - 124**

Geospatial and Environmental Informatics

The Bachelor of Science in Geospatial and Environmental Informatics (GSEI) provides students rigorous training in fundamental theories, concepts, quantitative tools, analytical technologies and research skills that are used to acquire spatially referenced information and analyze spatial processes. Geospatial technologies such as geographic information systems (GIS), the global positioning system (GPS), satellite-based remote sensing, and computer simulations have penetrated every aspect of our lives. As a result, professionals with skills in GSEI related areas will be in high demand for collecting, collating, modeling, analyzing, visualizing, and communicating geospatial information. They range from digital maps in vehicles to the management tools of natural landscapes and city infrastructure. The area of Geospatial and Environmental Informatics brings information technology, spatial science, data analysis, natural resources and ecological modeling together and enables us to apply them for sustainable management of natural resources. Students successfully completing this degree will: 1) Understand the various types of geospatial and environmental data and their spatial and temporal dynamics, 2) Learn various technologies involved in data collection, storage, and data distribution to the end users including data models and structures to store and organize geospatial and environmental information, and 3) Manipulate data into information for a given environmental problem or related issues for policy making decisions.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>GEOG 1010 Global Geography</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>GSEI 1200 Digital Earth</td>
<td>3</td>
<td>2</td>
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<tr>
<td><strong>Total</strong></td>
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Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>History Core</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Core Literature I</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>GSEI 2070 Introduction to Environmental Informatics</td>
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<td>3</td>
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<tr>
<td>Free Elective</td>
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<tr>
<td><strong>Total</strong></td>
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Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 5470 GIS Applications in Natural Resources</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>GEOG 5820 Aerial Photography and Remote Sensing</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>COMM 1000 Public Speaking</td>
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<tr>
<td>ENGL 3040 Technical Writing</td>
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<td><strong>Total</strong></td>
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Core Fine Arts 3

Senior

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>FOWS 5220 Landscape Ecology</td>
<td>3</td>
<td>FOWS 5270 Natural Resource Policy 3</td>
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<tr>
<td>FORY 5400 Forest Economics, ECON 3100 Law and Economics, or FORY 4500 Natural Resources Law and Economics</td>
<td>3</td>
<td>FOWS 5320 Environmental Services 3</td>
</tr>
<tr>
<td>GEOG 5880 Advanced Geographic Information Systems</td>
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<td>NATR 5880 Ecological Economics 3</td>
</tr>
<tr>
<td>GSEI 4430 Applications in Environmental Informatics</td>
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<td>Free Elective 3</td>
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<tr>
<td>GSEI 4360 Environmental Modeling</td>
<td>3</td>
<td>WILD 3280 Wildlife Ecology, Conservation, and Management, FORY 5410 Forest Management and Administration, or NATR 5250 Wetland Ecology and Management 3</td>
</tr>
</tbody>
</table>

Total Hours: 120

1 Students must take a two-semester sequence in either literature or history

Courses in bold are major courses and those taught within the School must be completed with a C or better.

Curriculum in Sustainable Biomaterials and Packaging

Successful graduates will gain an understanding of the chemical, physical, and mechanical properties of solid wood and bio-based products and packaging materials. Students within this degree program will be exposed to an overview of trade and marketing knowledge and the structure of both traditional forest products as well as emerging sustainable biomaterial industry segments, the trade patterns and marketing, the role of private industry and government organizations in development and trade of the segments, and the potential contribution of economic development. They will know the thermal, electric and acoustic properties of the bio-based products and packaging materials and understand the relationships between anatomical structure and physical/mechanical behavior of materials.

The Sustainable Biomaterials and Packaging degree is appropriate for students who seek employment in any aspect of forest product development that uses the sustainable fiber resources from the forest industry. The curriculum emphasizes biological, ecological, environmental, social, economic, and ethical considerations in sustainable biomaterials and packaging markets.

The required courses in the curriculum (BIOP, see below) are designed to be taken in sequence and as a block. The work is integrated among courses in each semester and between semesters. Students must pay careful attention to the pre-requisites of the junior and senior year courses, which are strictly enforced by the school, to ensure successful completion of the degree program.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II 3</td>
</tr>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology 3</td>
</tr>
<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td>BIOL 1031 Organismal Biology Laboratory 1</td>
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<tr>
<td>MATH 1130 Pre-Calculus Trigonometry (or Higher)</td>
<td>3</td>
<td>STAT 2510 Statistics for Biological and Health Sciences 3</td>
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<td>INDD 1120 Industrial Design in Modern Society</td>
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<td>Core History or Social Science 3</td>
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### Core History

<table>
<thead>
<tr>
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<th>Core Social Science</th>
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### Sophomore

#### Fall Hours

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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</tr>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>BIOP 2120 Frontiers for Sustainable Biomaterials</td>
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<td>Core Literature</td>
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#### Spring Hours

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<th>Course</th>
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<tbody>
<tr>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>MKTG 3310 Principles of Marketing</td>
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<tr>
<td>SUST 2000 Introduction to Sustainability</td>
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<tr>
<td>Core Fine Arts</td>
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### Junior

#### Fall Hours

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<tbody>
<tr>
<td>SCMN 2150 Ops: Management of Business Processes</td>
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<tr>
<td>BIOP 3390 Introduction to Forest Products and Packaging</td>
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<tr>
<td>BIOP 3391 Forest and Manufacturing Operations</td>
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<tr>
<td>BIOP 4050 Biomass Processing Chemistry</td>
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<tr>
<td>MATL 2220 Materials and the Environment or 2230 Mineral Resources: Processing and Availability</td>
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<td>INSY 3020 Occupational Safety Ergonomics</td>
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#### Spring Hours

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOP 4060 Economics of Sustainable Biomaterials and Packaging</td>
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<td>BIOP 4070 Performance and Durability of Products and Packaging</td>
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<tr>
<td>BIOP 4080 Business Management for Sustainable Biomaterials</td>
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<tr>
<td>BIOP 4360 Sustainable Biomaterials Trade and Marketing</td>
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<td>MKTG 4340 Marketing and New Product Development</td>
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### Senior

#### Fall Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BATM 3530 Agricultural Production and Processing Facility Technology</td>
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<tr>
<td>ENVD 4010 Elements of Design Thinking and Communication</td>
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<tr>
<td>BIOP 4400 Sustainable Biomaterials &amp; Product Development I</td>
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<td>BIOP 4840 Life Cycle Assessment for Sustainable Biomaterials</td>
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<td>BIOP 5250 Wood Composites for Biomaterials &amp; Packaging</td>
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#### Spring Hours

<table>
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<tbody>
<tr>
<td>SCMN 5720 Quality &amp; Process Improvement</td>
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<td>FORY 4820 Forestry in the Private Sector</td>
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<tr>
<td>BSEN 4240 Bulk Biological Solids Behavior and Processing</td>
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</tr>
<tr>
<td>BIOP 4410 Sustainable Biomaterials &amp; Product Development II</td>
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</tr>
<tr>
<td>BIOP 4800 Biopolymers for Sustainable Biomaterials and Packaging</td>
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#### Elective Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec Free Elective</td>
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</tr>
</tbody>
</table>

### Total Hours: 120

1. Students must complete a sequence in either Literature or History.

Courses in bold are majors courses and must be completed with a 2.0 or better
**Curriculum in Wildlife Ecology and Management**

The Wildlife Ecology and Management (WLDE) degree program provides a broad biological education that is specifically designed to meet the needs of students interested in careers involving wildlife ecology, management, and conservation. Graduates are employed with state or federal wildlife agencies, environmental consulting firms, private conservation organizations, and private land management companies. Because many jobs require a master’s degree, the program is designed to prepare students for graduate studies in wildlife ecology and management.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>Freshman</td>
<td></td>
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<tr>
<td></td>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>4</td>
<td>History or Social Science¹</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>History¹</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td></td>
<td>WILD 2050 Wildlife Conservation History and Law*¹,³</td>
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<td>Fine Arts</td>
<td>3</td>
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<tr>
<td></td>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>FOWS 1010 Introduction to Renewable Natural Resources³</td>
<td>1</td>
<td>Social Science</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>14</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>Sophomore</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Physical Science Elective</td>
<td>4</td>
<td>BIOL 3030 Evolution and Systematics</td>
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</tr>
<tr>
<td></td>
<td>WILD 3280 Wildlife Ecology, Conservation, and Management*¹,³</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
<td>3</td>
<td>CHEM 1041 Fundamental Chemistry I Laboratory</td>
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<tr>
<td></td>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>BIOL 3060 Ecology</td>
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<td></td>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>Literature or Humanities¹</td>
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<td></td>
<td></td>
<td>14</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ENGL 3040 Technical Writing</td>
<td>3</td>
<td>COMM 1000 Public Speaking⁴</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Taxon-specific Elective</td>
<td>4</td>
<td>WILD 4400 Problem Solving in Wildlife Sciences*¹,³</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>FORY 3100 Dendrology²</td>
<td>3</td>
<td>Literature¹</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>WILD 5750 Analysis for Wildlife Sciences*¹,³</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

* Denotes required courses.

¹ Students must choose one Social Science course.

² Students must choose one Literature course.

³ Students must choose one Summer Practicum course.
### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology Elective</td>
<td>4</td>
<td>FOWS 5270 Natural Resource Policy(^*),(^3)</td>
<td>3</td>
</tr>
<tr>
<td>WILD 5280 Avian Ecology and Management(^*),(^3)</td>
<td>2</td>
<td>WILD 5290 Mammalian Ecology and Management(^*),(^3)</td>
<td>2</td>
</tr>
<tr>
<td>Taxon-specific Elective</td>
<td>4</td>
<td>BIOL 5140 Plant Ecology</td>
<td>4</td>
</tr>
<tr>
<td>WILD 5880 Wildlife Habitat Assessment and Management(^*),(^3)</td>
<td>4</td>
<td>UNIV 4AA0 University Graduation</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WILD 4890 Wildlife Population Science(^*),(^3)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Natural Resource Elective/ROTC</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours:</td>
<td>14</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

---

1. Student must complete a sequence in either Literature or History.
2. Systematic Botany (BIOL 5120 - 4 hours in spring) may be substituted for Dendrology.
3. These courses are part of the WLDE major and must be completed with a cumulative GPA of 2.0 or better.
4. Environmental Interpretation (FOWS 2010) may replace COMM 1000. However, an additional humanities core must then also be taken.

Courses with an asterisk (*) must be completed with a grade of “C” or better.


# Curriculum in Wildlife Science/Pre-Vet Concentration

Students may be admitted to the College of Veterinary Medicine (CVM) upon completion of the minimum requirements listed below. If students are admitted to the CVM prior to completion of the full four years, they may obtain a bachelor of science in this concentration after successful completion of the freshman year in the CVM. The minimum requirements for admission to the CVM are incorporated in the first three years in the Wildlife Sciences, Pre-Veterinary Medicine Concentration. All minimum requirements must be completed by the end of the spring semester preceding the date of admission to CVM. (See the College of Veterinary Medicine section for additional information.)

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>4</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours:</td>
<td>15</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1500 General Physics I</td>
<td>4</td>
<td>History or Social Science(^1)</td>
<td>3</td>
</tr>
</tbody>
</table>
### WILD 2050 Wildlife Conservation History and Law $^{*,2}$
- History $^1$ 3 CHEM 2081 Organic Chemistry II Laboratory 1
- CHEM 2071 Organic Chemistry I Laboratory 1 BIOL 3000 Genetics 3
- CHEM 2070 Organic Chemistry I 3 BIOL 3001 General Genetics Laboratory 1
- BIOL 3060 Ecology $^2$ 4

#### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elect Sci $^3$</td>
<td>3</td>
<td>BIOL 4100 Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>Literature $^1$</td>
<td>3</td>
<td>Humanities or Literature $^1$</td>
<td>3</td>
</tr>
<tr>
<td>BCHE 3200 Principles of Biochemistry</td>
<td>3 Social Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>WILD 3280 Wildlife Ecology, Conservation, and Management $^{*,2}$</td>
<td>3 Elect SCI $^3$</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>COMM 1000 Public Speaking</td>
<td>3 WILD 5750 Analysis for Wildlife Sciences</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 3100 Dendrology $^{*,2}$</td>
<td>3</td>
<td>WILD 5290 Mammalian Ecology and Management $^{*,2}$</td>
<td>2</td>
</tr>
<tr>
<td>WILD 5280 Avian Ecology and Management $^{*,2}$</td>
<td>2 FOWS 5270 Natural Resource Policy $^{*,2}$</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIOL 4020 Vertebrate Biodiversity $^2$</td>
<td>4 UNIV 4AA0 University Graduation</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Fine Arts</td>
<td>3</td>
<td>WILD 4890 Wildlife Population Science or 5880 Wildlife Habitat Assessment and Management (WILD 5880 taught in Fall) $^{*,2}$</td>
<td>3</td>
</tr>
<tr>
<td>Social Science</td>
<td>3</td>
<td>BIOL 3030 Evolution and Systematics</td>
<td>3</td>
</tr>
<tr>
<td>Free Elective</td>
<td>1</td>
<td>ANSC 3400 Animal Nutrition</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Hours: 120

1. Student must complete a sequence in either Literature or History.
2. These courses are components of the Wildlife/Pre-Vet major.
3. Select from *BIOL 3010 Comparative Anatomy, BIOL 3200 General Microbiology, BIOL 3500 Perspectives in Immunology, BIOL 4000 Histology, BIOL 5110 Parasitology, BIOL 5240 Animal Physiology, BIOL 5500 Immunology, BIOL 5600 Mammalian Physiology (Biomedical Physiology), ANSC 3600 Reproductive Physiology, or PHYS 1510 General Physics II.

Courses with an asterisk (*) must be completed with a grade of “C” or better

### Minors

#### Forest Resources Minor

This minor is available only to students in the forest emphasis of the forest engineering option of the biosystems engineering degree in the Samuel Ginn College of Engineering. Completion of the minor is required for Registered Forester eligibility in the State of Alabama.

- FORY 4190 Forest Measurements II 3
- FORY 4230 Forest Ecology 3
- FORY 5400 Forest Economics 3
### Natural Resources Ecology - Minor

15 hours required for minor.

**Core Electives (9 hours required)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 5220</td>
<td>Landscape Ecology</td>
<td>3</td>
</tr>
<tr>
<td>NATR 5250</td>
<td>Wetland Ecology and Management</td>
<td>3</td>
</tr>
<tr>
<td>FORY 4230</td>
<td>Forest Ecology</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 3060</td>
<td>Ecology</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration Electives: 1 course (3-4 hours) required from each of the 2 concentration areas**

**Landscapes and Abiotic systems**

Study abroad course (Junior level or above) related to conservation. (For example FOWS 3025) **

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 5090</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>NATR 4240</td>
<td>Watershed Management</td>
</tr>
<tr>
<td>NATR 5050</td>
<td>Urban Ecology</td>
</tr>
<tr>
<td>CSES 5000</td>
<td>Soils &amp; Environmental Quality</td>
</tr>
<tr>
<td>CSES 5080</td>
<td>Soil Resources and Conservation</td>
</tr>
<tr>
<td>CSES 5400</td>
<td>Bioenergy and the Environment</td>
</tr>
<tr>
<td>FISH 5220</td>
<td>Water Science</td>
</tr>
<tr>
<td>GEOG 5210</td>
<td>Climatology</td>
</tr>
</tbody>
</table>

**Biotic Systems**

Study abroad course (3) (Junior level or above) on sustainable development, community development or society and the environment. (For example FOWS 3015) **

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 5150</td>
<td>Community Ecology</td>
</tr>
<tr>
<td>BIOL 5360</td>
<td>Population Ecology</td>
</tr>
<tr>
<td>BIOL 4010</td>
<td>Invertebrate Biodiversity</td>
</tr>
<tr>
<td>BIOL 4020</td>
<td>Vertebrate Biodiversity</td>
</tr>
<tr>
<td>BIOL 5140</td>
<td>Plant Ecology</td>
</tr>
<tr>
<td>ENTM 5220</td>
<td>Insect Ecology</td>
</tr>
<tr>
<td>FISH 5510</td>
<td>Fisheries Biology and Management</td>
</tr>
<tr>
<td>FORY 3100</td>
<td>Dendrology</td>
</tr>
<tr>
<td>FORY 5150</td>
<td>Forest Health</td>
</tr>
<tr>
<td>WILD 3280</td>
<td>Wildlife Ecology, Conservation, and Management</td>
</tr>
<tr>
<td>WILD 5280</td>
<td>Avian Ecology and Management</td>
</tr>
<tr>
<td>WILD 5290</td>
<td>Mammalian Ecology and Management</td>
</tr>
</tbody>
</table>

### Nature-Based Recreation

15 hours required for minor.

**Core Electives (9 hours required)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 2010</td>
<td>Environmental Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>FOWS 3310</td>
<td>Nature Based Recreation</td>
<td>3</td>
</tr>
<tr>
<td>FOWS 4310</td>
<td>Ecotourism</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentration Electives (6 hours total required)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 3310</td>
<td>Nature Based Recreation</td>
</tr>
<tr>
<td>FOWS 4310</td>
<td>Ecotourism</td>
</tr>
</tbody>
</table>
Conservation and Ecology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 5090</td>
<td>Conservation Biology</td>
<td></td>
</tr>
<tr>
<td>WILD 3280</td>
<td>Wildlife Ecology, Conservation, and Management *</td>
<td></td>
</tr>
<tr>
<td>NATR 5430</td>
<td>Human Dimensions of Wildlife and Natural Resources</td>
<td>3</td>
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</tbody>
</table>

Tourism Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSP 1010</td>
<td>Introduction to Hospitality Management</td>
<td>2</td>
</tr>
<tr>
<td>MNGT 3810</td>
<td>Management Foundations</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 2500</td>
<td>Lodging Operation</td>
<td>2</td>
</tr>
<tr>
<td>MKTG 3310</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 5570</td>
<td>Global Hospitality</td>
<td>3</td>
</tr>
</tbody>
</table>

Education/Community

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 2033</td>
<td>Intro to Environ Education</td>
<td>3</td>
</tr>
<tr>
<td>FOWS 5453</td>
<td>Conflict and Collaboration in Natural Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 5640</td>
<td>Sociology of Community Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Study Abroad

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study abroad course (up to 6) (courses on tourism, sustainable/community development, biodiversity conservation, or other relevant courses)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Part of Natural Resources Management Degree core. If a student is a NRM major, these credits will not count toward their minor. Students wishing to complete the NBR minor with a NRM major will need to take additional concentration electives to meet the required 15 hours.

Urban Environmental Science Minor

The Urban Environmental Sciences minor was approved in spring 2013. This minor will prepare students to help cities meet the special challenges of managing natural resources in an urban environment. Urban environmental scientists will be involved in storm flow analysis, tree planting and care, grant proposals, and supervision of municipal employees. The courses required are shown in the table below.

15 hours required for Minor.

Core Electives (9 Hours Required)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 5050</td>
<td>Urban Ecology</td>
<td></td>
</tr>
<tr>
<td>FORY 5650</td>
<td>Urban Forestry</td>
<td></td>
</tr>
<tr>
<td>GEOG 5010</td>
<td>Urban Geog and Sustainability</td>
<td></td>
</tr>
</tbody>
</table>

Concentration Electives (minimum of 6 hours within or across concentrations)

Rural Sociology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 5510</td>
<td>Human-Environment Interaction</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 5650</td>
<td>Sociology of Natural Resources and the Environment</td>
<td></td>
</tr>
</tbody>
</table>

Agronomy and Soils

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSES 5080</td>
<td>Soil Resources and Conservation</td>
<td></td>
</tr>
</tbody>
</table>

Landscape Architecture

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND 5340</td>
<td>Urban Studies I: American Urban Landscapes</td>
<td></td>
</tr>
<tr>
<td>LAND 5350</td>
<td>Construction III: Hydrologies</td>
<td></td>
</tr>
<tr>
<td>LAND 5360</td>
<td>Dynamic Systems I: Urban Ecologies</td>
<td></td>
</tr>
</tbody>
</table>

Community Planning

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPLN 5000</td>
<td>History and Theory of Urban Form</td>
<td></td>
</tr>
<tr>
<td>CPLN 5010</td>
<td>Introduction to Community Planning</td>
<td></td>
</tr>
<tr>
<td>CPLN 5060</td>
<td>Sustainable Transportation Planning and Policy</td>
<td></td>
</tr>
<tr>
<td>CPLN 5070</td>
<td>Environmental Planning</td>
<td></td>
</tr>
<tr>
<td>CPLN 5970</td>
<td>Special Topics: Current Issues in Planning</td>
<td>3</td>
</tr>
</tbody>
</table>

Civil Engineering
Watershed Sciences Minor

Watershed science and management is an expanding field that involves managing the availability, quantity, and quality of water. Many major metropolitan areas and smaller cities rely on forested watersheds to purify the necessary drinking water for their populations. Many highly trained and dedicated professionals, knowledgeable in hydrology, climates, and water sciences, are needed in coming years to be certain this necessary commodity is provided to the United States and the world's growing populations.

15 hours required for minor.

Core Electives (9 hours required) ¹

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATR 4240</td>
<td>Watershed Management</td>
</tr>
<tr>
<td>FORY 5250</td>
<td>Wetland Ecology and Management</td>
</tr>
<tr>
<td>CSES 5080</td>
<td>Soil Resources and Conservation</td>
</tr>
<tr>
<td>GEOG 5550</td>
<td>Geography of Water Resources</td>
</tr>
</tbody>
</table>

Note: Classes not used to meet Core Elective requirements may be used for Concentration Elective credit

Concentration Electives (minimum of 6 hours within or across concentrations)

Agronomy and Soils

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSES 2040</td>
<td>Basic Soil Science</td>
</tr>
<tr>
<td>CSES 5000</td>
<td>Soils &amp; Environmental Quality</td>
</tr>
</tbody>
</table>

Biological Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4535</td>
<td>Coastal Zone Management</td>
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</tbody>
</table>

Landscape Architecture

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND 5350</td>
<td>Construction III: Hydrologies</td>
</tr>
</tbody>
</table>

Fisheries and Allied Aquaculture

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISH 5220</td>
<td>Water Science</td>
</tr>
<tr>
<td>FISH 5520</td>
<td>Small Impoundment Management</td>
</tr>
<tr>
<td>FISH 5320</td>
<td>Limnology</td>
</tr>
</tbody>
</table>

Forestry and Wildlife Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 5140</td>
<td>Watershed Services</td>
</tr>
<tr>
<td>FOWS 5220</td>
<td>Landscape Ecology</td>
</tr>
</tbody>
</table>

Geology and Geography

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 4260</td>
<td>Introduction to Geochemistry</td>
</tr>
<tr>
<td>GEOL 5100</td>
<td>Hydrogeology</td>
</tr>
</tbody>
</table>
GEOG 5720 Panama Study Abroad-Climate Change and Environment 3
GEOG 2020 Physical Geography
GEOG 5210 Climatology
GEOG 5220 Geomorphology
Note: Courses required for student major may not be used to satisfy concentration electives. This includes Restricted Elective Courses for the SFWS Natural Resource Management students.

College of Human Sciences

JUNE M. HENTON, Dean

SUSAN S. HUBBARD, Associate Dean

JENNIFER KERPELMAN, Associate Dean

Human Sciences is a professional program central to the land-grant mission that draws from the natural and social sciences, the arts and humanities. It integrates and interrelates knowledge from these disciplines to advance the well-being of individuals, families, and consumers. The course of study provides a broad liberal education, specialized career preparation, as well as a background for individual and family living. Areas of specialization focus on aspects of environment, health, consumer products and services, and human development. Human Sciences offers men and women professional and pre-professional preparation for careers in education, business, industry, social agencies, and government.

The College of Human Sciences includes the departments of Consumer and Design Sciences; Human Development and Family Studies; and Nutrition, Dietetics, and Hospitality Management. Programs of study leading to the bachelor of science degree can be planned within six curricula in the College of Human Sciences. These curricula are designed with flexibility to meet the needs of students with a variety of academic interests and goals. Program-specific accreditations/approvals/endorsements/certifications have been attained for several programs.

Transfer Requirements

To transfer into the College of Human Sciences, a student must be eligible to take classes and pursue an Auburn degree. However, students need to be aware of GPA restrictions and other progression requirements as well as admission requirements for individual degree programs.

Graduation Requirements

To earn the bachelor’s degree from the College of Human Sciences, students must complete the hours and subject matter requirements of their curricula and must have a minimum grade-point average of 2.0 on all course work attempted at Auburn University, and in addition, a 2.0 cumulative grade-point average on all work attempted in the major.

Options in Cooperative Extension

Students enrolled in any of the majors in the college may prepare for a career in the Cooperative Extension System through election of certain courses as electives. Majors may fulfill the requirements of the Alabama Cooperative Extension System through scheduling of the following courses:

NTRI 2000 Nutrition And Health 3
HDFS 4670 Parent Education 3
NTRI 3560 Experimental Study of Foods 4
Select one of the following: 3-4
CADS 2400 Interior Materials and Components 3
CADS 2750 Product Development: Technical Design 4
CADS 3600 Textiles 4

Graduate Work

The college offers work leading to the master of science degree and PhD degree in consumer and design sciences; human development and family studies; and nutrition, dietetics, and hospitality management.
Majors

- Apparel Merchandising, Design and Production Management (Apparel Merchandising Option) (p. 732)
- Apparel Merchandising, Design and Production Management (Apparel Design and Production Management Option) (p. 733)
- Consumer and Design Sciences, ABM (p. 731)
- Global Studies in Human Sciences (p. 758)
- Hospitality Management - Hotel and Restaurant Management Option (p. 752)
- Hospitality Management - Event Management Option (p. 757)
- Human Development and Family Studies (p. 741)
- Interior Design (p. 735)
- Nutrition, ABM (p. 751)
- Nutrition (Nutrition/Dietetics Option) (p. 755)
- Nutrition (Nutrition Science Option) (p. 753)
- Nutrition (Wellness Option) (p. 756)

Minors

- Health Equity Science - Undergraduate Certificate (p. 760)
- Human Development and Family Studies (p. 743)
- Hunger Studies (p. 760)
- International Minor in Human Sciences (p. 761)
- Philanthropy and Nonprofit Studies (p. 737)

Program

- Advanced Research Methods for Developmental and Family Studies - Graduate Certificate
- Brewing Science and Operations - Graduate Certificate (p. 1349)
- Consumer and Design Sciences, ABM (p. 731)
- Consumer and Design Science - MS, PhD (p. 1368)
- Health Equity Science - Graduate Certificate (p. 1458)
- Human Development and Family Studies - MS, PhD (p. 1467)
- Nutrition, ABM (p. 751)
- Nutrition - MS, PhD (p. 1492)

Consumer and Design Sciences Courses

CADS 1000 THEORIES AND PRINCIPLES OF INTERIOR DESIGN (4) LEC. 2, LST. 6. Introduction to and application of the theories and principles of interior design.

CADS 1100 TECHNICAL PROCESSES OF INTERIOR DESIGN (4) LEC. 2, LST. 4. Space planning and delineation of interior systems for residential, institutional, and other consumer environments.

CADS 1600 TEXTILE INDUSTRIAL COMPLEX (3) LEC. 3. Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers.

CADS 1700/1703 COLLEGIATE CONSUMING AND GIVING: SPEND, SAVE, AND SHARE (3) LEC. 3. Study of collegiate behavior and decision making as it applies to spending, saving and philanthropic theories, principles, and applications.

CADS 1740 AESTHETICS FOR FASHION (3) LEC. 3. Elements and principles of design and their application in industries such as textiles, apparel, and retail.

CADS 2000/2003 GLOBAL CONSUMER CULTURE (3) LEC. 3. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000, CADS 2003 or CADS 2007.
CADS 2007 HONORS GLOBAL CONSUMER CULTURE (3) LEC. 3. Pr. Honors College. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000, CADS 2003 or CADS 2007.

CADS 2100 VISUAL PRESENTATION OF INTERIOR DESIGN I (4) LEC. 2, LST. 6. Pr. CADS 1000 and CADS 1100. Development of visual communication skills for interior design.

CADS 2200 STUDIO IV: CAD FOR INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 2100. Application of graphic visualization and computer-aided design techniques to represent interior design.

CADS 2300 HISTORY, THEORY, AND CRITICISM OF INTERIOR DESIGN (3) LEC. 3. Historical survey of interior design and the decorative arts from antiquity through present.

CADS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3. Pr. CADS 1000. Survey of finishes, textiles, materials, and components. Introduction to health, safety, and environmental issues that impact consumers.

CADS 2500 VISUAL PRESENTATION IN INTERIOR DESIGN II (4) LEC. 2, LST. 6. Pr. CADS 2100. Development of color visual communication skills for interior design ideas, concepts, and professional presentation media.

CADS 2700/2703 INTRODUCTION TO NONPROFIT ORGANIZATIONS (3) LEC. 3. Introduction to mission, structure, and impact of nonprofit organizations at the local, state, national and international levels. May count either CADS 2700 or CADS 2703.

CADS 2740 ILLUSTRATION TECHNIQUES FOR APPAREL (3) LEC. 1, LAB. 4. Pr. CADS 1740 and CADS 1600. Creative approach to illustrating apparel through the use of varied media and development of illustrative style appropriate for portfolio presentations. APDP Major.

CADS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2740 and CADS 2800. Apparel pattern development through drafting, flat pattern manipulation and draping; custom apparel production. APDP Major.

CADS 2760 VISUAL MERCHANDISING (4) LEC. 2, LST. 6. Pr. CADS 1600. History, equipment, application, and theory of display techniques in store and non-store settings. AMDP major.

CADS 2770 COMPUTER-AIDED DESIGN FOR APPAREL (4) LEC. 2, LST. 4. Pr. CADS 1600 and CADS 2740. Principles of aesthetics applied to apparel product development including computer aided design and other presentation techniques.

CADS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3, LAB. 3. Pr. CADS 1600. Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products.

CADS 3100 STUDIO VI: LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 2, LST. 6. Pr. CADS 2200 and CADS 2400 and CADS 2500. Application of principles and processes of lighting, mechanical, and environmental systems to interior design.

CADS 3200 RESIDENTIAL INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 2200 and CADS 2300 and CADS 2400 and CADS 2500. Application of human factors and consumer needs to programming and design process of residential interiors.

CADS 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCE (1) LEC. 1. Departmental approval. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

CADS 3400 COMMERCIAL INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 3100 and CADS 3200. Application of programming and presentation techniques to commercial spaces.

CADS 3500 INTERIOR DESIGN PROFESSIONAL PRACTICE (3) LEC. 3. Pr. CADS 3100 and CADS 3200. Exploration of the interior design profession and standard practices.

CADS 3600 TEXTILES (4) LEC. 3. LAB. 3. Pr. CADS 1600 and CHEM 1020 and CHEM 1021. Organic compounds, polymers, fibers, yarns, fabrics, and chemical finishes for apparel and household textiles with laboratory evaluation. AMDP major.

CADS 3700/3703 GENDER, WEALTH & PHILANTHROPY (3) LEC. 3. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700, CADS 3703 or CADS 3707.

CADS 3707 GENDER, WEALTH AND PHILANTHROPY (3) LEC. 3. Pr. Honors College. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700, CADS 3703 or CADS 3707.
CADS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2750 and CADS 2800 and CADS 2770. Advanced design techniques, including couture production; portfolio and internship planning. AMDP major.

CADS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3. Pr. CADS 2000 or CADS 2003 or CADS 2007. Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. Credit will not be given for both CADS 3800 and MKTG 3410. AMDP major.

CADS 3850/3853 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2. LAB. 2. Pr. (COMP 1000 or COMP 1003) and CADS 1600 and ACCT 2810 or Departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services. Credit will not be given for both CADS 3850 and CADS 3853.

CADS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours.

CADS 3920 INDUSTRY EXPERIENCE (3) INT. 3. Pr. CADS 1600. Departmental approval. Supervised industry experience requiring students to spend time working in the industry under supervision. Course may be repeated for a maximum of 6 credit hours.

CADS 3940 STUDY TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) AAB/FLD. Departmental approval. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours.

CADS 3970 SPECIAL TOPICS (1-3) LEC. Courses may be repeated for 9 hours. Departmental approval. Standing grade. Course may be repeated for a maximum of 9 credit hours.

CADS 4100 PHILANTHROPY & NONPROFIT STUDIES LECTURE SERIES (1) LEC. 1. Pr. (CADS 2700 or CADS 2703) and (CADS 3700 or CADS 3703 or CADS 3707). Lecture series showcasing philanthropic and nonprofit leaders. Course may be repeated for a maximum of 2 credit hours.

CADS 4200 STUDIO IX: PORTFOLIO DEVELOPMENT (3) STU. 5. Pr. CADS 3400 and CADS 3500. Portfolio development, critique, and review.

CADS 4500 PORTFOLIO DEVELOPMENT FOR DESIGNERS (4) LEC. 2, LST. 4. Pr. P/C CADS 3750. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, computer slide show, and web formats. Open to AMDP majors in Apparel Design Option.

CADS 4700 PORTFOLIO DEVELOPMENT FOR PHILANTHROPY AND NONPROFIT STUDIES (3) LEC. 3. LAB. 3. Pr. CADS 3700 or CADS 3703 or CADS 3707 and CADS 4100 and CADS 4910. Portfolio development in print, digital, and web formats for students in Philanthropy and Nonprofit Studies.

CADS 4750 PRODUCT DEVELOPMENT: SPECIALIZED DESIGN (3) STU. 6. Pr. CADS 3750. Specialized design development concepts, techniques, and applications for target markets including children's wear, performance wear, and bridal markets.

CADS 4800 APPAREL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CADS 2800. Coreq. CADS 3750. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. AMDP major.

CADS 4900 UNDERGRADUATE TEACHING ASSISTANT EXPERIENCE (1-3) LEC/LST. Student must have previously earned an "A" in the course s/he is assisting with. Departmental approval. Student participation as an undergraduate teaching assistant (UTA) for the Consumer and Design Sciences course under the supervision of a faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4910 PRACTICUM IN PHILANTHROPY AND NONPROFIT ORGANIZATIONS (3) PRA. 3. Pr. CADS 2700 or CADS 2703 and CADS 3700 or CADS 3703 or CADS 3707. Departmental approval. Supervised practicum experience with a philanthropic or nonprofit organization.

CADS 4920 INTERNSHIP (8) AAB/INT. 8. Supervised 10 week professional internship. Departmental approval. 2.0 GPA. Junior standing.

CADS 4960 SPECIAL PROBLEMS IN DESIGN (1-3) LEC. Departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 9 credit hours.

CADS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours.
CADS 4980 UNDERGRADUATE RESEARCH IN CONSUMER AND DESIGN SCIENCES (1-3) IND/LEC. SU. Pr. 3.50 GPA. Departmental approval. Participation as an undergraduate research assistant (URA) for a Consumer and Design Sciences research project under the supervision of a CADS faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4997 HONORS THESIS (3) IND. 3. SU. Pr. Honors College. CADS 4967. Departmental approval. Research in specialized topics.

CADS 5300 HOSPITALITY DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 3400. Development of a large scale hospitality project with emphasis on design of environments that serve the needs of multiple users. May count either CADS 5300 or CADS 6300.

CADS 5310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 5400 HEALTHCARE DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 5300. In-depth development of a large scale institutional solution explored across multiple projects during the semester, with emphasis on design for health and healing environments.

CADS 5450 HISTORY OF COSTUME (3) LEC. 3. Pr., Core History or departmental approval. AMDP major. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 5450 and CADS 6450.

CADS 5460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. P/C; Core History, Core Literature or departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460.

CADS 5500 PROFESSIONAL DEVELOPMENT: MERCHANDISING PORTFOLIO (3) LEC. 3. Pr. CADS 3850 or CADS 3853. Portfolio Development in print, digital, and web formats for merchandising students. May count either CADS 5500 or CADS 6500.

CADS 5600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ANTH 1000 or ANTH 1003 or ANTH 1007 or GEOG 1010 or GEOG 1013 or GEOG 1017 or PSYC 2010 or PSYC 2013 or PSYC 2017 or SOCY 1000 or SOCY 1007) or Departmental approval. The role of fiber, textile, and apparel industries in the international economy. AMDP major.

CADS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Pr. (CADS 2000 or CADS 2003 or CADS 2007) and (CADS 3850 or CADS 3853). Strategies for successful global business expansion for textile and apparel retailers. Credit granted for only one of: CADS 5610, CADS 6610, MKTG 4330.

CADS 5650 TEXTILE AND APPAREL EVALUATION (4) LEC. 2. LAB. 6. Pr. CADS 3600. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CADS 5650 and CADS 6650.

CADS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 5730 HISTORY OF TEXTILES (3) LEC. 3. Pr., Core History or departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. CADS 3750 and CADS 4800. Team driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750.

CADS 5760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Pr. CADS 1600 and CADS 2740 or CADS 2760. Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 5760 and CADS 6760. AMDP major.

CADS 5850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Pr. CADS 3850 or CADS 3853. Problem-solving and decision making strategies for retailing apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850. AMDP major.

CADS 5860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Pr. CADS 5850. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 6300 HOSPITALITY DESIGN (4) LEC. 2. LAB. 6. Development of a large scale hospitality project with emphasis on design of environments that serve the needs of multiple end users. May count either CADS 5300 or CADS 6300. Graduate standing.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Lecture</th>
<th>Laboratory</th>
<th>Prerequisites/Further Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS 6310</td>
<td>SUSTAINABLE DESIGN AND LEED ACCREDITATION</td>
<td>(3)</td>
<td>LEC.</td>
<td></td>
<td>Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.</td>
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<tr>
<td>CADS 6400</td>
<td>STUDIO XI: HEALTH CARE DESIGN</td>
<td>(4)</td>
<td>LEC. 2.</td>
<td>LAB. 6.</td>
<td>Pr. CADS 6300. Development of a large scale institutional project with emphasis on design of a healing environment. Credit may only be used for CADS 5400 or CADS 6400. Graduate standing.</td>
</tr>
<tr>
<td>CADS 6450</td>
<td>HISTORY OF COSTUME</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 6450 and CADS 5450. Departmental approval. Graduate standing.</td>
</tr>
<tr>
<td>CADS 6460</td>
<td>FASHION INDUSTRY SINCE 1910</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460. Graduate standing.</td>
</tr>
<tr>
<td>CADS 6500</td>
<td>PROFESSIONAL DEVELOPMENT: MERCHANDISING PORTFOLIO</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Pr. CADS 5850 or CADS 5860. Portfolio Development in print, digital, and web formats for merchandising students. May count either CADS 5500 or CADS 6500.</td>
</tr>
<tr>
<td>CADS 6600</td>
<td>GLOBAL SOURCING IN TEXTILES AND APPAREL</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Departmental approval. The role of fiber, textile, and apparel industries in the international economy. Credit will not be given for both CADS 5600 and CADS 6600. Graduate standing.</td>
</tr>
<tr>
<td>CADS 6610/6616</td>
<td>GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Strategies for successful global business expansion for textile and apparel retailers. Credit given for only one of: CADS 5610, CADS 6610, MKTG 4330. Departmental approval.</td>
</tr>
<tr>
<td>CADS 6650</td>
<td>TEXTILE AND APPAREL EVALUATION</td>
<td>(4)</td>
<td>LEC. 2.</td>
<td>LAB. 6.</td>
<td>Pr. CADS 3600. Departmental approval. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CADS 5650 and CADS 6650. Spring.</td>
</tr>
<tr>
<td>CADS 6700</td>
<td>ENTREPRENEURSHIP IN APPAREL AND INTERIORS</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.</td>
</tr>
<tr>
<td>CADS 6730</td>
<td>HISTORY OF TEXTILES</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.</td>
</tr>
<tr>
<td>CADS 6750</td>
<td>APPAREL LINE DEVELOPMENT</td>
<td>(4)</td>
<td>LEC. 2.</td>
<td>LAB. 6.</td>
<td>Team-driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750. Departmental approval. Graduate standing.</td>
</tr>
<tr>
<td>CADS 6760/6766</td>
<td>FASHION ANALYSIS AND FORECASTING</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Departmental approval. Theories explaining fashion dynamics and techniques for forecasting change with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 6760 and CADS 5760.</td>
</tr>
<tr>
<td>CADS 6850</td>
<td>APPAREL MERCHANDISING AND RETAIL MANAGEMENT</td>
<td>(4)</td>
<td>LEC. 3.</td>
<td></td>
<td>LAB. 2. Departmental approval. Problem-solving and decision making strategies for retailing, apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850.</td>
</tr>
<tr>
<td>CADS 6860</td>
<td>ADVANCED RETAIL BUYING</td>
<td>(3)</td>
<td>LEC. 2.</td>
<td>LAB. 1.</td>
<td>Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.</td>
</tr>
<tr>
<td>CADS 7040</td>
<td>PROTOCOL FOR GRADUATE STUDY</td>
<td>(1)</td>
<td>LEC. 1.</td>
<td></td>
<td>SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.</td>
</tr>
<tr>
<td>CADS 7050</td>
<td>RESEARCH METHODS IN CONSUMER AND DESIGN SCIENCES</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Research and investigation methods appropriate to the study of consumer and design sciences.</td>
</tr>
<tr>
<td>CADS 7060</td>
<td>SURVEY OF CONSUMER AND DESIGN SCIENCES RESEARCH</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Presentation and discussion of a broad array of research topics to support literature review development.</td>
</tr>
<tr>
<td>CADS 7100</td>
<td>ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS</td>
<td>(3)</td>
<td>LEC. 3.</td>
<td></td>
<td>Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Departmental approval for Pre-requisites.</td>
</tr>
</tbody>
</table>

CADS 7530 ECONOMICS OF APPAREL AND TEXTILES (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Departmental approval. Economic issues involving the manufacture, distribution, and consumption of textiles and apparel. Graduate standing.

CADS 7670 SOCIAL PSYCHOLOGICAL THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Examination of theories that explain the social-psychological aspects of consumer behavior related to apparel and design sciences.

CADS 7690 CONSUMER THEORY IN APPAREL AND INTERIORS (3) LEC. 3. Pr. CADS 7050. Departmental approval. Overview of various theories used in consumer research with an emphasis on their application in apparel, merchandising, design, and interiors.

CADS 7900 DIRECTED STUDIES (1-3) IND. SU. Course may be repeated for a maximum of 6 credit hours.

CADS 7910 SUPERVISED TEACHING IN CONSUMER AND DESIGN SCIENCES (1) AAB/IND. 1. SU. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

CADS 7920 GRADUATE INTERNSHIP (3) INT. 3. Departmental approval. Supervised professional experience in the United States or internationally.

CADS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Departmental approval. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours.

CADS 7940 STUDY/TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) FLD. SU. Departmental approval. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours.

CADS 7950 SEMINAR (1) SEM. 1. SU. Departmental approval. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours.

CADS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours.

CADS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. Departmental approval. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours.

CADS 7980 GRADUATE PROJECT (1-3) RES. Departmental approval. In-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours.

CADS 7990 RESEARCH AND THESIS (1-10) AAB/MST. Course may be repeated with change in topics.

CADS 8100 APPAREL AND INTERIORS BRANDING (3) LEC. 3. Pr. CADS 7050. Departmental approval. Critical examination of theories and methodological issues in branding research and application in apparel and interior product and service branding.

CADS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Research presentations and discussions on issues facing consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8960 CURRENT ISSUES IN CONSUMER AND DESIGN SCIENCES (1-3) LEC. Departmental approval. Examination of current issues in consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8970/8976 SPECIAL TOPICS (1-3) LEC. Departmental approval. Topics related to various aspects of consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Global Studies/Human Sciences Courses

GSHS 2000 GLOBAL STUDIES HUMAN SCIENCES (3) LEC. 3. An introduction to global studies with emphasis on topics relevant to Human Sciences majors.

GSHS 3000 GLOBAL STUDIES IN HUMAN SCIENCES LECTURE SERIES (1) LEC. 1. Pr. GSHS 2000. Invited speakers and lectures will explore global studies topics from a human sciences perspective.
GSBH 4920 GLOBAL STUDIES INTERNSHIP (12) INT. 450. Pr. GSHS 2000 and GSHS 3000. Supervised professional internship in an international setting. Senior standing and 2.25 GPA.

GSBH 5000 GLOBAL STUDIES IN HUMAN SCIENCES CAPSTONE (3) LEC. 3. Pr. GSHS 2000 and GSHS 3000 and GSHS 4920. A capstone course designed to bring global studies issues that are relevant to the human sciences field into focus through problem-based learning.

Hospitality Management Courses

HOSP 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (2) LEC. 2. Overview of the hotel, restaurant, club, and travel industries and their interaction.

HOSP 2300 HOSPITALITY LAW (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010). or Departmental Approval. Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations. Spring.

HOSP 2350 CULINARY FUNDAMENTALS (3) LEC. 3. LAB. 1. Pr. (HRMT 1010 or HOSP 1010) and NTRI 2000. HRMT Major or Departmental Approval. Introduction to culinary science, methods and techniques used in the classical Garde Manger.

HOSP 2400 FOOD PRODUCTION IN HOSPITALITY (4) LEC. 3. LAB. 3. Pr. (HRMT 1010 or HOSP 1010) and (NTRI 2003 or NTRI 2007) and BIOL 1000. Hospitality Major Only or Departmental Approval. Skills, competencies and knowledge to manage a variety of food production and service facilities. Fall, Spring.

HOSP 2500 LODGING OPERATION (2) LEC. 2. Lodging operations management, with emphasis on guest cycle.

HOSP 2600 EVENT OPERATIONS (3) LEC. 3. An analysis of each component pertinent to the planning and operations of a hospitality event. Topics such as strategic planning, event design, logistics, staging, marketing, and event evaluation will be discussed.

HOSP 2910 HOSPITALITY PRACTICUM (1) PRA. 3. Pr. HRMT 1010 or HOSP 1010. Hospitality Major Only. Rotational perspective on the management and operation of the Auburn University Hotel and Conference Center.

HOSP 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (1) LEC. 1. Hospitality Management Major or departmental approval. Job-seeking and career development skills, based upon individual needs.

HOSP 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (ACCT 2810 or ACCT 2110 or ACCT 2117). Hospitality Management Major only. Financial systems and statements in the hospitality industry. Spring.

HOSP 3400 HOSPITALITY MARKETING (3) LEC. 3. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317). Junior standing. Junior standing and Hospitality Major Only or Departmental Approval. Service marketing concepts and issues as applied to the global hospitality industry. Fall.

HOSP 3550 FUNDAMENTALS OF BAKING (3) LEC. 3. LAB. 3. Pr. HRMT 1010 or HOSP 1010 and NTRI 2000. HRMT Major Only or Departmental Approval. This course will address the scientific foundations of food production as well as the fundamentals of the practice of baking necessary to produce quality baked products.

HOSP 3750 PATISSERIE AND CONFECTIONARY (3) LEC. 3. LAB. 3. Pr. HRMT 2400 or HOSP 2400 or HOSP 2350. HRMT Major Only or Departmental Approval. This course includes the study of classical culinary terms, safety and sanitation practices. Emphasis will be placed on hot, cold, frozen and contemporary plated desserts. Students will study classical techniques and presentations, creating popular international desserts.

HOSP 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HOSP 1010. Hospitality Major only or Departmental Approval. Strategic and operational issues surrounding introduction of technology in hospitality. Spring.

HOSP 4200 HOSPITALITY FACILITIES MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400) and HRMT 2500. Departmental approval. Design and operation of hospitality facilities. Fall.

HOSP 4300 FOOD AND BEVERAGE MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400). Control system design, implementation, and management in food and beverage operations. Fall.

HOSP 4350 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400 and HRMT 4300 or HOSP 4300). Advanced concepts and managerial issues of restaurant management.
HOSP 4480 GLOBAL GASTRONOMY (3) LEC. 3. LAB. 3. Pr. HRMT 2400 or HOSP 2400 and HRMT 2350. HOSP Major or Departmental Approval. The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Additionally, food will be explored from a historical, cultural, economic and geopolitical perspective in each of the regions/countries studied.

HOSP 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010) and (MNGT 3100 or MNGT 3103 or MNGT 3107) or MNGT 3810. Hospitality Major only or Departmental Approval. Development and implementation of strategic management in hospitality. Spring.

HOSP 4510 SPECIAL EVENTS (3) LEC. 3. Pr. HRMT 2600 or HOSP 2600. Hospitality Major Only or Departmental Approval. This course teaches students all the intricacies of special events. Students learn about the different types of special events and how different they are from each other. Students should be able to plan, organize and manage.

HOSP 4600 BEVERAGE APPRECIATION (3) LEC. 3. 21 Years Old. Junior standing. Hospitality Major Only or Departmental Approval. Production, selection, service, and sensory evaluation of alcoholic and non-alcoholic beverages.

HOSP 4800 SENIOR LECTURE SERIES (1) LEC. 1. SU. Hospitality Management Major Only; Junior or Senior Standing. Successful leaders share their experiences with career development, industry related topics and issues, successful management strategies and leadership. Spring.

HOSP 4920 INTERNSHIP IN HOSPITALITY (4) INT. 4. Pr. HRMT 2910 or HOSP 2910. HRMT major. 2.2 cumulative gpa. 600 hours (during collegiate experience) work experience in hospitality. Application of principles and theories in a professional hospitality setting.

HOSP 5460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Pr. HRMT 1010 or HOSP 1010. Departmental approval. Systems for managing conference coordination. May count HRMT 5540 or 6540/6546.

HOSP 5461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 1010 or HOSP 1010 and HOSP 5460 or HRMT 5460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Junior standing. Hospitality Major only or departmental approval. Role of quality service in attaining and retaining customers with emphasis on organizational strategic mission. May count HOSP 5530 or 6530/6536. Spring.


HOSP 5550 CLUB MANAGEMENT (3) LEC. 3. Pr. HOSP 1010. Junior standing. Junior standing. Examination of unique features, opportunities and problems associated with club management. Credit will not be given for HOSP 5550 and HOSP 6550/6556.

HOSP 5570 GLOBAL HOSPITALITY (3) LEC. 3. Junior Standing; Hospitality Management Major only or Departmental Approval. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Credit will not be given for HOSP 5570 and HOSP 6570/6576.

HOSP 5590 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. HRMT 2400 or HOSP 2400 or Departmental approval. Methods and systems of managing foodservice operations recreational facilities. Credit is not allowed for both HOSP 5590 and HOSP 6590/6596.

HOSP 6460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 6461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 6460 or HOSP 6460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 6530/6536 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Departmental approval. This course introduces students to the important role that quality service plays in attaining and retaining customers in the pursuit of an organizations strategic mission. Credit will not be given for HOSP 6530/6536 and HOSP 5530.
HOSP 6540/6546 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for HOSP 6540/6546 and HOSP 5540.

HOSP 6550/6556 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HOSP 6550/6556 and HOSP 5550.

HOSP 6570/6576 GLOBAL HOSPITALITY (3) LEC. 3. Departmental approval. Contemporary issues confronting the global hospitality industry. Credit will not be given for HOSP 6570/6576 and HOSP 5570.

HOSP 6590/6596 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3. Departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit will not be given for both HOSP 6590/6596 and HOSP 5590.

HOSP 7000/7006 HOSPITALITY ENTERPRISE (3) LEC. 3. Emphasizes aspects of hospitality enterprise including developmental, motivational, financial and human resource issues through contemporary academic literature. Credit will not be given for both HOSP 7000 and HOSP 7006.

HOSP 7010/7016 ADVANCED TOURISM ANALYSIS (3) LEC. 3. This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism behavior. Credit will be given for both HOSP 7010 and HOSP 7016.

HOSP 7106 THE BUSINESS OF BREWING (3) DSL. 3.

HOSP 7116 BREWING MATERIALS (3) DSL. 3. This course provides students with an introduction to all types of brewing ingredients including grain, hops, and adjuncts. Baccalaureate degree and 21 years of age.

HOSP 7126 SCIENCE OF BREWING 1 (3) DSL. 3. Theoretical and applied brewing science, recipe formulation, yeast biology and genetics part I. Baccalaureate degree and 21 years of age.

HOSP 7136 SCIENCE OF BREWING 2 (3) DSL. 3. Theoretical and applied brewing science, recipe, formulation, yeast biology and genetics part 2. Baccalaureate Degree, 21 years of age.

HOSP 7146 FACILITIES AND OPERATIONS (3) LEC. 3. This course will focus on the facilities required to produce a high quality, safe and sanitary product. Baccalaureate Degree, 21 years of age.

HOSP 7910/7916 PRACTICUM IN BREWING SCIENCE (1-3) PRA. SU. Departmental approval. Application of principles and theories of brewing in an industry setting. Course may be repeated for a maximum of 3 credit hours.

HOSP 7920/7926 PROFESSIONAL INTERNSHIP IN HOSPITALITY MANAGEMENT (1-3) INT. SU. Departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HOSP 8860/8866 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3. Analysis of current issues in the hospitality industry with emphasis on management.

HOSP 8870 ADVANCED HOSPITALITY MANAGEMENT RESEARCH AND APPLICATIONS (3) LEC. 3. Comprehensive review of the academic research process in the context of hospitality management.

HOSP 8880 THEORETICAL DEVELOPMENTS FOR HOSPITALITY (3) LEC. 3. The nature of hospitality theory and its development.

Human Dev Family Studies Courses
HDFS 1850 CURRENT ISSUES IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Current issues facing families and children evaluated in the light of scientific research.

HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3) LEC. 3. Examination of marriage and family systems, including their interface with the broader socio-cultural context. Fall, Spring.

HDFS 2010/2013 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3) LEC. 3. Human development within the context of the family and across the family life cycle with a focus on significant life transitions. Fall, Spring. Credit will not be given for both HDFS 2010 and HDFS 2013.

HDFS 2030 PROFESSIONAL DEVELOPMENT AND ETHICS (3) LEC. 3. Appraisal of career potential, formulation of a professional code of ethics, and exploration of career options. Fall, Spring.
HDFS 2040/2043 ANALYTICS FOR THE SOCIAL AND BEHAVIORAL SCIENCES (4) LEC. 3. LAB. 1. Pr. (MATH 1100 or MATH 1120 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1613 or MATH 1617). Introduction to basic data analysis used in social and behavioral science research, including descriptive and inferential techniques and elements of research design. May count either HDFS 2040, HDFS 2043 or PSYC 2130.

HDFS 3010/3013 CHILD DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. Social, emotional, physical and intellectual development in early and middle childhood with a special focus on family relationships. Fall, Spring. Credit can not be given for both HDFS 3010 and HDFS 3013.

HDFS 3030 ADOLESCENT DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA, HDFS 2010 or HDFS 2013. 2.25 GPA. Analysis of adolescent development with emphasis on family context and development outcomes employing an ecological framework.

HDFS 3040 HUMAN SEXUALITY OVER THE FAMILY LIFE CYCLE (3) LEC. 3. Pr. HDFS 2000 or (SOCY 1000 or SOCY 1007) or (PSYC 2010 or PSYC 2013 or PSYC 2017). Human sexuality from a life-cycle perspective, emphasizing developmental, familial and societal factors.

HDFS 3050 ADULT DEVELOPMENT AND AGING (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Exploration of the transformations in physical, cognitive, psychological and social functioning beginning in young adulthood and continuing through old age.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of family process and interaction, emphasizing major conceptual frameworks of family development. Fall, Spring.

HDFS 3080 DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of the competencies necessary for development of successful interpersonal relationships. Fall, Spring.

HDFS 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3) LEC. 1. LAB. 4. Pr. HDFS 3010 or HDFS 3013. Child development and teacher child relationship knowledge applied to interactions with young children. Three hours per week at Auburn University Early Learning Center for lab. Fall, Spring.

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (4) LEC. 2. LAB. 6. Pr. HDFS 3460 and (HDFS 3010 or HDFS 3013). Child development knowledge applied to preschool curriculum planning with 6 hours a week of supervised participation at Auburn University Early Learning Center. Spring.

HDFS 3910 PRACTICUM (1-6) PRA. SU. Pr., Departmental approval. Directed experience in a professional setting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy. Course may be repeated for a maximum of 6 credit hours.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-6) AAB/LEC. Pr., Departmental approval. Application of HDFS-relevant knowledge to real-life situations through active participation in a directed community service experience. A.) Auburn University Early Learning Center; B.) Harris Early Learning Center of Birmingham; C.) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3980 UNDERGRADUATE RESEARCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY STUDIES (2-6) AAB/FLD. Pr. (CAHS 2000 or CADS 2000 or CADS 2003 or CADS 2007) and HDFS 2000 and (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007). Departmental approval. Study or work in the United States or internationally. Course may be repeated for a maximum of 6 credit hours.

HDFS 4500/4503 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. 3. Pr. HDFS 3010 or HDFS 3013. Junior standing.. Junior standing in HDFS major or a major in a related field. Theories and research about children and their families in hospital settings. Credit will not be given for both HDFS 4500 and HDFS 4503.

HDFS 4510/4513 THERAPEUTIC PLAY (3) LEC. 3. Pr. HDFS 3010 or HDFS 3013. Theories and research on play, play’s use in many contexts, and the many therapeutic qualities of play will be discussed. May count either HDFS 4510 or HDFS 4513.

HDFS 4520 DYING, DEATH AND BEREAVEMENT (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Exploration of end of life issues from individual, relational and cultural perspectives.
HDFS 4660 RESOURCE MANAGEMENT FOR INDIVIDUALS, COUPLES, AND FAMILIES (3) LEC. 3. An understanding of the decisions individuals and families make about developing and allocating resources.

HDFS 4670 PARENT EDUCATION (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Principles of working with parents on individual and group bases.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of family function and diversity in cultures and family systems around the world.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3. Pr. HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010 or PSYC 2013 or PSYC 2017. Analysis of changing roles and their effects on romantic, marital, and parent-child relationships.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY STUDIES (12) INT. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all HDFS major core classes at the 3000-level or higher, and an overall minimum GPA of 2.25. Internship applications must be submitted 2 semesters in advance. A computer and internet access is required.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3. Pr., Departmental approval. Topical seminar in HDFS. A) Advanced Research B) Child Development; C) Family Studies; D) Marriage and Family Therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 4960 SPECIAL PROBLEMS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) IND. SU. Pr., Departmental approval. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours.

HDFS 4980 ADVANCED UNDERGRADUATE RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Departmental approval, Junior standing. Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Pr. Honors College. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 5200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Junior standing. Application of research to the development and evaluation of programming for children and families.

HDFS 5300 HDFS AND SOCIAL POLICY (3) LEC. 3. Junior standing. Examination and critique of social policies from a family perspective.

HDFS 5970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Junior standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 6200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Graduate standing. Application of research to the development and evaluation of programming for children and families.

HDFS 6300 HDFS AND SOCIAL POLICY (3) LEC. 3. Graduate standing. Examination and critique of social from a family perspective.

HDFS 6970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Graduate standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 7000 ADOLESCENT DEVELOPMENT (3) LEC. 3. Critical examination of empirical research and theories of adolescent development.

HDFS 7010 CHILD AND ADOLESCENT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 ADULT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical evaluation of research on development in the adult and aging periods of the life cycle.

HDFS 7040 FAMILY PROCESSES (3) LEC. 3. An orientation to family theories and their role in contemporary studies of family processes.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Departmental approval. Survey of principles and methods for studying individuals, dyadic relationships and families.
HDFS 7051 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES LAB (1) LAB. 1. Coreq. HDFS 7050. Lab devoted to principles and methods for studying individuals, dyadic relationships and families.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II (3) LEC. 3. Pr. HDFS 7050. Pr., Departmental approval. Survey of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7061 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II LABORATORY (1) LAB. 1. Pr. HDFS 7050. Coreq. HDFS 7060. Pr., Departmental approval. Lab devoted to the application of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3. Pr., Departmental approval. Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy. Fall.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Pr., Departmental approval. Basic clinical skills and self-of-the-therapist issues. Fall.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3. Pr., Departmental approval. Current theory and conceptual issues in the practice of marriage and family therapy. Fall.


HDFS 7650 MARRIAGE AND FAMILY THERAPY PROFESSIONAL ISSUES (3) LEC. 3. Pr., Departmental approval. Professional, ethical, and legal issues associated with the practice of marriage and family therapy. Summer.

HDFS 7900 DIRECTED STUDIES (1-3) AAB/IND. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage & Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7910 PRACTICUM (1-9) AAB/PRA. SU. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy; G) Teaching. Course may be repeated for a maximum of 9 credit hours.

HDFS 7920 MARRIAGE AND FAMILY THERAPY INTERNSHIP (3) INT. Pr., Departmental approval. Clinical practice of marriage and family therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7930 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) SEM. Pr., Departmental approval. A) Infancy/Childhood; B) Adolescence/Young Adulthood; C) Adulthood/Aging; D) Family as a Microsystem; E) Family and Mesosystem; F) Family in the Macrosystem; G) Child and Family Program Planning and Evaluation. Course may be repeated for a maximum of 16 credit hours.

HDFS 7940 DIRECTED FIELD EXPERIENCE (1-9) AAB/FLD. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7970 SPECIAL TOPICS IN HDFS (1-4) LEC. Students will learn about key issues in sleep research, especially with those related to family functioning and social/emotional, behavioral, and physical health. Students will have assigned readings to prepare them for discussions during the lectures. Course may be repeated for a maximum of 18 credit hours.

HDFS 7990 RESEARCH AND THESIS (1-10) AAB/MST.
HDFS 8010 RELATIONSHIP DEVELOPMENT AND PROCESS IN CHILDHOOD AND ADOLESCENCE (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in childhood adolescence.

HDFS 8020 RELATIONSHIP DEVELOPMENT AND PROCESS IN ADULTHOOD (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in adulthood and aging.

HDFS 8050 ADVANCED RESEARCH METHODS: COVARIANCE STRUCTURE ANALYSIS (3) LEC. 3. Pr. HDFS 7060. In-depth examination of research methods, designs, and data analytic strategies commonly used in child and family research.

HDFS 8051 ADVANCED RESEARCH METHODS (1) LAB. 1. Pr. HDFS 7060. Coreq. HDFS 8050. Lab designed to enhance the application of advanced research methods and data analytic strategies used in HDFS research.

HDFS 8060 MULTILEVEL MODELING (3) LEC. 3. Pr. HDFS 7060. In-depth examination of multilevel modeling as an analytic strategy for research in nested data structures.

HDFS 8061 APPLIED LONGITUDINAL METHODS IN HUMAN DEVELOPMENT AND FAMILY STUDIES LAB (1) LAB. 1. Pr. HDFS 7060. Coreq. HDFS 8060. Lab designed to enhance the examination of longitudinal methodology as an analytic strategy used in HDFS research.

HDFS 8070 MEDIATION AND MODERATION ANALYSIS (3) LEC. 3. Pr. HDFS 7060. Methods for evaluating mediation and moderation hypotheses by addressing both study designs and statistical analyses.

HDFS 8080 SURVIVAL ANALYSIS (SA) AND LATENT CLASS ANALYSIS (LCA) (3) SEM. 3. Pr. HDFS 7060. Methodological advances in longitudinal and categorical analysis have provided promising avenues for researchers interested in answering questions about event occurrence and latent classes. These two analytic techniques will be the focus of this course.

HDFS 8090 QUALITATIVE METHODS IN THE SOCIAL SCIENCES (3) LEC. 3. This course prepares graduate students to conduct and evaluate qualitative research in social science disciplines.

HDFS 8970 ADVANCED SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) LEC. Departmental approval. Study of advanced topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Human Sciences, General Courses

HUSC 1010/1013 INTRODUCTION TO HUMAN SCIENCES (2) LEC. 2. An introduction course to provide an understanding of the discipline of Human Sciences, history, and career opportunities.


HUSC 3380/3383 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (2) LEC. 2. Departmental approval. Coreq. HUSC 4380 and HUSC 4010 and HUSC 4940. Pre-departure orientation for students participating in the Joseph S. Bruno Auburn Aboard program in Ariccia, Italy. May also be taken by students exploring study abroad opportunities through the alternative International Minor in Human Sciences. Ungapped 2.5 gpa.

HUSC 4000 HUNGER STUDIES CAPSTONE (3) LEC. 3. Pr. HUSC 2000 or HUSC 2003 or HUSC 2007. Examination of global and domestic hunger issues from multidisciplinary perspectives.

HUSC 4010 CHS AT AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6. Pr. (P/C HUSC 3380 or P/C HUSC 3383) or P/C HUSC 4380 or P/C HUSC 4940. Departmental approval. Coreq. HUSC 4380 and HUSC 3383 and HUSC 4940 and HUSC 3380. Multi-faceted cultural experience focused on individuals/ families in the context of history and Italian culture.
HUSC 4380 AUBURN ABROAD IN ITALY STUDY AND TRAVEL (2) AAB/FLD. 2. Pr. (P/C HUSC 3380 or P/C HUSC 3383) and P/C HUSC 4010 and P/C HUSC 4940. Coreq. HUSC 3380 and HUSC 3383 and HUSC 4010 and HUSC 4940. Broaden world views, increase cultural awareness, and demonstrate an ability to function global through the Auburn Abroad in Italy program. Ungapped 2.25 gpa.

HUSC 4480 GLOBAL STUDY TRAVEL IN HUMAN SCIENCES (1-12) AAB. Sophomore/Junior/Senior Standing or Departmental approval application required. Student international study travel to study topics relevant to human sciences and quality of life issues. Course may be repeated for a maximum of 12 credit hours.

HUSC 4940 CHS AT AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6. Pr. (P/C HUSC 3380 or P/C HUSC 3383) or P/C HUSC 4010 or P/C HUSC 4380 or departmental approval. Coreq. HUSC 4010 and HUSC 3383 and HUSC 4380 and HUSC 3380. Supplemental lectures for HUSC 4010 provided through field trips and participation in Italian culture experiences. Ungapped 2.5 gpa.

HUSC 5930 SOCIETY AND HEALTH (3) LEC. 45. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities.

HUSC 5940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-12) AAB/LEC. Pr. 2.25 GPA. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 12 credit hours.

HUSC 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (2) SEM. 30. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. Course may be repeated for a maximum of 4 credit hours.

HUSC 6930 SOCIETY AND HEALTH (3) LEC. 45. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities.

HUSC 6940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-6) AAB/LEC. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 6 credit hours.

HUSC 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (2) SEM. 30. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. Course may be repeated for a maximum of 10 credit hours.

HUSC 7910 CHS AT AU IN ITALY PROGRAM ADMINISTRATION PRACTICUM (6) AAB/PRA. 6. SU. Graduate status and acceptance to the Joseph S. Bruno Auburn Abroad in Italy program. One course in interpersonal communications or consent of instructor. Directed practical experience administering an undergraduate study abroad program.

Nutrition Courses


NTRI 2010 BASIC SPORTS NUTRITION (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) or (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007). An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance.

NTRI 2070 CAREERS IN NUTRITION, DIETETICS AND WELLNESS (1) LEC. 1. Pr. NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007. Professional roles and responsibilities in nutrition, dietetics, and wellness with emphasis on careers professional development and conduct.

NTRI 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.
NTRI 3560 EXPERIMENTAL STUDY OF FOODS (4) LEC. 3. LAB. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007) and (BIOL 1020 or BIOL 1027) and CHEM 1030 or Departmental approval. Experimental approach to the chemistry to food including composition, preparation, recipe modification, food quality, sanitation, processing, and food laws.

NTRI 3750 NUTRITION EDUCATION (2) LEC. 2. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007). A variety of perspectives and strategies designed to facilitate dietary behaviors conducive to health and well-being.

NTRI 3940 COMMUNITY SERVICE (3-9) LEC. 1. LAB. 6. Departmental approval. Application of NTRI-related knowledge to real-life situations through participation in directed community service experiences. A) nutrition; B) hospitality; C) general NTRI. Course may be repeated for a maximum of 9 credit hours.

NTRI 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1. SU. Pr. NTRI 2070 or NTRI 2077. NTDI or departmental approval. Junior standing. Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship.

NTRI 4560 FOOD SYSTEMS OPERATIONS (2) LEC. 2. Pr. NTRI 2050 or NTRI 3560 or NUFS 2050 or NUFS 3560 or Departmental approval. Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations.

NTRI 4561 FOOD SYSTEMS OPERATIONS LAB (2) LAB. 4. Pr. NTRI 2050 or NTRI 3560 or Departmental approval. Coreq. NTRI 4560. Laboratory experience in food service operations. Food safety certification is included. TB test.

NTRI 4580 FOOD AND CULTURE (2) LEC. 2. Departmental approval. Cultural and social factors affecting food habits and nutritional status of populations throughout the world.

NTRI 4620 PUBLIC HEALTH NUTRITION (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Coreq. NTRI 4090. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 4820 MACRONUTRIENTS (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007) and P/C BCHE 3180 and BIOL 2510 or Departmental approval. Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. Spring.

NTRI 4830 VITAMINS AND MINERALS (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007) and P/C BCHE 3180. Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. Spring.

NTRI 4930 DIRECTED STUDIES (1-8) AAB/IND. Departmental approval. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours.

NTRI 4970 SPECIAL TOPICS (1-3) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Course may be repeated for a maximum of 6 credit hours.

NTRI 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) AAB/IND. Departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NTRI 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. Departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NTRI 5020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820 and NTRI 4830. Coreq. NTRI 4090. NTDI or departmental approval. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 5030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020. NTDI or department approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030.

NTRI 5100 NUTRITION IN DISEASE PREVENTION (2) LEC. 2. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. The functions, safety, and efficacy of selected nutrients and herbs in the prevention and/or treatment of selected diseases/conditions.
NTRI 5380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. (P/C NTRI 4560 or P/C NTRI 4561) or Departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 5560 and NTRI 6560. Spring.

NTRI 5620 SPORTS NUTRITION (3) LEC. 3. Pr. BIOL 2510 and BCHE 3180. Departmental approval. Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NTRI 5620 and NTRI 6620. Spring.

NTRI 5760 NUTRITION COUNSELING (2) LEC. 2. Pr. NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030). NTDI or department approval. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760.

NTRI 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 or NUFS 4830 or NUFS 4833. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 5820 and NTRI 6820. Fall.

NTRI 5830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. Principles of nutrient-gene interactions and how these interactions influence human health and disease. May count either NTRI 5830 or NTRI 6830.

NTRI 5910 CLINICAL PRACTICUM IN DIETETICS (1) PRA. 3. SU. NTDI or department approval. Application of the practice of dietetics in a clinical or community setting.

NTRI 6020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 6030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. (NTRI 5020 or NTRI 6020). Coreq. NTRI 6760. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030.

NTRI 6100/6106 NUTRITION IN DISEASE PREVENTION (2) LEC. 2. Pr. (NTRI 5820 or NUFS 5820 or NUFS 4830 or NUFS 4833) and NTRI 4830. The functions, safety, and efficacy of selected nutrients herbs in the prevention and/or treatment of selected diseases/conditions. May count either NTRI 5100 or NTRI 6100.

NTRI 6380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 6560/6566 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. NTRI 4560 or NTRI 4561 or Departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 6560 and NTRI 5560. Spring.

NTRI 6620 SPORTS NUTRITION (3) LEC. 3. Pr. BIOL 2510 and BCHE 3180. Departmental approval. Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NTRI 6620 and NTRI 5620. Spring.

NTRI 6760 NUTRITION COUNSELING (2) LEC. 2. Pr. NTRI 3750 and NUFS 3750. Coreq. NTRI 5030 and NTRI 6030. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760.

NTRI 6820/6826 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 or NUFS 4830 or NUFS 4833. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 6820 and NTRI 5820. Fall.
NTRI 7016 ADVANCED PRACTICUM IN DIETETICS (1-9) DSL. SU. DPD verification statement. Enrollment in Masters in Nutrition Program or department approval. Supervised practical experience in clinical, food service, and community settings for development of entry-level skills for the registered dietitian. Course may be repeated for a maximum of 9 credit hours.

NTRI 7050/7056 METHODS OF RESEARCH (2) LEC. 2. Departmental approval. Research methods and designs applicable to disciplines represented in nutrition dietetics and hospitality management. Credit is not allowed for both NTRI 7050 and NTRI 7056. Spring.

NTRI 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2. LAB. 3. Departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NTRI 7500/7506 MINERALS (3) LEC. 3. Departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body. Fall.

NTRI 7510/7516 VITAMINS (3) LEC. 3. Departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans. Fall.


NTRI 7530/7536 HUMAN NUTRIENT METABOLISM (4) LEC. 4. Advanced study of nutrition and metabolism, as related to humans. Department approval. Credit will not be given for both NTRI 7530 or NTRI 7536 once developed, or BCHE 6180 and BCHE 6190, and/or BCHE 7200.

NTRI 7550/7556 RESEARCH SEMINAR FOR MASTER'S PROGRAM (1) SEM. 1. Departmental approval. Current topics in nutrition, dietetics and hospitality management presented by M.S. graduate students.

NTRI 7910 PRACTICUM IN NUTRITION AND DIETETICS (1-12) PRA. SU. Departmental approval. Application of principles and theories of nutrition in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NTRI 7930/7936 ADVANCED INDEPENDENT STUDY (1-6) IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NTRI 7960/7966 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 10 credit hours.

NTRI 7980/7986 NONTHESIS RESEARCH (1-6) RES. SU. Departmental approval. In-depth work in a particular project related to hotel and restaurant management. Course may be repeated for a maximum of 6 credit hours.

NTRI 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

NTRI 8850 RESEARCH SEMINAR FOR DOCTORAL PROGRAM (1-2) SEM. Departmental approval. Required for doctoral students in nutrition and hospitality management. Advanced topics in nutrition and food science presented by doctoral students. Course may be repeated for a maximum of 2 credit hours.

NTRI 8910 SUPERVISED TEACHING (1) AAB/IND. 1. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

NTRI 8970/8976 ADVANCED TOPICS IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NTRI 8990 RESEARCH AND DISSERTATION (1-10) AAB/DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

Consumer and Design Sciences

The Department of Consumer and Design Sciences focuses on consumers’ interactions with their near physical environment. Two majors are offered: 1) Apparel Merchandising, Design and Production Management, and 2) Interior Design. These curricula focus on principles of design, product development, management, marketing science and technology, and consumer behavior. Majors in these curricula may lead to careers in business, industry, and government which apply knowledge to developing, evaluating and
merchandising consumer products, interpreting consumers’ wants and needs, informing consumers and designing environmental spaces. A senior-level internship is required in both curricula. Accelerated BS/MS programs are available in AMDP and INDS. Please contact department for additional information.

**Apparel Merchandising, Design and Production Management**

Apparel Merchandising, Design and Production Management is a professional curriculum with two options: 1) Apparel Merchandising (APME) and 2) Product Design and Production Management (APDP). Diversity within the major allows students to select such varied fields as apparel design, apparel production management, retail sales and/or management, apparel merchandising, retail buying, fashion journalism, and consumer-producer relations. A professionally supervised internship is required. The program is endorsed by the American Apparel and Footwear Association.

Academic Standards and Policies: Students in both AMDP options must earn a grade of a C or higher in all prerequisite courses in the major, and have a cumulative GPA of 2.0, before being allowed to proceed to the next course in the sequence. Major courses include the Human Sciences college core courses and all required Consumer and Design Sciences courses which are indicated in bold print in the models. Students must earn a grade of C or higher on all required courses in the major to complete graduation requirements.

**Interior Design**

Interior Design is a four-year bachelor of science program accredited by the Council for Interior Design Accreditation (CIDA). The curriculum focuses on the design of the near environment, the aesthetic and functional aspects of space planning, furnishings and materials, lighting and mechanical equipment, and the integration of these aspects of the built environment to fit the needs of the user. A professionally supervised internship is required. Student work from courses in the major may be retained by the program for accreditation and exhibit purposes.

Academic Standards and Policies: Freshman and transfer students admitted to Auburn University, as well as internal transfer students from within Auburn University, who desire to major in Interior Design, College of Human Sciences, will be admitted to Pre-Interior Design (INDX). The Pre-Interior Design students must complete the first year of Pre-Interior Design course work, i.e., CADS 1000 and CADS 1100 with a grade of “C” or better in order to be evaluated for possible admission into the Interior Design curriculum. Admission into the Interior Design program (sophomore-senior levels) is limited with a maximum class size of 36 students per year. Admission will be based upon a portfolio review by the Interior Design faculty of the work completed in the Pre-Interior Design course work. Students who have earned at least a C in both CADS 1000 and CADS 1100, but who are not selected for the Interior Design program because of class size limitations, may be invited to join the program if a space opens up in the program. Course work in the major must be taken in sequence; transfer students should anticipate that additional semesters of study may be required to complete the program.

Students in INDS must earn a grade of a C or higher in all prerequisite courses in the major before being allowed to proceed to the next course in the sequence. Major courses include the Human Sciences College core courses and all required Consumer and Design Sciences courses which are indicated in bold print in the model.

**Major**

- Apparel Merchandising, Design and Production Management (Apparel Merchandising Option) (p. 732)
- Apparel Merchandising, Design and Production Management (Product Design and Production Management Option) (p. 733)
- Consumer and Design Sciences, ABM
- Interior Design (p. 735)

**Courses**

**CADS 1000 THEORIES AND PRINCIPLES OF INTERIOR DESIGN (4)** LEC. 2, LST. 6. Introduction to and application of the theories and principles of interior design.

**CADS 1100 TECHNICAL PROCESSES OF INTERIOR DESIGN (4)** LEC. 2, LST. 4. Space planning and delineation of interior systems for residential, institutional, and other consumer environments.

**CADS 1600 TEXTILE INDUSTRIAL COMPLEX (3)** LEC. 3. Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers.

**CADS 1700/1703 COLLEGIATE CONSUMING AND GIVING: SPEND, SAVE, AND SHARE (3)** LEC. 3. Study of collegiate behavior and decision making as it applies to spending, saving and philanthropic theories, principles, and applications.
CADS 1740 AESTHETICS FOR FASHION (3) LEC. 3. Elements and principles of design and their application in industries such as textiles, apparel, and retail.

CADS 2000/2003 GLOBAL CONSUMER CULTURE (3) LEC. 3. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000, CADS 2003 or CADS 2007.

CADS 2007 HONORS GLOBAL CONSUMER CULTURE (3) LEC. 3. Pr. Honors College. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000, CADS 2003 or CADS 2007.

CADS 2100 VISUAL PRESENTATION OF INTERIOR DESIGN I (4) LEC. 2, LST. 6. Pr. CADS 1000 and CADS 1100. Development of visual communication skills for interior design.

CADS 2200 STUDIO IV: CAD FOR INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 2100. Application of graphic visualization and computer-aided design techniques to represent interior design.

CADS 2300 HISTORY, THEORY, AND CRITICISM OF INTERIOR DESIGN (3) LEC. 3. Historical survey of interior design and the decorative arts from antiquity through present.

CADS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3. Pr. CADS 1000. Survey of finishes, textiles, materials, and components. Introduction to health, safety, and environmental issues that impact consumers.

CADS 2500 VISUAL PRESENTATION IN INTERIOR DESIGN II (4) LEC. 2, LST. 6. Pr. CADS 2100. Development of color visual communication skills for interior design ideas, concepts, and professional presentation media.

CADS 2700/2703 INTRODUCTION TO NONPROFIT ORGANIZATIONS (3) LEC. 3. Introduction to mission, structure, and impact of nonprofit organizations at the local, state, national and international levels. May count either CADS 2700 or CADS 2703.

CADS 2740 ILLUSTRATION TECHNIQUES FOR APPAREL (3) LEC. 1. LAB. 4. Pr. CADS 1740 and CADS 1600. Creative approach to illustrating apparel through the use of varied media and development of illustrative style appropriate for portfolio presentations. APDP Major.

CADS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2740 and CADS 2800. Apparel pattern development through drafting, flat pattern manipulation and draping; custom apparel production. APDP Major.

CADS 2760 VISUAL MERCHANDISING (4) LEC. 2, LST. 6. Pr. CADS 1600. History, equipment, application, and theory of display techniques in store and non-store settings. AMDP major.

CADS 2770 COMPUTER-AIDED DESIGN FOR APPAREL (4) LEC. 2, LST. 4. Pr. CADS 1600 and CADS 2740. Principles of aesthetics applied to apparel product development including computer aided design and other presentation techniques.

CADS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3. LAB. 3. Pr. CADS 1600. Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products.

CADS 3100 STUDIO VI: LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 2, LST. 6. Pr. CADS 2200 and CADS 2400 and CADS 2500. Application of principles and processes of lighting, mechanical, and environmental systems to interior design.

CADS 3200 RESIDENTIAL INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 2200 and CADS 2300 and CADS 2400 and CADS 2500. Application of human factors and consumer needs to programming and design process of residential interiors.

CADS 3380 STUDY ABROAD OPPORTUNITES IN HUMAN SCIENCE (1) LEC. 1. Departmental approval. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

CADS 3400 COMMERCIAL INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 3100 and CADS 3200. Application of programming and presentation techniques to commercial spaces.

CADS 3500 INTERIOR DESIGN PROFESSIONAL PRACTICE (3) LEC. 3. Pr. CADS 3100 and CADS 3200. Exploration of the interior design profession and standard practices.

CADS 3600 TEXTILES (4) LEC. 3. LAB. 3. Pr. CADS 1600 and CHEM 1020 and CHEM 1021. Organic compounds, polymers, fibers, yarns, fabrics, and chemical finishes for apparel and household textiles with laboratory evaluation. AMDP major.
CADS 3700/3703 GENDER, WEALTH & PHILANTHROPY (3) LEC. 3. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700, CADS 3703 or CADS 3707.

CADS 3707 GENDER, WEALTH AND PHILANTHROPY (3) LEC. 3. Pr. Honors College. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700, CADS 3703 or CADS 3707.

CADS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2750 and CADS 2800 and CADS 2770. Advanced design techniques, including couture production; portfolio and internship planning. ADMP major.

CADS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3. Pr. CADS 2000 or CADS 2003 or CADS 2007. Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. Credit will not be given for both CADS 3800 and MKTG 3410. AMDP major.

CADS 3850/3853 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2. LAB. 2. Pr. (COMP 1000 or COMP 1003) and CADS 1600 and ACCT 2810 or Departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services. Credit will not be given for both CADS 3850 and CADS 3853.

CADS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours.

CADS 3920 INDUSTRY EXPERIENCE (3) INT. 3. Pr. CADS 1600. Departmental approval. Supervised industry experience requiring students to spend time working in the industry under supervision. Course may be repeated for a maximum of 6 credit hours.

CADS 3940 STUDY TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) AAB/FLD. Departmental approval. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours.

CADS 3970 SPECIAL TOPICS (1-3) LEC. Courses may be repeated for 9 hours. Departmental approval. Standing grade. Course may be repeated for a maximum of 9 credit hours.

CADS 4100 PHILANTHROPY & NONPROFIT STUDIES LECTURE SERIES (1) LEC. 1. Pr. (CADS 2700 or CADS 2703) and (CADS 3700 or CADS 3703 or CADS 3707). Lecture series showcasing philanthropic and nonprofit leaders. Course may be repeated for a maximum of 2 credit hours.

CADS 4200 STUDIO IX: PORTFOLIO DEVELOPMENT (3) STU. 5. Pr. CADS 3400 and CADS 3500. Portfolio development, critique, and review.

CADS 4500 PORTFOLIO DEVELOPMENT FOR DESIGNERS (4) LEC. 2, LST. 4. Pr. P/C CADS 3750. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, computer slide show, and web formats. Open to AMDP majors in Apparel Design Option.

CADS 4700 PORTFOLIO DEVELOPMENT FOR PHILANTHROPY AND NONPROFIT STUDIES (3) LEC. 3. LAB. 3. Pr. CADS 3700 or CADS 3703 or CADS 3707 and CADS 4100 and CADS 4910. Portfolio development in print, digital, and web formats for students in Philanthropy and Nonprofit Studies.

CADS 4750 PRODUCT DEVELOPMENT: SPECIALIZED DESIGN (3) STU. 6. Pr. CADS 3750. Specialized design development concepts, techniques, and applications for target markets including children's wear, performance wear, and bridal markets.

CADS 4800 APPAREL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CADS 2800. Coreq. CADS 3750. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. AMDP major.

CADS 4900 UNDERGRADUATE TEACHING ASSISTANT EXPERIENCE (1-3) LEC/LST. Student must have previously earned an "A" in the course s/he is assisting with. Departmental approval. Student participation as an undergraduate teaching assistant (UTA) for the Consumer and Design Sciences course under the supervision of a faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4910 PRACTICUM IN PHILANTHROPY AND NONPROFIT ORGANIZATIONS (3) PRA. 3. Pr. CADS 2700 or CADS 2703 and CADS 3700 or CADS 3703 or CADS 3707. Departmental approval. Supervised practicum experience with a philanthropic or nonprofit organization.

CADS 4920 INTERNSHIP (8) AAB/INT. 8. Supervised 10 week professional internship. Departmental approval. 2.0 GPA. Junior standing.
CADS 4960 SPECIAL PROBLEMS IN DESIGN (1-3) LEC. Departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 9 credit hours.

CADS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours.

CADS 4980 UNDERGRADUATE RESEARCH IN CONSUMER AND DESIGN SCIENCES (1-3) IND/LEC. SU. Pr. 3.50 GPA. Departmental approval. Participation as an undergraduate research assistant (URA) for a Consumer and Design Sciences research project under the supervision of a CADS faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4997 HONORS THESIS (3) IND. 3. SU. Pr. Honors College. CADS 4967. Departmental approval. Research in specialized topics.

CADS 5300 HOSPITALITY DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 3400. Development of a large scale hospitality project with emphasis on design of environments that serve the needs of multiple users. May count either CADS 5300 or CADS 6300.

CADS 5310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 5400 HEALTHCARE DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 5300. In-depth development of a large scale institutional solution explored across multiple projects during the semester, with emphasis on design for health and healing environments.

CADS 5450 HISTORY OF COSTUME (3) LEC. 3. Pr., Core History or departmental approval. AMDP major. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 5450 and CADS 6450.

CADS 5460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. P/C; Core History, Core Literature or departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460.

CADS 5500 PROFESSIONAL DEVELOPMENT: MERCHANDISING PORTFOLIO (3) LEC. 3. Pr. CADS 3850 or CADS 3853. Portfolio Development in print, digital, and web formats for merchandising students. May count either CADS 5500 or CADS 6500.

CADS 5600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ANTH 1000 or ANTH 1003 or ANTH 1007 or GEOG 1010 or GEOG 1013 or GEOG 1017 or PSYC 2010 or PSYC 2013 or PSYC 2017 or SOCY 1000 or SOCY 1007) or Departmental approval. The role of fiber, textile, and apparel industries in the international economy. AMDP major.

CADS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Pr. (CADS 2000 or CADS 2003 or CADS 2007) and (CADS 3850 or CADS 3853). Strategies for successful global business expansion for textile and apparel retailers. Credit granted for only one of: CADS 5610, CADS 6610, MKTG 4330.

CADS 5650 TEXTILE AND APPAREL EVALUATION (4) LEC. 2. LAB. 6. Pr. CADS 3600. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CADS 5650 and CADS 6650.

CADS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 5730 HISTORY OF TEXTILES (3) LEC. 3. Pr., Core History or departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. CADS 3750 and CADS 4800. Team driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750.

CADS 5760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Pr. CADS 1600 and CADS 2740 or CADS 2760. Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 5760 and CADS 6760. AMDP major.

CADS 5850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Pr. CADS 3850 or CADS 3853. Problem-solving and decision making strategies for retailing apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850. AMDP major.
CADS 5860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Pr. CADS 5850. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 6300 HOSPITALITY DESIGN (4) LEC. 2. LAB. 6. Development of a large scale hospitality project with emphasis on design of environments that serve the needs of multiple end users. May count either CADS 5300 or CADS 6300. Graduate standing.

CADS 6310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 6400 STUDIO XI: HEALTH CARE DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 6300. Development of a large scale institutional project with emphasis on design of a healing environment. Credit may only be used for CADS 5400 or CADS 6400. Graduate standing.

CADS 6450 HISTORY OF COSTUME (3) LEC. 3. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 6450 and CADS 5450. Departmental approval. Graduate standing.

CADS 6460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. Departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460. Graduate standing.

CADS 6500 PROFESSIONAL DEVELOPMENT: MERCHANDISING PORTFOLIO (3) LEC. 3. Pr. CADS 5850 or CADS 5860. Portfolio Development in print, digital, and web formats for merchandising students. May count either CADS 5500 or CADS 6500.

CADS 6600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Departmental approval. The role of fiber, textile, and apparel industries in the international economy. Credit will not be given for both CADS 5600 and CADS 6600. Graduate standing.

CADS 6610/6616 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Strategies for successful global business expansion for textile and apparel retailers. Credit given for only one of: CADS 5610, CADS 6610, MKTG 4330. Departmental approval.

CADS 6650 TEXTILE AND APPAREL EVALUATION (4) LEC. 2. LAB. 6. Pr. CADS 3600. Departmental approval. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CADS 5650 and CADS 6650. Spring.

CADS 6700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 6730 HISTORY OF TEXTILES (3) LEC. 3. Departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 6750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Team-driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750. Departmental approval. Graduate standing.

CADS 6760/6766 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Departmental approval. Theories explaining fashion dynamics and techniques for forecasting change with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 6760 and CADS 5760.

CADS 6850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Departmental approval. Problem-solving and decision making strategies for retailing, apparel, textiles, and other consumer products. Credit will not be given for both CADS 6850 and CADS 5850.

CADS 6860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 7040 PROTOCOL FOR GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

CADS 7050 RESEARCH METHODS IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Research and investigation methods appropriate to the study of consumer and design sciences.

CADS 7060 SURVEY OF CONSUMER AND DESIGN SCIENCES RESEARCH (3) LEC. 3. Presentation and discussion of a broad array of research topics to support literature review development.
CADS 7100 ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS (3) LEC. 3. Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Departmental approval for prerequisites.


CADS 7530 ECONOMICS OF APPAREL AND TEXTILES (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Departmental approval. Economic issues involving the manufacture, distribution, and consumption of textiles and apparel. Graduate standing.

CADS 7670 SOCIAL PSYCHOLOGICAL THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Examination of theories that explain the social-psychological aspects of consumer behavior related to apparel and design sciences.

CADS 7690 CONSUMER THEORY IN APPAREL AND INTERIORS (3) LEC. 3. Pr. CADS 7050. Departmental approval. Overview of various theories used in consumer research with an emphasis on their application in apparel, merchandising, design, and interiors.

CADS 7900 DIRECTED STUDIES (1-3) IND. SU. Course may be repeated for a maximum of 6 credit hours.

CADS 7910 SUPERVISED TEACHING IN CONSUMER AND DESIGN SCIENCES (1) AAB/IND. 1. SU. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

CADS 7920 GRADUATE INTERNSHIP (3) INT. 3. Departmental approval. Supervised professional experience in the United States or internationally.

CADS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Departmental approval. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours.

CADS 7940 STUDY/TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) FLD. SU. Departmental approval. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours.

CADS 7950 SEMINAR (1) SEM. 1. SU. Departmental approval. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours.

CADS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours.

CADS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. Departmental approval. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours.

CADS 7980 GRADUATE PROJECT (1-3) RES. Departmental approval. In-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours.

CADS 7990 RESEARCH AND THESIS (1-10) AAB/MST. Course may be repeated with change in topics.

CADS 8100 APPAREL AND INTERIORS BRANDING (3) LEC. 3. Pr. CADS 7050. Departmental approval. Critical examination of theories and methodological issues in branding research and application in apparel and interior product and service branding.

CADS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Research presentations and discussions on issues facing consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8960 CURRENT ISSUES IN CONSUMER AND DESIGN SCIENCES (1-3) LEC. Departmental approval. Examination of current issues in consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8970/8976 SPECIAL TOPICS (1-3) LEC. Departmental approval. Topics related to various aspects of consumer and design sciences. Course may be repeated for a maximum of 9 credit hours.

CADS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.
Consumer and Design Sciences, ABM

Apparel Merchandising, Design and Production Management (AMDP)

The accelerated BS/MS in Apparel Merchandising, Design and Production Management (AMDP) degree program will provide an opportunity for highly motivated and academically strong students to gain a depth of understanding of apparel merchandising, design, and product development beyond that of typical bachelor's level graduates. It should make them more competitive in the job market or for additional graduate studies. The program will allow students to achieve a graduate degree in an accelerated period of time.

Students with at least 45 credit hours but no more than 96 and a 3.0 GPA will be eligible to apply for the program. Applications for the accelerated BS/MS in AMDP will consist of plans of study for both the Bachelor of Science in AMDP and the Master of Science in Consumer and Design Sciences. Applications will be due October 1 in the Fall of the Junior Year. Upon approval by the Undergraduate Program Coordinator, the Graduate Program Officer and the Department Chair, students will be admitted to the accelerated program and may register in the 6000-level courses at the appropriate time in their plan of study.

Students will matriculate in the accelerated program at an appropriate time as designated by the plan of study. This would begin in the spring of the junior year of their undergraduate program and continue until the last semester in the normal bachelor's degree program at which time the B.S. degree will be awarded. The Master of Science in Consumer and Design Sciences would be completed in May of the second year in the advanced degree program. On completion of the BS degree, students must apply to the Graduate School and be accepted into the MS program in the Department of Consumer and Design Sciences.

All undergraduate students enrolled in the program will be required to meet with the undergraduate program coordinator each semester before registering. Graduate students will have a major professor directing their thesis research. The Graduate Program Officer is available as needed.

Withdrawal Process: Student may withdraw voluntarily from the Accelerated program by notifying the Graduate Program Officer.

Select nine-ten hours of the following courses to meet the BS/MS requirements (minimum grade of B):

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CADS 6450</td>
<td>History Of Costume</td>
<td>3</td>
</tr>
<tr>
<td>CADS 6460</td>
<td>Fashion Industry Since 1910</td>
<td>3</td>
</tr>
<tr>
<td>CADS 6600</td>
<td>Global Sourcing in Textiles and Apparel</td>
<td>3</td>
</tr>
<tr>
<td>CADS 6610</td>
<td>Global Retailing Strategies for Textile and Apparel Products</td>
<td>3</td>
</tr>
<tr>
<td>CADS 6750</td>
<td>Apparel Line Development</td>
<td>4</td>
</tr>
<tr>
<td>CADS 6760</td>
<td>Fashion Analysis and Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>CADS 6850</td>
<td>Apparel Merchandising and Retail Management</td>
<td>4</td>
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<tr>
<td>CADS 6860</td>
<td>Advanced Retail Buying</td>
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</table>

Other requirements for the M.S. in the Consumer and Design Sciences are listed in the M.S. Consumer and Design Sciences.

Interior Design (INDS)

The accelerated BS/MS in Interior Design (INDS) degree program will provide an opportunity for highly motivated and academically strong students to gain a depth of understanding of Interior Design beyond that of typical bachelor's level graduates. It should make them more competitive in the job market or for additional graduate studies. The program will allow students to achieve a graduate degree in an accelerated period of time.

Students with at least 45 credit hours but no more than 96 and a 3.0 GPA will be eligible to apply for the program. Applications for the accelerated BS/MS in INDS will consist of plans of study for both the Bachelor of Science in INDS and the Master of Science in Consumer and Design Sciences. Applications will be due October 1 in the Fall of the Junior Year. Upon approval by the Undergraduate Program Coordinator, the Graduate Program Officer and the Department Chair, students will be admitted to the accelerated program and may register in the 6000-level courses at the appropriate time in their plan of study.

Students will matriculate in the accelerated program at an appropriate time as designated by the plan of study. This would begin in the fall of the senior year of their undergraduate program and continue until the last semester in the normal bachelor's degree program at which time the B.S. degree will be awarded. The Master of Science in Consumer and Design Sciences would be completed in May of the second year in the advanced degree program. On completion of the BS degree, students must apply to the Graduate School and be accepted into the MS program in the Department of Consumer and Design Sciences.
All undergraduate students enrolled in the program will be required to meet with the undergraduate program coordinator each semester before registering. Graduate students will have a major professor directing their thesis research. The Graduate Program Officer is available as needed.

Withdrawal Process: Student may withdraw voluntarily from the Accelerated program by notifying the Graduate Program Officer.

Courses to be used to meet BS/MS INDS requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS 6300</td>
<td>Hospitality Design</td>
<td>4</td>
</tr>
<tr>
<td>CADS 6400</td>
<td>Studio XI: Health Care Design</td>
<td>4</td>
</tr>
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</table>

Other requirements for the M.S. in the Consumer and Design Sciences are listed in the M.S. Consumer and Design Sciences.

### Curriculum in Apparel Merchandising, Design and Production Management

Apparel Merchandising Option

#### Freshman

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>CADS 1600</td>
<td>Textile Industrial Complex</td>
<td>3 NTRI 2000 Nutrition And Health</td>
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<tr>
<td>MATH 1150</td>
<td>Pre-Calculus Algebra and Trigonometry</td>
<td>4 Core Humanities</td>
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<tr>
<td>ENGL 1100</td>
<td>English Composition I</td>
<td>3 ENGL 1120 English Composition II</td>
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<tr>
<td>Core Social Science</td>
<td>3 COMP 1000 Personal Computer Applications</td>
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<td></td>
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<td>COMM 1000 Public Speaking</td>
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#### Sophomore

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<tr>
<th></th>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>HDFS 2000</td>
<td>Marriage and Family in a Global Context</td>
<td>3 CADS 2760 Visual Merchandising</td>
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<tr>
<td>CHEM 1010</td>
<td>Survey of Chemistry I</td>
<td>3 CADS 2800 Apparel Production Management</td>
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<tr>
<td>CHEM 1011</td>
<td>Survey of Chemistry I Laboratory</td>
<td>1 CHEM 1020 Survey of Chemistry II</td>
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<td>ACCT 2810</td>
<td>Fundamentals Of Accounting</td>
<td>3 CHEM 1021 Survey of Chemistry II Laboratory</td>
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<td>CADS 2000</td>
<td>Global Consumer Culture</td>
<td>3 Core History II</td>
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#### Junior

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<th>Fall Hours</th>
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<tr>
<td>CADS 3600</td>
<td>Textiles</td>
<td>4 CADS 3800 Consumer Decision Making for Apparel and Fashion Products</td>
<td>3 CADS 4920 Internship</td>
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<td>Course</td>
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<tr>
<td>CADS 3850 Merchandise Planning and Control</td>
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<tr>
<td>3 CADS 5600 Global Sourcing in Textiles and Apparel</td>
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<td>HDFS 2040 Analytics for the Social and Behavioral Sciences</td>
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<td>4 CADS 5850 Apparel Merchandising and Retail Management</td>
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<td>ECON 2020 Principles of Microeconomics</td>
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<td>Core Fine Arts</td>
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<td>Core Literature</td>
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**Senior Year**

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**Fall**

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<tr>
<th>Course</th>
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<tr>
<td>CADS 5760 Fashion Analysis And Forecasting</td>
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<td>3</td>
</tr>
<tr>
<td>3 CADS 5450 History Of Costume (OR professional electives)²</td>
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<tr>
<td>CADS 5610 Global Retailing Strategies for Textile and Apparel Products or 5500 Professional Development: Merchandising Portfolio</td>
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<td>MNGT 3810 Management Foundations</td>
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<td>MKTG 3310 Principles of Marketing</td>
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<tr>
<td>3 Professional Electives²</td>
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<tr>
<td>CADS 5460 Fashion Industry Since 1910 (or prof. electives)²</td>
<td>3</td>
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<tr>
<td>3 UNIV 4AA0 University Graduation</td>
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<tr>
<td>Professional Electives²</td>
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**Total Hours**: 123


* Must choose from HONR 1017, PHIL 1010/PHIL 1017, PHIL 1020/PHIL 1027, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110.

**College and Department Notes**: Required major courses and College core courses are in bold. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards. All Human Sciences majors are required to have a laptop. Please refer to the CHS website for specifications. To enroll in CADS classes, students must be APME or APDP majors, or dept. approval. Exceptions to APME or APDP requirement: CADS 1600, 1740, 2000, 2700, 3700, 4910, 5450, 5460. Note: Must earn a "C" in all required courses in the APME major. Students must earn a "C" or higher in all prerequisite courses in the major.

1 Seniors must register for UNIV 4AA0-HS1 the term they plan to graduate (non-credit class for clearing graduation).

2 Must choose 6 hours CADS courses as professional elective OR complete a minor. Other classes may be approved by faculty advisors. Up to 3 hours of CADS 3900 may be used towards professional electives.

**Curriculum in Apparel Merchandising, Design and Production Management**

Apparel Design and Production Management Option
### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CADS 1600 Textile Industrial Complex</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
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<tr>
<td>CADS 2000 Global Consumer Culture</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry</td>
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<td>HDFS 2000 Marriage and Family in a Global Context</td>
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<tr>
<td>COMP 1000 Personal Computer Applications</td>
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<td>CADS 1740 Aesthetics for Fashion</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>Core Humanities*</td>
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### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CADS 2740 Illustration Techniques for Apparel</td>
<td>3</td>
<td>CADS 2750 Product Development: Technical Design</td>
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<tr>
<td>CADS 2800 Apparel Production Management</td>
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<td>CADS 2770 Computer-Aided Design for Apparel</td>
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<td>CHEM 1010 Survey of Chemistry I</td>
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<td>CHEM 1021 Survey of Chemistry II Laboratory</td>
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<td>Core History I</td>
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### Junior

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<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>CADS 3600 Textiles</td>
<td>4</td>
<td>CADS 3850 Merchandise Planning and Control</td>
<td>3</td>
</tr>
<tr>
<td>CADS 3750 Product Development: Apparel Design</td>
<td>4</td>
<td>CADS 5600 Global Sourcing in Textiles and Apparel</td>
<td>3</td>
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<tr>
<td>CADS 4500 Portfolio Development for Designers</td>
<td>4</td>
<td>NTRI 2000 Nutrition And Health</td>
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<tr>
<td>Core Fine Arts</td>
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<td>ECON 2020 Principles of Microeconomics Core Literature</td>
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### Senior

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<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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<tbody>
<tr>
<td>CADS 4800 Apparel Engineering</td>
<td>4</td>
<td>CADS 5450 History Of Costume (OR Professional Electives)²</td>
<td>3</td>
<td>CADS 4920 Internship</td>
<td>8</td>
</tr>
<tr>
<td>CADS 5460 Fashion Industry Since 1910 (OR Professional Electives)²</td>
<td>3</td>
<td>CADS 5750 Apparel Line Development</td>
<td>4</td>
<td>UNIV 4AA0 University Graduation¹</td>
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<tr>
<td>CADS 5760 Fashion Analysis And Forecasting</td>
<td>3</td>
<td>Professional Electives²</td>
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**Core Social Science**

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100</td>
<td>3</td>
<td>ENGL 1120</td>
<td>3</td>
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<tr>
<td>MATH 1150</td>
<td>4</td>
<td>Core Science (CHEM 1010 or PHYS 1500)</td>
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<tr>
<td>CADS 1100</td>
<td>4</td>
<td>CADS 1000 Studio I: Introduction to Interior Design</td>
<td>4</td>
</tr>
<tr>
<td>CADS 2000</td>
<td>3</td>
<td>COMP 1AA0 Computer Competency Test or 1000 Personal Computer Applications</td>
<td>0-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HIST 1210 Technology and Civilization I</td>
<td>3</td>
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</tbody>
</table>

Total Hours: 124

**University Core Notes:** Students in the Honors College may take equivalent honors courses. Students may take online version of courses.

Literature options: ENGL 2200, 2210, 2230, 2240, 2250, 2260

History options: HIST 1010 and 1020 or 1210 and 1220

Social Science options: ANTH 1000, GEOG 1010, POLI 1050, POLI 1090, PYSC 2010, SOCY 1000, UNIV 2720, SUST 2000, COUN 2000, AFRI 2000, SOCY 1100

Fine Arts options: ARCH 2600, ARTS 1510, 1610, MUSI 2730, 2740, 2750, MDIA 2350, RTVF 2350, THEA 2010

* Must choose from HONR 1017, PHIL 1010/PHIL 1017, PHIL 1020/PHIL 1027, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110

**College and Department Notes:**

Required major courses and College core courses are in bold. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards.

All Human Sciences majors are required to have a laptop. Please refer to the CHS website for specifications.

To enroll in CADS classes, students must be APME or APDP majors, or have dept. approval. Exceptions to APME or APDP requirement: CADS 1600, 1740, 2000, 2700, 3700, 4910, 5450, 5460.

Note: Must earn a "C" in all required courses in the APDP major. Students must earn a "C" or higher in all prerequisite courses in the major.

1 Seniors must register for UNIV 4AAO-HS1 the term they plan to graduate (non-credit class for clearing graduation).

2 Must choose 6 hours design courses as professional elective OR complete a minor. Other classes may be approved by faculty advisors. Up to 3 hours of CADS 3900 may be used towards professional electives.

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## Curriculum in Interior Design

### Freshman

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>Fall</td>
<td>14</td>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td></td>
<td></td>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry</td>
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<tr>
<td></td>
<td></td>
<td>CADS 1100 Technical Processes of Interior Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CADS 2000 Global Consumer Culture</td>
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<tr>
<td>Spring</td>
<td>14-16</td>
<td>ENGL 1120 English Composition II</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Core Science (CHEM 1010 or PHYS 1500)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CADS 1000 Studio I: Introduction to Interior Design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMP 1AA0 Computer Competency Test or 1000 Personal Computer Applications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HIST 1210 Technology and Civilization I</td>
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### Sophomore

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>Fall</td>
<td>3</td>
<td>HDFS 2000 Marriage and Family in a Global Context</td>
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<td></td>
<td>4</td>
<td>CADS 2200 Studio IV: CAD for Interior Design</td>
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<tr>
<td></td>
<td>4</td>
<td>CADS 2400 Interior Materials and Components</td>
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<tr>
<td>Spring</td>
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<table>
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<tr>
<th>Junior</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>ACCT 2810 Fundamentals Of Accounting</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td></td>
<td>NTRI 2000 Nutrition And Health</td>
<td></td>
<td>3</td>
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<tr>
<td>CADS 3100 Studio Vi: Lighting Design/Environmental Systems</td>
<td>4</td>
<td>CADS 3400 Commercial Interior Design</td>
<td></td>
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</tr>
<tr>
<td>CADS 3200 Residential Interior Design</td>
<td>4</td>
<td>CADS 3500 Business Practices in Interior Design</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Core Literature I</td>
<td></td>
<td></td>
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<tr>
<th>Senior</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Humanities</td>
<td>3</td>
<td>CADS 5400 Studio XI: Health Care Design</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
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<tr>
<td>CADS 5300 Hospitality Design</td>
<td>4</td>
<td>Core Humanities</td>
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<tr>
<td>MKTG 3310 Principles of Marketing</td>
<td>3</td>
<td>Professional Electives</td>
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<td>HIST 1220 Technology And Civilization II</td>
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<tr>
<td>Core Humanities</td>
<td></td>
<td></td>
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<td>3</td>
</tr>
</tbody>
</table>

| Total Hours: 124-126 |

1. Must choose CHEM 1010 & CHEM 1011 and CHEM 1020 and CHEM 1021 or PHYS 1500 and PHYS 1510.
2. Must choose from ARCH 2600, ARTS 1610.
3. Must choose one design related and one business related professional elective from the approved professional elective list. The Joseph S. Bruno Auburn Abroad in Italy program will satisfy (10) ten hours of professional electives.
4. Must choose from HONR 1007/HONR 1017, PHIL 1010/PHIL 1017, PHIL 1020/PHIL 1027, PHIL 1030, PHIL 1040, PHIL 1050, PHIL 1060, PHIL 1070, PHIL 1080, PHIL 1090 or PHIL 1100.

College and Department Notes:
- Note 1: Required major courses and College core are in bold. Grades in these courses are used to calculate the GPA in the major and to meet graduation requirements.
- Note 2: Must earn a “C” on all required courses in the Interior Design major. Students must earn a “C” or higher in all prerequisite courses in the major.
- Note 3: Students participate in a portfolio review at the end of the Freshman year to determine the top 36 that matriculate into the INDS program.
- Note 4: All Human Sciences students must have a laptop. Please refer to the CHS website for specifications.
- Note 5: Students must register for UNIV 4AA0-HS1 the term they plan to graduate (non-credit class for clearing graduation).

Note: Admission to the INDS program is competitive. All incoming and transfer students will be placed in Pre-Interior Design pending acceptance into the INDS program.

Prior to the beginning of the third semester, students must pass the placement test on the computer or take COMP 1000.
Philanthropy and Nonprofit Studies Minor

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS 2700/2703</td>
<td>Introduction to Nonprofit Organizations</td>
<td>3</td>
</tr>
<tr>
<td>CADS 3700/3703/3707</td>
<td>Gender, Wealth &amp; Philanthropy</td>
<td>3</td>
</tr>
<tr>
<td>CADS 4910</td>
<td>Practicum in Philanthropy and Nonprofit Organizations</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Disciplinary Support*

(Select a minimum of 6 hours from the list below. ** At least 3 hours must be at the 3000 level or above.)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS 3940</td>
<td>Study Travel in Consumer and Design Sciences</td>
<td>1-3</td>
</tr>
<tr>
<td>HDFS 3930</td>
<td>Service Learning in Human Development and Family Studies</td>
<td>1-6</td>
</tr>
<tr>
<td>HDFS 4500</td>
<td>Hospitalized Children and Their Families</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4670</td>
<td>Parent Education</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4680</td>
<td>Family in Cross-Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 5300</td>
<td>HDFS and Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>HUSC 2000/2003/2007</td>
<td>Hunger: Causes, Consequences, and Responses</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 3940</td>
<td>Community Service</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 4620</td>
<td>Public Health Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 5460</td>
<td>Catering And Event Management</td>
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</tr>
<tr>
<td>HOSP 5461</td>
<td>Catering and Event Management</td>
<td>2</td>
</tr>
<tr>
<td>ACCT 2810</td>
<td>Fundamentals Of Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>

* If a student has taken this course to fulfill requirements of the School / College core or the major, it cannot count toward the minor. In this case, the student must select an additional three hour course from the electives above.

** Some of these courses may have prerequisites that must be met.

Human Development and Family Studies

The Human Development and Family Studies (HDFS) undergraduate curriculum is designed to prepare students for a variety of careers that contribute to the well-being of individuals and families across the life span. Career directions include, but are not limited to, teaching preschool-aged children, supporting children and families in a hospital setting, serving teens in residential treatment or church programs, aiding adult and/or elderly populations, implementing family education in the broader community, or advocating for family policy within government settings. Students also gain excellent preparation for graduate school. Majors select one of five concentration areas: Infancy/Preschool, Child Life, Middle Childhood/Adolescence, Adult Programs, or Family Life Education. The capstone course for students is the full-time undergraduate internship where classroom learning and real life come together to strengthen professional competence. The HDFS curriculum draws from the knowledge of many academic disciplines to promote understanding of current issues for individuals and families in modern society, and it is approved by the National Council on Family Relations to offer the Provisional Certified Family Life Education (CFLE) designation. The Department also operates the Auburn University Early Learning Center as well as the Harris Early Learning Center in Birmingham, Alabama. Both programs are accredited by the National Association for the Education of Young Children.

Fingerprint/Criminal Background Checks are required of all HDFS majors. Students who do not obtain the required background check and clearing letter will not be allowed to enroll in practicum, service learning, research, or internship courses.

Dual Objective Program: The Dual Objective Program with Human Development and Family Studies and the Early Childhood Education program in the College of Education is open to students in Human Development and Family Studies. Students completing this dual objective program earn the bachelor of science in the declared major from the College of Human Sciences and are eligible for an Alabama Class B teachers certification. Transferring into a teacher education program requires a minimum 2.75 GPA on all college coursework attempted and on all coursework attempted at Auburn.
Academic Standards and Policies: Students must earn a grade of C or better on all required HDFS major core classes at the 3000-level or higher to complete graduation requirements.

**Major**
- Human Development and Family Studies (p. 741)

**Minor**
- Human Development and Family Studies (p. 743)

**Courses**

**HDFS 1850 CURRENT ISSUES IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3)** LEC. 3. Current issues facing families and children evaluated in the light of scientific research.

**HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3)** LEC. 3. Examination of marriage and family systems, including their interface with the broader socio-cultural context. Fall, Spring.

**HDFS 2010/2013 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3)** LEC. 3. Human development within the context of the family and across the family life cycle with a focus on significant life transitions. Fall, Spring. Credit will not be given for both HDFS 2010 and HDFS 2013.

**HDFS 2030 PROFESSIONAL DEVELOPMENT AND ETHICS (3)** LEC. 3. Appraisal of career potential, formulation of a professional code of ethics, and exploration of career options. Fall, Spring.

**HDFS 2040/2043 ANALYTICS FOR THE SOCIAL AND BEHAVIORAL SCIENCES (4)** LEC. 3. LAB. 1. Pr. (MATH 1100 or MATH 1120 or MATH 1130 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduction to basic data analysis used in social and behavioral science research, including descriptive and inferential techniques and elements of research design. May count either HDFS 2040, HDFS 2043 or PSYC 2130.

**HDFS 3010/3013 CHILD DEVELOPMENT IN THE FAMILY (3)** LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. Social, emotional, physical and intellectual development in early and middle childhood with a special focus on family relationships. Fall, Spring. Credit can not be given for both HDFS 3010 and HDFS 3013.

**HDFS 3030 ADOLESCENT DEVELOPMENT IN THE FAMILY (3)** LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. 2.25 GPA. Analysis of adolescent development with emphasis on family context and developmental outcomes employing an ecological framework.

**HDFS 3040 HUMAN SEXUALITY OVER THE FAMILY LIFE CYCLE (3)** LEC. 3. Pr. HDFS 2000 or (SOCY 1000 or SOCY 1007) or (PSYC 2010 or PSYC 2013 or PSYC 2017). Human sexuality from a life-cycle perspective, emphasizing developmental, familial and societal factors.

**HDFS 3050 ADULT DEVELOPMENT AND AGING (3)** LEC. 3. Pr. HDFS 2010 or HDFS 2013. Exploration of the transformations in physical, cognitive, psychological and social functioning beginning in young adulthood and continuing through old age.

**HDFS 3060 PATTERNS OF FAMILY INTERACTION (3)** LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of family process and interaction, emphasizing major conceptual frameworks of family development. Fall, Spring.

**HDFS 3080 DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS (3)** LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of the competencies necessary for development of successful interpersonal relationships. Fall, Spring.

**HDFS 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1)** LEC. 1. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

**HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3)** LEC. 1. LAB. 4. Pr. HDFS 3010 or HDFS 3013. Child development and teacher child relationship knowledge applied to interactions with young children. Three hours per week at Auburn University Early Learning Center for lab. Fall, Spring.

**HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (4)** LEC. 2. LAB. 6. Pr. HDFS 3460 and (HDFS 3010 or HDFS 3013). Child development knowledge applied to preschool curriculum planning with 6 hours a week of supervised participation at Auburn University Early Learning Center. Spring.
HDFS 3910 PRACTICUM (1-6) PRA. SU. Pr., Departmental approval. Directed experience in a professional setting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy. Course may be repeated for a maximum of 6 credit hours.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-6) AAB/LEC. Pr., Departmental approval. Application of HDFS-relevant knowledge to real-life situations through active participation in a directed community service experience. A.) Auburn University Early Learning Center; B.) Harris Early Learning Center of Birmingham; C.) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3980 UNDERGRADUATE RESEARCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY STUDIES (2-6) AAB/FLD. Pr. (CAHS 2000 or CADS 2000 or CADS 2003 or CADS 2007) and HDFS 2000 and (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007). Departmental approval. Study or work in the United States or internationally. Course may be repeated for a maximum of 6 credit hours.

HDFS 4500/4503 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. 3. Pr. HDFS 3010 or HDFS 3013. Junior standing. Junior standing in HDFS major or a major in a related field. Theories and research about children and their families in hospital settings. Credit will not be given for both HDFS 4500 and HDFS 4503.

HDFS 4510/4513 THERAPEUTIC PLAY (3) LEC. 3. Pr. HDFS 3010 or HDFS 3013. Theories and research on play, play's use in many contexts, and the many therapeutic qualities of play will be discussed. May count either HDFS 4510 or HDFS 4513.

HDFS 4520 DYING, DEATH AND BEREAVEMENT (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Exploration of end of life issues from individual, relational and cultural perspectives.

HDFS 4660 RESOURCE MANAGEMENT FOR INDIVIDUALS, COUPLES, AND FAMILIES (3) LEC. 3. An understanding of the decisions individuals and families make about developing and allocating resources.

HDFS 4670 PARENT EDUCATION (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Principles of working with parents on individual and group bases.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of family function and diversity in cultures and family systems around the world.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3. Pr. HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010 or PSYC 2013 or PSYC 2017. Analysis of changing roles and their effects on romantic, marital, and parent-child relationships.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY STUDIES (12) INT. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all HDFS major core classes at the 3000-level or higher, and an overall minimum GPA of 2.25. Internship applications must be submitted 2 semesters in advance. A computer and internet access is required.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3. Pr., Departmental approval. Topical seminar in HDFS. A) Advanced Research B) Child Development; C) Family Studies; D) Marriage and Family Therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 4960 SPECIAL PROBLEMS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) IND. SU. Pr., Departmental approval. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours.

HDFS 4980 ADVANCED UNDERGRADUATE RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Departmental approval, Junior standing. Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Pr. Honors College. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 5200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Junior standing.. Junior standing. Application of research to the development and evaluation of programming for children and families.

HDFS 5300 HDFS AND SOCIAL POLICY (3) LEC. 3. Junior standing.. Junior standing. Examination and critique of social policies from a family perspective.
HDFS 5970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Junior standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 6200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Graduate standing. Application of research to the development and evaluation of programming for children and families.

HDFS 6300 HDFS AND SOCIAL POLICY (3) LEC. 3. Graduate standing. Examination and critique of social from a family perspective.

HDFS 6970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Graduate standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 7000 ADOLESCENT DEVELOPMENT (3) LEC. 3. Critical examination of empirical research and theories of adolescent development.

HDFS 7010 CHILD AND ADOLESCENT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 ADULT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical evaluation of research on development in the adult and aging periods of the life cycle.

HDFS 7040 FAMILY PROCESSES (3) LEC. 3. An orientation to family theories and their role in contemporary studies of family processes.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Departmental approval. Survey of principles and methods for studying individuals, dyadic relationships and families.

HDFS 7051 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES LAB (1) LAB. 1. Coreq. HDFS 7050. Lab devoted to principles and methods for studying individuals, dyadic relationships and families.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II (3) LEC. 3. Pr. HDFS 7050. Pr., Departmental approval. Survey of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7061 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II LABORATORY (1) LAB. 1. Pr. HDFS 7050. Coreq. HDFS 7060. Pr., Departmental approval. Lab devoted to the application of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3. Pr., Departmental approval. Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy. Fall.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Pr., Departmental approval. Basic clinical skills and self-of-the-therapist issues. Fall.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3. Pr., Departmental approval. Current theory and conceptual issues in the practice of marriage and family therapy. Fall.


HDFS 7650 MARRIAGE AND FAMILY THERAPY PROFESSIONAL ISSUES (3) LEC. 3. Pr., Departmental approval. Professional, ethical, and legal issues associated with the practice of marriage and family therapy. Summer.
HDFS 7900 DIRECTED STUDIES (1-3) AAB/IND. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage & Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7910 PRACTICUM (1-9) AAB/PRA. SU. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy; G) Teaching. Course may be repeated for a maximum of 9 credit hours.

HDFS 7920 MARRIAGE AND FAMILY THERAPY INTERNSHIP (3) INT. Pr., Departmental approval. Clinical practice of marriage and family therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7930 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) SEM. Pr., Departmental approval. A) Infancy/Childhood; B) Adolescence/Young Adulthood; C) Adulthood/Aging; D) Family as a Microsystem; E) Family and Mesosystem; F) Family in the Macrosystem; G) Child and Family Program Planning and Evaluation. Course may be repeated for a maximum of 16 credit hours.

HDFS 7940 DIRECTED FIELD EXPERIENCE (1-9) AAB/FLD. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7970 SPECIAL TOPICS IN HDFS (1-4) LEC. Students will learn about key issues in sleep research, especially with those related to family functioning and social/emotional, behavioral, and physical health. Students will have assigned readings to prepare them for discussions during the lectures. Course may be repeated for a maximum of 18 credit hours.

HDFS 7990 RESEARCH AND THESIS (1-10) AAB/MST.

HDFS 8010 RELATIONSHIP DEVELOPMENT AND PROCESS IN CHILDHOOD AND ADOLESCENCE (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in childhood adolescence.

HDFS 8020 RELATIONSHIP DEVELOPMENT AND PROCESS IN ADULTHOOD (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in adulthood and aging.

HDFS 8050 ADVANCED RESEARCH METHODS: COVARIANCE STRUCTURE ANALYSIS (3) LEC. 3. Pr. HDFS 7060. In-depth examination of research methods, designs, and data analytic strategies commonly used in child and family research.

HDFS 8051 ADVANCED RESEARCH METHODS (1) LAB. 1. Pr. HDFS 7060. Coreq. HDFS 8050. Lab designed to enhance the application of advanced research methods and data analytic strategies used in HDFS research.

HDFS 8060 MULTILEVEL MODELING (3) LEC. 3. Pr. HDFS 7060. In depth examination of multilevel modeling as an analytic strategy for research in nested data structures.

HDFS 8061 APPLIED LONGITUDINAL METHODS IN HUMAN DEVELOPMENT AND FAMILY STUDIES LAB (1) LAB. 1. Pr. HDFS 7060. Coreq. HDFS 8060. Lab designed to enhance the examination of longitudinal methodology as an analytic strategy used in HDFS research.

HDFS 8070 MEDIATION AND MODERATION ANALYSIS (3) LEC. 3. Pr. HDFS 7060. Methods for evaluating mediation and moderation hypotheses by addressing both study designs and statistical analyses.

HDFS 8080 SURVIVAL ANALYSIS (SA) AND LATENT CLASS ANALYSIS (LCA) (3) SEM. 3. Pr. HDFS 7060. Methodological advances in longitudinal and categorical analysis have provided promising avenues for researchers interested in answering questions about event occurrence and latent classes. These two analytic techniques will be the focus of this course.

HDFS 8090 QUALITATIVE METHODS IN THE SOCIAL SCIENCES (3) LEC. 3. This course prepares graduate students to conduct and evaluate qualitative research in social science disciplines.

HDFS 8970 ADVANCED SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) LEC. Departmental approval. Study of advanced topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Curriculum in Human Development and Family Studies
### Freshman

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I 3</td>
<td>ENGL 1120 English Composition II 3</td>
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<tr>
<td>Core History 1 3</td>
<td>Core History II 3</td>
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<tr>
<td>HDFS 2000 Marriage and Family in a Global Context 3</td>
<td>MATH 1120 Pre-Calculus Algebra 3</td>
</tr>
<tr>
<td>CADS 2000 Global Consumer Culture 3</td>
<td>HDFS 2010 Lifespan Human Development in Family Context 3</td>
</tr>
<tr>
<td>Core Humanities 3</td>
<td>Professional Electives 5</td>
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### Sophomore

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<tr>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>BIOL 1000 Introduction to Biology 4</td>
<td>BIOL 1010 A Survey of Life 4</td>
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<tr>
<td>&amp; BIOL 1001 Introduction to Biology Laboratory 4</td>
<td>&amp; BIOL 1011 A Survey of Life Laboratory 4</td>
</tr>
<tr>
<td>Core Literature 2 3</td>
<td>Core Social Science 4 3</td>
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<td>Core Fine Arts 3</td>
<td>COMM 1000 Public Speaking 3</td>
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<tr>
<td>Core Social Science 4 3</td>
<td>HDFS 2030 Professional Development and Ethics 3</td>
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<tr>
<td>NTRI 2000 Nutrition And Health 3</td>
<td>Professional Electives 5</td>
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### Junior

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<th>Fall Hours</th>
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<tbody>
<tr>
<td>Professional Electives 5 6</td>
<td>Professional Electives 5 6</td>
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<tr>
<td>HDFS 3010 Child Development in the Family or 3030 Adolescent Development in the Family 5 3</td>
<td>HDFS 3080 Development of Interpersonal Relationships 3</td>
</tr>
<tr>
<td>HDFS 3060 Patterns of Family Interaction or 4680 Family in Cross-Cultural Perspective 5 3</td>
<td>HDFS 2040/2043 Analytics for the Social and Behavioral Sciences 4</td>
</tr>
<tr>
<td>Free Electives 3</td>
<td>Free Electives 3</td>
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### Senior

<table>
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<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>Professional Electives 5 10</td>
<td>HDFS 4920 Internship in Human Development and Family Studies 12</td>
</tr>
<tr>
<td>Select one of the following: 5 3</td>
<td>or Joseph S. Bruno Auburn Abroad in Italy</td>
</tr>
<tr>
<td>HDFS 5200 Applied Research and Evaluation Methods</td>
<td>UNIV 4AA0 University Graduation</td>
</tr>
<tr>
<td>HDFS 5300 HDFS and Social Policy</td>
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<tr>
<td>HDFS 4950 Advanced Seminar</td>
<td>2</td>
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<td>Free Electives</td>
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<td>15</td>
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Total Hours: 120

1. History options: HIST 1010 and HIST 1020 or HIST 1210 and HIST 1220
2. Literature options: ENGL 2200, ENGL 2210, ENGL 2230, ENGL 2240, ENGL 2250 or ENGL 2260.
3 Must choose from PHIL 1010, PHIL 1020, PHIL 1030, PHIL 1040, PHIL 1080, PHIL 1090, PHIL 1100, PHIL 1110. Child Life must choose PHIL 1030.
4 Must choose from ANTH 1000, SOCY 1000, PSYC 2010.
5 Course selection based on choice of HDFS concentration.

Each HDFS concentration specifies its own professional electives.

(Applications for Internships must be completed 2 semesters in advance).

**Human Development and Family Studies Minor**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
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<tbody>
<tr>
<td>HDFS 2000</td>
<td>Marriage and Family in a Global Context</td>
<td>3</td>
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<tr>
<td>HDFS 2010/2013</td>
<td>Lifespan Human Development in Family Context</td>
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<td><strong>Total Hours</strong></td>
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**Elective Courses**

(Select a minimum of 12 hours from the list below; 9 hours must be at the 3000 level or higher.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDFS 2030</td>
<td>Professional Development and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3010/3013</td>
<td>Child Development in the Family</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3030</td>
<td>Adolescent Development in the Family</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3040</td>
<td>Human Sexuality Over the Family Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3060</td>
<td>Patterns of Family Interaction</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3080</td>
<td>Development of Interpersonal Relationships</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3460</td>
<td>Effective Guidance and Interaction with Young Children</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3470</td>
<td>Learning Experiences for Young Children</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 3930</td>
<td>Service Learning in Human Development and Family Studies</td>
<td>1-6</td>
</tr>
<tr>
<td>HDFS 4500/4503</td>
<td>Hospitalized Children and Their Families</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4510/4513</td>
<td>Therapeutic Play</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4520</td>
<td>Dying, Death and Bereavement</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4660</td>
<td>Resource Management</td>
<td>3</td>
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<tr>
<td>HDFS 4670</td>
<td>Parent Education</td>
<td>3</td>
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<tr>
<td>HDFS 4680</td>
<td>Family in Cross-Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4700</td>
<td>Gender Roles and Close Relationships</td>
<td>3</td>
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<tr>
<td>HDFS 4950</td>
<td>Advanced Seminar</td>
<td>3</td>
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<tr>
<td>HDFS 4960</td>
<td>Special Problems in Human Development and Family Studies</td>
<td>1-3</td>
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<tr>
<td>HDFS 4980</td>
<td>Advanced Undergraduate Research in Human Development and Family Studies</td>
<td>1-5</td>
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<tr>
<td>HDFS 5200</td>
<td>Applied Research and Evaluation Methods</td>
<td>3</td>
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<tr>
<td>HDFS 5300</td>
<td>HDFS and Social Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Students must have a 2.25 cumulative GPA to enroll in HDFS 3010, HDFS 3030, HDFS 3060, HDFS 3080 and HDFS 4680. A "C" grade or better must be earned in each course taken toward the minor and each must be an HDFS course.

Note: A student cannot use the same course to fulfill the requirements of both their major and their minor. If a course has been completed to meet the requirements of their major, the student must select an alternate course from the elective courses above to meet the requirements of their minor.

**Nutrition, Dietetics, and Hospitality Management**

The Department offers two majors: Hospitality Management (HOSP) and Nutrition (NTRI). The HOSP major emphasizes food, lodging and event services for consumers in the tourism and hospitality industry. The HOSP major offers two study options: Hotel and Restaurant Management (HRMG), and Event Management (EVMT). The NTRI major offers three study options: Nutrition/Dietetics (NTDI), Nutrition Science (NSPM) and Nutrition/Wellness (NTWE).
**Hospitality Management**

The Hospitality Management Major prepares students for careers in hotels, resorts, culinary, restaurants, the event sector and other positions in the tourism and hospitality industry. With its focus on instructional research and outreach initiatives, the Hospitality Management program’s mission is to educate exceptional leaders for the State of Alabama and the global hospitality and tourism industry. Faculty concentrate on service excellence, social and ethical responsibility, diversity and inclusion in a practically oriented and intellectually stimulating learning environment.

The major offers students two exciting study options to choose from, including (1) Hotel and Restaurant Management, and (2) Event Management.

Academic standards and policies: Students must earn a “C” in all required courses in the Hospitality Management Major. Students must earn a “C” or higher in all pre-requisite HOSP courses in the major.

**Hotel and Restaurant Management Option**

The Hotel and Restaurant Management (HRMG) option is designed to prepare graduates for careers in the premium service segment of the hospitality industry. This focus makes the Auburn HRMG program nationally unique. The HRMG curriculum provides career preparation for hotel management and food and beverage (restaurant) management, including private club management.

**Event Management Option**

The Event Management option is designed to service the educational needs of those students seeking to advance their careers in the event management field. As is the case both nationally and globally, this sector now makes a significant contribution to the socio-economic wellbeing of the state of Alabama and the nation. The event management curriculum focuses on the planning, execution and evaluation of a myriad of special events including, family, social, sporting, historical, musical and food and beverage oriented.

**Nutrition**

The field of nutrition is concerned with human physiology and biochemistry and their relationship to human health, diet, and well-being. The NTRI curriculum has three options which permit specialization according to students’ specific interests.

Course work in the major must be taken in sequence. On and off campus transfer students should anticipate that additional semesters of study may be required to complete the program.

**Nutrition Science Option**

The Nutrition Science option prepares students for health professional schools, such as medical, dental, and physical therapy, as well as for graduate study in the nutrition discipline. The Nutrition Science option serves as a pre-med option.

**Nutrition/Dietetics Option**

The Nutrition/Dietetics option is designed to prepare students interested in completing the requirements to become credentialed as a Registered Dietitian (RD) and Registered Dietitian Nutritionist (RDN). This option prepares students for careers in clinical nutrition, community nutrition, public health, nutrition education and counseling, foodservice management, and food and nutrition in industry.

Graduates who successfully complete the Didactic Program in Dietetics are qualified to apply for a post-baccalaureate supervised-practice program, which is a requirement for eligibility to take the National Registration Examination for Dietitians and earn the RD/RDN credential. The Auburn University’s Didactic Program in Dietetics is accredited by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, (312) 899-0040 ext. 5400. Http://www.eatright.org/ACEND.

Academic Standards and Policies: Freshmen and on and off campus transfer students who desire to major in Nutrition/Dietetics will be admitted to Pre-dietetics (NTDX). To be eligible for consideration for admission to the didactic program in dietetics, applicants must successfully complete at least 45 semester hours of the pre-dietetics curriculum courses, including:


as well as 4 of the following 6 science courses:

CHEM 1030/1031 Fundamentals of Chemistry I

CHEM 1040/1041 Fundamentals of Chemistry II
CHEM 2030 Survey of Organic Chemistry
BIOL 1020/1021 Principles of Biology
BIOL 2500 Anatomy and Physiology I
BIOL 2510 Anatomy and Physiology II

Students must successfully complete the lower-division pre-dietetics prerequisite courses as outlined below with a minimum GPA of 2.8 on a 4.0 scale. No grade lower than a "C" will be accepted in any prerequisite course (BIOL 1020/1021, BIOL 2500, BIOL 2510, CADS 2000, CHEM 1030/1031, CHEM 1040/1041, CHEM 2030, HDFS 2000, NTRI 2000 (2003 or 2007), NTRI 2070, PSYC 2010.)

Criteria for admission include pre-dietetics cumulative GPA, science GPA, and student’s personal statements and career goals. Due to the limited number of seats, achievement of minimum standards does not ensure admission into the Didactic Program in Dietetics.

Program Application: Pre-dietetic students must formally apply to the DPD typically during the second semester of the sophomore year. Application materials will be posted to the nutrition/dietetics website. Students will be notified of admission decisions in writing. Students accepted to the DPD must pre-register for the appropriate courses for the upcoming fall semester.

Nutrition/Wellness Option
The Nutrition/Wellness option prepares students for careers in health-related settings. Graduates find positions in non-profit health organizations, hospital-based and corporate-based programs, and federal, state and local health agencies.

Major
- Hospitality Management - Event Management Option (p. 757)
- Hospitality Management - Hotel and Restaurant Management Option (p. 752)
- Nutrition, ABM (p. 751)
- Nutrition (Nutrition/Dietetics Option) (p. 755)
- Nutrition (Nutrition Science Option) (p. 753)
- Nutrition (Nutrition Wellness Option) (p. 756)

Hospitality Management Courses
HOSP 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (2) LEC. 2. Overview of the hotel, restaurant, club, and travel industries and their interaction.

HOSP 2300 HOSPITALITY LAW (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010). or Departmental Approval. Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations. Spring.

HOSP 2350 CULINARY FUNDAMENTALS (3) LEC. 3. LAB. 1. Pr. (HRMT 1010 or HOSP 1010) and NTRI 2000. HRMT Major or Departmental Approval. Introduction to culinary science, methods and techniques used in the classical Garde Manger.

HOSP 2400 FOOD PRODUCTION IN HOSPITALITY (4) LEC. 3. LAB. 3. Pr. (HRMT 1010 or HOSP 1010) and (NTRI 2000 or NTRI 2003 or NTRI 2007) and BIOL 1000. Hospitality Major Only or Departmental Approval. Skills, competencies and knowledge to manage a variety of food production and service facilities. Fall, Spring.

HOSP 2500 LODGING OPERATION (2) LEC. 2. Lodging operations management, with emphasis on guest cycle.

HOSP 2600 EVENT OPERATIONS (3) LEC. 3. An analysis of each component pertinent to the planning and operations of a hospitality event. Topics such as strategic planning, event design, logistics, staging, marketing, and event evaluation will be discussed.

HOSP 2910 HOSPITALITY PRACTICUM (1) PRA. 3. Pr. HRMT 1010 or HOSP 1010. Hospitality Major Only. Rotational perspective on the management and operation of the Auburn University Hotel and Conference Center.

HOSP 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (1) LEC. 1. Hospitality Management Major or departmental approval. Job-seeking and career development skills, based upon individual needs.

HOSP 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (ACCT 2810 or ACCT 2110 or ACCT 2117). Hospitality Management Major only. Financial systems and statements in the hospitality industry. Spring.
HOSP 3400 HOSPITALITY MARKETING (3) LEC. 3. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317). Junior standing. Junior standing and Hospitality Major Only or Departmental Approval. Service marketing concepts and issues as applied to the global hospitality industry. Fall.

HOSP 3550 FUNDAMENTALS OF BAKING (3) LEC. 3. LAB. 3. Pr. HRMT 1010 or HOSP 1010 and NTRI 2000. HRMT Major Only or Departmental Approval. This course will address the scientific foundations of food production as well as the fundamentals of the practice of baking necessary to produce quality baked products.

HOSP 3750 PATISSERIE AND CONFECTIONARY (3) LEC. 3. LAB. 3. Pr. HRMT 2400 or HRMT 2350 or HOSP 2400 or HOSP 2350. HRMT Major Only or Departmental Approval. This course includes the study of classical culinary terms, safety and sanitation practices. Emphasis will be placed on hot, cold, frozen and contemporary plated desserts. Students will study classical techniques and presentations, creating popular international desserts.

HOSP 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HOSP 1010. Hospitality Major only or Departmental Approval. Strategic and operational issues surrounding introduction of technology in hospitality. Spring.

HOSP 4200 HOSPITALITY FACILITIES MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400) and HRMT 2500. Departmental approval. Design and operation of hospitality facilities. Fall.

HOSP 4300 FOOD AND BEVERAGE MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400). Control system design, implementation, and management in food and beverage operations. Fall.

HOSP 4350 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400). Advanced concepts and managerial issues of restaurant management.

HOSP 4480 GLOBAL GASTRONOMY (3) LEC. 3. LAB. 3. Pr. HRMT 2400 or HOSP 2400 and HRMT 2350. HOSP Major or Departmental Approval. The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Additionally, food will be explored from a historical, cultural, economic and geopolitical perspective in each of the regions/countries studied.

HOSP 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010) and (MNGT 3100 or MNGT 3103 or MNGT 3107) or MNGT 3810. Hospitality Major only or Departmental Approval. Development and implementation of strategic management in hospitality. Spring.

HOSP 4510 SPECIAL EVENTS (3) LEC. 3. Pr. HRMT 2600 or HOSP 2600. Hospitality Major Only or Departmental Approval. This course teaches students all the intricacies of special events. Students learn about the different types of special events and how different they are from each other. Students should be able to plan, organize and manage.

HOSP 4600 BEVERAGE APPRECIATION (3) LEC. 3. 21 Years Old. Junior standing. Hospitality Major Only or Departmental Approval. Production, selection, service, and sensory evaluation of alcoholic and non-alcoholic beverages.

HOSP 4800 SENIOR LECTURE SERIES (1) LEC. 1. SU. Hospitality Management Major Only; Junior or Senior Standing. Successful leaders share their experiences with career development, industry related topics and issues, successful management strategies and leadership. Spring.

HOSP 4920 INTERNSHIP IN HOSPITALITY (4) INT. 4. Pr. HRMT 2910 or HOSP 2910. HRMT major, 2.2 cumulative gpa. 600 hours (during collegiate experience) work experience in hospitality. Application of principles and theories of hospitality in a professional hospitality setting.

HOSP 5460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Pr. HRMT 1010 or HOSP 1010. Departmental approval. Systems for managing conference coordination. May count HRMT 5540 or 6540/6546.

HOSP 5461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 1010 or HOSP 1010 and HOSP 5460 or HRMT 5460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Junior standing. Junior standing. Hospitality Major only or departmental approval. Role of quality service in attaining and retaining customers with emphasis on organizational strategic mission. May count HOSP 5530 or 6530/6536. Spring.

HOSP 5550 CLUB MANAGEMENT (3) LEC. 3. Pr. HOSP 1010. Junior standing. Junior standing. Examination of unique features, opportunities and problems associated with club management. Credit will not be given for HOSP 5550 and HOSP 6550/6556.

HOSP 5570 GLOBAL HOSPITALITY (3) LEC. 3. Junior Standing; Hospitality Management Major only or Departmental Approval. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Credit will not be given for HOSP 5570 and HOSP 6570/6576.

HOSP 5590 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. HRMT 2400 or HOSP 2400 or Departmental approval. Methods and systems of managing foodservice operations recreational facilities. Credit is not allowed for both HOSP 5590 and HOSP 6590/6596.

HOSP 6460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 6461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 6460 or HOSP 6460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 6530/6536 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Departmental approval. This course introduces students to the important role that quality service plays in attaining and retaining customers in the pursuit of an organizations strategic mission. Credit will not be given for HOSP 6530/6536 and HOSP 5530.

HOSP 6540/6546 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for HOSP 6540/6546 and HOSP 5540.

HOSP 6550/6556 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HOSP 6550/6556 and HOSP 5550.

HOSP 6570/6576 GLOBAL HOSPITALITY (3) LEC. 3. Departmental approval. Contemporary issues confronting the global hospitality industry. Credit will not be given for HOSP 6570/6576 and HOSP 5570.

HOSP 6590/6596 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3. Departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit will not be given for both HOSP 6590/6596 and HOSP 5590.

HOSP 7000/7006 HOSPITALITY ENTERPRISE (3) LEC. 3. Emphasizes aspects of hospitality enterprise including developmental, motivational, financial and human resource issues through contemporary academic literature. Credit will not be given for both HOSP 7000 and HOSP 7006.

HOSP 7010/7016 ADVANCED TOURISM ANALYSIS (3) LEC. 3. This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism behavior. Credit will be given for both HOSP 7010 and HOSP 7016.

HOSP 7016 THE BUSINESS OF BREWING (3) DSL. 3.

HOSP 7116 BREWING MATERIALS (3) DSL. 3. This course provides students with an introduction to all types of brewing ingredients including grain, hops, and adjuncts. Baccalaureate degree and 21 years of age.

HOSP 7126 SCIENCE OF BREWING I (3) DSL. 3. Theoretical and applied brewing science, recipe formulation, yeast biology and genetics part I. Baccalaureate degree and 21 years of age.

HOSP 7136 SCIENCE OF BREWING 2 (3) DSL. 3. Theoretical and applied brewing science, recipe, formulation, yeast biology and genetics part 2. Baccalaureate Degree, 21 years of age.

HOSP 7146 FACILITIES AND OPERATIONS (3) LEC. 3. This course will focus on the facilities required to produce a high quality, safe and sanitary product. Baccalaureate Degree, 21 years of age.

HOSP 7910/7916 PRACTICUM IN BREWING SCIENCE (1-3) PRA. SU. Departmental approval. Application of principles and theories of brewing in an industry setting. Course may be repeated for a maximum of 3 credit hours.
HOSP 7920/7926 PROFESSIONAL INTERNSHIP IN HOSPITALITY MANAGEMENT (1-3) INT. SU. Departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HOSP 8860/8866 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3. Analysis of current issues in the hospitality industry with emphasis on management.

HOSP 8870 ADVANCED HOSPITALITY MANAGEMENT RESEARCH AND APPLICATIONS (3) LEC. 3. Comprehensive review of the academic research process in the context of hospitality management.

HOSP 8880 THEORETICAL DEVELOPMENTS FOR HOSPITALITY (3) LEC. 3. The nature of hospitality theory and its development.

Nutrition Courses


NTRI 2010 BASIC SPORTS NUTRITION (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) or (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007). An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance.

NTRI 2070 CAREERS IN NUTRITION, DIETETICS AND WELLNESS (1) LEC. 1. Pr. NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007. Professional roles and responsibilities in nutrition, dietetics, and wellness with emphasis on careers professional development and conduct.

NTRI 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

NTRI 3560 EXPERIMENTAL STUDY OF FOODS (4) LEC. 3. LAB. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007) and (BIOL 1020 or BIOL 1027) and CHEM 1030 or Departmental approval. Experimental approach to the chemistry of food including composition, preparation, recipe modification, food quality, sanitation, processing, and food laws.

NTRI 3750 NUTRITION EDUCATION (2) LEC. 2. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007). A variety of perspectives and strategies designed to facilitate dietary behaviors conducive to health and well-being.

NTRI 3940 COMMUNITY SERVICE (3-9) LEC. 1. LAB. 6. Departmental approval. Application of NTRI-related knowledge to real-life situations through participation in directed community service experiences. A) nutrition; B) hospitality; C) general NTRI. Course may be repeated for a maximum of 9 credit hours.

NTRI 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1. SU. Pr. NTRI 2070 or NTRI 2077. NTDI or departmental approval. Junior standing. Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship.

NTRI 4560 FOOD SYSTEMS OPERATIONS (2) LEC. 2. Pr. NTRI 2050 or NTRI 3560 or NUFS 2050 or NUFS 3560 or Departmental approval. Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations.

NTRI 4561 FOOD SYSTEMS OPERATIONS LAB (2) LAB. 4. Pr. NTRI 2050 or NTRI 3560 or Departmental approval. Coreq. NTRI 4560. Laboratory experience in food service operations. Food safety certification is included. TB test.

NTRI 4580 FOOD AND CULTURE (2) LEC. 2. Departmental approval. Cultural and social factors affecting food habits and nutritional status of populations throughout the world.

NTRI 4620 PUBLIC HEALTH NUTRITION (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Coreq. NTRI 5820. Population-focused approaches that facilitate healthy diets through policy development and environmental changes.
NTRI 4820 MACRONUTRIENTS (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007) and P/C BCHE 3180 and BIOL 2510 or Departmental approval. Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. Spring.

NTRI 4830 VITAMINS AND MINERALS (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007) and P/C BCHE 3180. Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. Spring.

NTRI 4930 DIRECTED STUDIES (1-8) AAB/IND. Departmental approval. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours.

NTRI 4970 SPECIAL TOPICS (1-3) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Course may be repeated for a maximum of 6 credit hours.

NTRI 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) AAB/IND. Departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NTRI 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. Departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NTRI 5020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820 and NTRI 4830. Coreq. NTRI 4090. NTDI or departmental approval. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 5030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020. NTDI or department approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030.

NTRI 5100 NUTRITION IN DISEASE PREVENTION (2) LEC. 2. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. The functions, safety, and efficacy of selected nutrients and herbs in the prevention and/or treatment of selected diseases/conditions.

NTRI 5380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. (P/C NTRI 4560 or P/C NTRI 4561) or Departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 5560 and NTRI 6560. Spring.

NTRI 5620 SPORTS NUTRITION (3) LEC. 3. Pr. BIOL 2510 and BCHE 3180. Departmental approval. Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NTRI 5620 and NTRI 6620. Spring.

NTRI 5760 NUTRITION COUNSELING (2) LEC. 2. Pr. NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030). NTDI or department approval. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760.

NTRI 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 or NUFS 4830 or NUFS 4833. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 5820 and NTRI 6820. Fall.

NTRI 5830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. Principles of nutrient-gene interactions and how these interactions influence human health and disease. May count either NTRI 5830 or NTRI 6830.

NTRI 5910 CLINICAL PRACTICUM IN DIETETICS (1) PRA. 3. SU. NTDI or department approval. Application of the practice of dietetics in a clinical or community setting.
NTRI 6020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 6030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. (NTRI 5020 or NTRI 6020). Coreq. NTRI 6760. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030.

NTRI 6100/6106 NUTRITION IN DISEASE PREVENTION (2) LEC. 2. Pr. (NTRI 5820 or NUFS 5820 or NUFS 4830 or NUFS 4833) and NTRI 4830. The functions, safety, and efficacy of selected nutrients herbs in the prevention and/or treatment of selected diseases/conditions. May count either NTRI 5100 or NTRI 6100.

NTRI 6380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 6560/6566 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. NTRI 4560 or NTRI 4561 or Departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 6560 and NTRI 5560. Spring.

NTRI 6620 SPORTS NUTRITION (3) LEC. 3. Pr. BIOL 2510 and BCHE 3180. Departmental approval. Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NTRI 6620 and NTRI 5620. Spring.

NTRI 6760 NUTRITION COUNSELING (2) LEC. 2. Pr. NTRI 3750 and NUFS 3750. Coreq. NTRI 5030 and NTRI 6030. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760.

NTRI 6820/6826 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 or NUFS 4830 or NUFS 4833. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 6820 and NTRI 5820. Fall.

NTRI 7016 ADVANCED PRACTICUM IN DIETETICS (1-9) DSL. SU. DPD verification statement. Enrollment in Masters in Nutrition Program or department approval. Supervised practical experience in clinical, food service, and community settings for development of entry-level skills for the registered dietitian. Course may be repeated for a maximum of 9 credit hours.

NTRI 7050/7056 METHODS OF RESEARCH (2) LEC. 2. Departmental approval. Research methods and designs applicable to disciplines represented in nutrition dietetics and hospitality management. Credit is not allowed for both NTRI 7050 and NTRI 7056. Spring.

NTRI 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2. LAB. 3. Departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NTRI 7500/7506 MINERALS (3) LEC. 3. Departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body. Fall.

NTRI 7510/7516 VITAMINS (3) LEC. 3. Departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans. Fall.


NTRI 7530/7536 HUMAN NUTRIENT METABOLISM (4) LEC. 4. Advanced study of nutrition and metabolism, as related to humans. Department approval. Credit will not be given for both NTRI 7530 or NTRI 7536 once developed, or BCHE 6180 and BCHE 6190, and/ or BCHE 7200.

NTRI 7850/7856 RESEARCH SEMINAR FOR MASTER'S PROGRAM (1) SEM. 1. Departmental approval. Current topics in nutrition, dietetics and hospitality management presented by M.S. graduate students.
NTRI 7910 PRACTICUM IN NUTRITION AND DIETETICS (1-12) PRA. SU. Departmental approval. Application of principles and theories of nutrition in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NTRI 7930/7936 ADVANCED INDEPENDENT STUDY (1-6) IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NTRI 7960/7966 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 10 credit hours.

NTRI 7980/7986 NONTHESIS RESEARCH (1-6) RES. SU. Departmental approval. In-depth work in a particular project related to hotel and restaurant management. Course may be repeated for a maximum of 6 credit hours.

NTRI 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

NTRI 8850 RESEARCH SEMINAR FOR DOCTORAL PROGRAM (1-2) SEM. Departmental approval. Required for doctoral students in nutrition and hospitality management. Advanced topics in nutrition and food science presented by doctoral students. Course may be repeated for a maximum of 2 credit hours.

NTRI 8910 SUPERVISED TEACHING (1) AAB/IND. 1. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

NTRI 8970/8976 ADVANCED TOPICS IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NTRI 8990 RESEARCH AND DISSERTATION (1-10) AAB/DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

**Accelerated Bachelor's/Master's Program in Nutrition**

**Benefits of the Program**

Earn 5-8 credits towards the Master’s degree program in Nutrition during your senior year by taking graduate level versions of required undergraduate courses.

**Admissions Qualifications**

1. Grade Point Average of at least 3.0 (ungapped)
2. Minimum of 45 earned credit hours with at least 24 credit hours earned at Auburn University
3. Grade of B or higher in NTRI 4820 and in NTRI 4830

**Application DEADLINE: On or before May 1**

**Sample Accelerated Progression for the Graduate Program**

Only 5-8 credits will be applied towards the Master’s degree program in Nutrition.

**Nutrition Dietetics Option**

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<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>NTRI 5020</td>
<td>Medical Nutrition I</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 5030</td>
<td>Medical Nutrition II</td>
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**Nutrition Science Option**

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<tr>
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<tbody>
<tr>
<td>NTRI 5820</td>
<td>Nutrition In The Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 5100</td>
<td>Nutrition in Disease Prevention</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
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**Nutrition Wellness Option**

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<tr>
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<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 5820</td>
<td>Nutrition In The Life Cycle</td>
<td>3</td>
</tr>
</tbody>
</table>
NTRI 5100/6100 Nutrition in Disease Prevention 2
Total Hours 5

Next year – upon admission to Graduate School – Sample Class Schedule:

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NTRI 7530 Human Nutrient Metabolism</td>
<td>4</td>
<td>NTRI 7510 Vitamins</td>
<td>3</td>
<td>Elective (required for non-thesis program)</td>
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<tr>
<td>NTRI 7500 Minerals</td>
<td>3</td>
<td>NTRI 7520 Macronutrients: Integration and Metabolism</td>
<td>4</td>
<td>NTRI 7980 Nonthesis Research or 7990 Research And Thesis</td>
<td>2</td>
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<tr>
<td>ERMA 7300 Design and Analysis in Education I</td>
<td>3</td>
<td>NTRI 7850 Research Seminar for Master's Program</td>
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<tr>
<td>NTRI 7050 Methods Of Research</td>
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<td>NTRI 7980 Nonthesis Research or 7990 Research And Thesis</td>
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<td></td>
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<td>NTRI 7980 Nonthesis Research or 7990 Research And Thesis</td>
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</tbody>
</table>

Note: The thesis option for the Master’s degree program in nutrition requires 30 credit hours, and the non-thesis option for the Master’s degree program in nutrition requires 33 credit hours.

Admission into the ABM program in Nutrition does not guarantee admission into the Graduate program the following year. Admission into the Graduate Program requires an excellent academic record, satisfactory scores on the Graduate Record Examination (GRE), three letters of recommendation, and your applying to the Graduate School and admission to the Graduate program in Nutrition.

Curriculum in Hospitality Management - Hotel and Restaurant Management Option

Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1000 Introduction to Biology &amp; BIOL 1001 Introduction to Biology Laboratory</td>
<td>4</td>
<td>BIOL 1010 A Survey of Life &amp; BIOL 1011 A Survey of Life Laboratory</td>
<td>4</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>Core History I</td>
<td>3</td>
<td>Core History II</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 2010 Introduction to Psychology</td>
<td>3</td>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry</td>
<td>4</td>
</tr>
<tr>
<td>HOSP 1010 Introduction to Hospitality Management</td>
<td>2</td>
<td>HOSP 2940 Professional Development in Hospitality</td>
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15 15

Sophomore

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>ECON 2030 Principles of Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>ENVI 1020 Fundamentals of Environmental Science</td>
<td>2</td>
</tr>
<tr>
<td>ACCT 2810 Fundamentals Of Accounting</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
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<tr>
<td>CADS 2000 Global Consumer Culture</td>
<td>3</td>
<td>PHIL 1040 Business Ethics</td>
<td>3</td>
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<tr>
<td>NTRI 2000 Nutrition And Health</td>
<td>3</td>
<td>HOSP 2300 Hospitality Law</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 2500 Lodging Operation</td>
<td>2</td>
<td>HOSP 2400 Food Production in Hospitality</td>
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### HOSP 2910 Hospitality Practicum

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>FINC 3810 Foundations of Business Finance</td>
<td>3</td>
</tr>
<tr>
<td>MNGT 3810 Management Foundations</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 2000 Marriage and Family in a Global Context</td>
<td>3</td>
</tr>
<tr>
<td>Professional Elective (^1)</td>
<td>4</td>
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<tr>
<td>HRMN 3420 Human Resource Management</td>
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### Junior

#### Fall

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<tbody>
<tr>
<td>FINC 3810 Foundations of Business Finance</td>
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<tr>
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<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>MKTG 3310 Principles of Marketing</td>
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<tr>
<td>HOSP 3200 Hospitality Financial Management</td>
<td>3</td>
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<tr>
<td>HOSP 3800 Hospitality Information Technology</td>
<td>3</td>
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<tr>
<td>HOSP 4600 Beverage Appreciation</td>
<td>3</td>
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<tr>
<td>HDFS 2040 Analytics for the Social and Behavioral Sciences</td>
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#### Spring

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<tr>
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<tr>
<td>MNGT 3810 Management Foundations</td>
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<td>HOSP 4600 Beverage Appreciation</td>
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<tr>
<td>HDFS 2040 Analytics for the Social and Behavioral Sciences</td>
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### Senior

#### Fall

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HOSP 3400 Hospitality Marketing</td>
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<td>HOSP 4300 Food and Beverage Management</td>
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<tr>
<td>HOSP 4920 Internship In Hospitality (^2)</td>
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<td>HOSP 5570 Global Hospitality</td>
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<th>Course</th>
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<tr>
<td>Fine Arts Core</td>
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<td>HOSP 4350 Advanced Restaurant Management</td>
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<td>HOSP 4500 Strategic Hospitality Management</td>
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<tr>
<td>HOSP 4800 Senior Lecture Series</td>
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<tr>
<td>HOSP 5300 Science of Quality Service in Hospitality</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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#### Spring

<table>
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<td>HOSP 3400 Hospitality Marketing</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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</table>

#### Total Hours: 124

1. Select professional electives from approved professional elective list.
2. Requires approval which includes proof of having 600 hours (during collegiate experience) work experience in hospitality and a GPA of 2.2.

### Professional Elective Courses

Courses listed below are approved courses that may be used to fulfill the Professional Elective requirements. Please note that the Catering and Event Management Class is a two semester class comprising of HOSP 5460 (1 hour lecture) to be taken in the fall and HOSP 5461 (2 hr laboratory) to be taken in the spring semester. You must take the course and the laboratory over two consecutive semesters. Please note that some courses are offered over the summer, but these classes are not guaranteed to be offered every summer. Please contact the Department of Nutrition, Dietetics and Hospitality Management for additional information.

<table>
<thead>
<tr>
<th>Course</th>
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<td>HOSP 2600 Event Operations</td>
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<td>HOSP 5461 Catering and Event Management</td>
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<tr>
<td>HOSP 5540 Conference Coordination (Fall and Summer)</td>
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<tr>
<td>HOSP 5550 Club Management (Spring)</td>
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<tr>
<td>NTRI 5380 Study/Travel in Nutrition, Dietetics and Hospitality Management (Spring and Summer)</td>
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### Curriculum in Nutrition (Nutrition Science Option)
### Freshman

**Fall**

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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<td>MATH 1610 Calculus I</td>
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**Total: 16**

**Spring**

<table>
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<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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**Total: 17**

### Sophomore

**Fall**

<table>
<thead>
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<td>SOCY 1000 Sociology: Global Perspective</td>
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**Spring**

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<tr>
<td>BIOL 3200 General Microbiology</td>
<td>3</td>
<td>NTRI 4820 Macronutrients</td>
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<td>BIOL 4100 Cell Biology</td>
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<td>PHYS 1500 General Physics I</td>
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**Total: 15**

### Junior

**Fall**

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**Spring**

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<td>BIOL 5600 Mammalian Physiology (Biomedical Physiology)</td>
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**Total: 13**

### Senior

**Fall**

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<td>NTRI 5820 Nutrition In The Life Cycle</td>
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<td>NTRI 5100 Nutrition in Disease Prevention</td>
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<td>Core Fine Arts</td>
<td>3</td>
<td>NTRI 5830 Nutritional Genomics</td>
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<td>BIOL 4410 Vertebrate Development or 5600 Mammalian Physiology (Biomedical Physiology)</td>
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<td>5600 Mammalian Physiology (Biomedical Physiology)</td>
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<td>NTRI 5830 Nutritional Genomics</td>
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**Total: 3**

### Core Literature

**Total: 3**
Curriculum in Nutrition (Nutrition/Dietetics Option)

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<tr>
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<tbody>
<tr>
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<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>CADS 2000 Global Consumer Culture</td>
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<tr>
<th>Junior</th>
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<tbody>
<tr>
<td>BCHE 3180 Nutritional Biochemistry</td>
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<td>NTRI 3750 Nutrition Education</td>
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<td>PHIL 1030 Ethics and the Health Sciences</td>
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<td>NTRI 4820 Macronutrients</td>
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<td>NTRI 4830 Vitamins And Minerals</td>
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<td>BIOL 3200 General Microbiology</td>
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<td>Core Social Sciences</td>
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<td>BIOL 3201 General Microbiology Laboratory</td>
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## Senior

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<td>NTRI 4620 Public Health Nutrition</td>
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<td>NTRI 5020 Medical Nutrition I</td>
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<tr>
<td>NTRI 5820 Nutrition In The Life Cycle</td>
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<td>NTRI 4560 Food Systems Operations</td>
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<td>NTRI 4561 Food Systems Operations Lab</td>
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<td>UNIV 4AA0 University Graduation</td>
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Total Hours: 120

The Accreditation Council for Education in Nutrition and Dietetics’ academic requirements for Didactic Program in Dietetics will be met by the Nutrition/Dietetics option. Graduates choosing this option must complete an internship after graduation to be eligible to take the national exam for Registered Dietitians. Acceptance into dietetic internships is highly competitive.

## Freshman

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<tr>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry</td>
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<td>PSYC 2010 Introduction to Psychology</td>
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Total Hours: 17

## Sophomore

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<tr>
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<td>Social Science Core</td>
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<td>Fine Arts Core</td>
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Total Hours: 17

## Junior

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<td>PHIL 1030 Ethics and the Health Sciences</td>
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<td>Free Electives</td>
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<td>NTRI 2010 Basic Sports Nutrition</td>
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¹ Professional Electives are required to be taken in the fall of the junior year.
### BCHE 3180 Nutritional Biochemistry
3

### NTRI 4820 Macronutrients
3

### ENGL 3040 Technical Writing
3

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**Senior Hours**

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<tr>
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<tr>
<td>NTRI 5820 Nutrition In The Life Cycle</td>
<td>3 Free Electives</td>
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<td>HDFS 2000 Marriage and Family in a Global Context</td>
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<td>NTRI 4620 Public Health Nutrition</td>
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<td>6 NTRI 5100 Nutrition in Disease Prevention</td>
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**Total Hours: 124**


<sup>2</sup> Seniors must register for UNIV 4AA0HS1 the term they plan to graduate (non-credit class number for clearing graduation check).

***NOTE: Required major courses and College core courses are in **bold**. Grades in these courses are used to calculate the GPA in the major and to meet graduation standards.***

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### Hospitality Management - Event Management Option

#### Freshman

<table>
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<th>Fall</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1000 Introduction to Biology</td>
<td>3 BIOL 1010 A Survey of Life</td>
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<td>BIOL 1001 Introduction to Biology Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
<td>3 ENGL 1120 English Composition II</td>
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<td>HOSP 1010 Introduction to Hospitality Management</td>
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<td>PSYC 2010 Introduction to Psychology</td>
<td>3 Core History II</td>
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<td>3 HOSP 2600 Event Operations</td>
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<td>HOSP 2940 Professional Development in Hospitality</td>
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| Total                  | 15    | 18 |

#### Sophomore

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<td>ACCT 2810 Fundamentals Of Accounting</td>
<td>3 HOSP 2400 Food Production in Hospitality</td>
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<tr>
<td>CADS 2000 Global Consumer Culture</td>
<td>3 ENVI 1020 Fundamentals of Environmental Science</td>
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<td>ECON 2020 Principles of Microeconomics</td>
<td>3 ECON 2030 Principles of Macroeconomics</td>
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<tr>
<td>NTRI 2000 Nutrition And Health</td>
<td>3 COMM 1000 Public Speaking</td>
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| Total                  | 16    | 15 |
## Majors

### Global Studies in Human Sciences

The Global Studies in Human Sciences curriculum is designed to educate students on relevant global issues, the realities of globalization and how local and global issues are interconnected. Through required course work in the major and minor field, students will gain first-hand experience and be prepared for professional careers in the global studies field as it relates to human sciences.

The Global Studies in Human Sciences major draws on content relevant to human sciences (e.g., hunger and food insecurity, microlending and entrepreneurship, environmental sustainability, maternal and child health, education of women and girls, global markets, goods and services, humanitarian aid and social policy) across the disciplines in the three departments in the College.

### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
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<td>NTRI 2000 Nutrition And Health</td>
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<td>Core Humanities **</td>
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<td>ENGL 1120 English Composition II</td>
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<td>SUST 2000 Introduction to Sustainability</td>
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<td>Core History* or Core Social Science **</td>
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<td>History Core</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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Total: 15

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1. Seniors must register for UNIV 4AA0-HS1 the term they plan to graduate (non-credit class for clearing graduation).
2. Professional electives may be selected from the following courses: NTRI 5380, HOSP 5540, HOSP 5550, HOSP 5570, HOSP 5590, FLSP 1020, Department Head approved course.
3. Requires approval which includes proof of having 600 hours (during collegiate experience) work experience in hospitality and a GPA of 2.2.
### Sophomore

<table>
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<th>Spring</th>
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<tr>
<td>Core Science Sequence¹</td>
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<td>Core Science Sequence¹</td>
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<tr>
<td>Literature Core</td>
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<td>Core Literature* or Core Humanities</td>
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<tr>
<td>Fine Arts Core</td>
<td>3</td>
<td>GEOG 1010 Global Geography</td>
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<tr>
<td>HUSC 2000 Hunger: Causes, Consequences, and Responses</td>
<td>3</td>
<td>Minor Course(s)</td>
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<tr>
<td>GSHS 2000 Global Studies Human Sciences</td>
<td>3</td>
<td>ECON 2030 Principles of Macroeconomics</td>
<td>3</td>
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<td><strong>Total</strong></td>
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### Junior

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td>Foreign Language †</td>
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<td>Foreign Language ‡</td>
<td>4</td>
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<tr>
<td>CADS 2700 Introduction to Nonprofit Organizations</td>
<td>3</td>
<td>GSHS 3000 Global Studies in Human Sciences Lecture Series</td>
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<tr>
<td>HOSP 5570 Global Hospitality</td>
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<td>Minor Courses(s)</td>
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<td>Minor Course(s)</td>
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<td>COMM 1000 Public Speaking</td>
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<td></td>
<td></td>
<td>ECON 4300 International Economics***</td>
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### Senior

<table>
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<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>GSHS 4920 Global Studies Internship²</td>
<td>12</td>
<td>GSHS 5000 Global Studies in Human Sciences Capstone</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Minor Course(s)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Free Electives</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td>HDFS 4680 Family in Cross-Cultural Perspective</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>UNIV 4AA0 University Graduation³</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

Total Hours: 120

† Due to capacity issues, students might not be able to enroll in foreign language sequence during the academic year and might be required to take these courses at Auburn during the summer or at another approved institution.

* Must have a History sequence and at least one Literature course OR a Literature sequence and at least one History course.

** Social Science options: ANTH 1000, GEOG 1010, POLI 1050, POLI 1090, PYSC 2010, SOCY 1000, UNIV 2720.

*** May take POLI 3100 which is only offered in the summer terms and requires a prerequisite of POLI 1090. ECON 4300 requires a pre-requisite of ECON 2030.

¹ Must choose from: CHEM 1010/1011 AND CHEM 1020/1021 OR BIOL 1000 AND BIOL 1010 OR PHYS 1500 AND PHYS 1510.

² Internship placement must have global/international focus. Internship may be completed in the summer semester.

³ Seniors must register for UNIV 4AA0-HS1 the term they plan to graduate (non-credit class for clearing graduation).

For the required minor in Global Studies in Human Sciences, students may choose from the following minors: Business minor, Philanthropy and Non-Profit Studies minor, Hunger Studies minor, International Minor in Human Sciences, Human Development and Family Studies minor, Sustainability minor, Public Health minor, or Global Cultures minor.

**Study Abroad Requirement:** All students graduating with a GSHS degree are required to complete at least one credit bearing study abroad experience as a part of their degree program. Students can opt to take their study abroad experience in the form of the required internship, minor, or elective credit.
Minors

Health Equity Science - Undergraduate Certificate

The undergraduate Certificate in Health Equity Science (CHES) is administered through the College of Human Sciences (CHS) under the purview of the Center for Health Ecology and Equity Research (CHEER). The undergraduate CHES is part of the training mission of CHEER, which aims to cultivate scholarship on health ecology and equity, and to develop leaders committed to addressing health inequities. This is achieved by helping students acquire a foundation of knowledge on health ecology and equity issues. Students completing this certificate program will have a strong understanding of the role of social context in generating disease risks and disparities in health between groups. Students will also learn how this corpus of knowledge can be translated into health-promoting policies and community-level interventions.

The CHES requires 12 semester hours (at least fifty percent of which must be at the 3000-level or higher), and completion of this certificate will appear on the official Auburn University transcript. Students earn the certificate by completing:

- HUSC 5930 Society and Health 3
- HUSC 5950 Seminar on Health Ecology and Equity 2
- Seven (7) additional semester hours through elective courses 7
- Honors Thesis (2-6 semester hours) on a health equity topic* Practicum (1-6 semester hours) in health equity in a professional setting* Internship (12 semester hours) in health equity*

Total Hours 12

* Completed in student’s department. Must be approved by the Center for Health Ecology and Equity Research (CHEER) in order to be used towards completion of certificate requirements.

Hunger Studies Minor

Required Courses

- HUSC 4000 Hunger Studies Capstone 3

Total Hours 6

Knowledge

(Select a minimum of 12 hours from the lists below; 9 hours must be at the 3000 level or higher.)

- CSES 1000 Basic Crop Science 4
- ANSC 1000 Introduction to Animal Sciences 4
- ANSC 2010 Animals and Society 3
- CADS 2700/2703 Introduction to Nonprofit Organizations 3
- ENGL 4040 Public Writing 3
- FISH 5210 Principles of Aquaculture 3
- FORY 5440 International Forestry 3
- HORT 2050 Food for Thought 3
- NTRI 2000/2003 Nutrition And Health 3
- NTRI 3560 Experimental Study of Foods 4
- NTRI 3750 Nutrition Education 2
- NTRI 4620 Public Health Nutrition 3
- POLI 5370 Nonprofit Management 3
- RSOC 3190 Food, Agriculture, and Society 3

Leadership and Advocacy

(must select one course)
AGRI 3800 Agricultural Leadership Development 2
COMM 3450 Intercultural Communication 3
HDFS 5300 HDFS and Social Policy 3
PHIL 3100 Intermediate Ethics 3
POLI 2100 State and Local Government 3
RSOC 5640 Sociology of Community Development 3
RSOC 3620 Community Organization 3
RSOC 5610 Rural Sociology 3

**Global Citizenship**

(must select one course)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 3000</td>
<td>Culture, Marriage, and the Family</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 3700</td>
<td>Political Ecology</td>
<td>3</td>
</tr>
<tr>
<td>ECON 4300</td>
<td>International Economics</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 2010</td>
<td>Human Geography</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 5350</td>
<td>Economic Geography</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4680</td>
<td>Family in Cross-Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3090</td>
<td>Introduction to International Relations</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3100</td>
<td>Introduction to World Affairs</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 3550</td>
<td>Psychology and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GSHS 2000</td>
<td>Global Studies Human Sciences</td>
<td>3</td>
</tr>
<tr>
<td>GSHS 3000</td>
<td>Global Studies in Human Sciences Lecture Series</td>
<td>1</td>
</tr>
</tbody>
</table>

**International Minor in Human Sciences**

The College of Human Sciences offers two paths to obtaining the International Minor:

The Joseph S. Bruno Auburn Abroad in Italy program in which a student can earn the International Minor in one semester while studying abroad in Ariccia, Italy;

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>HUSC 3383</td>
<td>Study Abroad Opportunities in Human Sciences</td>
<td>2</td>
</tr>
<tr>
<td>HUSC 4010</td>
<td>CHS at AU in Italy: Integrated Global Studies</td>
<td>6</td>
</tr>
<tr>
<td>HUSC 4380</td>
<td>Auburn Abroad in Italy Study and Travel</td>
<td>2</td>
</tr>
<tr>
<td>HUSC 4940</td>
<td>CHS at AU in Italy: Directed Field Experiences</td>
<td>6</td>
</tr>
<tr>
<td>Total Hours</td>
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<td>16</td>
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</tbody>
</table>

**OR**

an on/off-campus program for students to complete both foreign language and human sciences content competencies on campus, followed by a four credit hour study abroad experience in an approved international venue.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUSC 5940</td>
<td>Study and Travel in Human Sciences</td>
<td>3-12</td>
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</table>

Foreign Language 4

**Elective Course Requirements (2-11) Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS/HDFS/NTRI</td>
<td>Study Abroad Opportunities in Human Sciences</td>
<td>1</td>
</tr>
<tr>
<td>CADS 2000/2007</td>
<td>Global Consumer Culture</td>
<td>3</td>
</tr>
<tr>
<td>CADS 3700/3703</td>
<td>Gender, Wealth &amp; Philanthropy</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 2000</td>
<td>Marriage and Family in a Global Context</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 4680</td>
<td>Family in Cross-Cultural Perspective</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 5300</td>
<td>HDFS and Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 5570</td>
<td>Global Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>-------------</td>
<td>----------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>NTRI 2000/2007</td>
<td>Nutrition And Health</td>
<td>3</td>
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<tr>
<td>NTRI 4620</td>
<td>Public Health Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credit Hours: 18**

No more than 6 hours may be lower division (2000 and below) classes.

Courses taken as a requirement for the major or University core cannot be counted toward the minor.

No S/U courses can be counted toward the minor.

Students must earn an overall grade average of “C” (2.0) on all courses taken in the minor.

Click on the links above to learn more or contact Kate Thornton, Director of Global Education, College of Human Sciences, 232 Spidle Hall, 334-844-1339, kate.thornton@auburn.edu (brockmk@auburn.edu).

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College of Liberal Arts

JOSEPH AISTRUP, Dean
PAULA BOBROWSKI, Associate Dean for Research and Faculty Development and Graduate Studies
CHARLES A. ISRAEL, Associate Dean for Academic Affairs
GIOVANNA SUMMERFIELD, Associate Dean for Educational Affairs

Majors in Liberal Arts prepare students for immediate employment after receiving undergraduate degrees, for example, as journalists, public relations experts, archivists, interpreter/translators, curators, social scientists, counselors, fine arts and entertainment industry professionals, education support specialists, management professionals, or technical communicators. Students also receive strong academic backgrounds for graduate study or professional education. The College of Liberal Arts consists of five academic areas, each of which is divided further into departments:

- Humanities: English, Foreign Languages and Literatures, History, and Philosophy, awarding Bachelor of Arts degrees.
- Fine Arts: Art, Music, and Theatre, awarding Bachelor of Arts, Bachelor of Music, and Bachelor of Fine Arts degrees.
- Communication: Communication Disorders and Communication and Journalism, awarding Bachelor of Arts and Bachelor of Science degrees.
- Behavioral and Social Sciences: Economics, Political Science, Psychology, and Sociology, Anthropology, and Social Work, awarding Bachelor of Arts and Bachelor of Science degrees.
- University College: Aviation and Interdisciplinary University Studies.

**Becoming a Liberal Arts Major**

**Entering a Major:** Incoming freshmen and external transfer students are admitted directly to the College of Liberal Arts. The following majors have additional admission requirements beyond university admission: Art-BFA, Communication, Communication Disorders, Health Services Administration, Journalism, Music, Public Relations, Media Studies, Social Work, Theatre-BFA. Students should contact the department that houses their intended major to determine specific entrance requirements.

**Declaring a Major:** All students must declare a major by the end of the semester in which they complete 65 semester hours of credit, including transfer and other college credit. Students transferring into the College of Liberal Arts with 65 or more semester hours of credit must declare a major upon admission. Before a major is declared, students will follow the requirements for the College of Liberal Arts and will be identified as pre-majors in a curriculum or by the designation UNLA for undeclared students.

**Required Courses for All Liberal Arts Majors**

Most majors in the College of Liberal Arts require students to complete a one-year sequence in a foreign language. Students are placed into each sequence based on results of a placement exam administered by the Department of Foreign Languages and Literatures prior to their enrollment at Auburn. Students in the University College and those pursuing BFA degrees in Art and Theatre are exempted from the foreign language sequence requirement. Most majors in the College of Liberal Arts also require students to complete LBAR 2010: Liberal Arts Careers Preparation; majors not requiring that class have identified other specific places in their curricula addressing career preparation for students.

**Policies for Concurrent Degrees and Double Majors**

To earn a second baccalaureate degree, students must complete a separate body of knowledge appropriate for the degree. The Dean's Office in the College of Liberal Arts determines when it is possible for students to earn a second baccalaureate degree. Auburn University academic policy stipulates the minimum hours necessary in addition to the primary degree or curriculum. The College of
Liberal Arts requires that, at a minimum, 30 additional hours of non-overlapping course work must be accomplished in the second baccalaureate degree program.

To earn a double major, students must complete all the major courses in both majors. Of these major courses, at least 20 hours of each major must be unique, rather than being used as major, support, or core courses in both majors. If at least 20 hours of unique courses do not exist for each of the two majors, students cannot pursue a double major.

For complete information on concurrent degrees and double major requirements, please see the Academic Policies section.

**Special Academic Opportunities**

To augment the learning experiences available through majors in the College of Liberal Arts, students can take advantage of the following possibilities:

- **Concurrent Degrees with the College of Engineering.** Students can receive a degree from a Liberal Arts major and a degree from a major in the Samuel Ginn College of Engineering. To ensure that all requirements are met, students should see advisors in both colleges. Typically, five to six academic years are necessary to complete concurrent degrees.

- **Pre-Law Study.** While students interested in advanced study of the law should consider the new Law and Justice major, most majors in Liberal Arts are accepted by law schools as appropriate preparation for the study of law. However, students should consult with the pre-law advisor in Haley Center 7002 in preparing for law school admission and the study of law. The pre-law advisor will suggest the most useful courses to take.

- **Pre-Health Study.** Most majors in Liberal Arts are accepted as preparation for professional degrees in health, including medicine, dentistry, optometry, physical therapy, and occupational therapy. Generally, students will need to take particular courses in science, mathematics, and philosophy as their university core requirements. They will also need to take additional courses in science and mathematics not required by most Liberal Arts majors and attend a Pre-Health Professional Orientation course offered during fall semester. To ensure they complete the necessary requirements and to get assistance in applying to graduate or professional programs in health fields, students should meet with the pre-health advisors in the College of Science and Mathematics. Students should also consult with advisors in the College of Liberal Arts and in the departments that house their majors.

- **Teacher Certification through the College of Education.** Students holding baccalaureate degrees in English, history, French, or Spanish may gain teaching certification through enrolling in the Alternative Master’s Certification Program in the College of Education. Upon successful completion of the program, students are awarded a master’s degree in education (MEd), and they will be eligible to apply for Alabama Class A certification (master’s level certificate).

- **University Honors College.** Students with extraordinarily high academic aptitude can receive individual learning opportunities through the Honors College. For more information, see the “Academics Policies” section.

- **Study Abroad.** Students can gain course credit either through class instruction or internship in Study Abroad programs. For more information, students can contact the Office of International Programs or the departments / colleges that house these Study Abroad opportunities.

- **Cooperative Education Programs.** Students receive opportunities to integrate classroom education with work experience in Cooperative Education Programs. Students alternate each semester between attending classes and working for companies. Cooperative Education Programs are available in the Departments of Art, English (Professional Writing and Public Writing track), Political Science (Health Services Administration and Public Administration majors) Psychology, and Sociology, Anthropology, and Social Work. Interested students should contact the director of the Cooperative Education Program.

- **The Caroline Marshall Draughon Center for the Arts and Humanities.** Students may be interested in the programs and other activities sponsored through the Caroline Marshall Draughon Center for the Arts and Humanities. As described on its website, the mission of the Center is “to strengthen the bonds between the College of Liberal Arts and the public by creating and implementing arts and humanities programs that explore our individual and collective experiences, values, and identities through the past, in the present, and for the future. The Center also creates occasions and space for dialogue, intellectual community, and cross-disciplinary scholarship.”

**Undergraduate Degrees**

The College of Liberal Arts and the School of Fine arts offer academic majors, programs, and options in more than 30 fields. These are listed below.

**Graduate Degrees**

Doctor of Philosophy degrees are offered in English, History, Psychology, and Public Administration and Public Policy, and a PhD track is offered in Applied Economics. The Doctor of Audiology degree is offered in Communication Disorders. Master of Arts degrees are offered in English, Spanish, History, Political Science, Sociology, and Communication. Master of Science degrees are offered in
Communication Disorders, Economics, and Psychology. The degrees of Master of Communication Disorders, Master of Community Planning, Master of Hispanic Studies, Master of Public Administration, and Master of Technical and Professional Communication are also offered. These degree programs are described in the Graduate School section.

**Majors**

- Anthropology (p. 996)
- Art (p. 874)
- Art History (p. 875)
- Art-Studio/Fine Arts (p. 876)
- Aviation Management (p. 1046)
- Communication (p. 1034)
- Communication Disorders (p. 882)
- Economics - Primary Track (p. 888)
- Economics - Quantitative Track (p. 889)
- English - Creative Writing (p. 898)
- English - Professional and Public Writing (p. 900)
- English - Literature (p. 899)
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- German International Trade (p. 919)
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- History (p. 933)
- Interdisciplinary University Studies (p. 1048)
- Journalism (p. 1035)
- Law and Justice (p. 974)
- Media Studies (p. 1037)
- Media Studies - Visual Media Option (p. 1038)
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- Music Performance - Instrumental (p. 952)
- Music Performance - Piano (p. 953)
- Music Performance - Voice (p. 955)
- Neuroscience (p. 986)
- Philosophy (p. 961)
- Political Science (p. 976)
- Professional Flight (p. 1050)
- Public Administration (p. 977)
- Public Relations (p. 1039)
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- Spanish International Trade (p. 921)
- Social Work (p. 997)
- Sociology (p. 998)
- Theatre (p. 1006)
- Theatre - Design / Technology (p. 1007)
- Theatre - Management (p. 1009)
- Theatre - Music Theatre (p. 1010)
- Theatre - Performance (p. 1011)
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• Africana Studies (p. 1052)
• Anthropology (p. 996)
• Art History (p. 873)
• Aviation Management (p. 1046)
• Asian Studies (p. 915)
• Community and Civic Engagement (p. 1052)
• Classics (p. 915)
• Communication (p. 1034)
• Dance (p. 1013)
• Economics (p. 891)
• English (p. 901)
• English - Creative Writing (p. 901)
• English - Technical Professional Communication (p. 901)
• French (p. 922)
• German (p. 922)
• German Linguistics (p. 922)
• Global Cultures (p. 923)
• History (p. 934)
• Information and Cyber Analysis (p. 1047)
• Intercultural Communication (p. 1040)
• Italian Studies (p. 923)
• Journalism (p. 1041)
• Latin American Studies (p. 1052)
• Leadership (p. 1049)
• Linguistics (p. 902)
• Medieval and Renaissance Early Modern Studies (p. 902)
• Music (p. 956)
• Philosophy (p. 962)
• Philosophy and Religion (p. 962)
• Political Science (p. 978)
• Professional Flight (p. 1051)
• Psychology (p. 987)
• Public Administration (p. 978)
• Social Work (p. 1000)
• Sociology (p. 1000)
• Spanish (p. 923)
• Spanish Linguistics (p. 923)
• Sports Communication (p. 1041)
• Studio Art (p. 877)
• Sustainability Studies (p. 1052)
• Theatre (p. 1013)
• Women's Studies (p. 1053)

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Program

- Audiology Program - AuD (p. 1341)
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- Communication Disorders - MCD, MS (p. 1363)
- Community Planning - MCP (p. 1366)
- Economics - MS (p. 1415)
- Economics, Applied - PhD track - Agriculture Economics (p. 1333)
- Economics, Applied - PhD track - Liberal Arts (p. 1417)
- Economics, Applied - PhD track - Forestry (p. 1417)
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- History - MA, PhD, Graduate Certificates (p. 1461)
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- Spanish - MA, MHS (p. 1534)

Graduate Degrees

Doctor of Philosophy degrees are offered in Economics, English, History, Psychology, and Public Administration and Public Policy. Master of Arts degrees are offered in English, Spanish, History, Political Science, Sociology and Communication. Master of Science degrees are offered in Communication Disorders, Economics, and Psychology. The Doctor of Audiology degree is offered in Communication Disorders.

The degrees of Master of Communication Disorders, Master of Community Planning, Master of Hispanic Studies, Master of Public Administration, and Master of Technical and Professional Communication are offered. Degree programs are described in the Graduate School section.

Graduate Minors

The College of Liberal Arts houses the Women’s Studies Program, which offers a graduate minor in Women’s Studies. For more information about this minor, please select the link below.

- Women’s Studies

Faculty in the Departments of Economics and Political Science participate in the graduate minor in Economic Development, which is administered by the Economic and Community Development Institute.

- Economic Development

Graduate Certificates

The College of Liberal Arts offers Graduate Certificates in Archival Studies, Communication, Elections Administration, Non-profit Organizations and Community Governance, Public History, and Technical Communication. More information on these certificates is available at the Graduate School and the programs linked above.

University College fosters the growth of interdisciplinary and cross-college academic programs. Its programs are designed to provide intellectual opportunities for students whose interests, aptitudes, and career goals range widely across college boundaries. It is the home of the Interdisciplinary University Studies undergraduate major, the Aviation Department (which offers the BS in Aviation Management, the BS in Professional Flight, and related minors), and the Sustainability, Information and Cyber Analysis, and Leadership minors. The Exploratory Advising Center for incoming freshmen who are in the process of determining the academic major they wish to pursue is also part of University College.
Majors

• Aviation Management (p. 1046)
• Interdisciplinary University Studies (p. 1048)
• Professional Flight (p. 1050)

Minors

• Aviation Management (p. 1046)
• Information and Cyber Analysis (p. 1047)
• Leadership (p. 1049)
• Professional Flight (p. 1051)
• Sustainability Studies (p. 1052)

Africana Studies Courses

AFRI 2000 INTRODUCTION TO AFRICANA STUDIES (3) LEC. 3. Pr. (ENGL 1120 or ENGL 1127). An introduction to theory and method that offers an interdisciplinary perspective on Africa and the African Diaspora taught from different academic disciplines including education, the sciences, social sciences, and the liberal arts.

Anthropology Courses

ANTH 1000/1003 INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. Social Science I Core. Introduction to the study of human evolution, early civilizations, and globalization; linguistic and cultural problems using the four sub-fields of anthropology, including biological/physical anthropology, archaeology, cultural anthropology, and linguistics.

ANTH 1007 HONORS INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of human evolution, early civilizations, and globalization: linguistic and cultural problems using the four sub-fields of anthropology, including biological/physical anthropology archaeology, cultural anthropology and linguistics. Credit will not be given for both ANTH 1000 and ANTH 1007.

ANTH 2000 ETHNOGRAPHIC METHODS (3) LEC. 3. AAB/LEC. 0. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007) or (SOCY 1000 or SOCY 1007) or GEOG 1100. Approaches, techniques, and strategies for carrying out ethnographic research and analyzing qualitative data in the social sciences.

ANTH 2500 ANTHROPOLOGY OF GLOBAL STUDIES (3) LEC. 3. Any Social Science Core course. Broad-based study of processes and problems that transcend national boundaries, including global historical processes, politics, migrations, trade, disease, environmental change, and sustainability.

ANTH 2700 PEOPLES AND CULTURES OF ASIA (3) LEC. 3. Any Social Science Core course. Introduction to the traditions, religions, histories, and nation-states of the people of Asia, using a cultural approach.

ANTH 2800 ANTHROPOLOGY OF THE AFRICAN DIASPORA (3) LEC. 3. Any Social Science Core course. Anthropological perspectives on African Diasporas. Diaspora. Archaeological, ethnohistorical, and contemporary research exploring identity, symbols, power, and social relations in the lives of enslaved Africans and descendants in the Caribbean, Latin America and North America.

ANTH 2900 WORLD PREHISTORY (3) LEC. 3. Explore broad patterns in human prehistory over the past 10,000 years, including the origins of culture, religion, domestication and agriculture, writing, cities, and states.

ANTH 3000 CULTURE, MARRIAGE, AND THE FAMILY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Role and meaning of kinship and its universal and particularistic features in human society.

ANTH 3100 LANGUAGE AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Contemporary perspectives in cultural anthropology, emphasizing sociolinguistics, discourse, mythology, and folklore.

ANTH 3200 ANTHROPOLOGY OF GENDER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Gender relations and representations in different cultures, historical periods, and discourses.

ANTH 3300 BIOLOGICAL ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Overview of biological anthropology, including evolutionary theory and genetics, primatology, human origins, and biological variation of contemporary human populations. Concepts will be applied during in-class exercises and discussions.
ANTH 3310/3313 RACE AND RACISM: BIOCULTURAL HISTORY OF HUMAN VARIATION (3) LEC. 3. Core Social Science. Deconstructs the myths of biological races by examining human population variation from an anthropological and evolutionary perspective. Students will explore the social history of racism and contemporary issues related to race and human diversity. May count either ANTH 3310 or ANTH 2310.

ANTH 3400 ARCHAEOLOGICAL FIELD SCHOOL (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Field methods, including archaeological surveying and excavation procedures at selected locations. Course may be repeated for a maximum of 6 credit hours.

ANTH 3410 APPLIED & PRACTICING ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores application and practice of anthropology in settings such as cultural resource management, museums, social and environmental policy, and healthcare. This course emphasizes how careers in anthropology contribute to resolving contemporary social problems.

ANTH 3500 ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Archaeology is the study of human societies based on the material remains they left behind. This course explores the history, theories, methods, and applications of archaeology.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3. Any Social Science Core course. Explores biological and cultural dimensions of global health from an anthropological perspective. Topics include the political economy of health, cross-cultural healing traditions, pluralistic medical systems, and evolutionary medicine.

ANTH 3610 FORENSIC ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores standards of practice in forensic anthropology and analysis of case studies. May count either ANTH 3610 or ANTH 2600.

ANTH 3700 POLITICAL ECOLOGY (3) LEC. 3. SSCI and junior standing. Problems in ethnoecology, cultural ecology, political ecology and environmentalism.

ANTH 3810 NORTH AMERICAN ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores archaeological evidence for the history of indigenous peoples in North America during the past 10,000 years.

ANTH 3850 MISSISSIPPIAN ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Diversity and complexity of late prehistoric cultures of the Southeastern and Midwestern United States.

ANTH 3900 BIOARCHAEOLOGY (3) LEC. 3. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Archaeologically-derived skeletal remains provide essential information for reconstructing broad patterns of human health and behavior over time. Students will learn to apply methods and theory in social bioarchaeology to understand demography, diet, disease, and physical activity in past populations.

ANTH 3950 CURATION (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. History, legislation, and ethical concerns associated with the accumulation and curation of archaeological collections.

ANTH 4310 ANTHROPOLOGICAL THEORY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Major thinkers in anthropology and their theoretical models considered in historical perspective.

ANTH 4910 LABORATORY PROBLEMS (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 and ANTH 2100. Investigation a specific archaeological problem or problems, involving students in laboratory techniques and research.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (3) AAB/INT. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Internship for practical work or research on anthropological problems, including federal or state agencies, NGOs, NPOs, community and voluntary organizations, and industry (e.g., internships healthcare and medicine, advertising/media, architecture/design, high technology, archaeology and historic preservation, etc.). Course must be approved by the faculty advisor and department.

ANTH 4930 FIELD PROBLEMS (3) LEC. 2. LAB. 1. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Practical investigation of a specific field problem in anthropology.

ANTH 4940 LABORATORY PRACTICUM (3) LEC. 2. LAB. 1. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 and ANTH 2100. Analysis, preservation, cataloging, and restoration of archaeological materials. May count either ANTH 4940 or ANTH 3910.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College. ANTH 1000. Departmental approval. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 3 credit hours.
ANTH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ANTH 1000. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

ANTH 5100 NORTH AMERICAN INDIANS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Comparative anthropological, cultural, and ethnohistorical overview of Native American cultures of North America, emphasizing change and contact situations.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Role of gender and culture in Third World development from an anthropological perspective.

ANTH 5600 CULTURE, MEDICINE, AND POWER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Pr. ANTH 3700. Meanings and structures of national and international development.

ANTH 5930 DIRECTED STUDIES (1-3) IND. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6100 NORTH AMERICAN INDIANS (3) LEC. 3. Advanced comparative cultural and ethnohistorical overview of the Native American cultures of North America, emphasizing change and contact situations.

ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3. Power in the context of illness and healing at local, national, and international levels.

ANTH 6700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Meanings and structures of national and international development in historical perspective, including cultural values, power, inequality, and resistance.

ANTH 6930 DIRECTED STUDY (1-3) IND. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

Art Courses

ARTS 1030 BASIC CERAMICS (3) STU. 6. Instruction in principles of three-dimensional design and sculpture. Clay is used to explore techniques of casting, constructing, modeling, and wheel throwing. Work with glazes and surface decoration. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1040 BASIC PAINTING (3) STU. 6. Instruction in painting concepts, materials, and techniques. Water-based paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1110 DRAWING I (3) AAB/STU. 6. Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media.

ARTS 1210 2-D DESIGN FOR STUDIO ART (3) STU. 6. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

ARTS 1220 3-D DESIGN FOR STUDIO ART (3) STU. 6. Elements and principles of basic three-dimensional design. Emphasis on spatial organization, color, media exploration and craftsmanship.

ARTS 1250 ORIENTATION TO STUDIO ART FOR THE MAJOR (2) LEC. 2. Studio Art Majors and Minors or Departmental Approval. Introduction to the visual arts, critique strategies, studio safety, portfolio development, writing, and careers in the arts.

ARTS 1510/1513 LOOKING AT ART: APPROACHES TO INTERPRETATION (3) LEC. 3. Introduces the fundamental structures of the art world and multiple approaches to looking at and responding to art.
ARTS 1610/1613 INTRODUCTION TO ART HISTORY (3) LEC. 3. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1617 HONORS INTRODUCTION TO ART HISTORY (3) LEC. 3. Pr. Honors College. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1710 INTRODUCTION TO ART HISTORY I (3) LEC. 3. Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000.

ARTS 1717 HONORS INTRODUCTION INTO ART HISTORY I (3) LEC. 3. Pr. Honors College. Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000. Credit will not be given for both ARTS 1710 and ARTS 1717.

ARTS 1720/1723 INTRODUCTION TO ART HISTORY II (3) LEC. 3. Fine Arts Core. Introduction to world art, c.1000 to c.1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same time period.

ARTS 1727 HONORS INTRO ART HISTORY II (3) LEC. 3. Pr. Honors College. Fine Arts Core. An introduction to world art, c. 1000 to c. 1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same period. Credit will not be given for both ARTS 1720 and ARTS 1727.

ARTS 1730 INTRODUCTION TO ART HISTORY III (3) LEC. 3. Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships.

ARTS 1737 HONORS INTRODUCTION TO ART HISTORY III (3) LEC. 3. Pr. Honors College. Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships. Credit will not be given for both ARTS 1730 and ARTS 1737.

ARTS 2100 FOUNDATIONS OF ART HISTORY I (3) LEC. 3. A history of art from ancient cultures to approximately 1300 CE, with an introduction to basic art historical research and writing skills.

ARTS 2150 FOUNDATIONS OF ART HISTORY II (3) LEC. 3. A history of art from approximately 1300 CE to the contemporary period, with an introduction to basic art historical research and writing skills.

ARTS 2210 INTRODUCTION TO PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Fine art photographic concepts and techniques including camera operation, tonal control of black and white prints, presentations of historical and contemporary photography.

ARTS 2310 PAINTING I (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Instruction in painting concepts, materials, and methods.

ARTS 2410 PRINTMAKING: RELIEF (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Instruction to relief printmaking. Studio work supplemented with lectures, critiques, and readings.

ARTS 2510 INTRODUCTION TO SCULPTURE (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Survey of the materials, processes, and issues involved in the production of contemporary object-oriented sculpture. Focus on problem solving and presentations of contemporary sculpture.

ARTS 2610 INTRODUCTION TO DIGITAL ART (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. An introduction to the skills and concepts of digital art forms such as imaging, time, and sound, using computer-based tools and techniques.

ARTS 2810 CERAMICS I (3) AAB/STU. 9. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1220 or Departmental approval. Introduction to handforming methods for sculpture and vessel forms in clay. Work with glazes and firing.

ARTS 2970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) LEC. 3. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 3100 INTERMEDIA (3) STU. 6. Pr. ARTS 2510 and (ARTS 2810 or ARTS 3820) and (ARTS 2210 and ARTS 2310 and ARTS 2410) and (ARTS 2100 and ARTS 2150). Introduction to concepts and visual problem solving in mixed media.
ARTS 3110 FIGURE DRAWING (3) STU. 6. Pr. ARTS 1110 and (ARTS 2100 or ARTS 2150) or Departmental approval. The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and nude models.

ARTS 3140 ADVANCED DRAWING I (3) STU. 6. Pr. ARTS 3110. Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Nude models may be used.

ARTS 3150 ADVANCED DRAWING II (3) STU. 6. Pr. ARTS 3140 and (ARTS 2100 and ARTS 2150). Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3220 DIGITAL AND COLOR PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2210 or GDES 3210) or Departmental approval. Concepts and practices of contemporary art photography including digital production techniques and color photographic theory.

ARTS 3230 INTERMEDIATE PHOTOGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2210 or GDES 3210) or Departmental approval. Intermediate study of photographic processes with emphasis on technique, classroom craftsmanship, medium and large camera formats, approaches to content and researching concepts to inform studio production.

ARTS 3230 PAINTING II (3) AAB/STU. 6. Pr. ARTS 2310 and ARTS 2100 and ARTS 2150 or Departmental approval. Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach.

ARTS 3330 PAINTING III (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 3320 or Departmental approval. Medium and subject determined by student and instructor. Emphasis on strengthening aesthetic awareness and technical skills.

ARTS 3420 PRINTMAKING: INTAGLIO (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Introduction to intaglio printmaking. Studio work with lectures, critiques, and readings.

ARTS 3430 PRINTMAKING: SERIGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2410 or ARTS 3420) or Departmental approval. Introduction to water based screen-printing. Studio work supplemented with lectures, critiques, and reading.

ARTS 3520 SCULPTURE AS OBJECT (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 2510 or Departmental approval. Continued research into the materials, processes and issues involved in the production of mixed media sculpture. Readings and discussions on recent developments in the field of sculpture.

ARTS 3530 SCULPTURE AS SPACE (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 2510 or Departmental approval. Survey of the methods, technologies (including sound and light), and issues involved in the production of contemporary sculptural installations, environments, and sites. Class discussion of student projects, with readings, presentations, and videos that address current art practice.

ARTS 3650 HISTORY OF PHOTOGRAPHY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the history and theory of photography from its 19th-century origins to contemporary global practices.

ARTS 3660 EIGHTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture in 18th-century Europe.

ARTS 3670 CONSTRUCTING RACE IN THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the role of visual imagery in inscribing and challenging racial hierarchies in the history of art.

ARTS 3680 20TH-CENTURY ART II: 1945-2000 (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. An introduction to the artists, movements, institutions, concepts, and themes of late 20th-century art.

ARTS 3690 ARTS OF AFRICA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the art, artists, themes and issues in African art from the pre-colonial period to the contemporary era.

ARTS 3700 ART OF THE UNITED STATES (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of architecture, painting, and sculpture from colonial to recent times. Selected movements and works are considered in relationship both to European and to indigenous conditions and attitudes.

ARTS 3710 ANCIENT ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Examination of major art traditions of the ancient world, including for example: Egypt, Near East, Aegean, Greece, and Rome.
ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions, including Migration period, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy.

ARTS 3740 SEVENTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of 17th-century Europe.

ARTS 3750 19TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau.

ARTS 3760 20TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to recent times.

ARTS 3770 ANCIENT AMERICAN ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major art traditions of nuclear America, from Mexico to the Andes, from the beginnings to CE 1550.

ARTS 3780 RENAISSANCE ART OF NORTHERN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the art of Northern Europe, CE 1300-1600. Major themes include cultural interchange, court and bourgeois patronage, rise of graphic arts, and the development of the art market.

ARTS 3790 ARTS OF ASIA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to major art traditions of Asia from the beginnings to the present.

ARTS 3800 ISSUES AND CRITICISM IN CONTEMPORARY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150). and one 3000-level art history class or Departmental approval. Readings and discussions about contemporary art.

ARTS 3810 GENDER AND THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to gender issues in the visual arts in historical and contemporary contexts. Examines the cultural notions of both masculine and feminine gender roles at play in works of art and explores key issues that have affected women's production of works of art in the past and present.

ARTS 3820 CERAMICS II (3) STU. 6. Pr. ARTS 1110 and ARTS 1220 and (ARTS 2100 or ARTS 2150) or Departmental approval. Introduction to wheel-thrown pottery. Presentation of historical and contemporary contexts for fine arts ceramics. Work with glazes and firing.

ARTS 3830 CERAMICS III (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 2810 and ARTS 3820 or Departmental approval. Individual approaches to ceramic sculpture and vessel forms, with emphasis on stylistic and conceptual concerns.

ARTS 3920 INTERNSHIP IN STUDIO ART/ART HISTORY (3) AAB/PRA. 15. SU. Junior standing. Junior standing and 3.0 GPA in major and completion of at least two 3000-level courses in ARTF, ARTH, or ATLA major. Internships appropriate to the major with a departmental-approved sponsor providing hands-on, practical learning experiences in a professional setting.

ARTS 4100 SEMINAR IN PRE-MODERN ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in art history from the ancient era until 1750 CE. Course may be repeated for a maximum of 6 credit hours.

ARTS 4150 SEMINAR IN MODERN AND CONTEMPORARY ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in modern and contemporary art history, 1750 CE-present. Course may be repeated for a maximum of 6 credit hours.

ARTS 4240 ADVANCED PHOTOGRAPHY (3) STU. 6. Pr. ARTS 3220 and ARTS 3230 and (ARTS 2100 and ARTS 2150). Advanced investigations of theory, history, and methods to inform photographic practice. Emphasis on production of mature work and individual artistic identity. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4340 PAINTING IV (3) STU. 6. Pr. ARTS 3330 and (ARTS 2100 and ARTS 2150). Advanced painting with medium and subject idea determined by student with approval of the instructor. Emphasis on strengthening the student's awareness and technical skills as a maturing painter. Nude models may be used. Course may be repeated for a maximum of 9 credit hours.
ARTS 4440 ADVANCED PRINTMAKING (3) STU. 6. Pr. ARTS 2410 and ARTS 3420 and ARTS 3430 and (ARTS 2100 and ARTS 2150). Individual research in printmaking. Students focus on conceptual and technical development through continued research in relief, intaglio, or screen-printing. Course may be repeated for a maximum of 9 credit hours.

ARTS 4540 ADVANCED SCULPTURE (3) STU. 6. Pr. ARTS 3520 and ARTS 3530 and (ARTS 2100 and ARTS 2150). Advanced investigation of the history, theory and methods of sculptural practice. Individual instruction and supervision of research and reading. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4700 SENIOR CAPSTONE: ART HISTORY (3) SEM. 3. Declared ARTH major or minor and completion of 18 hours of 3000-level art history courses. Capstone course for ARTH majors.

ARTS 4840 CERAMICS IV (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 2810 and ARTS 3820 and ARTS 3830. Continuation of ARTS 3830 with increased emphasis on individual stylistic and conceptual concerns. Course may be repeated for a maximum of 9 credit hours.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (2) LEC. 2. Instruction in portfolio preparation, professional practices, and information on studio art careers and graduate study. Must have completed nine credit hours in one concentration; taken concurrently with 4000-level studio in concentration prior to ARTS 4980 Senior Project in Studio Arts.

ARTS 4860 BFA CRITIQUE SEMINAR (1) LEC. 1. SU. Rigorous group critiques of artwork produced in media concentration courses, discussions and writing about art, art documentation, and exhibition practices. Course may be repeated for a maximum of 3 credit hours.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Pr., Open only to ARTS students who have shown ability, initiative, and industry. Departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of directed study. Directed studies are offered in painting, printmaking, sculpture, art history, photography, and ceramics. Course may be repeated for a maximum of 6 credit hours.

ARTS 4950 BA STUDIO ART CAPSTONE (1) LEC. 1. SU. Students must have Senior Standing and have completed a minimum of 39 hours in the Major. Professional skills development and career strategies for BA Studio Art Majors.

ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (2-3) AAB. Departmental approval. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR STUDIO ARTS (3) STU. 6. Pr. (ARTS 2210 and ARTS 2310) or (ARTS 2210 and ARTS 2410) or (ARTS 2310 and ARTS 2410) and ARTS 2510 and (ARTS 2810 or ARTS 3820). And three additional courses in a single studio art concentration. Must be taken in the student's final semester. Directed terminal studio project with faculty-approved choice of content and medium. Project will be exhibited.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

Communication Disorders Courses

CMDS 2500/2503 COMMUNICATION DISORDERS IN SOCIETY (2) LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

CMDS 3000 INTRODUCTION TO SPEECH PATHOLOGY-AUDIOLOGY (3) LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathologies, general principles of evaluation and therapy and the profession itself.

CMDS 3400 ANATOMY AND PHYSIOLOGY OF SPEECH (3) LEC. 3. The study of anatomy and physiology of speech production including respiratory, laryngeal and articulatory-resonance systems and the process swallowing. Speech acoustics will be introduced.

CMDS 3410 PHONETICS (3) LEC. 3. Principles of phonetics and their application to speech.

CMDS 3560 NEUROANATOMY FOR COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language, hearing and swallowing function and disorders.
CMDS 4400 ADULT NEUROGENIC COMMUNICATION DISORDERS (3) LEC. 3. Study of the disorders of speech, language, and swallowing in adults occurring as a result of CNS pathologies and their evaluation and treatment.

CMDS 4510 ARTICULATION DISORDERS (3) LEC. 3. Principles of normal and deviant articulation acquisition.

CMDS 4520 LANGUAGE ACQUISITION (3) LEC. 3. First language acquisition in childhood and its change throughout the life span.

CMDS 4530 FLUENCY DISORDERS (3) LEC. 3. Departmental approval. Principles of fluent and disfluent verbal behavior.

CMDS 4540 VOCAL DISORDERS (3) LEC. 3. Principles of normal and deviant vocal behavior.

CMDS 4560 CHILD AND ADOLESCENT LANGUAGE DISORDER (3) LEC. 3. Pr. CMDS 4520. Departmental approval. Overview of research dealing with the nature, assessment and treatment of language disorders in child and adolescent populations.

CMDS 4580 INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY (3) LEC. 3. CLN/LEC. 30. Pr. CMDS 4510 and CMDS 4520. Orientation to clinical activities, management methods and preparation of professional reports.

CMDS 4600 INTRODUCTION TO AUDIOLOGY (3) LEC. 3. Principles of auditory reception and the problems involved in measuring, evaluating and conserving hearing.

CMDS 4620 HEARING REHABILITATION (3) LEC. 3. Pr. CMDS 4600. Departmental approval. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.

CMDS 4650 INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600. Audiological instrumentation and test procedures.

CMDS 4910 CLINICAL PRACTICUM IN SPEECH-LANGUAGE PATHOLOGY (1) PRA. 1. Pr. CMDS 4580. Departmental approval.. Course may be repeated for a maximum of 2 credit hours.

CMDS 4930 DIRECTED STUDY IN COMMUNICATION DISORDERS (1-3) IND. Departmental approval. Directed learning experience in communication disorders involving bibliographic research, writing, gaining expertise with laboratory/clinical procedures or conducting directed research. Course may be repeated for a maximum of 6 credit hours.

CMDS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

CMDS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

CMDS 5810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 7500 CLINICAL PROBLEMS IN SPEECH (1) PRA. 1. Pr. CMDS 4580 and CMDS 4910. Clinical practicum in evaluation and treatment of individuals with speech-language disorders. Course may be repeated for a maximum of 4 credit hours.

CMDS 7510 ADVANCED ARTICULATION/PHONOLOGICAL DISORDERS (3) LEC. 3. Pr. CMDS 4510. Empirical and theoretical bases for articulatory pathologies.

CMDS 7520 LANGUAGE DISORDERS: BIRTH TO FIVE (3) LEC. 3. Empirical and theoretical bases for evaluation and treatment of language disorders for the birth to five population.

CMDS 7530 ADVANCED FLUENCY DISORDERS (3) LEC. 3. Pr. CMDS 4530. Empirical and theoretical bases for dysfluency disorders, diagnoses and therapies.

CMDS 7540 ADVANCED VOICE DISORDERS (3) LEC. 3. Pr. CMDS 4540. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.

CMDS 7550 ADULT APHASIA (3) LEC. 3. Pr. CMDS 4520. Empirical and theoretical bases for adult language disorders associated with CNS pathologies, diagnoses and therapies.

CMDS 7560 CRANIOFACIAL ANOMALIES (3) LEC. 3. A review of syndromic and non-syndromic craniofacial disorders including cleft lip/palate. Assessment and treatment of speech and language problems associated with these anomalies is emphasized.
CMDS 7570 EVALUATION OF RESEARCH IN SPEECH PATHOLOGY AND AUDIOLOGY (3) LEC. 3. Survey of experimental designs and statistical procedures used in speech-language pathology/audiology literature for consumers of research.


CMDS 7600 CLINICAL PROBLEMS IN HEARING (2) LEC. 2. Pr. CMDS 4650 and CMDS 4600 and CMDS 4620. Course may be repeated for a maximum of 12 credit hours.

CMDS 7700 CLINICAL PROBLEM SOLVING I (2) LEC. 2. This course will help students develop problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7720 CLINICAL PROBLEM SOLVING II (2) LEC. 2. This course will promote advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7740 CLINICAL PROBLEM SOLVING III (2) LEC. 2. This course will promote advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3. Pr. CMDS 7800. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

CMDS 7820 DYSPHAGIA (3) LEC. 3. Pr. CMDS 7800. The role of speech-language pathology in diagnosing and treating swallowing disorders in children and adults. Emphasis will be placed upon clinical and instrumental assessment and treatment strategies.

CMDS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. 3. Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

CMDS 7860 SPEECH SCIENCE (3) LEC. 3. Pr. CMDS 3550. Acoustic properties of speech, physiology and perception of the speech signal, and an orientation to instrumentation used in speech science.

CMDS 7920 INTERNSHIP IN SPEECH-LANGUAGE PATHOLOGY (5) LEC. 5. SU. Completion of all academic course work. Successful completion of comprehensive exams or enrollment in graduate thesis. Course may be repeated for a maximum of 10 credit hours.

CMDS 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

CMDS 7970 SPECIAL TOPICS SEMINAR (1-3) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 3 credit hours.

CMDS 7990 RESEARCH AND THESIS (1-5) MST. Course may be repeated with change in topics.

CMDS 8100 HEARING SCIENCE (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Introduction to instrumentation and calibration of audiometric equipment. Auditory perception in normal-hearing and hearing impaired listeners.

CMDS 8110 AUDITORY PHYSIOLOGY (3) LEC. 3. Pr. CMDS 4600. Departmental approval. Detailed study of the anatomy and physiology of the human auditory, and vestibular system over the lifespan.

CMDS 8120 ACOUSTIC MEASUREMENTS (1-3) labs. Use of audiometric equipment, administering audiological tests, recording test results, and interpreting test findings, including otoscopy, and cerumen management.

CMDS 8200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4650. Basic and advanced audiometric techniques to assess auditory system's site of lesion, including otoscopy, cerumen management, otoacoustic emissions and immittance.

CMDS 8210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Study of the disorders of hearing including their medical diagnosis, evaluation, and treatment.

CMDS 8220 AMPLIFICATION I (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures.

CMDS 8300 CENTRAL AUDITORY PROCESSING (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Selected clinical procedures in audiology, including electrophysiologic and behavioral tests of central auditory functioning.
CMDS 8310 AURAL REHABILITATION (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.

CMDS 8320 CLINICAL APPLICATIONS OF AMPLIFICATION (2) LEC. 2. Didactic and practical training in use of instrumentation for testing, programming, fitting and verifying amplification.

CMDS 8400 PEDIATRIC AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Normal development of speech, language and hearing losses' effect on communication, etiologic factors, screening, audiologic assessment, differential diagnosis and clinical management.

CMDS 8410 AURAL HABILITATION (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. The parameters involved in the management of hearing-impaired school-aged children.

CMDS 8420 AMPLIFICATION II (3) LEC. 3. Pr. CMDS 8220. Review of recent trends in hearing aid technology including digital and Programmable instruments.

CMDS 8430 CLINICAL APPLICATION OF DIAGNOSTIC AUDIOLOGY (2) LEC. 2. Pr. CMDS 8320. Didactic and practical training for selection, administration, and interpretation of behavioral and electrophysiologic tests, including auditory processing disorders.

CMDS 8500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Selected neurophysiological clinical procedures in audiology, including electroneystagmography and auditory evoked potentials.

CMDS 8510 CLINICAL APPLICATION OF BALANCE ASSESSMENT (2) LEC. 2. Pr. CMDS 8230 and CMDS 8320 and CMDS 8430. Didactic and practical training for selecting, conducting, and interpreting tests to identify disorders of balance and other auditory related systems.

CMDS 8520 HEARING CONSERVATION (3) LEC. 3. Pr. CMDS 8310. Studies the effects of noise on auditory system and implementation of hearing conservation programs in industry, schools and the military.

CMDS 8570 EVALUATION OF RESEARCH IN AUDIOLOGY (3) LEC. 3. Survey of experimental designs and statistical procedures used in audiology research.

CMDS 8600 BALANCE DISORDERS (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques.

CMDS 8610 IMPLANT TECHNOLOGY (3) LEC. 3. Detailed study of the assessment and treatment of patients with cochlear implants.

CMDS 8620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 6120. Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audiologic practice.

CMDS 8630 COUNSELING IN AUDIOLOGY (3) LEC. 3. Advanced course in the counseling component of rehabilitative audiology.

CMDS 8650 ADVANCED AUDIOMETRY (2) LEC. 2. Pr. CMDS 8120 and CMDS 8320 and CMDS 8430 and CMDS 8510. Didactic and practical training for selection, administration, scoring, and interpretation of behavioral audiometric tests and electrophysiologic procedures.

CMDS 8700 PROFESSIONAL ISSUES (3) LEC. 3. Legal and ethical issues in clinical audiology.

CMDS 8800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

CMDS 8810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 8910 CLINICAL PRACTICE IN AUDIOLOGY (2) LEC. 2. Pr. CMDS 4650 and CMDS 4600. Departmental approval. Clinical practicum involving evaluation and management of patients of all ages with disorders of auditory, vestibular, and other auditory related systems.

CMDS 8920 CLINICAL INTERNSHIP (5) INT. 5. SU. Pr. CMDS 8910. Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum.
CMDS 8940 CLINICAL RESIDENCY (6) INT. 6. SU. Pr. CMDS 8920. A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring.

CMDS 8950 AUDIOLOGY GRAND ROUNDS (3) LEC. 3. Discussion/Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audioligic service delivery.

CMDS 8980 CAPSTONE PROJECT (1) IND. 1. A third year project involving applied clinical research or development of an innovative clinical procedure.

Communication and Journalism Courses

CMJN 2100/2103 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count either sections CMJN 3110 or MDIA 4350.

CMJN 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103 or Departmental approval. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing.

CMJN 3350/3353 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3410/3413 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions.

CMJN 3650/3653 RHETORIC OF SPORTS (3) LEC. 3. Examination of sports in the public sphere, using rhetorical theories to understand how sports contribute to social issues such as identity, community, ethnicity, gender, and politics. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

CMJN 4340/4343 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrays and influences will be analyzed.

CMJN 4400/4403 GENDER COMMUNICATION (3) LEC. 3. Examination of the ways in which gender is created, maintained, and/or changed through communication.

CMJN 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. CMJN 3410. This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process.

CMJN 4430/4433 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970/4973 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.
CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Communication Courses

COMM 1000/1003 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate (forensics).

COMM 2010/2013 COMMUNICATION IN SOCIETY (3) LEC. 3. Theory underlying the construction of rhetorical messages as well as critical perspectives for the analysis of public discourse. May count either COMM 2010 or COMM 2013.

COMM 2400/2403 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Communication in modern organizations, emphasizing practice in areas such as interviewing, managing meeting, and conducting professional presentations. May count either COMM 2400 or COMM 2403.

COMM 2410/2413 SMALL GROUP COMMUNICATION (3) LEC. 3. Theory and practice of competent communication in task-oriented small group settings such as committees. Topics include roles, leadership, decision making, problem solving, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100/3103 ADVANCED PUBLIC SPEAKING (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Refining the knowledge and skills necessary for communicating clearly and effectively in oral presentations. May count either COMM 3100 or COMM 3103.

COMM 3110/3113 PERSUASION (3) LEC. 3. Understanding and analyzing persuasive messages. Survey of theoretical approaches to attitude formation and change. Developing skills as a critical evaluator of persuasive messages. May count either COMM 3110 or COMM 3113.

COMM 3300/3303 COMMUNICATION AND CONFLICT (3) LEC. 3. Enhance awareness of and develop skills in managing conflict processes in interpersonal relationships. May count either COMM 3300 or COMM 3303.

COMM 3400/3403 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. This course examines theory, approaches, and processes associated with organizational communication. May count either COMM 3400 or COMM 3403.

COMM 3450/3453 INTERCULTURAL COMMUNICATION (3) LEC. 3. Different types of problems encountered when communicating with different cultures. May count either COMM 3450 or COMM 3453.

COMM 3500/3503 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Theories examining the nature of human communication. May count either COMM 3500 or COMM 3503.

COMM 3510/3513 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Introduction to and application of quantitative and qualitative methods of communication research. May count either COMM 3510 or COMM 3513.

COMM 3600/3603 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Rhetorical theory from its classical roots to contemporary thinkers. Relates rhetorical theory and analysis to understanding persuasive discourse in our society. May count either COMM 3600 or COMM 3603.

COMM 3610/3613 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Exploration of how to perform a critical analysis of various rhetorical artifacts. May count either COMM 3610 or COMM 3613.

COMM 3700/3703 ARGUMENTATION (3) LEC. 3. Examination of the critical tools necessary to evaluate arguments in current public discourse. May count either COMM 3700 or COMM 3703.

COMM 3800/3803 FAMILY COMMUNICATION (3) LEC. 3. Examines communication theory and research as applied to the family context (broadly defined). May count either COMM 3800 or COMM 3803.
COMM 3970/3973 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100/4103 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examination of persuasive strategies used in social movements to attract members, solidify support, and effect social change. May count either COMM 4100 or COMM 4103.

COMM 4410/4413 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Examination of theory and research in leadership as a communication variable and behavioral practice in small group and organizational settings. May count either COMM 4410 or COMM 4413.

COMM 4420/4423 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. This course examines creativity research and its practical applications, particularly in collaborative settings. May count either COMM 4420 or COMM 4423.

COMM 4430/4433 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or Departmental approval. Introduction to theoretical and practical issues involved in communication training and consulting.

COMM 4480/4483 HEALTH PROMOTION MESSAGE AND DESIGN (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theory, practice, and ethics of health message and design as related to health promotion and behavior change. May count either COMM 4480 or COMM 4483.

COMM 4500/4503 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700/4703 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Examination of communication processes in legal contexts. May count either COMM 4700 or COMM 4703.

COMM 4800/4803 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Relationship between communication and the formation of self-identity and maintenance of relationships. May count either COMM 4800 or COMM 4803.

COMM 4810/4813 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Theory of non-language based communication and the impact of these messages on the overall communication process. May count either COMM 4810 or COMM 4813.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603). and Admission to Internship Program. Declared major in COMM. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.
COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4970/4973 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Topics in communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3600 or COMM 3603 and COMM 3500 or COMM 3503. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. and CMJN 2100 or CMJN 2103. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430/5433 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. History, theory, and concepts central to the study of gender, work, and communication. May count either COMM 5430 or COMM 5433.

COMM 5470/5473 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. History, theory, and concepts central to the study and practice of health communication. May count either COMM 5470 or COMM 5473.

COMM 5600/5603 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity. May count either COMM 5600 or COMM 5603.

COMM 5700/5703 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examines the functions of language and social interaction as they reflect and shape our identity in various contexts. May count COMM 5700 or 5703 or 6700.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.
COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7650 THE MASS MEDIA AND AMERICAN POLITICS (3) LEC. 3. Examination of the role of the mass communication system in the American political system.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.
COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

Community Planning Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 5020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080/6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5120 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.
CPLN 5450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.
CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner's role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7800 SYNTHESIS PROJECT (6) AAB/STU. 12. Departmental approval. Demonstration of competence in community planning and design through production of an original, comprehensive project that integrates knowledge and experience in addressing a complex planning and design problem.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.

Community and Civic Engagement Courses

CCEN 2000 INTRODUCTION: COMMUNITY AND CIVIC ENGAGEMENT (3) LEC. 3. Introduction to Community and Civic Engagement introduces students to the context, issues, skills, and experience of citizenship and civic leadership in a democratic society.

CCEN 2100 WOMEN AND LEADERSHIP (3) LEC. 3. An interactive exploration of the social, political, economic, and cultural implications of women's current and historic leadership roles.

CCEN 3000 CAPSTONE IN COMMUNITY AND CIVIC ENGAGEMENT (1) PRA. 1. SU. Completion of 15 credits toward Minor in Community and Civic Engagement. This course is required for minors in CEE. The capstone requires students to draw upon the knowledge obtained throughout their coursework and to perform relevant service projects.

CCEN 3200 LEADERSHIP FOR A GLOBAL SOCIETY (3) LEC. 3. This heavily discussion- and project-based seminar, coupled with reading list and plethora of guests, activities, and online resources, offers participants the tools required or effective leadership in an increasingly global society.

CCEN 5100 ENGAGE, INTERACT, LEAD (3) LEC. 3. Pr. CCEN 2000. An interactive exploration of classic texts of leadership, civic engagement and daily reading resources available through social media.

CCEN 6100 ENGAGE, INTERACT, LEAD (3) LEC. 3. Pr. CCEN 2000. An interactive exploration of classic texts of leadership, civic engagement and daily reading resources available through social media.

CCEN 7900 COMMUNITY LEADERSHIP PRACTICUM (3) LEC. 3. This course provides graduates in CCL an opportunity to integrate course content, personal commitments, and real world experience. Completion of 9 credits toward Graduate Certificate in Collaborative Community Leadership.

Economics Courses

ECON 2020/2023 PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.
ECON 2030/2033 PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy. May count either ECON 2030 or ECON 2033.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theory of pricing under varying market conditions and distribution of income among the factors of production.

ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. A study of national economic aggregates and the market determination of output, employment, and inflation. Introduction to economic monetary and fiscal policy on the economy.

ECON 3040 CONSUMER ECONOMICS (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). A broad study of consumer economics at both the household level and the national consumption aggregates.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Description of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations.

ECON 3200 MONEY AND BANKING (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Theoretical and institutional analyses of monetary systems, foreign exchange, and commercial banking.

ECON 3300 ECONOMICS OF SPORTS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

ECON 3400 AMERICAN ECONOMIC HISTORY I (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ECON 2030 or ECON 2033 or ECON 2037). Examines development of the American economy from colonial history to present. Topics include changes in institutions, the standard of living, income distributions, social mobility, labor markets, demographic structure, technological development, and the financial system.

ECON 3420 AMERICAN ECONOMIC HISTORY II (3) LEC. 3. Pr. ECON 2020. This class will study the history of American business cycle fluctuations with extended discussions of the Great Depression and the Great Recession. A point of emphasis in this class will be on the importance of data construction in interpreting historical economic events.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3) LEC. 3. Pr. ECON 3020 and (MATH 1690 or MATH 2630 or MATH 2637). Fundamental mathematical and quantitative methods employed by economists. Application of calculus, probability, statistics, and linear algebra to economics.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3) LEC. 3. Pr. ECON 2030 or ECON 2037. Development of economic ideas, principles and systems of analysis from early times to the present.

ECON 3800 PUBLIC CHOICE (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes.

ECON 4000 ECONOMICS OF WORK AND PAY (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice, and public policy.

ECON 4100 INDUSTRIAL ORGANIZATION (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development, and technical change.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or ECON 2020 or ECON 2023 or ECON 2027. Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation.
ECON 4300 INTERNATIONAL ECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic consequences of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions, such as quotas, tariffs, VERs. Examination of labor and capital movements between nations.

ECON 4400 ECONOMICS OF INNOVATION (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). Study of how innovation and technological change impacts the individual firm and the national and global economies.

ECON 4600 ECONOMETRICS I (3) LEC. 3. Pr. ECON 3600 and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 2600). Basic statistical toolbox to analyze economic data and evaluate economic models. Topics include simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and basic time series.

ECON 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. ECON 2030 or ECON 2033 and ECON 2037 or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3) AAB/IND. SU. Pr., Departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617) or Departmental approval. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 5100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Cause and effects of economic growth and development, for example, ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 5200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and ECON 3020. Nature and causes of state and local economic development, including plant location, residential location, interregional trade and factor flows, and public policy.

ECON 5400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 5600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 5700 HEALTH ECONOMICS (3) LEC. 3. Pr., Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 5800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr., Departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 6020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617). Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 6100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Causes and effects of economic growth and development, for example ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.
ECON 6200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and ECON 3020. Nature and causes of state and local economic development, including plant location, residential location, interregional trade and factor flows, and public policy.

ECON 6400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2100 or STAT 2170) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 6700/6706 HEALTH ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 6800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 7000 MANAGERIAL ECONOMICS (3) LEC. 3. Pr., Consent of MBA program director. Microeconomic theories of the firm and of markets, with emphasis on their applications to current business issues.

ECON 7110 MICROECONOMICS I (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer and household behavior under constraint; models of competitive behavior.

ECON 7120 MICROECONOMICS II (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures, and derived demand for inputs.

ECON 7130 MATHEMATICAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 and ECON 6030 or Departmental approval. Fundamental mathematical methods in economics and econometrics, including linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations.

ECON 7210 MACROECONOMICS I (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments.

ECON 7220 MACROECONOMICS II (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Foundations of macroeconomics, neoclassical production and growth theory, overlapping generations models, optimal saving, open economy macroeconomics, applied time series macrodynamics.

ECON 7310 ECONOMETRICS I (3) LEC. 3. Pr., Departmental approval. Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM and the statistical testing of behavioral hypotheses.

ECON 7320 ECONOMETRICS II (3) LEC. 3. Pr. ECON 7310. Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, time-series analysis.

ECON 7330 MICROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Econometric techniques for applied microeconomics. Limited dependent variable models, survival and count data analysis, and selection bias.


ECON 7410 HISTORY OF ECONOMIC THOUGHT I (3) LEC. 3. Pr. ECON 3700 or Departmental approval. Analysis and study of classical contributions to economics, from early times to Karl Marx.

ECON 7420 HISTORY OF ECONOMIC THOUGHT II (3) LEC. 3. Pr. ECON 3700 or Departmental approval. Neoclassical economics, including the theories of Mill, Jevons, early Austrians, early French contributors, Veblenian institutional economics, and Alfred Marshall.

ECON 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

ECON 8110 ADVANCED MICROECONOMICS I (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis, integrating the economics of time and uncertainty into mainline price theory.
ECON 8120 ADVANCED MICROECONOMICS II (3) LEC. 3. Pr. ECON 7120. or Departmental approval. Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment.

ECON 8210 TOPICS IN MACROECONOMICS (3) LEC. 3. Pr. ECON 7220 or Departmental approval. Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity.

ECON 8420 ECONOMIC INSTITUTIONS AND CONTEMPORARY ECONOMIC THEORY (3) LEC. 3. Pr., Departmental approval. How contemporary economic theory helps explain the emergence, hey-day, and decline of economic institutions, including social and regulatory institutions.

ECON 8510 ECONOMICS OF TAXATION (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Examines tax structures in the United States, evaluates tax reform proposals, and studies the effects of taxation on resource allocation and economic welfare.

ECON 8520 PUBLIC CHOICE (3) LEC. 3. Pr., Departmental approval. Advanced analysis of governmental expenditures and other not-for-profit sectors of the economy.

ECON 8530 ECONOMIC ANALYSIS OF THE LAW (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of the substantive areas in which law has an economic foundation and ways law affects economic relations.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources.

ECON 8550 EXTERNALITIES AND PUBLIC GOODS (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis of pricing and allocation of economic goods when property rights are not well defined.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3. Pr. ECON 7120. or Departmental approval. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising, and vertical integration.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Case studies in the history and current practice of regulation in the United States at all levels.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3. Pr., Departmental approval. Trade theory, including classical, neoclassical, factor proportions, and industrial organization. Applied trade theory and empirical applications.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3. Pr., Departmental approval. Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Selected topics, including education and on-the-job training. Labor mobility and immigration, employment discrimination, and the impact of labor unions.

ECON 8970 SPECIAL TOPICS (1-3) IND. Pr., Departmental approval. Advanced topics related to economics. Course may be repeated for a maximum of 12 credit hours.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1. Pr., Departmental approval. Individual research projects, presentations, and discussions of the economics profession.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

English Courses

ENGL 1100/1103 ENGLISH COMPOSITION I (3) LEC. 3. English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently with ENGL 1120 or ENGL 1127.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3. Pr. Honors College. English Composition Core. Topics in writing for students in the Honors College.
ENGL 1120/1123 ENGLISH COMPOSITION II (3) LEC. 3. Pr. ENGL 1100 or ENGL 1103 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3. Pr. Honors College. ENGL 1100 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 2000 INTRODUCTION TO CREATIVE WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the genres of creative writing.

ENGL 2010 INTRODUCTION TO PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the disciplines of professional writing.

ENGL 2020 INTRODUCTION TO LITERARY STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Introduces students to the academic study of literary texts in English with an emphasis on formulating an argument about a text, developing goals and strategies for research, and managing the different stages of the writing process.

ENGL 2050 WRITING IN A RESEARCH UNIVERSITY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127 or equivalent (SAT, AP, transfer credit). Investigation and practice with research writing in academic disciplines.

ENGL 2200/2203 WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2207 HONORS WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2210/2213 WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2217 HONORS WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2230/2233 BRITISH LITERATURE BEFORE 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of British literature from its beginnings to the end of the 18th century.

ENGL 2240/2243 BRITISH LITERATURE AFTER 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of British literature from the end of the 18th century to the present.

ENGL 2250/2253 AMERICAN LITERATURE BEFORE 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of American literature from its beginnings to 1865.

ENGL 2260/2263 AMERICAN LITERATURE AFTER 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of American literature from 1865 to the present.

ENGL 3040/3043 TECHNICAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Writing in engineering, scientific, and technical fields. Credit will not be given for both ENGL 3040 and ENGL 3080.

ENGL 3080/3083 BUSINESS WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Writing in business, management, or governmental service fields. Credit will not be given for ENGL 3080 and ENGL 3040.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.

ENGL 3120 SURVEY OF RHETORIC (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2207 or ENGL 2203 or ENGL 2210 or ENGL 2213 or ENGL 2217. Survey of rhetoric from Ancient Greece to the present.

ENGL 3130 SURVEY OF CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Introduction to critical methods and theoretical approaches to the study of literature.
ENGL 3360 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2220 or ENGL 2223 or ENGL 22240 or ENGL 22250 or ENGL 22260. Biblical backgrounds to English and American literature; the Bible as literature.

ENGL 3700 TOPICS IN CREATIVE WRITING (3) SEM. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3710 SURVEY OF AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. African American literature from its beginnings to 1900.

ENGL 3720 SURVEY OF AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. African American literature from 1900 to the present.

ENGL 3850 STUDY IN LONDON (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Study Abroad in London providing an introduction to London's and England's literature and culture.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English.

ENGL 3890 WRITING CENTER THEORY AND PRACTICE (3) SEM. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260. Introduction to writing center theory, pedagogy, and history.

ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Theory and practice of expository and argumentative writing.

ENGL 4010 TOPICS IN WRITING (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. An in-depth study of a specific topic of writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4020 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Pr. ENGL 2010 or Departmental approval. Introduction to technical and professional editing.

ENGL 4030 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Document design in technical and professional communication.

ENGL 4040 PUBLIC WRITING (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Writing in the public sphere.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.

ENGL 4160 TECHNOLOGY, LITERACY, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or Departmental approval. Connections between technology, literacy, and culture, including instruction in advanced computer applications.

ENGL 4170 HISTORY OF THE ENGLISH LANGUAGE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2217. Chronological development of the English language. May count ENGL 5410 or ENGL 4170.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Advanced study of topics in rhetorical theory and practice.

ENGL 4200 FICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of fiction writing; reading, studying, and writing short stories.
ENGL 4210 FICTION WRITING II (3) LEC. 3. Pr. ENGL 4200. Advanced fiction writing.

ENGL 4220 POETRY WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of poetry writing; reading, studying, and writing poetry.

ENGL 4230 POETRY WRITING II (3) LEC. 3. Pr. ENGL 4220. Advanced poetry writing.

ENGL 4240 SPECIAL PROJECT IN CREATIVE WRITING (3) LEC. 3. Pr. ENGL 4210 or ENGL 4230. Capstone course in creative writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4300 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British and continental medieval literature.

ENGL 4310 RENAISSANCE ENGLISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. English literature 1485-1660. Course may be repeated for a maximum of 6 credit hours.

ENGL 4320 RESTORATION AND 18TH-CENTURY LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1660-1800. Course may be repeated for a maximum of 6 credit hours.

ENGL 4330 AGE OF REVOLUTION IN BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1770-1830.

ENGL 4340 19TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1830-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4350 20TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1910-1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4360 CONTEMPORARY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature since 1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4370 IRISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Periods, movements, or major figures of the literature of Ireland.

ENGL 4400 EARLY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature from its beginnings to 1800.

ENGL 4410 19TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature 1800-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4420 20TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature 1910-1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4430 CONTEMPORARY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature since 1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4440 SOUTHERN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Literature of the American South.
ENGL 4450 TOPICS IN AFRICAN AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Concentrated investigation of varying topics in African American literature and culture.

ENGL 4500 STUDIES IN POETRY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study in one or more kinds of poetry.

ENGL 4510 18TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of novels produced in the 18th century.

ENGL 4520 19TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of novels produced in the 19th century.

ENGL 4530 20TH-CENTURY FICTION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of fiction produced in the 20th century.

ENGL 4540 STUDIES IN DRAMA (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more periods or kinds of drama.

ENGL 4550 STUDIES IN FILM AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examining the interconnections between film and literature.

ENGL 4560 STUDIES IN CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Advanced study in one or more theoretical approaches to literature.

ENGL 4570 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English or studied in translation.

ENGL 4600 CHAUCER (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Major works of Chaucer in Middle English.

ENGL 4610 SHAKESPEARE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Shakespeare's works, career, and culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4620 MILTON (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Milton's principal poems, especially Paradise Lost, with some attention to his prose.

ENGL 4630 BRITISH AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more British authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4640 AMERICAN AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more American authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 TOPICS IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4710 TOPICS IN GENDER AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.
ENGL 4720 TOPICS IN MINORITY VOICES IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Literature of one or more minority groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN POPULAR CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. One or more topics in popular culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 ENVIRONMENT, LITERATURE, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2210 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Topics related to the intersections between the environment, literature, and culture.

ENGL 4750 TOPICS IN MYTHOLOGY AND FOLKLORE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more topics in mythology or folklore. Course may be repeated for a maximum of 6 credit hours.

ENGL 4800 SEMINAR IN LITERATURE (3) LEC. 3. Pr. ENGL 3130. Research seminar in literature. Senior standing.

ENGL 4810 CAPSTONE IN PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 2010. Advanced course in developing complex professional writing projects.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) AAB/IND. 3. SU. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Supervised experience in applying reading, writing, and research skills to the workplace.

ENGL 4960 SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. 3.00 GPA. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student. Course may be repeated for a maximum of 6 credit hours.

ENGL 4967 HONORS SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. Honors College. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student.

ENGL 4997 HONORS THESIS (3) AAB/IND. 3. Pr. Honors College. ENGL 4967. and Departmental approval. Honors thesis. Course may be repeated for a maximum of 6 credit hours.

ENGL 5840 APPROACHES TO ENGLISH GRAMMAR (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examination of several grammatical theories, with emphasis on English syntax.

ENGL 6840 APPROACHES TO ENGLISH GRAMMAR (3) LEC. 3. Examination of several grammatical theories, with emphasis on English syntax.

ENGL 7000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Research-based best practices in technical and professional editing.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3) LEC. 3. Introduction to the history, practice, and profession of technical and professional communication.

ENGL 7020 PEDAGOGY IN WRITING STUDIES (3) LEC. 3. Methods, practices, and theories of technical and professional communication for prospective teachers.

ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3. Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: ISSUES AND APPROACHES (3) LEC. 3. Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3. Advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 9 credit hours.

ENGL 7060 WEB DEVELOPMENT (3) LEC. 3. Research-based best practices in web development.

ENGL 7070 GRANT AND PROPOSAL WRITING (3) LEC. 3. Research-based best practices in grant and proposal writing.
ENGL 7080 DOCUMENT DESIGN (3) LEC. 3. Research-based best practices in document design.

ENGL 7090 TOPICS IN WRITING STUDIES (3) LEC. 3. Advanced study and practice in topics related to technical, scientific, business, and professional communication.

ENGL 7130 FICTION WRITING (3) LEC. 3. Workshop in the craft and writing of fiction. Course may be repeated for a maximum of 6 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3. Workshop in the craft and writing of poetry. Course may be repeated for a maximum of 6 credit hours.

ENGL 7150 STUDIES IN MEDIEVAL LITERATURE (3) LEC. 3. Major works and genres in Middle English and related literary traditions. Course may be repeated for a maximum of 9 credit hours.

ENGL 7160 EARLY MODERN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7170 18TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7180 19TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7190 AMERICAN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7200 LITERARY MODERNISMS (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7210 CONTEMPORARY LITERATURE AND CULTURE (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7280 STUDIES IN LINGUISTICS (3) LEC. 3. Selected topic in English linguistics, including historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3. Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN AMERICAN LITERATURE (3) LEC. 3. Study of African American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN RACE, GENDER, AND SEXUALITY (3) LEC. 3. Focused topics in literature and theory of ethnicity, sexuality, gender, race, class, or disability. Course may be repeated for a maximum of 9 credit hours.

ENGL 7790 LITERARY THEORY: ISSUES AND APPROACHES (3) LEC. 3. Overview of significant theoretical issues, approaches, and conversations in literary and cultural theory, historical and/or contemporary.

ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3. Close study of particular theoretical approaches to literary study, including cultural studies, postmodernism, textual criticism, anthropological approaches. Course may be repeated for a maximum of 6 credit hours.

ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7830 MAJORS AUTHOR(S) (3) LEC. 3. One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7850 STUDIES IN GENRE (3) LEC. 3. Study of one or more genres across literary periods. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3. Special problems, topics, and materials in English studies not covered in other existing courses. Course may be repeated for a maximum of 9 credit hours.
ENGL 7910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) PRA. 3. Pr., Departmental approval. Supervised client-based experience in tasks commonly performed by technical communicators analyzed through current research in technical communication.

ENGL 7920 INTERNSHIP IN ENGLISH STUDIES (3) INT. 3. SU. Departmental approval. Supervised professional experience in workplace or university outreach settings.

ENGL 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENGL 7940 PRACTICUM IN TEACHING COLLEGE ENGLISH (1) LEC. 1. SU. An introduction to the teaching of English at Auburn University. Course may be repeated for a maximum of 2 credit hours.

ENGL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENGL 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Foreign Languages Courses

FLNG 1000 ELEMENTARY FOREIGN LANGUAGE ABROAD (1-10) AAB/FLD. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Languages and Literatures, but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 1010 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Language and Literatures.

FLNG 1020/1023 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4. Pr. FLNG 1010 or Departmental approval. For languages not currently taught in the Department of Foreign Language and Literatures.

FLNG 2000 INTERMEDIATE FOREIGN LANGUAGE (1-10) AAB/LEC. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Languages and Literatures, but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 4997 HONORS THESIS (1-6) IND. Pr. Honors College or Departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Asian Culture Courses

FLAS 3450 TOPICS IN ASIAN CULTURE (3) LEC. 3. Study of traditional and/or modern Asian culture with special emphasis on cross-cultural and transnational interactions with in Asia, as well as with the west. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Chinese Courses

FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Elementary coursework on approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 1010 ELEMENTARY CHINESE I (4) LEC. 4. Pr. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

FLCN 1020 ELEMENTARY CHINESE II (4) LEC. 4. Pr. FLCN 1010 or Departmental approval. Continued exposure to Chinese language and culture. Departmental approval. Fulfills College of Liberal Arts foreign language core requirement.

FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by the department. Intermediate course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 2010 INTERMEDIATE CHINESE I (4) LEC. 4. Pr. FLCN 2020 or Departmental approval. Continued exposure to Chinese culture; introduction to intermediate language skills.

FLCN 2020 INTERMEDIATE CHINESE II (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar.
FLNC 3000 ADVANCED CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by department. Advanced course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6) AAB/LEC. Pr. FLCN 2010 or Departmental approval. Intense practice in spoken and written Chinese, both text-and situation-based. Course may be repeated for a maximum of 6 credit hours.

FLCN 3020 CHINESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLCN 3010. In this course, students will continue to develop integrated Chinese language skills of listening, speaking, reading, and writing. There will be increased focus on reading and writing skills in Chinese and on learning grammar patterns needed to write in Chinese.

FLCN 3050 CHINESE CINEMA (3) LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

FLCN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN CHINESE (1) IND. 1. Pr. FLCN 1020 or Departmental approval. Language component with reading and in-class discussion to complement a lecture course in English and in a discipline other than Chinese. Course may be repeated for a maximum of 3 credit hours.

FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6) AAB/LEC. Directed study of topics of interest. Course may be repeated for a maximum of 6 credit hours.

FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6) LEC. Chinese culture as depicted in art, film, literature, history. Course may be repeated for a maximum of 6 credit hours.

FLFR 1000 ELEMENTARY FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in French. Course may be repeated for a maximum of 10 credit hours.

FLFR 1010 ELEMENTARY FRENCH I (4) LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. Exposure to culture.

FLFR 1020 ELEMENTARY FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0241 or FLFR 1010. Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core foreign language requirement.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level, taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4) LEC. 3. LAB. 2. Pr. LFRE score of 0325 or FLFR 1020. Language skills, grammar review, readings in French culture, literature, and history.


FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 3010 FRENCH PHONETICS AND DICTION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Basic principles of French phonetics through sound recognition discrimination and intensive practice.

FLFR 3030 FRENCH CONVERSATION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary.
FLFR 3040 FRENCH COMPOSITION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLFR 3050 FRENCH CINEMA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Sampling of important films from the beginnings of French cinema in 1895 to the present day, including the intellectual, historical, cultural, and literary matrix of each film.

FLFR 3100 INTRODUCTION TO FRENCH LITERATURE (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 3040 or FLFR 3030 or Departmental approval. Grounding in basic analytical approaches, language, and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 FRENCH CIVILIZATION (3) LEC. 3. Pr. FLFR 2020 or Departmental approval. Cultural heritage of France as reflected in present-day life patterns, traditions, and institutions.

FLFR 3140 SURVEY OF FRENCH LITERATURE I (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. The Middle Ages to the 1800s, emphasizes coherent and effective writing in French.

FLFR 3150 SURVEY OF FRENCH LITERATURE II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Readings in French literature prose, drama, and poetry from the 19th century to the present, centered on a theme or topic.

FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1) LEC. 1. Pr. FLFR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than French. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLFR 3310/3313 BUSINESS FRENCH (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428. Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business vocabulary.

FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Topics drawing from French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

FLFR 3930 DIRECTED STUDIES (1-3) AAB/IND. Pr., Departmental approval. Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior or advanced level, taken on an approved Study Abroad program. Students should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 ADVANCED GRAMMAR AND STYLISTICS (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONTINUING CONVERSATION (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors.

FLFR 4040 FRENCH CONTINUING COMPOSITION (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in written French to maintain and upgrade proficiency.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. A grade of D or higher in FLFR 3000-3999 or Departmental approval. Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated on-the-job pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE, OR LANGUAGE (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428 or Departmental approval. Study of a special aspect or theme of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

FLFR 4740 TRANSLATION (3) LEC. 3. Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 ADVANCED DIRECTED STUDY (1-3) IND. Pr. A least 3 courses in FLFR 3000-3999. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.
FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Practice in managing, preparing, and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real-life pressures.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999. Pr., Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Seminar in advanced languages skills or topics from French literary genres and movements.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Departmental approval. Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 6980/6986 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) AAB/SEM. 3. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 9 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken in an approved Study Abroad program. Students should consult with the French graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 7010 ADVANCED FRENCH CIVILIZATION (3) LEC. 3. Pr., Departmental approval. In-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present.

FLFR 7020 ADVANCED COMPOSITION AND STYLISTICS (3) LEC. 3. Pr., Departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts, including literary, historical, commercial, and popular.

FLFR 7090 INTRODUCTION TO COLLEGE-LEVEL FRENCH INSTRUCTION (1) LEC. 1. SU. Pr., Departmental approval. Orientation for graduate students in French. Introduction to teaching at the college-level, including observation of performance and guidance by designated instructors.

FLFR 7430 FRENCH PRESS (3) LEC. 3. Pr., Departmental approval. Political, intellectual, and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3. Pr., Departmental approval Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources.

FLFR 7920 FOREIGN LANGUAGE CAREER INTERNSHIP (1-6) INT. Pr., Departmental approval. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) IND. 3. Departmental approval. Pr., Course may be repeated for a maximum of 6 credit hours.

FLFR 7960 SPECIAL PROBLEMS IN FRENCH LANGUAGE, LITERATURE OR CULTURE (1-3) IND. Pr., Departmental approval. Study in a specialized area under close supervision of an instructor. Course may be repeated for a maximum of 6 credit hours.

FLFR 7970 SPECIAL TOPICS (1-3) AAB/SEM. Pr., Departmental approval. Study of a specific aspect of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-German Courses

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) IND. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in German. Course may be repeated for a maximum of 10 credit hours.
FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3. LAB. 2. Fundamentals of German language skills stressed. Exposure to Germanic civilization. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0241 or FLGR 1010. or acceptable score on the FL placement test. Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts foreign language core requirement.

FLGR 1030 READING PROFICIENCY IN GERMAN (3) LEC. 3. Instruction to enable graduate students to read and understand scholarly material in German related to their field of student. requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 1100/1103 ACCELERATED ELEMENTARY GERMAN (6) LEC. 6. Basic concepts of German grammar, vocabulary, and culture. Fulfills the College of Liberal Arts foreign language requirement.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3. LAB. 2. Pr. LGER score of 0325 or FLGR 1020. or acceptable score on FL placement test. Language skills stressed; structural review and composition; readings in German literature and German civilization.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0372 or FLGR 2010. or acceptable score on FL placement test. Continued review of German grammar and syntax, vocabulary building. Additional work in composition; readings in German literature and civilization.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 BEGINNING GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German. German grammar and syntax, vocabulary building. German phonology. Fall.

FLGR 3020 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Further development of skills in written and spoken German; continued review of selected topics of grammar and syntax, and vocabulary acquisition. Spring.

FLGR 3030 ADVANCED GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3050 GERMAN CINEMA (3-6) LEC. Sampling of important films from the 1920s to the present, including the intellectual, historical, cultural, and literary matrix of each film. Course may be repeated for a maximum of 6 credit hours.

FLGR 3100 INTRODUCTION TO GERMAN LITERATURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Basic literary genres and major figures in German literature from the 18th century to the present; literary methodologies and bibliographical tools. Required of all majors. Fall.

FLGR 3110 GERMAN CULTURE AND CIVILIZATION I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of Germany from the Germanic tribes to 1870. Fall.

FLGR 3120 GERMAN CULTURE AND CIVILIZATION II (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political and cultural history of Germany from 1870 to the present. Spring.

FLGR 3150 TOPICS IN GERMAN LITERATURE, LANGUAGE, AND CULTURE (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428 or Departmental approval. Critical study of specific literary, linguistic, and/or cultural topics related to Germany. Course may be repeated with change in topics.

FLGR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN GERMAN (1) LEC. 1. Pr. FLGR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than German. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.
FLGR 3930 DIRECTED STUDIES IN GERMAN (1-3) IND. Pr. LGER score of 0428 or Departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 9 credit hours.

FLGR 4000 SENIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 MASTERPIECES OF GERMAN LITERATURE I (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of German Classicism, Romanticism, and Realism Naturalism. Fall.

FLGR 4120 MASTERPIECES OF GERMAN LITERATURE II (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of the early 20th century, Weimar Republic, and Postwar Germany.

FLGR 4150 GERMAN DRAMA (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438. or Departmental approval. Consideration, analysis, and criticism of selected German theater works by representative authors. Fall.

FLGR 4160 CONTEMPORARY GERMAN LITERATURE (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438 or Departmental approval. Consideration, analysis, and criticism of recent selected German literary works.

FLGR 4310 GERMAN FOR BUSINESS AND ECONOMICS I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Emphasis on speaking, listening, reading and writing skills in professional, commercial German. Familiarization with German and European business practices. Fall.


FLGR 4330 GERMAN BUSINESS, MEDIA, AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. German language for business German media and society.

FLGR 4510 GERMAN LITERATURE TRANSLATION I (3) LEC. 3. Pr., Departmental approval. From Goethe to Thomas Mann. Reading and analysis of significant literary works by major German writers from 1750 to 1945.

FLGR 4520 GERMAN LITERATURE TRANSLATION II (3) LEC. 3. Pr., Departmental approval. Postwar German literature. Reading and analysis of significant literary works by major German writers from 1945 to the present.

FLGR 4910 PRACTICUM IN GERMAN (1-6) PRA. Pr., Departmental approval. Practical work experience related to major field. Number of credit hours and applicability toward major to be determined in consultation with the undergraduate director. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3. Pr. At least 3 credits in FLGR 3000-3999 or Departmental approval. Readings in German literature from selected periods or in selected genres.

FLGR 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

Foreign Lng-Global Cultures Courses

FLGC 1150/1153 GLOBAL FLUENCY AND AWARENESS (3) LEC. 3. Introduction to non-native languages as representational reflections of two different cultural regions and impetus for in-depth analysis of global identities. May count either FLGC 1150 or FLGC 1153.

Foreign Lng-Greek Courses

FLGK 1010 ELEMENTARY CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Classical Greek. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 1020 ELEMENTARY CLASSICAL GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading ancient Greek. Fulfills College of Liberal Arts foreign language core requirement.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Pr. FLGK 1020 or Departmental approval. Introduction to reading ancient Greek. prose and poetry.

FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topics.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topics.

Foreign Lng-Italian Courses

FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10) AAB/FLD. Pr. Departmental approval. Course work at the elementary level taken in an approved Study Abroad program. Students should consult the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 1010 ELEMENTARY ITALIAN I (4) LEC. 3. LAB. 2. Basic language skills in Italian; exposure to culture.

FLIT 1020 ELEMENTARY ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 1010 or Departmental approval. Continuation of basic language skills; exposure to culture. Fulfills the College of Liberal Arts foreign language core requirement.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 2010 INTERMEDIATE ITALIAN I (4) LEC. 3. LAB. 2. Pr. FLIT 2010 or Departmental approval. Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall.

FLIT 2020 INTERMEDIATE ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 2010 or Departmental approval. Special emphasis on reading skills and Italian culture. Review of Italian grammar for English speakers. Spring.

FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLIT 3030 ITALIAN CONVERSATION (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society; includes review of vocabulary.

FLIT 3040 ITALIAN COMPOSITION (3) LEC. 3. Pr. FLIT 2020 or Departmental approval. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLIT 3050 ITALIAN CINEMA (3) LEC. 3. Sampling of important films from the time of the telefoni bianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Supplementary instruction in Italian language, literature, culture. Course may be repeated for a maximum of 9 credit hours.

FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1) LEC. 11. Pr. FLIT 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Italian. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Italian culture, as reflected in arts, film, literature, history. Course may be repeated for a maximum of 9 credit hours.

FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3) IND. Departmental approval. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topics.

FLIT 5970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Pr., Departmental approval. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval.
FLIT 6970/6976 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-Japanese Courses

FLJP 1000 ELEMENTARY JAPANESE ABROAD (1-10) LEC. Course work at the elementary level take on an approved Study Abroad program. Learning modern Japanese listening, writing, and reading in an integrated manner through an approved Study Abroad program. Course may be repeated for a maximum of 10 credit hours.


FLJP 1020 ELEMENTARY JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 1010 or Departmental approval. Stress on language skills; structural review and composition: readings in Japanese literature and exposure to Japanese culture and civilization.

FLJP 2000 INTERMEDIATE JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 2010 INTERMEDIATE JAPANESE I (4) LEC. 3. LAB. 2. Pr. FLJP 1020 or Departmental approval. Stress on language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 2020 INTERMEDIATE JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 2010 or Departmental approval. Continuation of FLJP 2010. Language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 3000 ADVANCED JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 3010 JAPANESE COMPOSITION AND CONVERSATION (3-6) AAB. Pr. FLJP 2020 or Departmental approval. Intensive practice of written and spoken Japanese, based on contemporary social situations and texts. Course may be repeated for a maximum of 6 credit hours.

FLJP 3050 JAPANESE CINEMA (3) LEC. 3. Introduction to Japanese films, with particular focus on representations of history from the 1930s to the present. Course may be repeated for a maximum of 6 credit hours.

FLJP 3450 TOPICS IN JAPANESE LITERATURE AND CULTURE (3-6) AAB/LEC. Critical study of specific Japanese literary and cultural topics. Course may be repeated for a maximum of 6 credit hours.

FLJP 3930 DIRECTED STUDY IN JAPANESE (3) LEC. 3. Pr. FLJP 2020. Directed study in area of special interest for the superior student in Japanese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Korean Courses

FLKN 1010 ELEMENTARY KOREAN I (4) LEC. 4. Course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 1020 ELEMENTARY KOREAN II (4) LEC. 4. Pr. FLKN 1010. Course to help students continue to learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 2010 INTERMEDIATE KOREAN I (4) LEC. 4. Pr. FLKN 1020. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading--at the intermediate level.

Foreign Lng-Latin Courses

FLLN 1010 ELEMENTARY LATIN I (4) LEC. 3. LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin.
FLLN 1020 ELEMENTARY LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts core foreign language requirement.

FLLN 2010 INTERMEDIATE LATIN I (4) LEC. 3. LAB. 2. Pr. FLLN 1020 or four years of high school Latin or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.


FLLN 3030 READING PROFICIENCY IN LATIN (3) LEC. 3. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Latin related to their field of study. May not be used to satisfy undergraduate language requirements. To prepare graduate students to pass the graduate proficiency exam in Latin. Students should check with their graduate director for departmental language requirements before enrolling.

FLLN 3110 LATIN LITERATURE (3) LEC. 3. Pr. FLLN 2010 or Departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLLN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN LATIN (1) LEC. 1. Pr. FLLN 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a language other than Latin. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLLN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Roman cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLLN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of Latin texts. Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

Foreign Lng-Russian Courses

FLRU 1010/1013 ELEMENTARY RUSSIAN I (4) LEC. 3. LAB. 2. Fundamentals of Russian. Language skills; progressive emphasis on conversation; exposure to Russian culture and civilization.

FLRU 1020/1023 ELEMENTARY RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FLRU 1010 or FLRU 1013. Fundamentals of Russian. Stress on language skills; progressive emphasis on conversation; exposure to Russian culture and civilization. Fulfills College of Liberal Arts foreign language core requirement.

FLRU 2010 INTERMEDIATE RUSSIAN I (4) LEC. 3. LAB. 2. Pr. FLRU 1020 or FLRU 1023 or Departmental approval. Language skills; structural review and composition: continued exposure to Russian civilization.

FLRU 2020 INTERMEDIATE RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FLRU 2010 or Departmental approval. Language skills; structural review and composition; continued exposure to Russian civilization.

FLRU 2510 RUSSIAN CULTURE IN ENGLISH (3) LEC. 3. Intensive exposure to Russian culture from the 10th century to the Revolution as reflected in the fine arts and literature.

FLRU 2520 RUSSIA TODAY IN ENGLISH (3) LEC. 3. Introduction to Russian culture from the Revolution to the present, as reflected in the fine arts and literature.

Foreign Lng-Spanish Courses

FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program credit may substitute for required 1000-level courses in Spanish. Course may be repeated for a maximum of 10 credit hours.

FLSP 1010/1013 ELEMENTARY SPANISH I (4) LEC. 3. LAB. 2. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1020/1023 ELEMENTARY SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts foreign language core requirement.
FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3. LAB. 2. Pr. LSPA score of 0325 or FLSP 1020. or acceptable score on FL placement test or Departmental approval. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2017 HONORS INTERMEDIATE SPANISH I (4) LEC. 2. LAB. 2. Pr. FLSP 1020 or LSPA score of 0325. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0372 or FLSP 2010. or acceptable score on FL placement test. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 2027 HONORS INTERMEDIATE SPANISH II (4) LEC. 2. LAB. 2. Pr. FLSP 2010 or FLSP 2013 or FLSP 2017 or LSPA score of 0372. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 3010 SPANISH PHONETICS (3) LEC. 45, AAB/LEC. 0. Pr. LSPA score of 0428 or FLSP 2020. Training in practical phonetics with an emphasis on pronunciation correctives. Fall, Spring.

FLSP 3050 SPANISH SYNTAX (3) LEC. 3. Pr. FLSP 2020. or exam. In this course, the function of the different parts of speech (e.g., prepositions, adverbs, determiners, pronouns, verbs, conjunctions) will be examined, and students will learn to diagram simple and complex hierarchical sentence structure using syntactic trees.

FLSP 3060 COMMUNICATIVE SKILLS IN SPANISH I (3) LEC. 3. Pr. LSPA score of 0428 or FLSP 2020. The first in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3070 COMMUNICATIVE SKILLS IN SPANISH II (3) LEC. 3. Pr. FLSP 3060. The second in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3080/3083 INTRO TO CULTURAL ANALYSIS (3) LEC. 3. Pr. FLSP 3060. A general introduction to the analysis of Hispanic societies through their diverse cultural practices, local customs, and languages. This class explores how were Hispanic societies formed, the effects of globalization, and their diverse cultural and national identities.

FLSP 3100 INTRODUCTION TO HISPANIC LITERATURE (3) LEC. 3. AAB/LEC. 0. Pr. FLSP 3060. Study of literary genres, rhetorical figures, and other critical concepts. Literary analysis of Spanish and Spanish-American texts. Fall, Spring.

FLSP 3110 CULTURES OF SPAIN (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Spain. This class explores the ethnic and linguistic diversity of the country, the historical events that forged contemporary Spain, and the cultural plurality of the country.

FLSP 3130 TOPICS IN HISPANIC FILM (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Study of film as a window into Hispanic cultures, both Spanish and Spanish American. Course may be repeated for a maximum of 6 credit hours.

FLSP 3140 TOPICS IN HISPANIC MUSIC (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Study of the interrelationship of Hispanic music and Spanish and Spanish-American cultures. Course may be repeated for a maximum of 6 credit hours.
FLSP 3150 TOPICS IN HISPANIC MEDIA (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Develops students’ cultural awareness through a series of written assignments organized around major journalistic and academic genres. We will investigate contemporary issues as presented in the media of Spain, Latin America and U.S. Latino communities. Course may be repeated for a maximum of 6 credit hours.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1) LEC. 1. Pr. FLSP 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 CULTURES OF SPANISH AMERICA (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Spanish America. This class explores the cultural, ethnic and linguistic diversity of the Spanish American countries, and the historical events that forged them.

FLSP 3220 HISPANIC CULTURES IN THE U. S. (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Hispanic U.S. This class explores the diversity in ethnicity, traditions, and arts of Hispanics in the country, the historical events that forged such diversity, and their cultural plurality.

FLSP 3310 SPANISH TRANSLATION AND INTERPRETATION (3) LEC. 3. Pr. FLSP 3070. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

FLSP 3930 DIRECTED STUDY IN SPANISH (3) IND. 3. Pr. FLSP 3000. Development of an advanced-level of Spanish proficiency in listening, speaking, reading, and writing. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4010 ORAL PROFICIENCY IN SPANISH (3) LEC. 3. Pr. FLSP 3070. Proficiency oriented course designed to further develop speaking and comprehension skills in Spanish in a variety of topics.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 SPANISH LINGUISTICS (3) LEC. 3. Pr. FLSP 3070. This course introduces students to Spanish linguistics and the basic concepts of some of its principal branches. The primary areas include phonetics and phonology, syntax, morphology, semantics, pragmatics, history of the Spanish language, and linguistics as a cognitive science.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100. Major works of Spanish literature from medieval times to the present. Fall.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100. Readings in Spanish literature. Course may be repeated with change in topic. Spring.

FLSP 4210 MASTERPIECES OF SPANISH-AMER LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100. Major works of Spanish American literature from colonial times to the present. Fall.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100. Readings in Spanish-American Literature. Course may be repeated with a change in topic. Spring.


FLSP 4330 TOPICS IN HISPANIC COMMERCIAL WORLD (3) LEC. 3. Pr. FLSP 3070. Study of an aspect of Spanish business terminology or documentation. Course may be repeated with change in topic. Course may be repeated for a maximum of 6 credit hours.

FLSP 4420 TOPICS IN HISPANIC LITERATURE AND CULTURE (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080 or Departmental approval. Analysis of the cultural milieu influencing artistic creativity within a historical period. Course may be repeated for a maximum of 6 credit hours.

FLSP 4510 SPANISH LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or Departmental approval. Major works of Spanish literature in English translation.
FLSP 4520 SPANISH-AMERICAN LITERATURE IN TRANSLATION (3) LEC. 3. Pr: ENGL 1120 or ENGL 1127 or Departmental approval. Major works of Spanish-American literature in English translation.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PRA. Pr., Departmental approval. Practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. FLSP 3070. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3070. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 5030 ADVANCED CULTURE AND LITERATURE OF THE SPANISH SPEAKING WORLD (3) LEC. 3. Pr. FLSP 3070 and FLSP 3080. A grade of C or better in at least 4 courses FLSP 3000-3999 or departmental approval. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 6030 ADVANCED CULTURE AND LITERATURE OF SPANISH SPEAKING WORLD (3) LEC. 3. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken on an approved Study Abroad program. Students should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. Diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3. Synchronic study of the Spanish language focusing on phonology, morphology, syntax, and lexicon, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. Critical study of current research in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3. Contemporary literary criticism and theory as it relates to Spanish and Spanish-American literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1. SU. Methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (3) LEC. 3. Instruction for GTAs, including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3. Critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3. Study of medieval Spanish literature through representative texts from the various genres of the period 1300-1500.

FLSP 7120 16TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th century.
FLSP 7130 17TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres in the 17th century with emphasis on Baroque literature.


FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3. Literature about the colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.

FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3. Study of representative literary genres and authors of Vice Regal America from Spanish transcription of pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH-AMERICAN POETRY I (3) LEC. 3. Critical and historical study of Spanish-American poetry from 1824 to the first generation of modernism.

FLSP 7230 SPANISH-AMERICAN POETRY II (3) LEC. 3. Critical and historical study of Spanish-American poetry from post-modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3. Critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3. Critical and historical study of major works of modernist and post-modernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3. Critical and historical study of the Spanish-American theater, with emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3. Critical and historical study of the Spanish-American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3. Critical study of Cervantes’ masterpiece.

FLSP 7970/7976 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB/SEM. 3. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. In-depth study of an author or authors and analysis of the cultural milieu influencing their creativity or investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.

Health Administration Courses

HADM 2100/2103 MEDICAL TERMINOLOGY (3) LEC. 3. Prefixes, suffixes, and word roots used in the language of medicine; medical vocabulary and terms related to the health care field.

HADM 3000 GATEWAY TO HEALTH CARE ADMINISTRATION (3) LEC. 3. Basic concepts and principles of health care administration.

HADM 3300 HEALTH CARE POLICY (3) LEC. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (P/C HADM 2100 or P/C HADM 2103). Political policies that affect health care services.

HADM 3700 HEALTH LAW (3) LEC. 3. Legal issues that arise between patients and health care providers.
HADM 3800 HEALTH CARE ANALYTICS (3) LEC. 3. Pr. (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683) and (ACCT 2110 or ACCT 2117). Majors only. This course focuses on using big data to drive decision making and improve health care quality through data aggregation and validation, strategic management data manipulation and technical reporting implementation.

HADM 4000 DEVELOPING CARE ORGANIZATIONS (3) LEC. 3. Pr. HADM 3300 and HADM 3800. Health Services Administration major only. Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.

HADM 4200 HEALTH CARE INSURANCE AND REIMBURSEMENT (3) LEC. 3. Pr. HADM 3000 and HADM 3700 and HADM 3800. Health Services Administration major only. Health insurance operations, principles, payment methods and contracts.

HADM 4800 HEALTH ADMINISTRATION AND REGULATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Government regulatory programs affecting administration of health services organizations.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE HEALTH CARE SYSTEMS (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Comparative Study and analysis of health care systems around the world.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Policy issues surrounding the provision of long-term care to the elderly.

HADM 4880 HEALTH INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HADM 4000 and HADM 4200. Health Services Administration major only. Overview and utilization of health care information technology in health care administration.

HADM 4893 ELECTRONIC HEALTH RECORD APPLICATIONS (3) DSL. 3. Pr. HADM 4000 and HADM 3300 and HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. This course covers the definition, benefits, regulations, standards, functionality, and impact of Electronic Health Records (EHR) in the healthcare environment. The course provides the student with a thorough understanding of the terminology of EHR systems as well as practical experience with the clinical and administrative use of EHRs in a medical settings.

HADM 4920 INTERNSHIP (6) AAB/INT. 6. SU. Pr. HADM 4000 and HADM 4200 and FINC 3810 or (FINC 3610 or FINC 3613 or FINC 3617) and (HRMN 3420 or HRMN 3423) or (MNGT 3423 or MNGT 3420). Health Services Administration major only. Internship in selected areas of Health Administration.

HADM 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. HADM 3000 and ACCT 2100 and (MATH 1680 or MATH 1683) and (MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513) or STAT 2610. Health Services Administration major only. This course is designed to facilitate an independent study in an area of special interest of the student and a sponsoring faculty member. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3. Pr. HADM 4000 and HADM 4200 and (FINC 3810 or FINC 3610 or FINC 3613 or FINC 3617). Health Services Administration major only. Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Pr. HADM 3300. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (3) ST1. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683) or (MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. Special Topics courses are used to inform and educate students about new and emerging changes within the health care field. The Topics addressed change to coincide with changes in the health care environment.
History Courses

HIST 1000 AUBURN IN THE WORLD: INDUSTRY AND SOCIETY (4) LEC. 3. LAB. 1. Part of the Auburn Global International Accelerator Program, HIST1000 exposes first-year students to Auburn, Alabama, and regional history from a wide range of perspectives, among them social, cultural, and environmental changes, economics, technology, and politics.

HIST 1010/1013 WORLD HISTORY I (3) LEC. 3. History Core. Survey of world history from early humanity to the late 18th century. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures. May count either HIST 1010 or HIST 1013.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3. Pr. Honors College. History Core. A survey of world history from early humanity to the late 18th century.

HIST 1020 WORLD HISTORY II (3) LEC. 3. History Core. Survey of world history since the Industrial Revolution.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3. Pr. Honors College. History Core. Survey of world history since the Industrial Revolution.

HIST 1210 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010/2013 SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Social, political, and economic development of the United States from earliest occupation through Reconstruction. May count either HIST 2010 or HIST 2013.

HIST 2017 HONORS SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Pr. Honors College. Social, political, and economic development of the United States from earliest occupation through Reconstruction.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3) LEC. 3. Social, political, and economic development of the United States from the end of Reconstruction to the present.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3) LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 PRESENT (3) LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3) LEC. 3. Latin American history from its Amerindian beginnings to the present.

HIST 2110 SURVEY OF ASIAN HISTORY (3) LEC. 3. Asian history from prehistoric times to the present.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3) LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.

HIST 2130 SURVEY OF MIDDLE EASTERN HISTORY (3) LEC. 3. Introduction to the history and culture of the Middle East.

HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3) LEC. 3. History of the southeastern Indians from pre-contact to removal, including native culture, cultural change, trade, imperial rivalries, and wars.

HIST 3010 HISTORY OF ALABAMA (3) LEC. 3. Broad study of Alabama history since its European settlement.

HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3) LEC. 3. History of women in America from colonial period to the present; explores differences of region, race, and class.
HIST 3030 AFRICAN-AMERICAN HISTORY (3) LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3) LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3050 HISTORY OF POLITICAL PARTIES IN THE UNITED STATES (3) LEC. 3. Political parties and party systems from the Constitution to the present, including party organization, campaign techniques and presidential leadership.

HIST 3060 ISSUES IN AFRICAN-AMERICAN HISTORY (3) LEC. 3. Issues and personalities in African-American history. Course may be repeated for a maximum of 6 credit hours.

HIST 3070 HISTORY OF UNITED STATES AIR POWER (3) LEC. 3. Development of air and spacecraft as weapons of war including doctrines, technology, major leaders and great events of air power.

HIST 3080 THE CIVIL RIGHTS MOVEMENT (3) LEC. 3. History of the civil rights movement and its place in the broader African-American struggle for freedom. Social, political, and cultural history, with geographic and chronological focus on the United States South in the post-World War II period.

HIST 3090 HISTORY OF APPALACHIA (3) LEC. 3. Survey of the history of the Appalachian region from before European contact to the present.

HIST 3100 THE CIVIL WAR IN AMERICAN MEMORY (3) LEC. 3. A survey of the ways that Americans have remembered their civil war from 1865 to the present.

HIST 3300 GRECO-ROMAN CIVILIZATION (3) LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.

HIST 3310 EUROPE IN THE MIDDLE AGES (3) LEC. 3. Survey of the thousand years that has been called the birth of Europe.

HIST 3320 HISTORY OF IRELAND (3) LEC. 3. History of Ireland from its beginnings to the present, including discussion of the present.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3) LEC. 3. Variable topics in the history of Germans, Slavs, and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 6 credit hours.

HIST 3340 ISSUES IN THE HISTORY OF MODERN FRANCE (3) LEC. 3. Focus on specific issues, themes, or topics within the political, social, or cultural history of France between the 18th and 20th centuries. Themes will vary.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3) LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.

HIST 3360 CONTEMPORARY RUSSIA SINCE WORLD WAR II (3) LEC. 3. Developments in contemporary Russia since World War II.

HIST 3370 EUROPE AND THE WORLD (3) LEC. 3. Variable topics in the history of European interactions with non-European peoples, cultures, politics, and societies.

HIST 3500 HISTORY OF AVIATION (3) LEC. 3. History of aviation from the beginnings of human flight to the present.

HIST 3510 HISTORY OF SPACE TRAVEL (3) LEC. 3. Historical origins of the space age and United States space policy, including patterns that define the present and constrain the future of humans and machines.

HIST 3520 SCIENTIFIC REVOLUTIONS (3) LEC. 3. History of science, focusing on the concept of scientific revolutions in their social and intellectual context.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3) LEC. 3. Interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3) LEC. 3. Issues such as the automobile, environment, industrialization, and popular culture relating to the role technology plays in society and culture. Course may be repeated for a maximum of 6 credit hours.
HIST 3550 AMERICAN ENVIRONMENTAL HISTORY (3) LEC. 3. Environmental history of the United States from colonial era to present.

HIST 3560 TECHNOLOGY AND GENDER HISTORY (3) LEC. 3. Exploration of the relationship between gender and technology in comparative cultural, social, and historical perspectives from 18th century to present.

HIST 3570 THE AUTOMOBILE IN HISTORY (3) LEC. 3. Global history of the automobile, including technological developments as well as role of the automobile in culture.

HIST 3600 ISSUES IN WOMEN’S AND GENDER HISTORY (3) LEC. 3. Topics in the history of women and gender. Course may be repeated for a maximum of 6 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3) LEC. 3. Examination of the shifting boundaries between the public and private in history including topics such as work, family, sexuality, and the state. Course may be repeated for a maximum of 6 credit hours.

HIST 3620 LANDSCAPE AND CULTURE (3) LEC. 3. Social and cultural history of architecture and built-space in Europe and/or the United States.

HIST 3630 HISTORY OF MEXICO (3) LEC. 3. History of Mexico in the 19th and 20th centuries.

HIST 3640 WORLD MILITARY HISTORY (3) LEC. 3. Economic, social, political, and technological roots of the ways of war employed by different civilizations throughout the ages.

HIST 3650 20TH-CENTURY WORLD WARS (3) LEC. 3. Causes, conduct, and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3) LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, and the influences of, foreign policy and technological change.

HIST 3670 CONTEMPORARY HISTORY (3) LEC. 3. Examination of developments in the contemporary world to provide historical background on developments in selected areas or nations across the globe.

HIST 3800 HISTORIAN’S CRAFT (3) LEC. 3. Historical research methods and an introduction to historiography. For history majors only.

HIST 3920 HISTORY INTERNSHIP (3) LEC. 3. Pr., Departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, historical editing projects, and similar historical agencies.

HIST 3930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval and; 3.0 overall GPA. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3970 SPECIAL TOPICS (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 4950 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. with minimum grade of “C.” Writing an original paper based on research in primary source materials.

HIST 4967 HONORS SPECIAL PROBLEMS (3) LEC. 3. Pr. Honors College. Secondary literature on specialized topics in history.

HIST 4997 HONORS THESIS (3) LEC. 3. Pr. Honors College. Writing an original paper based on research in primary materials.

HIST 5000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the North American colonies from European settlement to 1763.

HIST 5010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Revolutionary era and the foundations of the United States, including the struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 5020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the early nation, including the influences of Thomas War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflicts.
HIST 5030 SOUTH TO 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the American economy, rise of big business, agrarian and labor protests, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. United States history since 1929 with particular emphasis on the economy, changing role of government, America's role in world affairs and social changes.

HIST 5080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3. Pr. HIST 3080 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of United States diplomatic history since the Spanish-American War.

HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 5310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Pr. HIST 3800. Departmental approval. Students not majoring in history must obtain a waiver from the department. Cultural, economic, and social developments as well as the politics and international relations of the major European states.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 5340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of European culture and the interactions of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 5350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Analysis of the revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930's.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the Roman period to the Tudor dynasty.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from 1485 to the early 18th century.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the political unification of England and Scotland to the present.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. The Industrial Revolution of 18th, 19th and 20th centuries, with a major focus on England and the United States and some discussion of Europe and Asia.
HIST 5580 THE HISTORY OF FLIGHT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of flight in political, economic, social, and cultural perspective.

HIST 5600 MODERN EAST ASIA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China and Japan from 1800-2000.

HIST 5610 COLONIAL LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. European expansion into the western hemisphere from its Iberian background through the fall of the Spanish and Portuguese empires in the 19th century.

HIST 5620 MODERN LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Latin America in the 19th and 20th centuries, using a thematic approach arranged chronologically.

HIST 5640 HISTORY OF ISLAM (3) LEC. 3. Pr. HIST 3800. HIST 3800 with grade of "C" or better. This course examines the history of Islam and Islamic Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 5650 HISTORY OF MODERN SOUTH ASIA (3) LEC. 3. Pr. HIST 3800. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 5660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China from 1800-2000.

HIST 5670 HISTORY OF MODERN JAPAN: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in Japan from 1800-2000.

HIST 5680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Pr. HIST 3800. Students not majoring in history must obtain a waiver from the department. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 5810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 5820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in the history must obtain a waiver from the department. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Development of the North American colonies from European settlement to 1763.


HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Development of the early nation, including the influences of Thomas Jefferson, War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.
HIST 6030 SOUTH TO 1877 (3) LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Sectional conflict, Civil War, and Reconstruction, including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.


HIST 6070 MODERN UNITED STATES HISTORY: 1929 PRESENT (3) LEC. 3. United States history since 1929, with particular emphasis on the economy, changing role of government, America's role in world affairs, and social changes.

HIST 6080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3. Examination of United States diplomatic history since the Spanish-American War.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Cultural, economic, and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 6330 20TH CENTURY EUROPE (3) LEC. 3. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 6340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3. Development of European culture and the interactions of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 6350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3. Analysis of the revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930s.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. British history from the Roman period to the Tudor dynasty.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. British history from 1485 to the early 18th century.

HIST 6380 MODERN BRITISH HISTORY (3) LEC. 3. British history from the political unification of England and Scotland to the present.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. The Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3. The history of flight in political, economic, social, and cultural perspective.

HIST 6600 MODERN EAST ASIA (3) LEC. 3. Examination and analysis of the political, social, economic, and intellectual changes in China and Japan from 1800-2000.

HIST 6610 COLONIAL LATIN AMERICA (3) LEC. 3. European expansion into the western hemisphere from its Iberian background through 19th century, fall of the Spanish and Portuguese empires.

HIST 6620 MODERN LATIN AMERICA (3) LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 6640 HISTORY OF ISLAM (3) LEC. 3. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 6650 HISTORY OF MODERN SOUTH ASIA, 1750-PRESENT (3) LEC. 3. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.
HIST 6660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic and intellectual changes in China from 1800-2000.

HIST 6670 HISTORY OF MODERN JAPAN: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic, and intellectual changes in Japan from 1800-2000.

HIST 6680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 6710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 6810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 6820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 6970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 7100 INTRODUCTORY SEMINAR IN AMERICAN HISTORIOGRAPHY (3) SEM. 3. Major historiographical trends in general American history and in particular sub-fields.

HIST 7110 SEMINAR IN AMERICAN COLONIAL HISTORY (3) SEM. 3. Development of the British North American colonies, including discussions concerning Indians, English background, exploration, settlement, rebellions, religion, slavery, imperial rivalries, and women.

HIST 7120 SEMINAR IN AMERICAN REVOLUTION AND EARLY NATION (3) SEM. 3. Birth of the American nation and its re-birth under the Constitution.

HIST 7130 SEMINAR IN EARLY AMERICAN REPUBLIC (3) SEM. 3. Issues in the Early Republic, including political transformations, sectional conflict, women and gender roles, industrialization, and reform movements.

HIST 7140 SEMINAR IN OLD SOUTH (3) SEM. 3. History of the Old South, including discussions of colonial settlement, slavery, political transformations, sectional conflict, women and gender roles, and religion.

HIST 7150 SEMINAR IN CIVIL WAR ERA (3) SEM. 3. Sectional conflict, Civil War, and Reconstruction, including political, military and social development.

HIST 7160 SEMINAR IN NEW SOUTH (3) SEM. 3. The South in United States history since 1877.

HIST 7170 SEMINAR IN UNITED STATES PROGRESSIVE ERA (3) SEM. 3. In-depth history of the United States between 1877-1929.

HIST 7180 SEMINAR IN MODERN UNITED STATES HISTORY (3) LEC. 3. Broad introduction to United States history since 1929.

HIST 7190 SEMINAR IN AFRICAN-AMERICAN HISTORY (3) SEM. 3. Analysis of the major historiographical works on the social, political, and economic history of African Americans.

HIST 7200 SEMINAR IN UNITED STATES WOMEN'S HISTORY (3) SEM. 3. Change and continuity in the lives of American women.

HIST 7210 SEMINAR IN AMERICAN RELIGIOUS HISTORY (3) SEM. 3. Role of religion in American history; recent writing on religion; and sociological and anthropological theories of religion.

HIST 7220 DEVELOPMENT IN CIVIL RIGHTS MOVEMENT (3) LEC. 3. In-depth study of the civil rights movement, with emphasis on the United States South in the post-World War II period. Major topics, basic literature, and historiographical debates examined.

HIST 7400 INTRODUCTORY SEMINAR IN EUROPEAN HISTORIOGRAPHY (3) SEM. 3. Major topics and historiographical debates in European history from the Early Modern period to the 20th century.

HIST 7410 SEMINAR IN EARLY MODERN EUROPE (3) SEM. 3. Topics in the history of continental Europe, 1348-1715, including religious and cultural change and the relationship between state and society.
HIST 7420 SEMINAR IN POPULAR CULTURE IN EARLY MODERN EUROPE (3) SEM. 3. Major themes in the popular culture of Early Modern Europe, 1450-1800.

HIST 7430 SEMINAR IN RUSSIAN SOCIETY IN REVOLUTION (3) SEM. 3. Examination of the literature, concepts, and history of the transformation of Russian society between 1861 and 1939.

HIST 7440 SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3) SEM. 3. Traditional and revisionist approaches to the study of the political uses of culture in 19th and 20th century Europe.

HIST 7450 SEMINAR IN THE FRENCH REVOLUTION (3) SEM. 3. Historiography in the French Revolution’s origins and legacy.

HIST 7460 SEMINAR IN EARLY MODERN BRITAIN (3) SEM. 3. Main themes and events of British history between 1603 and the 1760s.

HIST 7470 SEMINAR IN EUROPEAN INTERNATIONAL HISTORY (3) SEM. 3. Relations among the European powers 1870-1945.

HIST 7510 INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3) SEM. 3. Problems and issues in the history of technology; reviews important literature.

HIST 7520 SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3) SEM. 3. Political and technological context of the space age.

HIST 7530 SEMINAR IN SOUTHERN INDUSTRIALIZATION (3) SEM. 3. Significant scholarly works and primary sources dealing with the history of industrialization and technology in the American South.

HIST 7540 SEMINAR IN AEROSPACE HISTORY (3) SEM. 3. Central problems, issues, and literature in aerospace history.

HIST 7550 SEMINAR IN SCIENCE AND SOCIETY (3) SEM. 3. Exploration of the interactions between science and politics in the 20th century.

HIST 7560 SEMINAR IN THE INDUSTRIAL REVOLUTION (3) SEM. 3. Central questions and historiography relating to the Industrial Revolution.

HIST 7570 TECHNOLOGY IN SOCIAL AND CULTURAL HISTORY (3) SEM. 3. Literature in the history of technology from a social and cultural perspective.

HIST 7630 SEMINAR IN LATIN AMERICAN HISTORY (3) SEM. 3. Research tools, major issues, and sources in Latin American history.

HIST 7690 SEMINAR IN MODERN WORLD HISTORY (3) SEM. 3. Examination of world historiography and theory, with topical readings on comparative themes such as imperialism and colonialism, catch-up industrialization, decolonization, the Atlantic world, gender systems, religious diasporas, trade, and exploration.

HIST 7700 SEMINAR IN HISTORICAL METHODS (3) SEM. 3. Methodology and theory of historical research. Preparation of a significant original research paper.

HIST 7710 GRADUATE RESEARCH AND WRITING SEMINAR (3) SEM. 3. Pr. HIST 7700. A writing-intensive course designed to sharpen graduate students’ research and writing skills.

HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Development of archival theory in the major functional areas of archival practice, including appraisal, acquisition, description, preservation, reference and access, outreach, and advocacy.

HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.

HIST 7740 MANAGEMENT OF ARCHIVES AND RELATED ORGANIZATIONS (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Theory and practice of management in archives, libraries, museums, special collections and related organizations.

HIST 7750 ADVANCED APPRAISAL OF ARCHIVAL MATERIALS (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Only graduate students in History, or Archival Studies or Public History Graduate Certificate programs. Theory and practice in the selection and appraisal of materials in archives, libraries, museums, special collections and related organizations.
HIST 7760 DEVELOPING DIGITAL ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Only graduate students in History or Archival Studies Certificate program. Theory and practice of developing digital collections in archives, libraries, museums, special collections and related organizations.

HIST 7770 ISSUES IN ARCHIVAL STUDIES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Special topics in archival studies offered in conjunction with member institutions of the Archival Education Collaborative. Course may be repeated for a maximum of 9 credit hours.

HIST 7800 RESEARCH SEMINAR IN UNITED STATES HISTORY TO 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7810 RESEARCH SEMINAR IN UNITED STATES HISTORY SINCE 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7830 RESEARCH SEMINAR IN MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7840 RESEARCH SEMINAR IN HISTORY OF TECHNOLOGY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7850 RESEARCH SEMINAR IN LATIN AMERICAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7910 PUBLIC HISTORY INTERNSHIP (3) PRA. 3. Pr. HIST 6810 and P/C HIST 7700. Application of principles of public history practice within a functioning venue or site under supervision of public historian; final written report required. Course may be repeated for a maximum of 6 credit hours.

HIST 7920 ARCHIVAL INTERNSHIP (1-6) INT. Pr. HIST 6710 or Departmental approval. Application of the principles of archival practice within the context of a functioning archival repository under the supervision of professional archivists. Course may be repeated for a maximum of 6 credit hours.

HIST 7970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 9 credit hours.

HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the MA thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history to 1877. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history since 1877 Course may be repeated for a maximum of 6 credit hours.

HIST 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history to 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history since 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3. Pr., Departmental approval. Selected topics in the history of technology. Course may be repeated for a maximum of 6 credit hours.

HIST 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3. Pr., Departmental approval. Selected topics in Latin American history. Course may be repeated for a maximum of 6 credit hours.
HIST 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3. Pr., Departmental approval. Directed readings in modern world history, focusing on one or two geographic areas or themes.

HIST 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3. Exploration of the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HIST 8710 INTRODUCTION TO THE TEACHING OF HISTORY (1) SEM. 1. SU. Introduction to some of the challenges involved in teaching history at the college level.

HIST 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the PhD dissertation. Course may be repeated with change in topics.

Journalism Courses

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and spelling for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on spelling, grammar, Associated Press Style and word usage to mirror content covered in the in-person course. This course is not repeatable.

JRNL 2210/2213 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0. With a minimum grade of "B" in JRNL 1100. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. With a minimum grade of "B" in JRNL 1100. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 2320 ADVISING STUDENT PUBLICATIONS (3) LEC. 3. Primarily for non-journalism and non-communication majors. Role and responsibilities of the publication adviser in high school and college.

JRNL 3010 DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 1100 and JRNL 1AA0 and JRNL 3010 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3103 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) DSL. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.
JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 or (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3220 and JRNL 3020) or (JRNL 3220 and JRNL 3530) or (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. JRNL 1100 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. or Departmental approval. Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4417 HONORS JOURNALISM HISTORY (3) LEC. 3. Pr. Honors College. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues. Credit will not be given for both JRNL 4410 and JRNL 4417.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and JRNL 3220 and JRNL 3020 or (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4480 ADVANCED PUBLICATION DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and CMJN 2100 or CMJN 2103 and JRNL 2210 and JRNL 3470. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Desktop publishing to produce print publications, including brochures and newsletters, and with exposure to web page, advertising, and magazine design.


JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100. Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3470 or JRNL 3510). With a minimum grade of "B" in JRNL 1100 and one specialized reporting course and one journalism production course and Declared major in JRNL. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 3. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. with a minimum grade of B in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.
JRNL 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

**Liberal Arts, General Courses**

**LBAR 1010 ORIENTATION TO LIBERAL ARTS (1)** LEC. 1. SU. This course is designed to help students who are currently undeclared liberal arts students explore the various majors and opportunities the College of Liberal Arts provides.

**LBAR 2010/2013 LIBERAL ARTS CAREERS PREPARATION (2)** LEC. 2. This course helps Liberal Arts majors to identify their strengths and talents as liberal arts students, to seek appropriate educational and extracurricular experiences, and to plan for a successful transition from college to career. May cont either LBAR 2010 or LBAR 2013.

**LBAR 3910 PRACTICUM IN LIBERAL ARTS (1-3)** AAB. Focused civic engagement or study abroad experiences designed to develop leadership, social responsibility, and cross-cultural awareness. Course may be repeated for a maximum of 6 credit hours.

**Media Studies Courses**

**MDIA 2350/2353 INTRODUCTION TO FILM STUDIES (3)** LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353 or RTVF 2350/RTVF 2353.

**MDIA 2420 INTRODUCTION TO FILMMAKING (3)** STU. 3. Developing technical and conceptual skills to communicate through digital film. May count either MDIA 2420 or RTVF 2420.

**MDIA 2700 INTRODUCTION TO VISUAL MEDIA (3)** STU. 3. Introduction to basic visual media production with emphasis on visual principles, terminology and compositional structure for various media types. May count either MDIA 2700 or RTVF 2700.

**MDIA 2800 MULTIMEDIA PRODUCTION (3)** LEC. 3. Introduction to basic multimedia production, with emphasis on radio and web-based audio/visual production. May count either MDIA 2800 or MDIA 2420 and MDIA 2800 or RTVF 2800.

**MDIA 3100 INTERMEDIATE FILMMAKING (3)** STU. 3. Pr. MDIA 2420 and MDIA 2700. Further develops conceptual and technical filmmaking skills. May count either MDIA 3100 or RTVF 3100.

**MDIA 3210 SOUNDRACKS, MUSIC AND MASS MEDIA (3)** LEC. 3. Historical, artistic and economic contexts of music and the mass media. May count either MDIA 3210 or RTVF 3210.

**MDIA 3300/3303 FOUNDATION OF MASS COMMUNICATION (3)** LEC. 3. Pr. CMJN 2100 or CMJN 2103. Historical and theoretical bases of mass communication in the U. S., emphasizing social, cultural, regulatory and economic aspects. May count either MDIA 3300/MDIA 3303 or RTVF 3300/RTVF 3303.

**MDIA 3350 WRITING FOR TELEVISION AND FILM (3)** LEC. 3. Pr. CMJN 2100 or CMJN 2103. The study, practice, and development of writing skills and techniques for radio, television, and film, including commercials, features, PSAs, and dramatic scripts. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 3350 or MDIA 3380 and MDIA 3350 or RTVF 3350.

**MDIA 3580 REPRODUCING POPULAR CULTURE (3)** LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or RTVF 3580.

**MDIA 3820 SEQUENCE DESIGN (3)** STU. 3. Pr. (MDIA 2420 or RTVF 2420 or RTVF 2700 or RTVF 2703) and MDIA 2700. Conceptual understanding, development and use of images and text for time based media. May count either MDIA 3820 or RTVF 3820.

**MDIA 3970 SPECIAL TOPICS (3)** AAB. 3. Special topics concentration on production, distribution, and exhibition of mass communication. Course may be repeated for a maximum of 6 credit hours.

**MDIA 4200 HISTORY OF AMERICAN BROADCASTING (3)** LEC. 3. Pr. MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or CMJN 2100 or CMJN 2103. The social, economic and technological evolution of radio and television in the United States. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4200 or RTVF 4200.

**MDIA 4210/4213 POPULAR CULTURE AND MASS MEDIA (3)** LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4210 or RTVF 4210.
MDIA 4220 WOMEN AND MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of women and sociocultural definitions of women. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4220 or RTVF 4220.

MDIA 4260 MEDIA AND REALITY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103). Analysis of the representation of "reality" in the mass media. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4260 or RTVF 4260.

MDIA 4280 DIVERSITY ISSUES AND THE MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of minorities and socio-cultural definitions of minorities. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4280 or RTVF 4280.

MDIA 4300 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Introduces critical, theoretical, and organizational concepts, strategies, processes, and frameworks for programming for mass media systems. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4320 BROADCAST MANAGEMENT (3) LEC. 3. Investigates principles and practices of managing broadcast stations and cable operations. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4320 or RTVF 4320.

MDIA 4360 HISTORY OF INTERNATIONAL CINEMA (3) LEC. 2. LAB. 2. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of International Cinema including national cinemas, film movements, directors, and style. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4360 or RTVF 4360.

MDIA 4380/4383 HISTORY OF AMERICAN FILM INDUSTRY (3) LEC. 2. LAB. 2. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of the film industry and its relationship to U.S. society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4380/4383 or RTVF 4380/4383.

MDIA 4390/4393 FILM AUTHORS (3) LEC. 2. LAB. 1. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4390 or RTVF 4390.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of media technology from 18th-21st centuries. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4420 or RTVF 4420.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of celebrity and fame as distinguishing cultural phenomena. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4580 or RTVF 4580.

MDIA 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or RTVF 3100 or RTVF 3103 or RTVF 3107. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4600 or RTVF 4600.

MDIA 4800 ADVANCED MULTIMEDIA PRODUCTION (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or MDIA 2800 or RTVF 3300 or RTVF 3303 or RTVF 2800 or RTVF 2803. Design and production of advanced multimedia projects. Departmental approval. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4800 or RTVF 4800.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. CMJN 2100 or CMJN 2103 and MDIA 3300 or MDIA 3303. Opportunity to apply classroom experience to career setting. Internship must be supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.
MDIA 4940 VISUAL MEDIA PROJECTS (3) STU. 3. Pr. MDIA 3100 or MDIA 3820 or RTVF 3100 or RTVF 3103 or RTVF 3107 or RTVF 3820 or RTVF 3823. Capstone course in which students work as a team on a visual media project under the direction of the instructor and in collaboration with a resident scholar or artist. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4940 or RTVF 4940.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined RTVF topics not already covered in the current RTVF curriculum. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

Music - Applied Courses

MUAP 1110 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1210 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1110. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1310 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1410 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1520 PERFORMANCE I (2) PRL. 1. Pr., Successful audition and Departmental approval. Instruction in major performance medium for the first-year BM or BA in Music major. One-hour private lesson per week.

MUAP 1530 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

MUAP 1620 PERFORMANCE II (2) PRL. 1. Pr. MUAP 1520. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year BM or BA in Music major. One hour private lesson per week.

MUAP 1630 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1530. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

MUAP 2110 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1210. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2210 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2110. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2310 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1410. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One-half hour private lesson per week.

MUAP 2410 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One-half hour private lesson per week.

MUAP 2520 PERFORMANCE III (2) PRL. 1. Pr. MUAP 1620. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2530 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1630. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

MUAP 2620 PERFORMANCE IV (2) PRL. 1. Pr. MUAP 2520. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.
MUAP 2630 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2530. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

MUAP 3120 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2210. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3220 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3120. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3520 PERFORMANCE V (2) PRL. 1. Pr. MUAP 2620. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3530 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2630. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

MUAP 3620 PERFORMANCE VI (2) PRL. 1. Pr. MUAP 3520. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3630 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3530. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

MUAP 4120 PERFORMANCE VII (1) PRL. 1. Pr. MUAP 3220. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Education major. One-hour private lesson per week.

MUAP 4220 PERFORMANCE VIII (1) PRL. 1. Pr. MUAP 4120. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Education major. One-hour private lesson per week.

MUAP 4520 PERFORMANCE VII (2) PRL. 1. Pr. MUAP 3620. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4530 PERFORMANCE VII (1) PRL. 1. Pr. MUAP 3630. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

MUAP 4620 PERFORMANCE VIII (2) PRL. 1. Pr. MUAP 4520. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4630 PERFORMANCE VIII (1) PRL. 1. Pr. MUAP 4530. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

MUAP 7120 PERFORMANCE (2) PRL. Pr., Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7220 PERFORMANCE (2) PRL. Pr. MUAP 7120. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7320 PERFORMANCE (2) PRL. Pr. MUAP 7220. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7420 PERFORMANCE (2) PRL. Pr. MUAP 7320. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

Music Ensemble Courses

MUSE 1100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.
MUSE 1130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 1150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 1160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1180 WOMEN’S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1190 MEN’S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men’s voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 1300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1310 CONDUCTOR’S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.
MUSE 1390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 1600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 1620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 2100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2120 SYMPHONIC BAND (1) LAB. 3. Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 2150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.
MUSE 2160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 2300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.
MUSE 2420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 2600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 2620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 3100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 3150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 3160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.
MUSE 3190 MEN’S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men’s voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 3300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3310 CONDUCTOR’S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.
MUSE 3450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 3600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 3620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 4100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 4150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 4160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.
MUSE 4220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 4300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4390 HORN ENSEMBLE (1) LAB. 3. Pr., Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Department approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.
MUSE 4480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 4600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 4620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 7400/7406 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7410/7416 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7500/7506 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7510/7516 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7600/7606 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7610/7616 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

Music Courses

MUSI 1000 PERFORMANCE ATTENDANCE (0) LEC. 1. SU. Pr., Enrollment in MUAP. Required during each semester of MUAP enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Department of Music and the community. Course may be repeated with change in topics.

MUSI 1020 PIANO SKILLS I - RUDIMENTS (1) LEC. 2. Group instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1030, MUSI 2040, or MUSI 2050.

MUSI 1030 PIANO SKILLS II (1) LEC. 2. Pr. MUSI 1020 or Departmental approval. Group Instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2040 or MUSI 2050.

MUSI 1050 SINGER'S DICTION (1) LEC. 2. Coreq., Enrolled in MUAP (Applied Voice) class. Introduction to the rules of singing in English, Italian, German, and French as applied to art songs and arias through use of the IPA.

MUSI 1090 THEATRE VOCAL SKILLS (1) LEC. 1. Pr., Successful audition. Instruction and practice in the rudiments of music and vocal production for the Theatre major.

MUSI 1310 MUSIC THEORY I (2) LEC. 2. Coreq. MUSI 1320. Systematic study of music composition procedures, form, and style during the Period of Common Practice. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1410 or MUSI 2310.

MUSI 1320 MUSIC SKILLS I (1) LEC. 3. Coreq. MUSI 1310. Development of aural, keyboard and sight singing skills with an understanding of basic harmonic practices. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1420 or MUSI 2320.
MUSI 1410 MUSIC THEORY II (2) LEC. 2. Pr. MUSI 1310 or Departmental approval. Systematic study of music composition procedures, form, and style during the Period of Common Practice. For Music majors and minors. Normally taken with MUSI 1420. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2310. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1310 to enroll in this course.

MUSI 1420 MUSIC SKILLS II (1) LEC. 3. Pr. MUSI 1320 or Departmental approval. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices. For Music majors and minors. Normally taken concurrently with MUSI 1410. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2320. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1320 to enroll in this course.

MUSI 2010 GUITAR AND STRINGS SKILLS (1) LEC. 2. Pr. MUSI 1310. Group instruction and practice in the rudiments of music performance of fretted and unfretted string instruments, such as guitar, violin, viola, cello, and string bass.


MUSI 2040 FUNCTIONAL PIANO I (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. MUSI 2040 is not a prerequisite for MUSI 2050. Development of functional piano skills for use in classroom, rehearsal or studio. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2050. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1030 to enroll in this course.

MUSI 2050 FUNCTIONAL PIANO II (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. MUSI 2040 is not a prerequisite for MUSI 2050. Development of functional piano skills for use in classroom, rehearsal or studio. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1030 to enroll in this course.

MUSI 2150 ADVANCED DICTION (1) LAB. 2. Pr. MUSI 1050. Coreq., Enrolled in a MUAP (Applied Voice) class. Advanced study of the rules of singing in Italian, Spanish, German, and French through the use of the IPA. BA in Music and BM majors must receive a grade of "C" or better in MUSI 1050 to enroll in this course.

MUSI 2210 MUSIC FUNDAMENTALS FOR MUSIC THEATRE (3) LEC. 3. Fundamental study of music structural procedures, form, and style designed for students in the music theatre major.

MUSI 2310 MUSIC THEORY III (2) LEC. 2. Pr. MUSI 1410 and MUSI 1320 or Departmental approval. Systematic study of music composition procedures, form and style from the advent of chromaticism through the music of late 19th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1320 and MUSI 1410 to enroll in this course.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3. Pr. MUSI 1410 and MUSI 1420 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 1420 to enroll in this course.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2. Pr. MUSI 1420 and MUSI 2310 or Departmental approval. Systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1420 and MUSI 2310 to enroll in this course.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3. Pr. MUSI 1410 and MUSI 2320 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 2320 to enroll in this course.

MUSI 2730/2733 APPRECIATION OF MUSIC (3) LEC. 3. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3. Pr. Honors College. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2740/2743 SURVEY OF POPULAR MUSIC (3) LEC. 3. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740 or MUSI 2743.

MUSI 2750 MUSIC AND SCIENCE (3) LEC. 3. Fine Arts Core. Music and its connection to science throughout history. No previous music training required.
MUSI 3000 JUNIOR RECITAL (0) PRL. 0. SU. Pr. MUAP 2620 or MUAP 2630. Coreq., MUAP 3620. Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3030 VOCAL SKILLS (1) LEC. 1. Pr., Music Education major. Instruction and practice in the rudiments of music as applied to vocal performance.

MUSI 3040 BRASS INSTRUMENT SKILLS (2) LAB. 2. Pr., Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching brass musical instruments.

MUSI 3060 WOODWIND INSTRUMENT SKILLS (2) LAB. 2. Music Education major or Departmental approval. Class instruction and practice in the techniques of playing and teaching woodwind musical instruments.

MUSI 3080 PERCUSSION SKILLS (1) LAB. 2. Pr. MUAP 1210. Music Education major or Departmental approval. Instruction and practice in the rudiments of music as applied to various percussion instruments.

MUSI 3090 STRING INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching upper and lower string musical instruments.

MUSI 3110 PIANO LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Renaissance to the Classical era, with emphasis on musical styles.

MUSI 3120 PIANO LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Romantic era to the present, with emphasis on musical styles.

MUSI 3130 VOCAL LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Survey of representative art song repertoire, including techniques and application of song study, musicianship, interpretation, and performance practice.

MUSI 3140 VOCAL LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the development of opera and oratorio literature from 1600 to the present time.

MUSI 3150 BRASS LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on brass instruments.

MUSI 3160 PERCUSSION LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on percussion instruments.

MUSI 3170 WOODWIND LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on woodwind instruments.

MUSI 3180 STRING LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on string instruments.

MUSI 3200 FORM AND ANALYSIS (3) LEC. 3. Pr. MUSI 2410. Study of the formal structure of music from 1700-1950 with an emphasis on standard forms and analytical techniques.

MUSI 3210 TONAL COUNTERPOINT (3) LEC. 3. Pr. MUSI 2410. Study of the standard practice of contrapuntal writing and analytical methods of contrapuntal music in the 18th century.

MUSI 3220 CONTEMPORARY MUSIC ANALYSIS TECHNIQUES (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. Study of the knowledge and analysis of contemporary art music.

MUSI 3290 JAZZ THEORY AND IMPROVISATION (3) LEC. 3. Pr. MUSI 1410. Major practical and theoretical areas informing jazz performance.

MUSI 3510 MUSIC HISTORY I (3) LEC. 3. Pr. MUSI 1410. Study of the development of music from the earliest times through early 18th-century styles through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 to enroll in this course.

MUSI 3520 MUSIC HISTORY II (3) LEC. 3. Pr. MUSI 1410. Study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 to enroll in this course.
MUSI 3610 CHORAL CONDUCTING I (2) LEC. 2. Pr. MUSI 1410. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3620 CHORAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3610. Advanced conducting technique with practical experience in preparing choral groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3610 to enroll in this course.

MUSI 3630 INSTRUMENTAL CONDUCTING I (2) LEC. 2. Pr. MUSI 1410. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3640 INSTRUMENTAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3630. Advanced conducting technique with practical experience in preparing instrumental groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3630 to enroll in this course.

MUSI 3800 JUNIOR PERFORMANCE RECITAL (1) PRL. 1. SU. Pr. MUAP 3520. Coreq., Enrollment in a MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3. Study of substantive topics and issues in music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 MUSIC EDUCATION SENIOR RECITAL PROJECT (1) PRL. SU. Pr., Music Education major and MUAP 3120. Coreq., MUAP 3220. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital project.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. For prospective voice teachers. Intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620 and BA in Music or BM major. For prospective instrumental teachers. Intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2. Music majors and minors specializing in piano or Departmental approval. Study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching.

MUSI 4040 MUSIC INSTRUMENTS REPAIR (1) LEC. 1. Selection, care, and repair of woodwind, brass, and percussion instruments with emphasis on the adjustments that should be made by the instrumental director.

MUSI 4090 MARCHING BAND TECHNIQUES (2) LEC. 2. Pr., Music Education major or Departmental approval. Fundamental methods and procedures of the marching band, including study of computer-aided band charting.

MUSI 4100 ORCHESTRAL TECHNIQUES (2) LEC. 2. Fundamental methods and procedures of rehearsing the orchestra in areas of articulation, tone production, blend, balance, intonation, and musical expression.

MUSI 4110 CHORAL TECHNIQUES (2) LEC. 2. Methods and procedures of rehearsing choral groups in diction, tone production, balance, blend, intonation, and musical expression.

MUSI 4200 MEDIEVAL AND RENAISSANCE MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the Medieval and Renaissance periods.

MUSI 4210 BAROQUE MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1600-1750.

MUSI 4220 CLASSICAL MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1730-1800.

MUSI 4230 ROMANTIC MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1800-1900.

MUSI 4240 MODERN ERA (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1900 to the present day.
MUSI 4280 AMERICAN ART MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or departmental approval. Survey of American art music from colonial times until the present.

MUSI 4290 FILM MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. History and analysis of film music. Basic scoring techniques will be applied to short scoring projects.

MUSI 4350 JAZZ HISTORY (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or Departmental approval. History of jazz from its evolution to the present day.

MUSI 4400 INSTRUMENTAL ARRANGING (2) LEC. 2. Pr. MUSI 2410. Project course in arranging various instrumental combinations from quartet to symphonic band.

MUSI 4500 CHORAL ARRANGING (2) LEC. 2. Pr. MUSI 2410. Project course in arranging for various vocal combinations.

MUSI 4600 ORCHESTRATION (2) LEC. 2. Pr. MUSI 2410. Project course in arranging for various orchestral combinations.

MUSI 4700 BA SENIOR THESIS/PROJECT (3) LEC. 1. SU. Capstone course requiring a senior thesis or project bringing together prior music coursework.

MUSI 4800 SENIOR PERFORMANCE RECITAL (2) PRL. 2. SU. Pr. MUAP 4520. Coreq., Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4930 DIRECTED STUDY (1-3) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

MUSI 5110/5113 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 5520 CHORAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Chronological study of choral music from the Middle Ages to the present.

MUSI 5530 WIND BAND LITERATURE (2) LEC. 2. Pr., Departmental approval. History of the development of the wind band and its literature from 1500 to the present.

MUSI 6110/6116 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 6520/6526 CHORAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Chronological study of choral music from the Middle Ages to the present.

MUSI 7000/7006 GRADUATE CHORAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7010/7016 GRADUATE CHORAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7000 or MUSI 7006. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040/7046 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050/7056 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7040 or MUSI 7046. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7060/7066 BRASS INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on brass instruments.

MUSI 7070/7076 WOODWIND INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on woodwind instruments.
MUSI 7080/7086 PERCUSSION INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on various percussion instruments.

MUSI 7090/7096 SURVEY OF CHORAL LITERATURE (3) LEC. 3. Coreq., Approved MUSE course. Detailed analysis of the styles, forms and performance practices of choral music of the Classic, Romantic, and Modern periods, working primarily with scores of representative works.

MUSI 7100/7106 CHORAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7110/7116 CHORAL ARRANGING II (3) LEC. 3. Pr. MUSI 7100 or MUSI 7106. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7120/7126 BAND ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various band organizations.

MUSI 7130/7136 BAND ARRANGING II (3) LEC. 3. Pr. MUSI 7120 or MUSI 7126. Coreq., Approved MUSE course. Advanced arranging for various band organizations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7150 ORCHESTRAL ARRANGING II (3) LEC. 3. Pr. MUSI 7140. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7160 SEMINAR IN MUSIC HISTORY (2) SEM. 2. In-depth study of the history of music through historic research, analysis of music, and performance practice.

MUSI 7170 SEMINAR IN RENAISSANCE MUSIC (2) SEM. 2. Study of selected music of the Renaissance through history, analysis and performance practice.

MUSI 7180 SEMINAR IN BAROQUE MUSIC (2) SEM. 2. Study of selected Baroque music through history, analysis, and performance practice.

MUSI 7190 SEMINAR IN CLASSICAL MUSIC (2) SEM. 2. Study of selected Classical music through history, analysis, and performance practice.

MUSI 7200 SEMINAR IN ROMANTIC MUSIC (2) SEM. 2. Study of selected Romantic music through history, analysis, and performance practice.

MUSI 7210 SEMINAR 20TH-CENTURY MUSIC (2) SEM. 2. Study of selected 20th-century music through history, analysis, and performance practice.

MUSI 7220/7226 AMERICAN ART MUSIC (3) LEC. 3. Study of American art music from colonial times until the present.

MUSI 7230/7236 ADVANCED FORMAL ANALYSIS (3) LEC. 3. Advanced formal analysis of standard music literature.


MUSI 7250/7256 WIND BAND LITERATURE II (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band from 1950 to present.

MUSI 7260 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION I (2) LEC. 2. Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7270 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION II (2) LEC. 2. Pr. MUSI 7260. Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7280 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION I (2) LEC. 2. Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7290 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION II (2) LEC. 2. Pr. MUSI 7280. Analysis of various vocal teaching methods and a supervised private teaching experience.
MUSI 7300 INTRODUCTION TO GRADUATE RESEARCH IN MUSIC (2) RES. 2. Extensive examination of research materials (books, music, and recordings). Includes the preparation of an outline for a research paper.

MUSI 7316 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.


MUSI 7360/7366 ARRANGING IN FINALE (3) LEC. 3. Advanced study of arranging using the Finale music notation program.

MUSI 7370/7376 FINALE TECHNIQUES FOR MUSIC EDUCATORS (3) LEC. 3. Advanced study of the techniques of the Finale music notation program, specifically relating to use in music classrooms.

MUSI 7500 THEORY REVIEW I (1) LEC. 1. Pr., Departmental approval. Study of and practical application of harmonic practices from before the Period of Common Practice to the present day, with emphasis on various theoretical approaches and analytical techniques. Degree credit will not be given to graduate students.

MUSI 7510 THEORY REVIEW II (1) LEC. 1. Pr., Departmental approval. Continuation of MUSI 7500. Degree credit will not be given to graduate students.

MUSI 7540 VOCAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of the vocal literature from the Baroque to the present day.

MUSI 7550 KEYBOARD LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of keyboard repertoire from the Baroque to the present.

MUSI 7560 INSTRUMENTAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of the literature of the major performance instrument from its beginning to the present.

MUSI 7930/7936 DIRECTED STUDIES (1-6) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Includes evaluation at regular interval. Course may be repeated for a maximum of 12 credit hours.

MUSI 7970/7976 SPECIAL TOPICS IN MUSIC (1-6) LEC. Provides an opportunity for graduate students to pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

MUSI 7980 QUALIFYING RECITAL (3) LEC. 3. Pr. MUAP 7120. Public recital of graduate level repertoire. Recital may include a lecture component.

Philosophy Courses

PHIL 1010 INTRODUCTION TO LOGIC (3) LEC. 3. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1017 HONORS LOGIC (3) LEC. 3. Pr. Honors College. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1020/1023 INTRODUCTION TO ETHICS (3) LEC. 3. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought. May count either PHIL 1020 or PHIL 1023.

PHIL 1027 HONORS ETHICS (3) LEC. 3. Pr. Honors College. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought.

PHIL 1030/1033 ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1037 HONORS ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Pr. Honors College. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1040/1043 BUSINESS ETHICS (3) LEC. 3. Humanities Core. Types of ethical theory; application to such normative issues in commerce as advertising, management, and business abroad.
PHIL 1050/1053 INTRODUCTION TO POLITICAL PHILOSOPHY (3) LEC. 3. Humanities Core. Principal theories and thinkers in political philosophy from antiquity to the present.

PHIL 1060 PHILOSOPHY EAST AND WEST (3) LEC. 3. Humanities Core. Principal thinkers and theories in four philosophical traditions: Indian, Chinese, European, and Arabic.

PHIL 1070/1073 ART, VALUE, AND SOCIETY (3) LEC. 3. Humanities Core. Introduction to philosophical aesthetics, focusing on the relationship of artistic values and the extra-artistic values of societies that house them.

PHIL 1080/1083 INTRODUCTION TO PHILOSOPHY OF RELIGION (3) LEC. 3. Humanities Core. Philosophy of religion, including questions about God's existence, relationship of reason and faith, religious epistemology, and language.

PHIL 1090/1093 PHILOSOPHY OF RACE AND GENDER (3) LEC. 3. Humanities Core. Philosophical issues associated with race and gender, including role of biology and social construction, nature of prejudice, questions about justice and redress.

PHIL 1100/1103 INTRODUCTION TO PHILOSOPHY (3) LEC. 3. Humanities Core. Methods of philosophical inquiry and examination of selected philosophical topics. May count either PHIL 1100 or PHIL 1103.

PHIL 1110/1113 ETHICAL AND CONCEPTUAL FOUNDATIONS OF SCIENCE (3) LEC. 3. Introduction to the moral and conceptual foundations of science, concentrating on ethical facets of scientific research, theorizing, and knowledge production, as well as conceptual issues regarding the nature of causation, induction, scientific explanation and confirmation. May count either PHIL 1110 or PHIL 1113.

PHIL 1120 INTRODUCTION TO ENVIRONMENTAL ETHICS (3) LEC. 3. Ethical inquiry into environmental issues such as non-human animal welfare, environmental justice, global climate change, resource use, and conservationism versus preservationism.

PHIL 2970 GATEWAY SEMINAR (3) LEC. 3. An introduction to philosophy through special topics. The course is designed to provide students with the basic skills required for more advanced work in philosophy. Topics vary. Course may be repeated for a maximum of 6 credit hours.

PHIL 3050 AESTHETICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Modern and contemporary theories of the nature of art.

PHIL 3060 PHILOSOPHY OF FILM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Consideration of philosophical issues raised within particular films and by the nature of cinematic representation in general.

PHIL 3100 INTERMEDIATE ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Overview of contemporary questions and positions in ethics, including moral realism, the rationality of moral action, subjectivism and non-cognitivism, naturalism, and various theories of practical reason.

PHIL 3110 SYMBOLIC LOGIC (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area IV) Propositional logic and predicate logic through relations; natural language and logic; some philosophical problems in logic.

PHIL 3300 PHILOSOPHY OF RELIGION (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Nature of religion, religious experience, religious knowledge, religious theories of humanity and evil, arguments for the existence of God and immortality of the soul.

PHIL 3330 HISTORY OF ANCIENT PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from the Pre-Socratics through the Hellenistic philosophers, emphasizing Plato and Aristotle.

PHIL 3340 HISTORY OF EARLY MODERN PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Descartes to Kant, emphasizing major figures in the rationalist and empiricist traditions.

PHIL 3350 HISTORY OF LATE MODERN AND PRE-ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Kant to the Pre-Analytic philosophers, possibly including Schopenhauer, Hegel, Nietzsche, Kierkegaard, James, Brentano, Frege, Meinong, Cook-Wilson, Bradley, and Moore.

PHIL 3360 HISTORY OF EARLY ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought in the early Analytic period, including the works of Russell, Moore, Wittgenstein, and members of the Vienna Circle.

PHIL 3400 MEDIEVAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from late antiquity through the Middle Ages, with emphasis on the ideas of Plotinus, Islamic thinkers, Augustine, Abelard, Anselm, and Thomas Aquinas.
PHIL 3500 EPISTEMOLOGY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Origin, nature, kinds, and validity of knowledge, with considerations of faith, institution, belief, opinion, certainty, and probability.

PHIL 3510 PHILOSOPHY OF SCIENCE (3) LEC. 3. Student must have taken at least one philosophy course prior to taking PHIL 3510. Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 3530 PHILOSOPHY OF PHYSICS (3) LEC. 3. An overview of the philosophy of physics, with attention to topics such as the nature of matter, motion, change, space, time, space-time, time travel, Einstein’s theories of special and general relativity, and non-relativistic quantum mechanics.


PHIL 3550 PHILOSOPHY OF LANGUAGE (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 CLASSICAL POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one course in philosophy at the 1000 level. Political thought of classical thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, and Marx. (Area I for PHIL major)

PHIL 3620 CONTEMPORARY POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one PHIL course at the 1000 or 2000 level. A survey of major schools of 20th- and 21st-century political thought, including liberalism, communitarianism, libertarianism, feminism, and anarchism. May count either PHIL 3620 or POLI 4340.

PHIL 3640 PHILOSOPHY OF LAW (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Functions of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Advanced philosophical study of the ethical issues that arise in intellectual endeavors, such as law, business, military science, and engineering.

PHIL 3700 METAPHYSICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Critical analysis of such topics as monism and pluralism, freedom and determinism, realism and nominalism, and the mind-body problem.

PHIL 3740 EXISTENTIALISM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Selected works of such authors as Kierkegaard, Nietzsche, Sartre, Jaspers, and Heidegger.

PHIL 3970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Topics vary. Course may be repeated for a maximum of 6 hours.

PHIL 4110 ADVANCED LOGIC (3) LEC. 3. Pr. PHIL 3110 or Departmental approval. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics.

PHIL 4920 INTERNSHIP (3) INT. 200. SU. Opportunity to apply skills acquired in classroom in career setting. Internship must be supervised and appropriate to major.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Pr., Departmental approval. Reading program on a particular philosopher, period, or problem. Course may be repeated for a maximum of 6 credit hours.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Pr. Honors College or Departmental approval. Reading program on a philosopher, period, or problem. Course may be repeated for a maximum of 3 credit hours.

PHIL 4970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 6 credits in PHIL 3000-3999. Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours. Area distribution requirement fulfilled depends on class content.

PHIL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Senior thesis. Course may be repeated for a maximum of 3 credit hours.

PHIL 5950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an intensive study of one of the great thinkers. Course may be repeated for a maximum of 6 credit hours.

PHIL 6950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours.
Political Science Courses

POLI 1050 GLOBAL POLITICS AND ISSUES (3) LEC. 3. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1057 HONORS GLOBAL POLITICS AND ISSUES (3) LEC. 3. Pr. Honors College. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1090/1093 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Pr. Honors College. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 2100 STATE AND LOCAL GOVERNMENT (3) LEC. 3. Organization and operation of American state and local governments, including their relationship to the United States federal system and their role in public policy issues.

POLI 2120 URBANIZATION AND THE CITY (3) LEC. 3. This course introduces students to main themes and problems in the interdisciplinary field of urban studies.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1020 or PHIL 1023 or PHIL 1027. Selected major themes in political thought from ancient to modern times.

POLI 3080 MODEL UNITED NATIONS (3) LEC. 3. This course offers an in-depth analysis of the workings of the United Nations. It involves thorough studies of countries, the veto-power of the Security Council, and prepares students to participate in a Model United Nations exercise.

POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3. International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3. Contemporary international politics and an evaluation of foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3. Methods of classifying governments by institutional and developmental characteristics.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3150 AMERICAN POLITICAL THOUGHT (3) LEC. 3. Principal American political philosophers and philosophies and their influence on political institutions.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3. Introduction to national security aspects of United States foreign policy.


POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3. Analysis of the political, social, and economics aspects of Latin American-United States relations.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3. Survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3. Components of the American legal system responsible for administration of public justice.
POLI 3250/3253 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3. Pr. P/C POLI 1090 or P/C POLI 1093 or P/C POLI 1097. Administration in the public sector with particular emphasis on public administration as it exists in modern American government. May count either POLI 3250 or POLI 3253.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3. Formulation and implementation of public policy; the roles of the major governmental institutions in policy-making.

POLI 3290 THE AMERICAN PRESIDENCY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Examination of political styles and personalities of recent presidents and presidential decision-making.

POLI 3300 LAW AND SOCIETY (3) LEC. 3. Introduction to how law and legal actors influence and mediate some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Principles, procedures, and problems of lawmaking in the United States; special attention to Congress and the state legislatures.

POLI 3320 JUDICIAL PROCESS (3) LEC. 3. Basic information about the structure and function of courts and the role of judges in all societies, with a special focus on American.

POLI 3340 INTRODUCTION TO CONFLICT RESOLUTION (3) LEC. 3. Methods of conflict resolution at various levels, from the interpersonal to international.

POLI 3350 CONTROVERSIES IN CONSTITUTIONAL LAW (3) LEC. 3. Origins and influence of controversial Supreme Court decisions, in such areas as religion, free speech, privacy, abortion, and criminal justice.

POLI 3360 FEDERAL JURISDICTION (3) LEC. 3. Introduction to the federal court system and Federal Jurisdiction under Article III.

POLI 3370 FEDERAL INDIAN LAW (3) LEC. 3. Introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand, and the states and federal governments, on the other.

POLI 3380 EVIDENCE AND LEGAL REASONING (3) LEC. 3. Introduction to the rules governing the presentation of evidence at trial.

POLI 3390 RELIGION AND POLITICS (3) LEC. 3. Interaction of religion with governmental institutions, elections, and public policies.

POLI 3400 POLITICAL PARTIES AND INTEREST GROUPS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Nature, organization and operation of political parties in the United States; suffrage; nominating and electoral processes; importance and nature of interest groups.

POLI 3410 POLITICAL PARTICIPATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.

POLI 3420 POLITICS AND THE MEDIA (3) LEC. 3. Influences of the media on political action, the electoral process and popular concepts of political institutions, role of the media and its regulation by government.

POLI 3430 JUSTICE AND SOCIETY (3) LEC. 3. Historical overview of issues affecting legal policy.

POLI 3510 THE EUROPEAN UNION (3) LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.

POLI 3520 COMPARATIVE POLITICS OF THE MIDDLE EAST (3) LEC. 3. Domestic politics in the states of the Middle East.


POLI 3540 EAST EUROPEAN POLITICS (3) LEC. 3. Survey and analysis of evolving political institutions and policies in eastern and central Europe under Communism and in the post-Communism period.
POLI 3550 GOVERNMENT AND POLITICS OF LATIN AMERICA (3) LEC. 3. Political environment, institutions and processes of Latin America, emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.

POLI 3560 THE ARAB SPRING (3) LEC. 3. Examination of the Arab Uprising that began in Tunisia in 2010 and spread to the rest of the region.

POLI 3610 ASIAN POLITICS (3) LEC. 3. Politics of the leading nations in East Asia with major attention being devoted to China, Japan, North and South Korea, and Taiwan.

POLI 3710 ISSUES IN AMERICAN POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Topics in American politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3720 ISSUES IN COMPARATIVE POLITICS (3) LEC. 3. Topics in comparative politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3730 ISSUES IN INTERNATIONAL RELATIONS (3) LEC. 3. Topics in international relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3740 ISSUES IN POLITICAL THOUGHT (3) LEC. 3. Topics in political thought. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Topics in public administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Topics in public policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Topics in public law and conflict resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3980 UNDERGRADUATE RESEARCH (1-3) LAB. Pr. POLI 3000. Supplementary learning concurrent with experience political science research. May be repeated twice, with change of topic. Course may be repeated for a maximum of 6 credit hours.

POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with separation of powers, federalism, and elections.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3. Constitutional law cases dealing with First Amendment freedoms of religion, speech, press, assembly, and association.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining gender discrimination, race discrimination, age discrimination, affirmative action, and such right to privacy issues as abortion, marriage, and physician-assisted suicide.


POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3. Pr. POLI 2100. Structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3. Politics and public agencies and their employees at all levels of government.

POLI 4140 PUBLIC FINANCE (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Theory and practice of public finance, with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.
POLI 4340 contemporary political theory (3) LEC. 3. Pr. POLI 3020 or PHIL 1050 or PHIL 1053. Survey of late 20th- and early 21st-century political philosophies, including neo-classicist, post-modernist, communitarian, and critical theories.

POLI 4920 internship (1-6) AAB/INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 directed studies (1-3) AAB/IND. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Course may be repeated with change in topics.

POLI 4960 special problems (1-3) IND. Directed readings in political science, including topics such as American policies, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4967 honors special problems (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4997 honors thesis (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 intergovernmental relations and federalism (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 5170 election law (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 5180 administrative law (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 5210 voting behavior and representation (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and POLI 6210.

POLI 5270 election administration (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 5340 theory and practice of mediation (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Theoretical and comparative perspectives on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and POLI 6340.

POLI 5350 nonprofit law and governance (3) LEC. 2.5. Introduction to the legal principles that apply to the governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 5370 nonprofit management (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 5380 ingos and international organizations (3) LEC. 2.5. Examines the size, scope, and role of global civil society, emphasizing organizations active in international development: grassroots NGOs, international nonprofits, and transnational aid agencies. Covers innovations in global philanthropy, and opportunities and challenges faced by global civil society.

POLI 5410 southern politics (3) LEC. 3. Introduction to the politics and government of the southern region of the United States. Credit will not be given for both POLI 5410 and POLI 6410.

POLI 5510 issues in american politics (1-3) LEC. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.
POLI 5520 ISSUES IN COMPARATIVE POLITICS (1-3) LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) AAB/LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THEORY (1-3) LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 5550 ISSUES IN PUBLIC ADMINISTRATION (1-3) LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 5560 ISSUES IN PUBLIC POLICY (1-3) LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3. Examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5620 AFRICAN AMERICAN POLITICS (3) LEC. 3. Political values, theories, problems issues and behavior relating to African Americans in the United States. Credit will not be given for both POLI 5620 and POLI 6620.

POLI 5710 PERSIAN GULF POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1907. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes, and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 6170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 6180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 6210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.

POLI 6270/6276 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 6340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Theoretical and comparative perspective on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.

POLI 6350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 2.5. Introduction to the legal principles that apply to the formation, governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 6370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 6380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Examines the size, scope, and role of global civil society outside of the US, with an emphasis on organizations active in international development, including international nonprofits, transnational aid agencies, and unilateral aid.

POLI 6410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 5410 and POLI 6410.
POLI 6510 ISSUES IN AMERICAN POLITICS (1-3) LEC. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 6520 ISSUES IN COMPARATIVE POLITICS (1-3) LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 6530 ISSUES IN INTERNATIONAL RELATIONS (1-3) LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 6540 ISSUES IN POLITICAL THEORY (1-3) LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 6550 ISSUES IN PUBLIC ADMINISTRATION (1-3) LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 6560 ISSUES IN PUBLIC POLICY (1-3) LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 6570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 6610 WOMEN IN POLITICS (3) LEC. 3. A theoretical, historical, social, and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.

POLI 6620 AFRICAN AMERICAN POLITICS (3) LEC. 3. Political values, structure, and behavior of African Americans in the United States. Credit will not be given for both POLI 6620 and POLI 5620.

POLI 6710 PERSIAN GULF POLITICS (3) LEC. 3. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 7000 RESEARCH METHODS (3) LEC. 3. Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.

POLI 7050 STATE POLITICS (3) LEC. 3. Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3. Politics and public agencies and their employees at all levels of government. Credit will not be given for both POLI 7130 and POLI 4130.

POLI 7140 PUBLIC BUDGETING (3) LEC. 3. Comprehensive theoretical underpinning for research. Focuses on models associated with descriptive and prescriptive budgeting research.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Personnel policies, processes, and politics in American governments, including history, theory, and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3. Application of macroeconomic theory to public finance, with emphasis on capital budgeting, taxation, user charges, debt administration, cash management, and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3. Structure and functioning of government organizations, with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC GOVERNMENT (3) SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 SEMINAR IN PUBLIC ADMINISTRATION (3) SEM. 3. Introduction to public administration as practiced in the United States.

POLI 7360 SEMINAR IN POLICY AND ADMINISTRATION (3) SEM. 3. Formation, execution, and evaluation of public policy and an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3. Theory and practice of program evaluation in the public sector with attention to program planning, process assessment, and impact assessment.
POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3. Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3. Politics of economic development at the local, state, and national levels, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920/7926 MPA INTERNSHIP (3-6) INT. SU. Administrative experience in a governmental agency or participation in an approved governmental research project. May count either POLI 7920 or POLI 7926. Course may be repeated for a maximum of 6 credit hours.

POLI 7930/7936 MPA RESEARCH PROJECT (3-6) IND. SU. Completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960/7966 SPECIAL PROBLEMS (1-3) IND. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3. Nature of public administration as a field of study and different theoretical perspectives as reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3. Development and testing of causal models in political and social science. Students will develop a complex research design under the close supervision of the instructor.

POLI 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3. Advanced study of the nature of public policy development and implementation.

POLI 8040 DOCTORAL SEMINAR IN PUBLIC FINANCE (3) SEM. 3. Theory and practice of public finance in a comparative perspective.

POLI 8060 DOCTORAL SEMINAR IN PUBLIC POLICY ANALYSIS AND RESEARCH (3) SEM. 3. Examination of advanced policy analysis and research methodology and the relationship between evaluation and quantitative analysis and policy formulation and implementation.

POLI 8070 DOCTORAL SEMINAR IN HUMAN RESOURCE ADMINISTRATION IN THE PUBLIC SECTOR (3) SEM. 3. Major environmental values affecting public personnel administration and the major processes used in public personnel management.

POLI 8110 AMERICAN GOVERNMENT AND PUBLIC POLICY (3) LEC. 3. Survey of the literature on the main institutions and policy processes of American national government, with emphasis on research design, methodology, and validity.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3. Pr. POLI 8110. In-depth analysis of the use of qualitative methods in political science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3. Pr. POLI 8110. In-depth analysis of the use of quantitative methods in political science research.

POLI 8260 PUBLIC ORGANIZATIONAL THEORY AND MANAGEMENT (3) SEM. 3. Development and refinement of research on administrative and organizational theory in public management. Credit will not be given for both POLI 7260 and POLI 8260.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3. Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8550 INTERNATIONAL RELATIONS AND PUBLIC POLICY (3) LEC. 3. Application of the scholarship in international relations to public policy, with a focus on war, defense policy, and conflict management.


POLI 8750 PUBLIC LAW AND PUBLIC POLICY (3) LEC. 3. Role of the courts in public policy-making.

POLI 8970 SPECIAL TOPICS (3) LEC. 3. Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Research related to writing the dissertation. Course may be repeated with change in topics.
Psychology Courses

PSYC 2010/2013 INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology. May count either PSYC 2010 or PSYC 2013.

PSYC 2017 HONORS INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology.

PSYC 2020 ORIENTATION TO PSYCHOLOGY MAJOR (1) LEC. 1. SU. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Orientation to the psychology major: Overview and design of psychology curriculum, faculty introduction, faculty expectations, student assessment, career development, study skills, diversity, and ethics.

PSYC 2130/2133 ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduces students to the cycle of collecting (using surveys and experiments), analyzing (using Excel) and reporting conclusions about psychological and other social and behavioral sciences data. The course provides a critical thinking approach for quantitative argumentation with data.

PSYC 2140/2143 RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133) and (PSYC 2017 or PSYC 2013 or PSYC 2010). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3. Biological, social, and psychological dimensions of human sexuality.

PSYC 3120/3123 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 2010 or PSYC 2013 or PSYC 2017. Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 3500/3503 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Principles and procedures for management of human behavior. Fall, Spring.

PSYC 3510/3513 BEHAVIORAL NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of the relationships between the brain and behavior.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Phenomena involved in the acquisition of knowledge, skills, and patterns of action.

PSYC 3530 SENSATION AND PERCEPTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Study of perceptual phenomena and the structure and function of sensory systems.

PSYC 3540/3543 COGNITIVE PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Phenomena involved with thinking and remembering.

PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.

PSYC 3560/3563 ABNORMAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of our attempts to understand, explain, and classify abnormal behavior patterns.

PSYC 3570/3573 THEORIES OF PERSONALITY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Survey of selected classical and contemporary theories of personality.

PSYC 3580/3583 SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Scientific study of how people think about, influence, and relate to one another.

PSYC 3590/3593 PSYCHOLOGY IN THE WORKPLACE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Application of basic psychological principles and theories in the workplace. May count either PSYC 3590 or PSYC 3593.

PSYC 3600 TRAINING AND SUPERVISION IN INDUSTRY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Application of behavioral principles to problems common to the training and supervision of people in work organizations.
PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Inquiry into how motivation, emotion, personality, and other mind-body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges.

PSYC 3620 COGNITIVE NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of how mental functions are linked to neural processes to enable the mind.

PSYC 3630 HUMAN MEMORY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Theories and application of human memory research, emphasizing long-term and working memory. Applications include education, law, and aging.

PSYC 3640 MOTIVATION AND EMOTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Overview of historical and contemporary perspectives on human motivation and emotion.

PSYC 3650 DRUGS AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3700 BEHAVIORAL GAME THEORY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). This course is an introduction to behavioral economics involved in game theory using economics and psychological approaches to examine strategies and decision making when two or more people are involved with applications to real-world situations.

PSYC 3910 SUPERVISED RESEARCH EXPERIENCE (3) LEC. 3. SU. Pr., Departmental approval. Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIENTIAL LEARNING (3) PRA. 3. SU. Pr., Departmental approval. Supplementary instruction concurrent with job or volunteer experience involving the application of psychological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 4010/4013 CLINICAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Introduction to clinical psychology focusing on techniques of assessment and intervention.

PSYC 4080/4083 HEALTH PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Psychological principles in health maintenance and health problems.

PSYC 4110 INTRODUCTION TO DEVELOPMENTAL DISABILITIES (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Psychological principles in the care and treatment of developmentally disabled persons.

PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy.

PSYC 4250/4253 PSYCHOLOGY OF CHOICE AND DECISION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). In-depth exploration of the psychological science of choice and decision making.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3. SU. Pr., Departmental approval. Supervised experience in service-delivery settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. In-depth study of a psychological topic under the direction of a faculty member. Only 6 credit hours may be applied to the psychology major. Course may be repeated for a maximum of 9 credit hours.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. 2.30 GPA. STAT 2010. Course may be repeated for a maximum of 3 credit hours.
PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. STAT 2010. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 5620 DRUGS, BRAIN, AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). A review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1. May count either PSYC 5620 or PSYC 6620.

PSYC 5690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. PSYC 2130. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count PSYC 5960 or PSYC 6960.

PSYC 5960 SEMINAR IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated for a maximum of 6 credit hours.

PSYC 6020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. PSYC 2120 and PSYC 3560. Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Laboratory, occupational, and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 DRUGS, BRAIN, AND BEHAVIOR (3) LEC. 3. A review of drugs that affect nervous system function and their behavioral and neural mechanisms.

PSYC 6690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count either PSYC 5690 or PSYC 6690.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3. Pr., Departmental approval. Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours.

PSYC 7050 ASSESSMENT IN CLINICAL PSYCHOLOGY (3) LEC. 3. Survey of clinical methods of assessment, including test construction and validation.

PSYC 7100 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3. Historical developments in psychology with emphasis on the major theories and systems.

PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1. Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (3) LEC. 3. Problems and practices of teaching psychology at the college level. In addition to seminar meetings, students work with faculty in appropriate courses.

PSYC 7130 RESEARCH SEMINAR IN PSYCHOLOGY (1) SEM. 1. Overview of the research process, including the development of research questions, proposal writing, and issues involved in protecting the welfare of research participants.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3. Respondent conditioning and operant behavior, including acquisition of language and other forms of individual and environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3. Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3. Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.
PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3. Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3. Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3. Survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning, and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3. Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7210 ANIMAL BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Evolution of animal behavior, including mating, parental care, feeding, social, predatory, and defensive behavior.

PSYC 7220 BEHAVIORAL PRINCIPLES (3) LEC. 3. Concepts and principles of operant and respondent conditioning and their relevance to changing and interpreting human behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3. Pr. P/C PSYC 7270 and P/C PSYC 7280. Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3. Examination of strategies for measuring individual and environment interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICS (3) LEC. 3. Introduction to research methods and ethics in clinical psychology, with an emphasis on critical analysis of the scientific literature.

PSYC 7260 ETHICAL AND PROFESSIONAL ISSUES IN BEHAVIOR ANALYSIS (3) LEC. 3. Ethical and professional issues relevant to the practice of applied behavior analysis.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Introduction to the analysis of data collected under various different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7280 EXPERIMENTAL DESIGN IN PSYCHOLOGY II (4) LEC. 3. LAB. 2. Pr. PSYC 7270. and Enrollment in Psychology PhD program. Correlational and regression models. Matrix based multiple and logistic regression, moderation and mediation, and introduction to path models.

PSYC 7300 ADULT PSYCHOPATHOLOGY (3) LEC. 3. Current theoretical conceptions and research in adult psychopathology.

PSYC 7310 AUTISM AND INTELLECTUAL DISABILITIES (3) LEC. 3. Survey of the definitions, terms, epidemiology, etiologies, and current issues in autism and intellectual disabilities.

PSYC 7320 CLINICAL PSYCHOPHARMACOLOGY (3) LEC. 3. The basic principles of psychopharmacology with special attention given to drugs used in applied or therapeutic settings, their effects, and their potential interactions with behavioral interventions.

PSYC 7400 COGNITIVE NEUROSCIENCE (3) LEC. 3. Exploring how mental functions are linked to neural processes to enable the mind.

PSYC 7700 FOUNDATIONS IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. This course is designed to be an advanced survey of the Industrial and Organizational Psychology field.

PSYC 7710 TRAINING AND DEVELOPMENT IN ORGANIZATIONS (3) SEM. 3. A graduate seminar that focuses on critical conceptual and empirical issues facing training and development in the workplace.

PSYC 7720 PERSONNEL SELECTION (3) SEM. 3. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection.

PSYC 7730 RESEARCH METHODS IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. An overview of basic research methodology applicable to the investigation of organizational phenomena.

PSYC 7740 ORGANIZATIONAL CULTURE (3) SEM. 3. Gain an understanding of organizational culture and provides the context in which organizational behavior may be understood.
PSYC 7750 ETHICS AND PROFESSIONAL ISSUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. An introduction to issues faced in professional practice and importance of ethical behavior in the practice of Industrial/Organizational Psychology.

PSYC 7760 OCCUPATIONAL HEALTH PSYCHOLOGY (3) SEM. 3. Occupational health psychology (OHP) is an emerging interdisciplinary field concerned with psychological factors in employee health, safety, and well-being.

PSYC 7770 LEADERSHIP AND MOTIVATION SEMINAR (3) SEM. 3. Analysis of historical and contemporary theories of leadership and motivation and related research.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) PRA. Pr., Departmental approval. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 9 credit hours.

PSYC 7970 RESEARCH IN SPECIAL TOPICS (3) IND. 3. Pr., Departmental approval. Supervised scholarly activity related to student's field of study. Course may be repeated with change in topics.

PSYC 7980 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) PRA. Pr., Departmental approval. Supervised practicum in applied psychology behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Pr., Course may be repeated with change in topics.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 7180 and Departmental approval. Theories, research and issues in contemporary social psychology.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and PSYC 7280. Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8260 ANALYSIS OF TIME-RELATED DATA IN PSYCHOLOGY (3) LEC. 3. Pr. STAT 7020 or PSYC 8250. Theory and practical applications of statistical approaches for time-related data.

PSYC 8270 FACTOR ANALYSIS (3) SEM. 3. Theoretical and statistical applications of exploratory and confirmatory factor analysis.

PSYC 8280 META-ANALYSIS (3) SEM. 3. Meta-analysis is a quantitative analysis using techniques to analyze and integrate effect sizes that accrue from research studies.

PSYC 8300 DEVELOPMENTAL PSYCHOPATHOLOGY (3) LEC. 3. Introduction to contemporary concepts, constructs, and controversies in developmental psychopathology.

PSYC 8310 INTRODUCTION TO CLINICAL METHODS AND ETHICS (3) LEC. 3. Enrollment in Clinical Psychology Program. Interviewing introduction to interviewing skills, behavioral assessment, crisis intervention, professional and ethical issues in providing clinical services.

PSYC 8320 PSYCHOLOGICAL ASSESSMENT OF ADULTS (3) LEC. 3. Pr. (STAT 7270 or PSYC 7270) and PSYC 8310. Theories and techniques of the psychological assessment of adults.


PSYC 8340 SYSTEMS OF PSYCHOTHERAPY (3) LEC. 3. Pr. PSYC 7300. Survey of theories and research related to modern systems of psychotherapy.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3. Analysis of classical and modern test theory, with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2. LAB. 2. Theories and techniques for the assessment of cognitive abilities and academic achievement.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 8370</td>
<td>FOUNDATIONS OF PSYCHOLOGICAL ASSESSMENT</td>
<td>3</td>
<td>Enrollment in Clinical Psychology program.</td>
<td>Measurement theory and introduction to widely used objective personality and behavioral checklists with attention to ethics and diversity.</td>
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<tr>
<td>PSYC 8400</td>
<td>ADVANCED CHILD AND ADOLESCENT PSYCHOPATHOLOGY</td>
<td>3</td>
<td>Pr. PSYC 7300.</td>
<td>Examination of current research and theory of behavioral, cognitive, and emotional disorders in childhood and adolescence.</td>
</tr>
<tr>
<td>PSYC 8410</td>
<td>PSYCHOLOGICAL ASSESSMENT OF CHILDREN AND FAMILIES</td>
<td>3</td>
<td>Pr. PSYC 8310.</td>
<td>Theories and techniques of the psychological assessment of children and their families.</td>
</tr>
<tr>
<td>PSYC 8420</td>
<td>BEHAVIOR CHANGE IN CHILDREN</td>
<td>3</td>
<td>Pr. PSYC 8310 and (PSYC 8400 or PSYC 8410).</td>
<td>Introduction to methods of prevention and treatment of cognitive, behavioral, and emotional disorders of children.</td>
</tr>
<tr>
<td>PSYC 8430</td>
<td>CONCEPTUALIZATION AND TREATMENT OF CHILDS PSYCHOPATHOLOGY</td>
<td>3</td>
<td>Advanced study of developmental psychopathology and evidence-based treatment strategies for childhood disorders.</td>
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<tr>
<td>PSYC 8440</td>
<td>HEALTH PSYCHOLOGY AND BEHAVIORAL MEDICINE</td>
<td>3</td>
<td>Pr. PSYC 8310.</td>
<td>Introduction to behavioral theories of choice and behavioral economics and the application of these theories to the study of substance abuse.</td>
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<tr>
<td>PSYC 8450</td>
<td>THEORY AND METHOD IN HUMAN ALCOHOL AND DRUG RESEARCH</td>
<td>3</td>
<td>Pr. Departmental approval.</td>
<td>Theoretical framework and methodological practices in basic research on human alcohol and drug abuse.</td>
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<tr>
<td>PSYC 8470</td>
<td>BEHAVIORAL ECONOMICS OF SUBSTANCE ABUSE</td>
<td>3</td>
<td>Enrollment in the Clinical Psychology PhD Program.</td>
<td>Introduction of professional issues and ethical mandates of contemporary clinical psychology, emphasizing critical thinking skills and planning for a successful career in psychology.</td>
</tr>
<tr>
<td>PSYC 8480</td>
<td>ADVANCED PROFESSIONAL AND ETHICAL ISSUES IN CLINICAL PSYCHOLOGY</td>
<td>3</td>
<td>Enrollment in the Clinical Psychology PhD Program.</td>
<td>Advanced discussion of professional issues and ethical mandates of contemporary clinical psychology, emphasizing critical thinking skills and planning for a successful career in psychology.</td>
</tr>
<tr>
<td>PSYC 8500</td>
<td>COGNITIVE AND BEHAVIORAL SCIENCES SEMINAR</td>
<td>1</td>
<td>Enrollment in Cognitive and Behavioral Sciences PhD program.</td>
<td>Examination of professional preparation issues and recent scientific developments relevant to careers in the cognitive and behavioral sciences. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>PSYC 8510</td>
<td>CONTEXT AND CONSEQUENCES OF BEHAVIOR</td>
<td>3</td>
<td>Pr. PSYC 7140.</td>
<td>Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.</td>
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<tr>
<td>PSYC 8520</td>
<td>CONCEPTUAL AND THEORETICAL ANALYSIS IN PSYCHOLOGY</td>
<td>3</td>
<td>Technique of conceptual analysis relevant to the evaluation of theories and the interpretation of psychological data.</td>
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<td>PSYC 8530</td>
<td>BEHAVIOR ANALYSIS AND HUMAN DEVELOPMENT</td>
<td>3</td>
<td>Examination of conceptual, theoretical, and scientific issues relevant to the study of psychological development from a behavior analytic perspective.</td>
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<tr>
<td>PSYC 8540</td>
<td>BEHAVIORISM</td>
<td>3</td>
<td>Exploration of the philosophical and theoretical underpinnings of behavior analysis.</td>
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<tr>
<td>PSYC 8550</td>
<td>APPLIED BEHAVIOR ANALYSIS</td>
<td>3</td>
<td>Pr. PSYC 7140. and Departmental approval.</td>
<td>Scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.</td>
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<tr>
<td>PSYC 8560</td>
<td>HUMAN OPERANT BEHAVIOR</td>
<td>3</td>
<td>Pr. PSYC 8510. and Departmental approval.</td>
<td>Strategies and tactics specific to the experimental analysis of operant processes in human learning and performance.</td>
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<tr>
<td>PSYC 8570</td>
<td>APPLIED BEHAVIOR ANALYSIS 2</td>
<td>3</td>
<td>Applications of behavioral principles to the assessment and treatment of problem behavior.</td>
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<tr>
<td>PSYC 8700</td>
<td>ADVANCED INDUSTRIAL PSYCHOLOGY</td>
<td>3</td>
<td>Analysis of methods and content of industrial psychology.</td>
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<tr>
<td>PSYC 8710</td>
<td>ADVANCED ORGANIZATIONAL PSYCHOLOGY</td>
<td>3</td>
<td>Pr. Departmental approval.</td>
<td>Analysis of major issues in organizational psychology.</td>
</tr>
<tr>
<td>PSYC 8730</td>
<td>PERFORMANCE APPRAISAL</td>
<td>3</td>
<td>Analysis of classical, contemporary, theoretical, and practical issues related to the appraisal of employee work performance.</td>
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</tbody>
</table>
PSYC 8750 PROFESSIONAL ISSUES IN I/O PSYCHOLOGY (1) LEC. 1. Pr., Departmental approval. Analysis of contemporary professional issues in I/O psychology. Course may be repeated for a maximum of 6 credit hours.

PSYC 8760 DECISION MAKING IN THE WORKPLACE AND ORGANIZATIONS (3) SEM. 3. The application of behavioral decision theory and research to problems in Industrial/Organizational Psychology.

PSYC 8770 ORGANIZATIONAL CHANGE (3) SEM. 3. A conceptual overview of organizational change and organizational transformation and related specific topics.

PSYC 8780 WORK AND FAMILY (3) SEM. 3. A survey of research and theory in work and family, a content area of organizational psychology.

PSYC 8910 CLINICAL PRACTICUM (1-4) PRA. Pr. PSYC 8320 or PSYC 8410. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours, with 24 counting toward the degree.

PSYC 8920 INTERNSHIP (0) INT. Pr., PhD candidacy. Enrollment in full-time APA-approved 1-year pre-doctoral internship required for the PhD in Clinical Psychology. Student may not enroll in other course work.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Pr., Approved PhD plan of study. Review of literature leading to the writing and defense of the Major Area Paper (written portion of the general PhD examination). Course may be repeated for a maximum of 9 credit hours.

PSYC 8970 SPECIAL TOPICS (1-3) SEM. Pr., Departmental approval. In-depth study of issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Pr., Course may be repeated for a maximum of 98 credit hours.

Public Relations Commu Courses

PRCM 2400/2403 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector. May count either PRCM 2400 /PRCM 2043 or PRCM 3040/PRCM 3043.

PRCM 2500/2503 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself. May count either PRCM 2500/PRCM 2503 OR PRCM 3050/PRCM 3053.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media. May count either PRCM 3000 or PRCM 4080.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260/3263 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280/3283 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.
PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting. May count either PRCM 4400 or PRCM 4510.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043) and PRCM 4400. JRNL 1100 with a minimum grade of "B" in JRNL 1100. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies. May count either PRCM 4500 or PRCM 4090.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. CMJN 2100 or CMJN 2103 and PRCM 2400 or PRCM 2403. Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103), with a minimum grade of "B" in JRNL 1100. Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103) and PRCM 3000 and PRCM 4400. JRNL 1100 with a minimum grade of "B" in JRNL 1100. Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum.

Religion Courses

RELG 1010 INTRODUCTION TO RELIGIOUS STUDIES (3) LEC. 3. Major themes in religion, including religious experience, religion and society and the diversity of religions; examples from various religious traditions.

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3. Historical-critical study of the Hebrew scriptures in their cultural setting; emphasis on development of ancient Hebrew thought.


RELG 1040 INTRODUCTION TO WESTERN RELIGIONS (3) LEC. 3. Introduction to Islam, Judaism, and Christianity, with attention to Druze religion and Bah'ali. May count either RELG 1040 or RELG 3340.

RELG 1050 INTRODUCTION TO EASTERN RELIGIONS (3) LEC. 3. Introduction to Hinduism, Buddhism, and Confucianism, with secondary attention to other Asian religions. May count either RELG 1050 or RELG 3330.


RELG 2030 HISTORY OF CHRISTIANITY (3) LEC. 3. Development of Christianity from 100 C.B. to the present; major personalities, events, and movements.

RELG 4350 20TH-CENTURY RELIGIOUS THOUGHT (3) LEC. 3. Major 20th-century theologians, including Protestant, Catholic, and Jewish.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4967 HONORS SPECIAL PROBLEMS (3) LEC. 3. Pr. Honors College. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4970 SPECIAL TOPICS (3) LEC. 3. Course may be repeated with change in topics.
Social Work Courses

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3. Introduction to social work practice, examining career opportunities, history of the profession, practice settings, values, ethics, and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3. Development of social welfare policies and programs in the United States, analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3. Pr. SOCY 1000 or SOWO 2000 or SOCY 1007. Social work practice in settings dealing with child abuse and neglect, foster care, child care, and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Introduction to social services and social work with the elderly, considering socio-cultural issues and impact on the elderly.

SOWO 3700 ADDICTIONS (3) LEC. 3. Pr. PSYC 2010 or PSYC 2017 or PSYC 2013. Addictions, theories of causality, social impact, and treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3. Pr. SOWO 2000. Lifespan approach to biopsychosocial examination of behavior and early development, emphasizing influences of racism, sexism, and ethnocentrism.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3. Pr. SOWO 3800. Lifespan approach to biopsychosocial examination of behavior from adulthood through old age, emphasizing role of gender, sexism and sexual orientation.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) PRA. 3. Pr. SOWO 2000. Introduction to fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3. Pr. SOWO 2000 and SOWO 3910 and (SOCY 1000 or SOCY 1007). Introduction to generalist practice methods and skills in engagement, assessment, and goal setting with individual clients.

SOWO 4070 SOCIAL WORK METHODS II (3) LEC. 3. Pr. SOWO 4060. Practice skills and perspectives required for work with families and groups.

SOWO 4080 SOCIAL WORK METHODS III (3) LEC. 3. Pr. SOWO 4060. Generalist practice theory and skills as applied to communities, organizations, and oppressed populations, emphasizing issues of social justice and social action.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3. Pr. SOWO 2650. Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9. SU. Pr. SOWO 4080. 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 4080. Coreq. SOWO 4920. and Enrollment in SOWO 4920. Integrating theory with practice through analysis of behavior and evaluation of practice skills.

SOWO 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College or Departmental approval. Course varies based on faculty's and student's areas of interest and expertise. Course may be repeated for a maximum of 3 credit hours.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3) LEC. 3. Timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

SOWO 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

SOWO 7000 INTRODUCTION TO SOCIAL WORK AND SOCIAL WELFARE (3) LEC. 3. This course provides a review of the social work profession, history, and values and ethics. An overview of theory, practice, policy, and research are integrated in exploring the knowledge, values, and skills base of the social work profession.

SOWO 7010 ADVANCED CLINICAL PRACTICE (3) LEC. 3. Pr. SOWO 7020. This course provides intensive study on clinical interventions with individuals, families, and small groups across various fields of practice.

SOWO 7020 PSYCHOPATHOLOGY (3) LEC. 3. This advanced practice course teaches students to recognize selected major mental health disorders in adults, children, and youth and to become familiar with social work practice approaches used in the treatment of these disorders.
SOWO 7030 EVALUATION IN SOCIAL WORK PRACTICE (3) LEC. 3. This course examines quantitative and qualitative evaluation of agency programs and individual practice. Students will engage in hands-on individual and/or small-group research projects to experience all phases of the research process.

SOWO 7040 SOCIAL WORK PRACTICE IN THE HEALTH CARE FIELD (3) LEC. 3. This course will focus on the development of social work practice skills relevant to health care settings, including assessment of the impact of illness, disability, treatment, and hospitalization on patients and families.

SOWO 7050 MENTAL HEALTH (3) LEC. 3. Pr. SOWO 7020. This course focuses on mental health social work practice with children, adolescents and adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills. Special attention is given to strengths-based, evidence-based, and recovery-oriented practice models.

SOWO 7060 SOCIAL WORK PRACTICE WITH INDIVIDUALS AND FAMILIES (3) LEC. 3. This foundation course prepares students to apply a generalist perspective and systems framework to social work practice with individuals and families. It emphasizes the basics of communication, interviewing, relationship building, and practice skills essential to effective assessment, intervention, and evaluation.

SOWO 7070 SOCIAL WORK WITH GROUPS AND COMMUNITIES (3) LEC. 3. Pr. SOWO 7060. This macro social work course provides an advanced examination of social work practice in groups and larger systems. Students will develop knowledge, values, and skills in areas of: group practice, community assessment, social planning, community organization, and political strategies.

SOWO 7080 POLICY PRACTICE AND SOCIAL JUSTICE (3) LEC. 3. This course will critically apply conceptual frameworks and empirical research in the examination of social issues, policies, and services, focusing on how policies affect marginalized, oppressed and disadvantaged populations.

SOWO 7090 ADVANCED SOCIAL WELFARE POLICY (3) LEC. 3. The course will review the historical development of social welfare and social policies in the United States and explore their context and underlying values. This course builds knowledge and skills to analyze and make changes in social welfare policy.

SOWO 7100 GERONTOLOGY (3) LEC. 3. The course provides a clinical foundation for clinical work practice with older adults and their families. Primary focus will be on understanding how diversity factors into the physiological, psychological, and social aspects of later life.

SOWO 7110 TRAUMA INFORMED PRACTICE (3) LEC. 3. This course examines social work practice theories and intervention approaches as they apply to practice with survivors of crisis and trauma. The course will focus on engagement, assessment, planning, intervention, evaluation and follow up on all social work practice levels.

SOWO 7120 PSYCHOSOCIAL CONTEXT OF DISABILITY (3) LEC. 3. Prepares the social worker to be an effective practitioner for persons with disabilities by exploring the psychosocial context of the lives and experiences of persons with disabilities and their families from various perspectives.

SOWO 7130 SOCIAL WORK PRACTICE WITH CHILDREN AND ADOLESCENTS (3) LEC. 3. This course develops advanced clinical social work practice knowledge and skills to engage and intervene with children and adolescents with health and mental health risk and provides knowledge for community social workers serving children who are exposed to stress.

SOWO 7140 DIVERSITY AND DIFFERENCE IN PRACTICE (3) LEC. 3. Students must be admitted to the Masters of SocialWork Program to enroll in this course.

SOWO 7700 FOUNDATIONS OF SOCIAL WORK RESEARCH (3) LEC. 3. This course provides a study of quantitative and qualitative research methods in order to build knowledge for social work practice. Students will be prepared to develop, implement and communicate ethical, empirically-based scientific knowledge.

SOWO 7800 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3) LEC. 3. This graduate-level foundation course covers theories, themes, and issues that influence individual and group and development across the life span- in interaction with the environment- as it underlies social work practice and research.

SOWO 7920 GENERALIST FIELD (10) INT. 10. SU. This course prepares students for responsible, competent entry into the profession by providing opportunities to practice social work with a generalist perspective in agency settings under educational supervision. This course requires completion of 432 total hours in an agency setting.
SOWO 7930 ADVANCED FIELD (12) INT. 12. SU. Pr. SOWO 7920. This course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 512 hours in an approved agency during this field experience. Course may be repeated for a maximum of 18 credit hours.

SOWO 7950 INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 7020 and P/C SOWO 7930. This seminar course assists students in integrating and applying classroom learning with the advanced field placement. Opportunities are provided for case presentation, discussion and peer consultation.

SOWO 7970 GRANT WRITING (3) LEC. 3. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations. Writing a successful grant proposal is a blend of art and science. It requires basic knowledge, content knowledge, writing proficiency, strong research skills, creativity, organizational ability, patience, and a great deal of luck. This course will provide students with the background necessary to develop a competitive funding proposal. Course may be repeated for a maximum of 6 credit hours.

Sociology Courses


SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 1050 AUBURN IN THE WORLD: SOCIETY AND CULTURE (4) LEC. 4. Auburn Global students. Part of the Auburn Global International Accelerator Program. The course will introduce students to American society and culture through core sociological concepts. May count either SOCY 1050 or HIST 1000.

SOCY 1100 CURRENT ISSUES IN RACE AND ETHNICITY (3) LEC. 3. An exploration of how race and ethnicity shape our daily lives and the world around us.

SOCY 2000 SOCIAL ISSUES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Exploration of the claims and conflicts of public issues and moral apprehensions, including crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. Distribution and measurement of crime, different variations in criminal behavior, and handling crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3. Survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science, and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3. Examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examination of etiological issues related to crime; major theories of crime causation from a wide variety of perspectives.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Sociological overview of policing and current issues that relate to the police.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3. Sociological perspectives on sports in the social system; organization and culture of sports in relationship to social class, race, and gender; and the interconnections between sport and society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. In-depth analysis of sentencing policies and the correction system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3. Family as a major social institution, with emphasis on the American family; cross-cultural comparisons for perspective.

SOCY 3500 MINORITY GROUPS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Exploration of the sources and uses of minority representations in the United States addressing inequalities such as race, ethnicity, gender, and sexual orientation.

SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.
SOCY 3700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation, and research design.

SOCY 4000 SOCIALIZATION (3) LEC. 3. Examination of mind, self, society, and interaction as symbolic phenomena grounded in social process; covers major intellectual influences, concepts, and figures.

SOCY 4100 DEVIANCE (3) LEC. 3. Analysis of creation and reaction to deviance through theoretical approaches; examines several deviant groups.

SOCY 4200 MEDICAL SOCIOLOGY (3) LEC. 3. Nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, and disease and to the relationship between culture, politics, and health.

SOCY 4300 FIELD INSTRUCTION (3) LEC. 3. Pr., Departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3) LEC. 3. Survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis, and differences in theoretical approaches.

SOCY 4700 THEORIES OF CRIME AND CRIMINALITY (3) LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

SOCY 4800 SENIOR SEMINAR (3) LEC. 3. Building upon prior coursework in theory, methods, and statistics for an in-depth examination of substantive areas in sociology. Students must demonstrate proficiency in critical thinking and analysis and in written and oral communication.

SOCY 4960 SPECIAL PROBLEMS IN SOCIOLOGY (3) AAB/IND. 3. Pr., Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 6 credit hours.

SOCY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College or Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 3 credit hours.

SOCY 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

SOCY 5120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis.

SOCY 5200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective.

SOCY 5300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors.

SOCY 5310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Application of methods and techniques of information analysis and related report writing.

SOCY 5400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit with not be given for both SOCY 5400 and SOCY 6400.

SOCY 5500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit with not be given for both SOCY 5500 and SOCY 6500.

SOCY 5600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit with not be given for both SOCY 5600 and SOCY 6600.

SOCY 5650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit with not be given for both SOCY 5650 and SOCY 6650.
SOCY 5670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 5970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Pr., Departmental approval. Study of substantive areas sociology. Credit will not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 6120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis. Credit will not be given for both SOCY 5120 and SOCY 6120.

SOCY 6200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective. Credit will not be given for both SOCY 5200 and SOCY 6200.

SOCY 6300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors. Credit will not be given for both SOCY 5300 and SOCY 6300.

SOCY 6310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Application of methods and techniques of information analysis and related report writing. Credit will not be given for SOCY 5310 and SOCY 6310.

SOCY 6400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit will not be given credit for both SOCY 5400 and SOCY 6400.

SOCY 6500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit will not be given for both SOCY 5500 SOCY 6500.

SOCY 6600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit will not be given for both SOCY 5600 and SOCY 6600.

SOCY 6650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit with not be given for both SOCY 5650 SOCY 6650.

SOCY 6670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit will not be given for both SOCY 5670 and SOCY 6670.

SOCY 6970 SOCIOLOGY SPECIAL TOPICS (3) LEC. 3. Study of substantive areas of sociology. Credit with not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 7000 ADVANCED SOCIOLOGICAL THEORY (3) LEC. 3. Pr. SOCY 4400 or Departmental approval. Review of major types of sociological theory within the context of theoretical paradigms and significant theoretical issues that face the discipline.

SOCY 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE, AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.

SOCY 7200 SEMINAR IN SOCIAL BEHAVIOR (3) SEM. 3. Research and theory concerning social and group influences on behavior.

SOCY 7250 SOCIOLOGY OF VIOLENCE (3) LEC. 3. In-depth coverage of various forms of violence from the sociological perspective.

SOCY 7800 MENTORING IN THE CLASSROOM (1) LEC. SU. Pr., Departmental approval. First-hand experience in building and planning a course, constructing lectures, tests, and syllabi, presenting and taping a lecture, critiquing performance, developing discussions, and other instructional techniques.

SOCY 7850 TECHNOLOGY AND TEACHING IN SOCIOLOGY (1) LEC. 1. SU. Pr., Departmental approval. Technology as a teaching tool sociology classes.

SOCY 7930 DIRECTED STUDIES (3) IND. 3. Pr., Departmental approval. Independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. Preparation of a thesis. Course may be repeated with change in topics.
Theatre Courses

THEA 1010 INTRODUCTION TO THEATRE FOR MAJORS I (3) LEC. 2, LLB. 2. Overview of all areas of theatrical collaboration intended specifically for the incoming theatre majors. Introduces theatre majors to academic skills they will need to pursue the theatre major at Auburn University. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS II (3) LEC. 2, LLB. 2. Pr. THEA 1010. Introduction to a variety of perspectives regarding theatrical practices, theories, and texts. Focus on productive working relationships and collaborative skills necessary for a successful life in the theatre. Course culminates in the creation of a new performance piece. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1530 DANCE LAB 1 - TAP (1) LAB. 3. Introduction to traditional tap dance. Exploration of technical concepts, rhythm combinations, and improvisations designed to test and develop tap dance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1570 DANCE LAB 1 - BALLET (1) LAB. 4.5. Beginning studio introduction to ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1670 DANCE LAB 1 - JAZZ (1) LAB. 3. Studio introduction to and exploration of jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1910 PRODUCTION PRACTICUM I (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.


THEA 2020/2023 AESTHETICS OF ACTING (3) LEC. 3. Fine Arts Core. An orientation to acting aesthetics as a means of understanding and engaging the art of theatre.

THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3) LEC. 1, LST. 3. Theory and practice of specialized performance techniques for television and film. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2110 VOICE AND MOVEMENT FUNDAMENTALS (2) STU. 4. Coreq. THEA 2111. Exploration and study of fundamental issues in vocal production, articulation, and movement. Introduction to vocal anatomy, breathing/relaxation/alignment techniques, and integrated vocal and movement exercises applied in a variety of texts. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2111 VOICE AND MOVEMENT FUNDAMENTALS LAB (1) LAB. 2. Coreq. THEA 2110. Exploration and application of vocal and physical skills designed to enhance vocal production, physical flexibility and integrated execution of vocal and physical performance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2120 ACTING I (3) LEC. 2, LST. 2. Introduction to basic acting techniques, literature, and performance through improvisation, contemporary scene study and attendance at theatre performances. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2300 STAGE MANAGEMENT (3) LEC. 3. Examination of the theories and techniques of stage management in the producing organization, including management, organization, auditions, rehearsal, safety practices, and production procedures. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 3. A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.
THEA 2400 DESIGN AESTHETICS (3) LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2570 DANCE LAB 2 - BALLET (1) LAB. 4.5. Pr. THEA 1570. Intermediate studio training in ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3. Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2670 DANCE LAB 2 - JAZZ (1) LAB. 3. Pr. THEA 1670. Intermediate studio training in jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2700 TEXT ANALYSIS (3) LEC. 3. Script Analysis provides students with the tools to read and interpret scripts from a variety of perspectives with a focus upon implications for production. Students will analyze plays for character, plot, theme, action, given circumstances, and production requirements.

THEA 2810 THEATRE PRODUCTION I (3-6) STU. Departmental approval. Coreq. THEA 2820. Intensive study of theatre arts through participation in the Auburn University Summer Repertory Company, focusing mainly on technical work and design. Course may be repeated for a maximum of 12 credit hours.

THEA 2820 SUMMER REPERTORY THEATRE COMPANY I (3-6) STU. Departmental approval. Coreq. THEA 2810. Concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Course may be repeated for a maximum of 12 credit hours.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3. Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 2910 PRODUCTION PRACTICUM II (1) STU. 4. Pr. THEA 1910. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 2940 APPLIED THEATRE I: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3110 VOICE FOR THE ACTOR II (3) LEC. 2, LST. 2. Pr. THEA 2110. Continuing study of vocal production and articulation techniques in tests of increasing complexity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3120 ACTING II (3) LEC. 2, LST. 2. Pr. THEA 2120. Exploration of internal and external acting theory and techniques in modern and classical scene study. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3140 MUSIC THEATRE ACTING (3) LEC. 3. LAB. 3. Pr., Admission into the (THMU major) or Departmental approval. Exploration of acting techniques and performance through music theatre scene and song study, analysis, and history of music theatre repertoire culminating in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3150 BFA PERFORMANCE STUDIO I (4) LEC. 3, LST. 5. Pr., Admission into the THPR or THMU majors. Intensive study and practice integrating advanced contemporary scene study, audition technique, and the Fitzmaurice Voicework system. Students who do not earn a grade of "C" or better must re-audition for the BFA program and repeat the course.

THEA 3160 BFA PERFORMANCE STUDIO II (4) LEC. 3, LST. 5. Pr. THEA 3150. Intensive study and practice integrating Shakespeare and scene study of poetic texts with continuing work in Fitzmaurice Voicework system. Must earn a grade of "C" or higher or re-audition for the BFA program and repeat THEA 3150 and THEA 3160.
THEA 3190 SINGING PRACTICUM (1) STU. 1. Group instruction in musical theatre singing. Students will be introduced to the primary principles of posture, breathing, resonance, vocal health, direction, interpretation, and repertoire selection. Theatre majors who do not earn a grade of "C" or higher must repeat. Course may be repeated for a maximum of 2 credit hours.

THEA 3210 THE BUSINESS OF THEATRE (3) LEC. 3. Pr. THEA 1010 and THEA 1110 and THEA 2300 and THEA 2310 and THEA 1910 and THEA 2910. Discussion, research, and implementation of the practices necessary to be successful as a freelance artist in the current performing arts field.

THEA 3220 ARTS MANAGEMENT (3) LEC. 3. Pr. THEA 2300. THEA 2300 with a minimum grade of "C". Exploration of arts organizational structures, budgeting for non-profit and for-profit arts organizations, basic business and marketing practices, historical principles and practices of arts and cultural organizations.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2. Pr. THEA 2310. Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3330 SCENE PAINTING (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3350 TECHNICAL DIRECTION/PRODUCTION MANAGEMENT (3) LEC. 3. Pr. THEA 2310 and THEA 3320 or Departmental approval. Exploration of the roles and responsibilities of the technical director and the production manager in the coordination and execution of technical elements for theatre productions. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Traditional drawing and rendering techniques and medias that help the designer to communicate scenic, costume, and lighting designs. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3450 DRAFTING FOR THE THEATRE I (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. Equipment and techniques used in sound design, as both a design and a technical medium. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3570 DANCE LAB 3 - BALLET (1) LAB. 4.5. Pr. THEA 2570. Intermediate advanced studio in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2. Pr. THEA 2610 or Departmental approval. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3670 DANCE LAB 3 - JAZZ (1) LAB. 3. Pr. THEA 2670. Intermediate advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.
THEA 3710 THEATRE HISTORY, THEORY AND CRITICISM II - BODY (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on the human body as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include such topics as historical and theoretical perceptions of the social status of the actor, the actor's body as a medium of representation, and theatrical representations of gender and ethnicity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3720 THEATRE HISTORY, THEORY AND CRITICISM III - SPACE (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on theatrical space as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include ritual landscapes as they pertain to the origin of drama, the development of the western playhouse, the avant-garde reconceptualization of theatre space, and the development of such spatially oriented American institutions as Broadway and regional theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3730 MUSIC THEATRE HISTORY (3) LEC. 3. Exploration of music theatre literature, performances, historical, analytical and critical trends from the early 20th century to the present day. Areas of exploration include music theatre as a work of art with unique conversations about aesthetics and form, as an entertainment media shaped by its historical and cultural context, and as a viable performance form for the 21st century. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3740 COSTUME HISTORY (3) LEC. 3. History of Western costume and its uses in the theatre from ancient times to the present. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3800 THEATRE EVENTS MANAGEMENT (3) SEM. 3. Pr. THEA 2300. THEA 2300 with a grade of "C" or higher. This course is an introduction to the researching, planning, coordinating, marketing, facilitation/management and assessment of special events, specifically as they relate to the performing arts. Through practical application, each student will gain experience in the basic entrepreneurial skills necessary to plan a public arts event.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3. Pr. THEA 2840. Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3. Pr. THEA 2840. Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3860 MOVEMENT FOR THE ACTOR (3) STU. 4. Introduction to the basic concepts of movement as it relates to the actor. Integrative ways of connecting the body to text and space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3910 PRODUCTION PRACTICUM III (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 3940 APPLIED THEATRE II: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3950 DIRECTING SEMINAR (3) LEC. 2, LST. 2. Pr. THEA 2120. Study of fundamental skills and collaborative processes needed to direct live theatre, including blocking, script analysis, research methods, approaches to casting, and rehearsal techniques. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3960 DRAMATURGY SEMINAR (3) LEC. 3. Study of fundamental skills and collaborative processes needed to dramaturg a piece of live theatre including both production and new play dramaturgy, critical analysis, research, presentations, and performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4150 BFA PERFORMANCE STUDIO III (4) LEC. 3, LST. 5. Pr. THEA 3160. Professional preparation with particular focus on individual rehearsal and performance techniques covering a broad spectrum of periods and styles geared toward graduate acting program placement and professional employment. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, and THEA 4150.
THEA 4160 BFA PERFORMANCE STUDIO IV (4) LEC. 3, LST. 5. Pr. THEA 4150. Special problems and topics in performance. Intensive work integrating and applying acting, voice, and movement techniques in an ensemble capstone recital of work in an adjudicated public performance. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, THEA 4150 and THEA 4160.

THEA 4420 SCENE DESIGN II (3) LEC. 2, LST. 2. Pr. THEA 3410 or Departmental approval. Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4450 DRAFTING FOR THE THEATRE II (3) LEC. 2, LST. 2. Pr. THEA 3450. Comprehensive study of computer and digital techniques used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4510 LIGHTING DESIGN II (3) LEC. 3. LAB. 1. Pr. THEA 2400 and THEA 3510. Lighting Design II provides students with in-depth study of advanced stage lighting techniques, including integration of computer graphics and projections with conventional lighting instruments.

THEA 4650 ADVANCED STAGE MAKEUP (3) LEC. 1, LST. 3. Pr. THEA 2650 or Departmental approval. Comprehensive study of specialized makeup, including film and television makeup, mask making, prosthesis, facial hair design, and wig making. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4750 PLAYWRITING (3) LEC. 3. Discussion of the principles of play construction, playwriting exercises, and completion of a one-act play. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4770 CAPSTONE SENIOR DANCE LAB (1) LAB. 4. Pr. THEA 1530 and THEA 2570 and THEA 2670. Students must be in good standing in BFA Performance Program. Culminating exploration of, and enrichment in musical theatre dance technique ranging from Ballet to Jazz to Hip-hop. Course culminates in a public capstone dance outcome performance.

THEA 4810 THEATRE PRODUCTION II (3-6) STU. Concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Course may be repeated for a maximum of 12 credit hours.

THEA 4820 SUMMER REPERTORY THEATRE COMPANY II (3-6) STU. Intensive and concentrated study of production skills and techniques and studio/laboratory experiences. Course may be repeated for a maximum of 12 credit hours.

THEA 4840 ADVANCED DANCE TECHNIQUES (3) LEC. 1, LST. 3. Pr. THEA 3850. Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 12 credit hours.

THEA 4910 PRODUCTION PRACTICUM IV (1-4) STU. Pr. THEA 3910. Or Admission into the THDT or THMN program and two semesters of THEA 3910 or departmental approval. Leadership experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8) INT. Pr., Departmental approval. Internship with professional or community theatre in the student's field of specialization. Each 10-hour work week equals one hour of credit. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.
THEA 4940 THEATRE SPECIAL PROJECTS (3) AAB/STU. 4. Pr., Departmental approval. Selected projects related to realizing a theatrical production in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 9 credit hours.

THEA 4950 THEATRE LITERATURE AND THEORY SEMINAR (3) LEC. 3. Thorough examination of dramatic literature and theory from a narrow perspective (such as genre, style, or era.) Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Subject areas to be determined between student and theatre instructor. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4970 SPECIAL TOPICS (3) LEC. 3. Special Topics in Theatre or Dance. Course may be repeated for a maximum of 9 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3. Capstone course to aid senior theatre majors in their transition to the professional world and/or graduate studies. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Final projects of varying natures in theatre Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

Women's Studies Courses

WMST 2100 INTRODUCTION TO WOMEN'S STUDIES (3) LEC. 3. Interdisciplinary examination of the definitions of gender and impact of culture on the construction of gender. Diversity of representation, reflecting upon the histories of woman from a local and global perspective will be the keynote of the course.

WMST 3900 DIRECTED READINGS IN WOMEN STUDIES (1-3) LEC. Departmental approval. Directed study in an area of special interest. Course may be repeated for a maximum of 3 credit hours.

WMST 4980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Departmental approval. Focus on the feminist theorists who have analyzed gender subordination. Students will become acquainted with a variety of the theorists and with the history of feminist activism.

WMST 5980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 6980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 7910 TEACHING PRACTICUM (1) LEC. 1. Pr. (WMST 5980 or WMST 6980). Intended women's studies minor. Feminist pedagogical theory and practice. Course may be repeated for a maximum of 2 credit hours.

Interdisciplinary Studies Courses

IDSC 1010 LIFE, CAREER, AND EVERYTHING (3) LEC. 3. This course provides an in-depth exploration of each student's strengths and interests, and includes a series of exercises and experiences designed to guide the student in the selection of a degree path.

IDSC 2000 CONTEMPORARY KOREA (3) LEC. 3. Overview of the human, physical, and technological context of the Republic of South Korea through a combination of lectures, readings, presentations, and discussions, utilizing the expertise of Auburn colleagues across the disciplines.

IDSC 2190/2193 FOUNDATIONS OF INTERDISCIPLINARY UNIVERSITY STUDIES (3) LEC. 3. Provides students with an introduction to (1) the major approaches and applications of interdisciplinary studies, (2) an examination of disciplinary and interdisciplinary thinking; and (3) an introduction to concepts and methods of interdisciplinary study.

IDSC 3210 ADVANCED INTERDISCIPLINARY PROBLEM SOLVING (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and IDSC 2190 or IDSC 2193. This is a synthesis course designed to provide students with practice in applying interdisciplinary methods to the solution of real-world problems and to prepare them to communicate those solutions to a diverse audience.

IDSC 4920 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) INT. 3. Pr. (IDSC 1010 and IDSC 2190 or IDSC 2193) and IDSC 3210. Capstone course designed to apply Interdisciplinary Degree Coursework to an internship project. Course may be repeated for a maximum of 6 credit hours.
IDSC 4930 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) LEC. 2. LAB. 2. Pr. (IDSC 1010 and IDSC 2190 or IDSC 2193) and IDSC 3210. Capstone course designed to apply Interdisciplinary Degree Coursework to a senior thesis project. Course may be repeated for a maximum of 6 credit hours.

IDSC 5950/5953 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

IDSC 6950/6956 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

Leadership Courses

LEAD 2000 FOUNDATIONS OF LEADERSHIP (3) LEC. 2. LAB. 1. Introductory course for students pursing the Leadership Minor.

LEAD 4000 LEADERSHIP IN PRACTICE (3) LEC. 3. Pr. LEAD 2000. Capstone course in interdisciplinary leadership minor.

Sustainability Studies Courses

SUST 2000 INTRODUCTION TO SUSTAINABILITY (3) LEC. 3. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

SUST 4900 DIRECTED STUDIES IN SUSTAINABILITY (1-3) IND. Departmental approval. Advanced individual research and/or coursework in the field of sustainability studies. Course may be repeated for a maximum of 3 credit hours.

SUST 5000 SENIOR CAPSTONE IN SUSTAINABILITY (3) LEC. 3. Pr. SUST 2000. Capstone research seminar for students completing the Minor in Sustainability Studies.

Aviation Management Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.


AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. SU. AVMG, AVMF, AVMN, and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, operation, and typical problems.

AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Junior Standing or Departmental Approval. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Junior Standing or Departmental Approval. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Junior Standing or Departmental Approval. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or Departmental Approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090/6096 AVIATION LAW AND POLICY (3) LEC. 3. Departmental approval. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170/6176 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180/6186 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares. Junior standing

AVMG 6970/6976 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930/7936 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.
Flight Education Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 2. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and airplane flight time. Special fee.


AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2150 or Departmental approval. Dual and solo flight instruction and discussion to prepare for first solo in a single-engine airplane. Special fee.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2171 or Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA).

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2230. Flight instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating – Airplane Practical Test. Special fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2250 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX).

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2241. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating – Airplane Practical Test. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special Fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests.


AVMF 4320 PRINCIPLES OF PROFESSIONAL FLIGHT (3) LEC. 3. Pr. AVMF 2230. Multi-engine transport aircraft systems and operating procedures (normal, abnormal, and emergency). Includes hydraulic, electric, pneumatic, air conditioning and pressurization, auxiliary power unit (APU), landing gear, and flight control systems. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 6. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Special fees.


AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1000 or PHYS 1007. Private Pilot Certificate, or Departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affecting lift, thrust, drag, in-air performance, stability and flight control.

Art and Art History

The Department of Art and Art History prepares students for careers as artists and for careers in visual arts institutions. The Department of Art and Art History is an accredited member of the National Association of Schools of Art and Design and a member of the College Art Association.

The Department of Art and Art History offers three majors: a Bachelor of Arts (formal option in Art History), a Bachelor of Arts in Studio Art, and a Bachelor of Fine Arts in Studio Arts. The BA in Art History is for students who want an art history education within the liberal arts curriculum. Students elect art history courses in four groups and complete a capstone project in methodology and history. Students in this major have great flexibility in their choice of electives, enabling them to access a broad array of courses within the university. The BA in Art is for students who want a studio art education within the liberal arts tradition. Students elect studio courses in several areas rather than a single concentration. The BFA in Studio Art is a professional degree that allows students to concentrate in one area: painting, sculpture, photography, printmaking, or ceramics. The Department of Art and Art History also offers minors in both Studio Art and Art History.

BFA students in Studio Art must complete an advisory review during their sophomore year. The following are required for the review:

- Completion of 23 credit hours of studio art and art history courses. Students should check with the department for a list of courses.
- Submission of a BFA review application form.
- Submission of a written statement of academic and career goals.
- Submission and presentation of a portfolio of artwork.
- Participation in an evaluative meeting with a committee of designated Department of Art faculty.

In all Fine Arts curricula, electives may include six hours Basic ROTC or Advanced ROTC. In curricula that do not allow for six hours of electives, ROTC may be taken in lieu of required courses with approval of the departmental adviser. University core courses may not be replaced by Basic or Advanced ROTC.

Majors

- B.A. Art (p. 874)
- B.A. in Art History (p. 875)
- B.F.A. in Studio Art (p. 876)

Minors

- Art History (p. 873)
- Studio Art (p. 877)

Courses

ARTS 1030 BASIC CERAMICS (3) STU. 6. Instruction in principles of three-dimensional design and sculpture. Clay is used to explore techniques of casting, constructing, modeling, and wheel throwing. Work with glazes and surface decoration. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1040 BASIC PAINTING (3) STU. 6. Instruction in painting concepts, materials, and techniques. Water-based paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1110 DRAWING I (3) AAB/STU. 6. Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media.

ARTS 1210 2-D DESIGN FOR STUDIO ART (3) STU. 6. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.
ARTS 1220 3-D DESIGN FOR STUDIO ART (3) STU. 6. Elements and principles of basic three-dimensional design. Emphasis on spatial organization, color, media exploration and craftsmanship.

ARTS 1250 ORIENTATION TO STUDIO ART FOR THE MAJOR (2) LEC. 2. Studio Art Majors and Minors or Departmental Approval. Introduction to the visual arts, critique strategies, studio safety, portfolio development, writing, and careers in the arts.

ARTS 1510/1513 LOOKING AT ART: APPROACHES TO INTERPRETATION (3) LEC. 3. Introduces the fundamental structures of the art world and multiple approaches to looking at and responding to art.

ARTS 1610/1613 INTRODUCTION TO ART HISTORY (3) LEC. 3. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1617 HONORS INTRODUCTION TO ART HISTORY (3) LEC. 3. Pr. Honors College. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1710 INTRODUCTION TO ART HISTORY I (3) LEC. 3. Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000.

ARTS 1717 HONORS INTRODUCTION INTO ART HISTORY I (3) LEC. 3. Pr. Honors College. Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000. Credit will not be given for both ARTS 1710 and ARTS 1717.

ARTS 1720/1723 INTRODUCTION TO ART HISTORY II (3) LEC. 3. Fine Arts Core. Introduction to world art, c.1000 to c.1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same time period.

ARTS 1727 HONORS INTRO ART HISTORY II (3) LEC. 3. Pr. Honors College. Fine Arts Core. An introduction to world art, c. 1000 to c. 1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same period. Credit will not be given for both ARTS 1720 and ARTS 1727.

ARTS 1730 INTRODUCTION TO ART HISTORY III (3) LEC. 3. Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships.

ARTS 1737 HONORS INTRODUCTION TO ART HISTORY III (3) LEC. 3. Pr. Honors College. Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships. Credit will not be given for both ARTS 1730 and ARTS 1737.

ARTS 2100 FOUNDATIONS OF ART HISTORY I (3) LEC. 3. A history of art from ancient cultures to approximately 1300 CE, with an introduction to basic art historical research and writing skills.

ARTS 2150 FOUNDATIONS OF ART HISTORY II (3) LEC. 3. A history of art from approximately 1300 CE to the contemporary period, with an introduction to basic art historical research and writing skills.

ARTS 2210 INTRODUCTION TO PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Fine art photographic concepts and techniques including camera operation, tonal control of black and white prints, presentations of historical and contemporary photography.

ARTS 2310 PAINTING I (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Instruction in painting concepts, materials, and methods.

ARTS 2410 PRINTMAKING: RELIEF (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Instruction to relief printmaking. Studio work supplemented with lectures, critiques, and readings.

ARTS 2510 INTRODUCTION TO SCULPTURE (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1220 or Departmental approval. Survey of the materials, processes, and issues involved in the production of contemporary object-oriented sculpture. Focus on problem solving and presentations of contemporary sculpture.

ARTS 2610 INTRODUCTION TO DIGITAL ART (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. An introduction to the skills and concepts of digital art forms such as imaging, time, and sound, using computer-based tools and techniques.
ARTS 2810 CERAMICS I (3) AAB/STU. 9. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1220 or Departmental approval. Introduction to handforming methods for sculpture and vessel forms in clay. Work with glazes and firing.

ARTS 2970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) LEC. 3. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 3100 INTERMEDIA (3) STU. 6. Pr. ARTS 2510 and (ARTS 2810 or ARTS 3820) and (ARTS 2210 and ARTS 2310 and ARTS 2410) and (ARTS 2100 and ARTS 2150). Introduction to concepts and visual problem solving in mixed media.

ARTS 3110 FIGURE DRAWING (3) STU. 6. Pr. ARTS 1110 and (ARTS 2100 or ARTS 2150) or Departmental approval. The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and nude models.

ARTS 3140 ADVANCED DRAWING I (3) STU. 6. Pr. ARTS 3110. Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Nude models may be used.

ARTS 3150 ADVANCED DRAWING II (3) STU. 6. Pr. ARTS 3140 and (ARTS 2100 and ARTS 2150). Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3220 DIGITAL AND COLOR PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2210 or GDES 3210) or Departmental approval. Concepts and practices of contemporary art photography including digital production techniques and color photographic theory.

ARTS 3230 INTERMEDIATE PHOTOGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2210 or GDES 3210) or Departmental approval. Intermediate study of photographic processes with emphasis on technique, classroom craftsmanship, medium and large camera formats, approaches to content and researching concepts to inform studio production.

ARTS 3320 PAINTING II (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 2100 and ARTS 2150 or Departmental approval. Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach.

ARTS 3330 PAINTING III (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 3320 or Departmental approval. Medium and subject determined by student and instructor. Emphasis on strengthening aesthetic awareness and technical skills.

ARTS 3420 PRINTMAKING: INTAGLIO (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Introduction to intaglio printmaking. Studio work with lectures, critiques, and readings.

ARTS 3430 PRINTMAKING: SERIGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2410 or ARTS 3420) or Departmental approval. Introduction to water based screen-printing. Studio work supplemented with lectures, critiques, and reading.

ARTS 3520 SCULPTURE AS OBJECT (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 2510 or Departmental approval. Continued research into the materials, processes and issues involved in the production of mixed media sculpture. Readings and discussions on recent developments in the field of sculpture.

ARTS 3530 SCULPTURE AS SPACE (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 2510 or Departmental approval. Survey of the methods, technologies (including sound and light), and issues involved in the production of contemporary sculptural installations, environments, and sites. Class discussion of student projects, with readings, presentations, and videos that address current art practice.

ARTS 3650 HISTORY OF PHOTOGRAPHY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the history and theory of photography from its 19th-century origins to contemporary global practices.

ARTS 3660 EIGHTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture in 18th-century Europe.

ARTS 3670 CONSTRUCTING RACE IN THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the role of visual imagery in inscribing and challenging racial hierarchies in the history of art.

ARTS 3680 20TH-CENTURY ART II: 1945-2000 (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. An introduction to the artists, movements, institutions, concepts, and themes of late 20th-century art.

ARTS 3690 ARTS OF AFRICA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the art, artists, themes and issues in African art from the pre-colonial period to the contemporary era.
ARTS 3700 ART OF THE UNITED STATES (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of architecture, painting, and sculpture from colonial to recent times. Selected movements and works are considered in relationship both to European and to indigenous conditions and attitudes.

ARTS 3710 ANCIENT ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Examination of major art traditions of the ancient world, including for example: Egypt, Near East, Aegean, Greece, and Rome.

ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions, including Migration period, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy.

ARTS 3740 SEVENTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of 17th-century Europe.

ARTS 3750 19TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau.

ARTS 3760 20TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to recent times.

ARTS 3770 ANCIENT AMERICAN ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major art traditions of nuclear America, from Mexico to the Andes, from the beginnings to CE 1550.

ARTS 3780 RENAISSANCE ART OF NORTHERN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the art of Northern Europe, CE 1300-1600. Major themes include cultural interchange, court and bourgeois patronage, rise of graphic arts, and the development of the art market.

ARTS 3790 ARTS OF ASIA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to major art traditions of Asia from the beginnings to the present.

ARTS 3800 ISSUES AND CRITICISM IN CONTEMPORARY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) and one 3000-level art history class or Departmental approval. Readings and discussions about contemporary art.

ARTS 3810 GENDER AND THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to gender issues in the visual arts in historical and contemporary contexts. Examines the cultural notions of both masculine and feminine gender roles at play in works of art and explores key issues that have affected women's production of works of art in the past and present.

ARTS 3820 CERAMICS II (3) STU. 6. Pr. ARTS 1110 and ARTS 1220 and (ARTS 2100 or ARTS 2150) or Departmental approval. Introduction to wheel-thrown pottery. Presentation of historical and contemporary contexts for fine arts ceramics. Work with glazes and firing.

ARTS 3830 CERAMICS III (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 2810 and ARTS 3820 or Departmental approval. Individual approaches to ceramic sculpture and vessel forms, with emphasis on stylistic and conceptual concerns.

ARTS 3920 INTERNSHIP IN STUDIO ART/ART HISTORY (3) AAB/PRA. 15. SU. Junior standing. Junior standing and 3.0 GPA in major and completion of at least two 3000-level courses in ARTF, ARTH, or ATLA major. Internships appropriate to the major with a departmental-approved sponsor providing hands-on, practical learning experiences in a professional setting.

ARTS 4100 SEMINAR IN PRE-MODERN ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in art history from the ancient era until 1750 CE. Course may be repeated for a maximum of 6 credit hours.

ARTS 4150 SEMINAR IN MODERN AND CONTEMPORARY ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in modern and contemporary art history, 1750 CE-present. Course may be repeated for a maximum of 6 credit hours.
ARTS 4240 ADVANCED PHOTOGRAPHY (3) STU. 6. Pr. ARTS 3220 and ARTS 3230 and (ARTS 2100 and ARTS 2150). Advanced investigations of theory, history, and methods to inform photographic practice. Emphasis on production of mature work and individual artistic identity. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4340 PAINTING IV (3) STU. 6. Pr. ARTS 3330 and (ARTS 2100 and ARTS 2150). Advanced painting with medium and subject idea determined by student with approval of the instructor. Emphasis on strengthening the student's awareness and technical skills as a maturing painter. Nude models may be used. Course may be repeated for a maximum of 9 credit hours.

ARTS 4440 ADVANCED PRINTMAKING (3) STU. 6. Pr. ARTS 2410 and ARTS 3420 and ARTS 3430 and (ARTS 2100 and ARTS 2150). Individual research in printmaking. Students focus on conceptual and technical development through continued research in relief, intaglio, or screen-printing. Course may be repeated for a maximum of 9 credit hours.

ARTS 4540 ADVANCED SCULPTURE (3) STU. 6. Pr. ARTS 3520 and ARTS 3530 and (ARTS 2100 and ARTS 2150). Advanced investigation of the history, theory and methods of sculptural practice. Individual instruction and supervision of research and reading. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4700 SENIOR CAPSTONE: ART HISTORY (3) SEM. 3. Declared ARTH major or minor and completion of 18 hours of 3000-level art history courses. Capstone course for ARTH majors.

ARTS 4840 CERAMICS IV (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 2810 and ARTS 3820 and ARTS 3830. Continuation of ARTS 3830 with increased emphasis on individual stylistic and conceptual concerns. Course may be repeated for a maximum of 9 credit hours.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (2) LEC. 2. Instruction in portfolio preparation, professional practices, and information on studio art careers and graduate study. Must have completed nine credit hours in one concentration; taken concurrently with 4000-level studio in concentration prior to ARTS 4980 Senior Project in Studio Arts.

ARTS 4860 BFA CRITIQUE SEMINAR (1) LEC. 1. SU. Rigorous group critiques of artwork produced in media concentration courses, discussions and writing about art, art documentation, and exhibition practices. Course may be repeated for a maximum of 3 credit hours.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Pr., Open only to ARTS students who have shown ability, initiative, and industry. Departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of directed study. Directed studies are offered in painting, printmaking, sculpture, art history, photography, and ceramics. Course may be repeated for a maximum of 6 credit hours.

ARTS 4950 BA STUDIO ART CAPSTONE (1) LEC. 1. SU. Students must have Senior Standing and have completed a minimum of 39 hours in the Major. Professional skills development and career strategies for BA Studio Art Majors.

ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (2-3) AAB. Departmental approval. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR STUDIO ARTS (3) STU. 6. Pr. (ARTS 2210 and ARTS 2310) or (ARTS 2210 and ARTS 2410) or (ARTS 2310 and ARTS 2410) and ARTS 2510 and (ARTS 2810 or ARTS 3820). And three additional courses in a single studio art concentration. Must be taken in the student's final semester. Directed terminal studio project with faculty-approved choice of content and medium. Project will be exhibited.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

**Art History Minor**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ARTS 2100</td>
<td>Foundations of Art History I</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 2150</td>
<td>Foundations of Art History II</td>
<td>3</td>
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<tr>
<td>Elective Courses</td>
<td>See advisor for approved course listing.</td>
<td>9</td>
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<tr>
<td><strong>Total Hours</strong></td>
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<td><strong>15</strong></td>
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1 Minimum 9 hours at 3000-level or above
# BA Curriculum in Art

## Freshman

**Fall**
- Core History\(^1\)
- **ARTS 1110** Drawing I
- **ENGL 1100** English Composition I
- **ARTS 2100** Foundations of Art History I

Select one of the following:
- ARTS 1510 Looking at Art: Approaches to Interpretation (Core Fine Arts)
- ARTS 1610 Introduction to Art History
- ARCH 2600 The Art of Architecture, Place, and Culture (Core Fine Arts)
- MUSI 2730/2737 Appreciation of Music (Core Fine Arts)
- MDIA 2350 Introduction To Film Studies
- THEA 2010/2017 Introduction to Theatre (Core Fine Arts)

**Hours**
- Fall: 15
- Spring: 14

## Sophomore

**Fall**
- Core Literature\(^1\)
- Foreign Language I (College Core)
- **ARTS 1220** 3-D Design for Studio Art
- 3000/4000 ARTS
- PHIL 1070 Art, Value, and Society

**Hours**
- Fall: 16

**Spring**
- **ARTS 2510** Introduction to Sculpture (3D Area)
- **ARTS 2810** Ceramics I (3D Area)
- **ARTS 3820** Ceramics II (3D Area)
- Elective

**Hours**
- Spring: 15

## Junior

**Fall**
- Core Science I
- Select one of the following:
  - **ARTS 2210** Introduction to Photography (2D Area)
  - **ARTS 2310** Painting I (2D Area)
  - **ARTS 2410** Printmaking: Relief (2D Area)
- 3000-level Art History course\(^2\)
- Elective

**Hours**
- Fall: 16

**Spring**
- 2000-level Studio course\(^2\)
- 2000/3000-level Studio course\(^2\)
- Elective

**Hours**
- Spring: 15

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\(^1\) Core Social Science or Core History to complete the sequence

\(^2\) Elective
<table>
<thead>
<tr>
<th>Core Social Science</th>
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<tr>
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**Senior**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<tr>
<td>Electives</td>
<td>4</td>
<td>3000/4000-level Studio course&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>ARTS 4950 BA Studio Art Capstone</td>
<td>1 Electives</td>
<td>5</td>
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<tr>
<td>3000/4000 ARTS&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td>3000/4000-level Art&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
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<tr>
<td>Core Humanities (except COMM 1000)</td>
<td>3</td>
<td>Core Mathematics</td>
<td>3</td>
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</table>

Total Hours: 120

1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.
2. Students must meet with their advisors for a list of approved courses.
3. COMM 1000 fulfills SLO 7.

**BA Curriculum in Art (formal option in Art History)**

**Freshman**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3 ENGL 1120 English Composition II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Core History&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3 Core Social Science or Core History to complete sequence&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3 Core Mathematics</td>
<td>3</td>
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</tr>
<tr>
<td>ARTS 1510 Looking at Art: Approaches to Interpretation (Core Fine Arts)</td>
<td>ARTS 1210 2-D Design for Studio Art</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARCH 2600 The Art of Architecture, Place, and Culture (Core Fine Arts)</td>
<td>ARTS 2150 Foundations of Art History II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MUSI 2730/2737 Appreciation of Music (Core Fine Arts)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDIA 2350 Introduction To Film Studies</td>
<td></td>
<td></td>
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<tr>
<td>ARTS 1610 Introduction to Art History</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THEA 2010/2017 Introduction to Theatre (Core Fine Arts)</td>
<td></td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Foreign Language I (College Core)</td>
<td>4 Core Literature&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Core Science I</td>
<td>4 Foreign Language II (College Core)</td>
<td>4</td>
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<tr>
<td>Elective</td>
<td>3 Core Science II</td>
<td>4</td>
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</table>

**ARTS 3000/4000**

| Hours | 3 LBAR 2010 Liberal Arts Careers Preparation | 2 |
### BFA Curriculum in Art-Studio/Fine Arts

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following</td>
<td></td>
<td>ARTS 1250 Orientation To Studio Art For The Major</td>
<td>2</td>
</tr>
<tr>
<td>ARTS 1510 Looking at Art: Approaches to Interpretation (Core Fine Arts)</td>
<td>2</td>
<td>ARTS 1220 3-D Design for Studio Art</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 2600 The Art of Architecture, Place, and Culture (Core Fine Arts)</td>
<td></td>
<td>ARTS 1220 3-D Design for Studio Art</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 2730/2737 Appreciation of Music (Core Fine Arts)</td>
<td></td>
<td>ARTS 2150 Foundations of Art History II</td>
<td>3</td>
</tr>
<tr>
<td>MDIA 2350 Introduction To Film Studies</td>
<td></td>
<td>ARTS 2150 Foundations of Art History II</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 1610 Introduction to Art History</td>
<td></td>
<td>ARTS 2150 Foundations of Art History II</td>
<td>3</td>
</tr>
<tr>
<td>THEA 2010/2017 Introduction to Theatre (Core Fine Arts)</td>
<td></td>
<td>ARTS 2150 Foundations of Art History II</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 1110 Drawing I</td>
<td>3</td>
<td>ARTS 1210 2-D Design for Studio Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 1200 2-D Design for Studio Art</td>
<td>3</td>
<td>ARTS 2100 Foundations of Art History I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>15</td>
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<td>14</td>
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</tbody>
</table>

#### Total Hours: 120

1. Students are required to complete a two-course history sequence or literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.
2. Students must meet with their advisers to identify approved 3000- or 4000-level Art History and ARTS courses.
3. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
## Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature(^1)</td>
<td></td>
<td>3 PHIL 1070 Art, Value, and Society 3</td>
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<tr>
<td>ARTS 3110 Figure Drawing</td>
<td>3</td>
<td>ARTS 3140 Advanced Drawing I 3</td>
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</tr>
<tr>
<td>2-D Studio course for ceramics or sculpture concentration or 20000-level in photography, printmaking, or painting concentration(^2)</td>
<td></td>
<td>ARTS 2810 Ceramics I or 3820 Ceramics II 3</td>
<td></td>
</tr>
<tr>
<td>3000/4000-level Art History</td>
<td></td>
<td>Core History(^1) 3</td>
<td></td>
</tr>
<tr>
<td>ARTS 2510 Introduction to Sculpture</td>
<td>3</td>
<td>ARTS 2610 Introduction to Digital Art 3</td>
<td></td>
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<tr>
<td></td>
<td>15</td>
<td>15</td>
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</tbody>
</table>

## Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000/3000/4000-level Fine Art Studio course(^2)</td>
<td>3</td>
<td>3 3000-level course in Concentration(^2)</td>
<td>15</td>
</tr>
<tr>
<td>Core Humanities (except COMM 1000) or Core Literature to complete sequence(^1)</td>
<td>3</td>
<td>Core Science II 4</td>
<td></td>
</tr>
<tr>
<td>3000-level course in Concentration(^2)</td>
<td></td>
<td>3 3000/4000-level Art History(^2) 3</td>
<td></td>
</tr>
<tr>
<td>3000/4000-level Fine Art Studio course(^2)</td>
<td>3</td>
<td>ARTS 4860 BFA Critique Seminar(^4) 1</td>
<td></td>
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<tr>
<td>Core Science I</td>
<td></td>
<td>4 3000/4000-level ARTS course 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

## Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Math</td>
<td></td>
<td>3 Core Social Science 3</td>
<td></td>
</tr>
<tr>
<td>4000-level course in Concentration(^2)</td>
<td>3</td>
<td>ARTS 3800 Issues and Criticism in Contemporary Art 3</td>
<td></td>
</tr>
<tr>
<td>3000/4000-level Studio or Art History course(^2)</td>
<td>3</td>
<td>ARTS 4860 BFA Critique Seminar(^4) 1</td>
<td></td>
</tr>
<tr>
<td>Core Social Science</td>
<td></td>
<td>4 UNIV 4AA0 University Graduation 0</td>
<td></td>
</tr>
<tr>
<td>ARTS 4850 Professional Studio Practices</td>
<td>2</td>
<td>Core Social Science or Core History to complete sequence(^1) 3</td>
<td></td>
</tr>
<tr>
<td>ARTS 4860 BFA Critique Seminar(^4)</td>
<td></td>
<td>1 4000-level course in Concentration 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 120

\(^1\) Students are required to complete a two-course history sequence or literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

\(^2\) Students must meet with their advisors for a list of approved courses.

\(^3\) ARTS 4850 fulfills SLO 7.

\(^4\) Course should be taken in 3 sequential semesters culminating in the semester of graduation.

## Studio Art Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 1110 Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 1210 2-D Design for Studio Art</td>
<td>3</td>
</tr>
<tr>
<td>or ARTS 1220 3-D Design for Studio Art</td>
<td>3</td>
</tr>
<tr>
<td>3000-level Studio Art course (^1)</td>
<td>3</td>
</tr>
<tr>
<td>3000-level Studio Art course</td>
<td>3</td>
</tr>
</tbody>
</table>

\(^1\) Students must meet with their advisors for a list of approved courses.
Communication Disorders

The undergraduate major in Communication Disorders is a pre-professional health care degree that prepares students to enter graduate programs in the communication disorders of either speech-language pathology or audiology. To become nationally certified speech-language pathologists or audiologists, students must earn a graduate degree. The Bachelor of Science undergraduate degree also can be used for employment as a speech-language pathology aide in the public schools of some but not all states. The BS degree, however, is intended for students who are capable of and committed to enrollment in an accredited graduate program in the field.

Students must comply with these requirements to be admitted to the Communication Disorders major:

• Students must apply for admission to the major. Students’ applications for admission must be received by January 30 in order for them to begin the major during the following summer term. Applications must be received by May 30 in order for students to begin the major during the following fall semester. Applications may be submitted any time prior to the deadline. Students may get information about the applications process and the appropriate forms from Haley Center 1199, Department of Communication Disorders or online at the departmental website www.cla.auburn.edu/communicationdisorders/. The top 30 applicants are accepted in each of two admission cycles during the year.

• They must have completed 30 hours of course work in the university core courses and have at least a B average in English Composition I and II.

• Students must submit a 300-word letter of intent.

• They should check with the department chair or program coordinator for further information about entry requirements.

Once they are admitted to the BS Communication Disorders, students have to meet these requirements in order to graduate:

• Students must earn a C or higher in each major course. Any courses where students do not receive a C or higher must be repeated. Under these circumstances, graduation may be delayed.

• Students must have a 3.0 GPA to enroll in CMDS 4910 Clinical Practicum.

Major

• Communication Disorders (p. 882)

Courses

CMDS 2500/2503 COMMUNICATION DISORDERS IN SOCIETY (2) LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

CMDS 3000 INTRODUCTION TO SPEECH PATHOLOGY-AUDIOLOGY (3) LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathologies, general principles of evaluation and therapy and the profession itself.

CMDS 3400 ANATOMY AND PHYSIOLOGY OF SPEECH (3) LEC. 3. The study of anatomy and physiology of speech production including respiratory, laryngeal and articulatory-resonance systems and the process swallowing. Speech acoustics will be introduced.

CMDS 3410 PHONETICS (3) LEC. 3. Principles of phonetics and their application to speech.

CMDS 3560 NEUROANATOMY FOR COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language, hearing and swallowing function and disorders.

CMDS 4400 ADULT NEUROGENIC COMMUNICATION DISORDERS (3) LEC. 3. Study of the disorders of speech, language, and swallowing in adults occurring as a result of CNS pathologies and their evaluation and treatment.

CMDS 4510 ARTICULATION DISORDERS (3) LEC. 3. Principles of normal and deviant articulation acquisition.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Course Description</th>
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</thead>
<tbody>
<tr>
<td>CMDS 4520</td>
<td>LANGUAGE ACQUISITION</td>
<td>3</td>
<td>LEC. 3</td>
<td>First language acquisition in childhood and its change throughout the life span.</td>
</tr>
<tr>
<td>CMDS 4530</td>
<td>FLUENCY DISORDERS</td>
<td>3</td>
<td>LEC. 3</td>
<td>Departmental approval. Principles of fluent and disfluent verbal behavior.</td>
</tr>
<tr>
<td>CMDS 4540</td>
<td>VOCAL DISORDERS</td>
<td>3</td>
<td>LEC. 3</td>
<td>Principles of normal and deviant vocal behavior.</td>
</tr>
<tr>
<td>CMDS 4560</td>
<td>CHILD AND ADOLESCENT LANGUAGE DISORDER</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4520. Departmental approval. Overview of research dealing with the nature, assessment and treatment of language disorders in child and adolescent populations.</td>
</tr>
<tr>
<td>CMDS 4580</td>
<td>INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY</td>
<td>3</td>
<td>LEC. 3, CLN/LEC. 30</td>
<td>Pr. CMDS 4510 and CMDS 4520. Orientation to clinical activities, management methods and preparation of professional reports.</td>
</tr>
<tr>
<td>CMDS 4600</td>
<td>INTRODUCTION TO AUDIOLOGY</td>
<td>3</td>
<td>LEC. 3</td>
<td>Principles of auditory reception and the problems involved in measuring, evaluating and conserving hearing.</td>
</tr>
<tr>
<td>CMDS 4620</td>
<td>HEARING REHABILITATION</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4600. Departmental approval. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.</td>
</tr>
<tr>
<td>CMDS 4650</td>
<td>INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4600. Audiological instrumentation and test procedures.</td>
</tr>
<tr>
<td>CMDS 4910</td>
<td>CLINICAL PRACTICUM IN SPEECH-LANGUAGE PATHOLOGY</td>
<td>1</td>
<td>PRA. 1</td>
<td>Pr. CMDS 4580. Departmental approval. Course may be repeated for a maximum of 2 credit hours.</td>
</tr>
<tr>
<td>CMDS 4930</td>
<td>DIRECTED STUDY IN COMMUNICATION DISORDERS</td>
<td>1-3</td>
<td>IND.</td>
<td>Departmental approval. Directed learning experience in communication disorders involving bibliographic research, writing, gaining expertise with laboratory/clinical procedures or conducting directed research. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>CMDS 4967</td>
<td>HONORS SPECIAL PROBLEMS</td>
<td>1-3</td>
<td>IND.</td>
<td>Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>CMDS 4997</td>
<td>HONORS THESIS</td>
<td>1-3</td>
<td>RES.</td>
<td>Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>CMDS 5810</td>
<td>PRIVATE PRACTICE</td>
<td>3</td>
<td>LEC. 3</td>
<td>Concepts and strategies for private practice in the areas of clinical and industrial audiology.</td>
</tr>
<tr>
<td>CMDS 7500</td>
<td>CLINICAL PROBLEMS IN SPEECH</td>
<td>1</td>
<td>PRA. 1</td>
<td>Pr. CMDS 4580 and CMDS 4910. Clinical practicum in evaluation and treatment of individuals with speech-language disorders. Course may be repeated for a maximum of 4 credit hours.</td>
</tr>
<tr>
<td>CMDS 7510</td>
<td>ADVANCED ARTICULATION/PHONOLOGICAL DISORDERS</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4510. Empirical and theoretical bases for articulatory pathologies.</td>
</tr>
<tr>
<td>CMDS 7520</td>
<td>LANGUAGE DISORDERS: BIRTH TO FIVE</td>
<td>3</td>
<td>LEC. 3</td>
<td>Empirical and theoretical bases for evaluation and treatment of language disorders for the birth to five population.</td>
</tr>
<tr>
<td>CMDS 7530</td>
<td>ADVANCED FLUENCY DISORDERS</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4530. Empirical and theoretical bases for dysfluency disorders, diagnoses and therapies.</td>
</tr>
<tr>
<td>CMDS 7540</td>
<td>ADVANCED VOICE DISORDERS</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4540. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.</td>
</tr>
<tr>
<td>CMDS 7550</td>
<td>ADULT APHASIA</td>
<td>3</td>
<td>LEC. 3</td>
<td>Pr. CMDS 4520. Empirical and theoretical bases for adult language disorders associated with CNS pathologies, diagnoses and therapies.</td>
</tr>
<tr>
<td>CMDS 7560</td>
<td>CRANIOFACIAL ANOMALIES</td>
<td>3</td>
<td>LEC. 3</td>
<td>A review of syndromic and non-syndromic craniofacial disorders including cleft lip/palate. Assessment and treatment of speech and language problems associated with these anomalies is emphasized.</td>
</tr>
<tr>
<td>CMDS 7570</td>
<td>EVALUATION OF RESEARCH IN SPEECH PATHOLOGY AND AUDIOLOGY</td>
<td>3</td>
<td>LEC. 3</td>
<td>Survey of experimental designs and statistical procedures used in speech-language pathology/audiology literature for consumers of research.</td>
</tr>
<tr>
<td>CMDS 7590</td>
<td>LANGUAGE DISORDERS: SCHOOL-AGE</td>
<td>3</td>
<td>LEC. 3</td>
<td>Empirical and theoretical bases for evaluation and treatment of language disorders for school-age children through adolescence.</td>
</tr>
</tbody>
</table>
CMDS 7600 CLINICAL PROBLEMS IN HEARING (2) LEC. 2. Pr. CMDS 4650 and CMDS 4600 and CMDS 4620. Course may be repeated for a maximum of 12 credit hours.

CMDS 7700 CLINICAL PROBLEM SOLVING I (2) LEC. 2. This course will help students develop problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7720 CLINICAL PROBLEM SOLVING II (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7740 CLINICAL PROBLEM SOLVING III (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3. Pr. CMDS 7800. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

CMDS 7820 DYSPHAGIA (3) LEC. 3. Pr. CMDS 7800. The role of speech-language pathology in diagnosing and treating swallowing disorders in children and adults. Emphasis will be placed upon clinical and instrumental assessment and treatment strategies.

CMDS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. 3. Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

CMDS 7860 SPEECH SCIENCE (3) LEC. 3. Pr. CMDS 3550. Acoustic properties of speech, physiology and perception of the speech signal, and an orientation to instrumentation used in speech science.

CMDS 7920 INTERNSHIP IN SPEECH-LANGUAGE PATHOLOGY (5) LEC. 5. SU. Completion of all academic course work. Successful completion of comprehensive exams or enrollment in graduate thesis. Course may be repeated for a maximum of 10 credit hours.

CMDS 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

CMDS 7970 SPECIAL TOPICS SEMINAR (1-3) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 3 credit hours.

CMDS 7990 RESEARCH AND THESIS (1-5) MST. Course may be repeated with change in topics.

CMDS 8100 HEARING SCIENCE (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Introduction to instrumentation and calibration of audiometric equipment. Auditory perception in normal-hearing and hearing impaired listeners.

CMDS 8110 AUDITORY PHYSIOLOGY (3) LEC. 3. Pr. CMDS 4600. Departmental approval. Detailed study of the anatomy and physiology of the human auditory, and vestibular system over the lifespan.

CMDS 8120 AUDIOLOGY CLINICAL METHODS (3) LEC. 3. Use of audiometric equipment, administering audiological tests, recording test results, and interpreting test findings, including otoscopy, and cerumen management.

CMDS 8200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4650. Basic and advanced audiometric techniques to assess auditory system's site of lesion, including otoscopy, cerumen management, otoacoustic emissions and immittance.

CMDS 8210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Study of the disorders of hearing including their medical diagnosis, evaluation, and treatment.

CMDS 8220 AMPLIFICATION I (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures.

CMDS 8300 CENTRAL AUDITORY PROCESSING (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Selected clinical procedures in audiology, including electrophysiologic and behavioral tests of central auditory functioning.

CMDS 8310 AURAL REHABILITATION (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.
CMDS 8320 CLINICAL APPLICATIONS OF AMPLIFICATION (2) LEC. 2. Didactic and practical training in use of instrumentation for testing, programming, fitting and verifying amplification.

CMDS 8400 PEDIATRIC AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Normal development of speech, language and hearing losses' effect on communication, etiologic factors, screening, audiologic assessment, differential diagnosis and clinical management.

CMDS 8410 AURAL HABILITATION (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. The parameters involved in the management of hearing-impaired school-aged children.

CMDS 8420 AMPLIFICATION II (3) LEC. 3. Pr. CMDS 8220. Review of recent trends in hearing aid technology including digital and Programmable instruments.

CMDS 8430 CLINICAL APPLICATION OF DIAGNOSTIC AUDIOLOGY (2) LEC. 2. Pr. CMDS 8320. Didactic and practical training for selection, administration, and interpretation of behavioral and electrophysiologic tests, including auditory processing disorders.

CMDS 8500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Selected neurophysiological clinical procedures in audiology, including electronystagmography and auditory evoked potentials.

CMDS 8510 CLINICAL APPLICATION OF BALANCE ASSESSMENT (2) LEC. 2. Pr. CMDS 8230 and CMDS 8320 and CMDS 8430. Didactic and practical training for selecting, conducting, and interpreting tests to identify disorders of balance and other auditory related systems.

CMDS 8520 HEARING CONSERVATION (3) LEC. 3. Pr. CMDS 8310. Studies the effects of noise on auditory system and implementation of hearing conservation programs in industry, schools and the military.

CMDS 8570 EVALUATION OF RESEARCH IN AUDIOLOGY (3) LEC. 3. Survey of experimental designs and statistical procedures used in audiology research.

CMDS 8600 BALANCE DISORDERS (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques.

CMDS 8610 IMPLANT TECHNOLOGY (3) LEC. 3. Detailed study of the assessment and treatment of patients with cochlear implants.

CMDS 8620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 6120. Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audiologic practice.

CMDS 8630 COUNSELING IN AUDIOLOGY (3) LEC. 3. Advanced course in the counseling component of rehabilitative audiology.

CMDS 8650 ADVANCED AUDIOMETRY (2) LEC. 2. Pr. CMDS 8120 and CMDS 8320 and CMDS 8430 and CMDS 8510. Didactic and practical training for selection, administration, scoring, and interpretation of behavioral audiometric tests and electrophysiologic procedures.

CMDS 8700 PROFESSIONAL ISSUES (3) LEC. 3. Legal and ethical issues in clinical audiology.

CMDS 8800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

CMDS 8810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 8910 CLINICAL PRACTICE IN AUDIOLOGY (2) LEC. 2. Pr. CMDS 4650 and CMDS 4600. Departmental approval. Clinical practicum involving evaluation and management of patients of all ages with disorders of auditory, vestibular, and other auditory related systems.

CMDS 8920 CLINICAL INTERNSHIP (5) INT. 5. SU. Pr. CMDS 8910. Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum.

CMDS 8940 CLINICAL RESIDENCY (6) INT. 6. SU. Pr. CMDS 8920. A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring.

CMDS 8950 AUDIOLOGY GRAND ROUNDS (3) LEC. 3. Discussion/Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audiological service delivery.
**CMDS 8980 CAPSTONE PROJECT (1)** IND. 1. A third year project involving applied clinical research or development of an innovative clinical procedure.

## Curriculum in Communication Disorders

Students desiring the Communication Disorders (CMDS) major must formally apply for admission to the program after completion of 30 semester hours of course work that meets university core requirements.

Applications and procedures for admission are available in the CMDS Department, Haley 1199. Students must apply for admission by January 30 to begin the major in summer semester and applications must be received by May 30 to begin the major in fall semester. Applications may be submitted at any time prior to the deadlines. Students must earn a C or higher in each major course. Must repeat CMDS courses with grade below C to count in major; graduation may be delayed. Students must have a 3.0 GPA to take Clinical Practicum (CMDS 4910).

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Foreign Language II (College Core)</td>
<td>4</td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td>Core Humanities¹</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3</td>
<td>Core Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 2010/2017 Introduction to Psychology</td>
<td></td>
<td>Core Social Science</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 1000 Introduction to Anthropology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCY 1000 Sociology: Global Perspective</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective/Supporting course²</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>16</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1000 Introduction to Biology</td>
<td>4</td>
<td>COMM 1000 Public Speaking³</td>
<td>3</td>
</tr>
<tr>
<td>&amp; BIOL 1001 Introduction to Biology Laboratory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>BIOL 1010 A Survey of Life</td>
<td>4</td>
</tr>
<tr>
<td>CMDS 3000 Introduction to Speech Pathology-Audiology⁴</td>
<td>3</td>
<td>Core Fine Arts</td>
<td>3</td>
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<tr>
<td>Elective/Supporting courses²</td>
<td>5</td>
<td>Core History to complete sequence</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Elective/Supporting course²</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>15</strong></td>
<td></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDS 3400 Anatomy and Physiology of Speech</td>
<td>3</td>
<td>CMDS 3410 Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 4520 Language Acquisition</td>
<td>3</td>
<td>CMDS 3560 Neuroanatomy for Communication Disorders</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 4600 Introduction to Audiology</td>
<td>3</td>
<td>CMDS 4650 Child and Adolescent Language Disorder</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Supporting courses²</td>
<td>5</td>
<td>CMDS 4650 Introduction to Clinical Procedures in Audiology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Elective/Supporting course²</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>14</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>
### Senior

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDS 4510 Articulation Disorders</td>
<td>3</td>
<td>CMDS 4530 Fluency Disorders</td>
</tr>
<tr>
<td>CMDS 4580 Introduction to Clinical Procedures in</td>
<td>3</td>
<td>CMDS 4540 Vocal Disorders</td>
</tr>
<tr>
<td>Speech-Language Pathology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMDS 4400 Adult Neurogenic Communication Disorders</td>
<td>3</td>
<td>CMDS 4620 Hearing Rehabilitation</td>
</tr>
<tr>
<td>Elective/Supporting courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CMDS 4910 Clinical Practicum in Speech-Language Pathology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Elective/Supporting course^2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UNIV 4AA0 University Graduation</td>
</tr>
</tbody>
</table>

Total Hours: 120

1. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
2. Students should meet with their advisers for the listing of approved courses.
3. COMM 1000 fulfills SLO 7.
4. This course can be taken during the summer terms.
5. Students must have a GPA of at least 3.0 to take CMDS 4910.

### SUMMER STARTING SEQUENCE

#### Junior

##### Summer

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CMDS 3000 Introduction to Speech Pathology-Audiology</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 3400 Anatomy and Physiology of Speech</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 4520 Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Supporting course^2</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Junior

##### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDS 3410 Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 3560 Neuroanatomy for Communication Disorders</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 4560 Child and Adolescent Language Disorder</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 4600 Introduction to Audiology</td>
<td>3</td>
</tr>
<tr>
<td>Elective/Supporting course^2</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Senior

##### Spring

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDS 4400 Adult Neurogenic Communication Disorders</td>
<td>3</td>
</tr>
<tr>
<td>CMDS 4510 Articulation Disorders</td>
<td>3</td>
</tr>
</tbody>
</table>
CMDS 4580 Introduction to Clinical Procedures in Speech-Language Pathology 3
CMDS 4620 Hearing Rehabilitation 3

Senior

Summer

CMDS 4530 Fluency Disorders 3
CMDS 4540 Vocal Disorders 3
CMDS 4650 Introduction to Clinical Procedures in Audiology 3
CMDS 4910 Clinical Practicum in Speech-Language Pathology 1
UNIV 4AA0 University Graduation 0

2 Students should meet with their advisers for the listing of approved courses.
5 Students must have a GPA of at least 3.0 to enroll in CMDS 4910.

TOTAL HOURS - 120

Economics

Majors from the Department of Economics pursue careers in business, banking and finance, government, and consulting. They are also prepared to enter graduate or professional programs in economics, law, business, or public policy. The department offers a Bachelor of Science in Economics with a primary and a quantitative track. The primary track requires students to complete a minor outside of the Department of Economics. The quantitative track is intended for students with a strong interest in pursuing graduate education in economics, and it requires additional mathematics and statistics courses. Students should check with a departmental adviser for requirements in the quantitative track.

Students must maintain at least a 2.0 GPA in major courses to graduate.

Major

• Economics - Primary Track (p. 888)
• Economics - Quantitative Track (p. 889)

Minor

• Economics (p. 891)

Courses

ECON 2020/2023 PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2030/2033 PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy. May count either ECON 2030 or ECON 2033.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theory of pricing under varying market conditions and distribution of income among the factors of production.
ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. A study of national economic aggregates and the market determination of output, employment, and inflation. Introduction to economic monetary and fiscal policy on the economy.

ECON 3040 CONSUMER ECONOMICS (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). A broad study of consumer economics at both the household level and the national consumption aggregates.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Description of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations.

ECON 3200 MONEY AND BANKING (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Theoretical and institutional analyses of monetary systems, foreign exchange, and commercial banking.

ECON 3300 ECONOMICS OF SPORTS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

ECON 3400 AMERICAN ECONOMIC HISTORY I (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ECON 2030 or ECON 2033 or ECON 2037). Examines development of the American economy from colonial history to present. Topics include changes in institutions, the standard of living, income distributions, social mobility, labor markets, demographic structure, technological development, and the financial system.

ECON 3420 AMERICAN ECONOMIC HISTORY II (3) LEC. 3. Pr. ECON 2020. This class will study the history of American business cycle fluctuations with extended discussions of the Great Depression and the Great Recession. A point of emphasis in this class will be on the importance of data construction in interpreting historical economic events.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3) LEC. 3. Pr. ECON 3020 and (MATH 1690 or MATH 2630 or MATH 2637). Fundamental mathematical and quantitative methods employed by economists. Application of calculus, probability, statistics, and linear algebra to economics.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3) LEC. 3. Pr. ECON 2030 or ECON 2037. Development of economic ideas, principles and systems of analysis from early times to the present.

ECON 3800 PUBLIC CHOICE (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes.

ECON 4000 ECONOMICS OF WORK AND PAY (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice, and public policy.

ECON 4100 INDUSTRIAL ORGANIZATION (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development, and technical change.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or ECON 2020 or ECON 2023 or ECON 2027. Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation.

ECON 4300 INTERNATIONAL ECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic consequences of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions, such as quotas, tariffs, VERs. Examination of labor and capital movements between nations.

ECON 4400 ECONOMICS OF INNOVATION (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). Study of how innovation and technological change impacts the individual firm and the national and global economies.

ECON 4600 ECONOMETRICS I (3) LEC. 3. Pr. ECON 3600 and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 2600). Basic statistical toolbox to analyze economic data and evaluate economic models. Topics include simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and basic time series.
ECON 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. ECON 2030 or ECON 2033 and ECON 2037 or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3) AAB/IND. SU. Pr., Departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617) or Departmental approval. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 5100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Cause and effects of economic growth and development, for example, ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 5200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and ECON 3020. Nature and causes of state and local economic development, including plant location, residential location, interregional trade and factor flows, and public policy.

ECON 5400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 5600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 5700 HEALTH ECONOMICS (3) LEC. 3. Pr., Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 5800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr., Departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 6020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617). Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 6100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Causes and effects of economic growth and development, for example ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 6200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and ECON 3020. Nature and causes of state and local economic development, including plant location, residential location, interregional trade and factor flows, and public policy.

ECON 6400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 6700/6706</td>
<td>HEALTH ECONOMICS (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 3020 or Departmental approval.</td>
<td>Analysis of the economics of health care, including demand for and supply of health care and health care policy.</td>
</tr>
<tr>
<td>ECON 6800</td>
<td>GOVERNMENT SPENDING AND TAXATION (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 3020 or Departmental approval.</td>
<td>Economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.</td>
</tr>
<tr>
<td>ECON 7000</td>
<td>MANAGERIAL ECONOMICS (3)</td>
<td>LEC. 3.</td>
<td>Pr. Consent of MBA program director.</td>
<td>Microeconomic theories of the firm and of markets, with emphasis on their applications to current business issues.</td>
</tr>
<tr>
<td>ECON 7110</td>
<td>MICROECONOMICS I (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 3020 or Departmental approval.</td>
<td>Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer and household behavior under constraint; models of competitive behavior.</td>
</tr>
<tr>
<td>ECON 7120</td>
<td>MICROECONOMICS II (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 7110 or Departmental approval.</td>
<td>Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures, and derived demand for inputs.</td>
</tr>
<tr>
<td>ECON 7130</td>
<td>MATHEMATICAL ECONOMICS (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 3020 and ECON 6030 or Departmental approval.</td>
<td>Fundamental mathematical methods in economics and econometrics, including linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations.</td>
</tr>
<tr>
<td>ECON 7210</td>
<td>MACROECONOMICS I (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 6030 or Departmental approval.</td>
<td>Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments.</td>
</tr>
<tr>
<td>ECON 7220</td>
<td>MACROECONOMICS II (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 6030 or Departmental approval.</td>
<td>Foundations of macroeconomics, neoclassical production and growth theory, overlapping generations models, optimal saving, open economy macroeconomics, applied time series macrodynamics.</td>
</tr>
<tr>
<td>ECON 7310</td>
<td>ECONOMETRICS I (3)</td>
<td>LEC. 3.</td>
<td>Pr. Departmental approval.</td>
<td>Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM and the statistical testing of behavioral hypotheses.</td>
</tr>
<tr>
<td>ECON 7320</td>
<td>ECONOMETRICS II (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 7310.</td>
<td>Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, time-series analysis.</td>
</tr>
<tr>
<td>ECON 7330</td>
<td>MICROECONOMETRICS (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 7310.</td>
<td>Econometric techniques for applied microeconomics. Limited dependent variable models, survival and count data analysis, and selection bias.</td>
</tr>
<tr>
<td>ECON 7410</td>
<td>HISTORY OF ECONOMIC THOUGHT I (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 3700 or Departmental approval.</td>
<td>Analysis and study of classical contributions to economics, from early times to Karl Marx.</td>
</tr>
<tr>
<td>ECON 7420</td>
<td>HISTORY OF ECONOMIC THOUGHT II (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 3700 or Departmental approval.</td>
<td>Neoclassical economics, including the theories of Mill, Jevons, early Austrians, early French contributors, Veblenian institutional economics, and Alfred Marshall.</td>
</tr>
<tr>
<td>ECON 7990</td>
<td>RESEARCH AND THESIS (1-6)</td>
<td>MST.</td>
<td>Course may be repeated with change in topics.</td>
<td></td>
</tr>
<tr>
<td>ECON 8110</td>
<td>ADVANCED MICROECONOMICS I (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 7120 or Departmental approval.</td>
<td>Advanced analysis, integrating the economics of time and uncertainty into mainline price theory.</td>
</tr>
<tr>
<td>ECON 8120</td>
<td>ADVANCED MICROECONOMICS II (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 7120.</td>
<td>Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment.</td>
</tr>
<tr>
<td>ECON 8210</td>
<td>TOPICS IN MACROECONOMICS (3)</td>
<td>LEC. 3.</td>
<td>Pr. ECON 7220 or Departmental approval.</td>
<td>Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity.</td>
</tr>
<tr>
<td>ECON 8420</td>
<td>ECONOMIC INSTITUTIONS AND CONTEMPORARY ECONOMIC THEORY (3)</td>
<td>LEC. 3.</td>
<td>Pr. Departmental approval.</td>
<td>How contemporary economic theory helps explain the emergence, hey-day, and decline of economic institutions, including social and regulatory institutions.</td>
</tr>
</tbody>
</table>
ECON 8510 ECONOMICS OF TAXATION (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Examines tax structures in the United States, evaluates tax reform proposals, and studies the effects of taxation on resource allocation and economic welfare.

ECON 8520 PUBLIC CHOICE (3) LEC. 3. Pr., Departmental approval. Advanced analysis of governmental expenditures and other not-for-profit sectors of the economy.

ECON 8530 ECONOMIC ANALYSIS OF THE LAW (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of the substantive areas in which law has an economic foundation and ways law affects economic relations.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources.

ECON 8550 EXTERNALITIES AND PUBLIC GOODS (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis of pricing and allocation of economic goods when property rights are not well defined.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3. Pr. ECON 7120. or Departmental approval.. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising, and vertical integration.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Case studies in the history and current practice of regulation in the United States at all levels.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3. Pr., Departmental approval. Trade theory, including classical, neoclassical, factor proportions, and industrial organization. Applied trade theory and empirical applications.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3. Pr., Departmental approval. Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Selected topics, including education and on-the-job training, Labor mobility and immigration, employment discrimination, and the impact of labor unions.

ECON 8970 SPECIAL TOPICS (1-3) IND. Pr., Departmental approval. Advanced topics related to economics. Course may be repeated for a maximum of 12 credit hours.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1. Pr., Departmental approval. Individual research projects, presentations, and discussions of the economics profession.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

**Curriculum in Economics: Primary Track**

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<td>Core History¹</td>
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<tr>
<td>Core Fine Arts</td>
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<td>ENGL 1120 English Composition II</td>
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<td>MATH 1610 Calculus I or 1680 Calculus with Business Applications I</td>
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<td>MATH 1690 Calculus With Business Apps II</td>
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<td>Core Humanities (except COMM 1000)²</td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<tr>
<td>Core Literature&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td>Core Humanities (excluding COMM 1000) or Core Literature to complete the sequence&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td>Core Social Science or Core History to complete the sequence&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>STAT 2610 Statistics for Business and Economics</td>
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<tr>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
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<td>PSYC 2130 Analytics for Social and Behavioral Sciences</td>
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<td></td>
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<td>Elective&lt;sup&gt;3&lt;/sup&gt;</td>
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15                                               16

**Junior**

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<th>Fall</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>ECON 3020 Intermediate Microeconomics</td>
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<td>ECON 3030 Intermediate Macroeconomics</td>
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<tr>
<td>ECON 4300 International Economics</td>
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<td>ECON 3600 Mathematical Methods for Economists</td>
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<td>Electives&lt;sup&gt;3&lt;/sup&gt;</td>
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14                                               15

**Senior**

<table>
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<tr>
<th>Fall</th>
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<td>Economics Electives&lt;sup&gt;5&lt;/sup&gt;</td>
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15                                               15

Total Hours: 120

1 Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or one Core Literature in the discipline not selected as the sequence.

2 If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

3 Students must complete an outside minor.

4 ECON 4600 fulfills SLO 7.

5 Students should meet with their advisers to select appropriate Economics electives at the 3000-level or above.

**Curriculum in Economics: Quantitative Track**

**Freshman**

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>Core History&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>ENGL 1120 English Composition II</td>
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**Curriculum in Economics: Quantitative Track**
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<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tr>
<td>MATH 1610/1617 Calculus I</td>
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<tr>
<td>Foreign Language I (College Core)</td>
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<tr>
<td>Core Humanities (except COMM 1000)</td>
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<td><strong>Total</strong></td>
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**Sophomore**

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<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>Core Literature(^1)</td>
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</tr>
<tr>
<td>Core Social Science or Core History to complete sequence(^1)</td>
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<tr>
<td>Core Science I</td>
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<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>STAT 2610 Statistics for Business and Economics</td>
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<tr>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
<td>2</td>
<td>PSYC 2130 Analytics for Social and Behavioral Sciences</td>
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<td>BUAL 2600 Business Analytics I</td>
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<td></td>
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<td>Elective(^3) 3</td>
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<tr>
<td>ECON 2030 Principles of Macroeconomics</td>
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<td><strong>Total</strong></td>
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**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ECON 3020 Intermediate Microeconomics</td>
<td>3</td>
<td>ECON 3030 Intermediate Macroeconomics</td>
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<tr>
<td>ECON 4300 International Economics</td>
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<td>ECON 3600 Mathematical Methods for Economists</td>
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<td>MATH 2630 Calculus III</td>
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<td>MATH 2660 Topics in Linear Algebra</td>
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<td>MATH 3100/STAT 3600 Introduction to Advanced Mathematics</td>
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<td>MATH 5200/STAT 3610 Analysis I</td>
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**Senior**

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<tr>
<th>Course</th>
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<th>Spring Hours</th>
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<tbody>
<tr>
<td>ECON 5020 Advanced Microeconomics</td>
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<td>ECON 5030 Macroeconomic Theory and Policy</td>
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<tr>
<td>ECON 4600 Econometrics I(^4)</td>
<td>3</td>
<td>Economics Electives(^3) 6</td>
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<td>6</td>
<td>UNIV 4AA0 University Graduation 0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total Hours: 120**

\(^1\) Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

\(^2\) If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

\(^3\) Students must check with their advisers to determine appropriate economics electives and other electives.

\(^4\) ECON 4600 fulfills SLO 7.
Economics Minor

15 semester hours in economics (all at 3000-level or above). This minor is designed to offer students majoring in other disciplines the opportunity to gain additional training in the field of economics. This 15 hour program allows students the flexibility to tailor course work to their specific academic interests and career goals.

English

Students graduating with English majors have found careers as writers, marketing and advertising professionals, paralegals, teachers, editors, and other similar professions. Others have chosen to pursue graduate or professional education, including advanced degrees in English or in other areas such as law, divinity, business, or medicine. The Department of English offers students a choice of studying in three different tracks: Creative Writing, Literature, or Professional and Public Writing.

Major

- English - Creative Writing (p. 898)
- English - Literature (p. 899)
- English - Professional and Public Writing (p. 900)

Minor

- English (p. 901)
- English - Creative Writing (p. 901)
- English - Technical Professional Communication (p. 901)
- Linguistics (p. 902)
- Medieval and Renaissance Early Modern Studies (p. 902)

Courses

ENGL 1100/1103 ENGLISH COMPOSITION I (3) LEC. 3. English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently with ENGL 1120 or ENGL 1127.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3. Pr. Honors College. English Composition Core. Topics in writing for students in the Honors College.

ENGL 1120/1123 ENGLISH COMPOSITION II (3) LEC. 3. Pr. ENGL 1100 or ENGL 1103 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3. Pr. Honors College. ENGL 1100 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 2000 INTRODUCTION TO CREATIVE WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the genres of creative writing.

ENGL 2010 INTRODUCTION TO PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the disciplines of professional writing.

ENGL 2020 INTRODUCTION TO LITERARY STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Introduces students to the academic study of literary texts in English with an emphasis on formulating an argument about a text, developing goals and strategies for research, and managing the different stages of the writing process.

ENGL 2050 WRITING IN A RESEARCH UNIVERSITY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127. or equivalent (SAT, AP, transfer credit). Investigation and practice with research writing in academic disciplines.

ENGL 2200/2203 WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2207 HONORS WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.
ENGL 2210/2213 WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2217 HONORS WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2230/2233 BRITISH LITERATURE BEFORE 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of British literature from its beginnings to the end of the 18th century.

ENGL 2240/2243 BRITISH LITERATURE AFTER 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of British literature from the end of the 18th century to the present.

ENGL 2250/2253 AMERICAN LITERATURE BEFORE 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of American literature from its beginnings to 1865.

ENGL 2260/2263 AMERICAN LITERATURE AFTER 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of American literature from 1865 to the present.

ENGL 3040/3043 TECHNICAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Writing in engineering, scientific, and technical fields. Credit will not be given for both ENGL 3040 and ENGL 3080.

ENGL 3080/3083 BUSINESS WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Writing in business, management, or governmental service fields. Credit will not be given for ENGL 3080 and ENGL 3040.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.

ENGL 3120 SURVEY OF RHETORIC (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2207 or ENGL 2203 or ENGL 2210 or ENGL 2213 or ENGL 2217. Survey of rhetoric from Ancient Greece to the present.

ENGL 3130 SURVEY OF CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Introduction to critical methods and theoretical approaches to the study of literature.

ENGL 3360 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English.

ENGL 3700 TOPICS IN CREATIVE WRITING (3) SEM. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3710 SURVEY OF AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. African American literature from its beginnings to 1900.

ENGL 3720 SURVEY OF AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. African American literature from 1900 to the present.

ENGL 3850 STUDY IN LONDON (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Study Abroad in London providing an introduction to London's and England's literature and culture.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English.

ENGL 3890 WRITING CENTER THEORY AND PRACTICE (3) SEM. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260. Introduction to writing center theory, pedagogy, and history.
ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Theory and practice of expository and argumentative writing.

ENGL 4010 TOPICS IN WRITING (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. An in-depth study of a specific topic of writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4020 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Pr. ENGL 2010 or Departmental approval. Introduction to technical and professional editing.

ENGL 4030 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Document design in technical and professional communication.

ENGL 4040 PUBLIC WRITING (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Writing in the public sphere.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.

ENGL 4160 TECHNOLOGY, LITERACY, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or Departmental approval. Connections between technology, literacy, and culture, including instruction in advanced computer applications.

ENGL 4170 HISTORY OF THE ENGLISH LANGUAGE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or Departmental approval. Chronological development of the English language. May count ENGL 5410 or ENGL 4170.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Advanced study of topics in rhetorical theory and practice.

ENGL 4200 FICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of fiction writing; reading, studying, and writing short stories.

ENGL 4210 FICTION WRITING II (3) LEC. 3. Pr. ENGL 4200. Advanced fiction writing.

ENGL 4220 POETRY WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of poetry writing; reading, studying, and writing poetry.

ENGL 4230 POETRY WRITING II (3) LEC. 3. Pr. ENGL 4220. Advanced poetry writing.

ENGL 4240 SPECIAL PROJECT IN CREATIVE WRITING (3) LEC. 3. Pr. ENGL 4210 or ENGL 4230. Capstone course in creative writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4300 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British and continental medieval literature.

ENGL 4310 RENAISSANCE ENGLISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. English literature 1485-1660. Course may be repeated for a maximum of 6 credit hours.

ENGL 4320 RESTORATION AND 18TH-CENTURY LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1660-1800. Course may be repeated for a maximum of 6 credit hours.

ENGL 4330 AGE OF REVOLUTION IN BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1770-1830.
ENGL 4340 19TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1830-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4350 20TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1910-1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4360 CONTEMPORARY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature since 1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4370 IRISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Periods, movements, or major figures of the literature of Ireland.

ENGL 4400 EARLY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature from its beginnings to 1800.

ENGL 4410 19TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature 1800-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4420 20TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature 1910-1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4430 CONTEMPORARY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature since 1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4440 SOUTHERN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Literature of the American South.

ENGL 4450 TOPICS IN AFRICAN AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Concentrated investigation of varying topics in African American literature and culture.

ENGL 4500 STUDIES IN POETRY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study in one or more kinds of poetry.

ENGL 4510 18TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of novels produced in the 18th century.

ENGL 4520 19TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of novels produced in the 19th century.

ENGL 4530 20TH-CENTURY FICTION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of fiction produced in the 20th century.

ENGL 4540 STUDIES IN DRAMA (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more periods or kinds of drama.
ENGL 4550 STUDIES IN FILM AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examining the interconnections between film and literature.

ENGL 4560 STUDIES IN CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Advanced study in one or more theoretical approaches to literature.

ENGL 4570 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English or studied in translation.

ENGL 4600 CHAUCER (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Major works of Chaucer in Middle English.

ENGL 4610 SHAKESPEARE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Shakespeare's works, career, and culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4620 MILTON (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Milton's principal poems, especially Paradise Lost, with some attention to his prose.

ENGL 4630 BRITISH AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more British authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4640 AMERICAN AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more American authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 TOPICS IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4710 TOPICS IN GENDER AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.

ENGL 4720 TOPICS IN MINORITY VOICES IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Literature of one or more minority groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN POPULAR CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. One or more topics in popular culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 ENVIRONMENT, LITERATURE, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2210 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Topics related to the intersections between the environment, literature, and culture.

ENGL 4750 TOPICS IN MYTHOLOGY AND FOLKLORE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more topics in mythology or folklore. Course may be repeated for a maximum of 6 credit hours.

ENGL 4800 SEMINAR IN LITERATURE (3) LEC. 3. Pr. ENGL 3130. Research seminar in literature. Senior standing.

ENGL 4810 CAPSTONE IN PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 2010. Advanced course in developing complex professional writing projects.
ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) AAB/IND. 3. SU. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Supervised experience in applying reading, writing, and research skills to the workplace.

ENGL 4960 SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. 3.00 GPA. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student. Course may be repeated for a maximum of 6 credit hours.

ENGL 4967 HONORS SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. Honors College. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student.

ENGL 4997 HONORS THESIS (3) AAB/IND. 3. Pr. Honors College. ENGL 4967. and Departmental approval. Honors thesis. Course may be repeated for a maximum of 6 credit hours.

ENGL 4960 APPROACHES TO ENGLISH GRAMMAR (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examination of several grammatical theories, with emphasis on English syntax.

ENGL 4960 APPROACHES TO ENGLISH GRAMMAR (3) LEC. 3. Examination of several grammatical theories, with emphasis on English syntax.

ENGL 7000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Research-based best practices in technical and professional editing.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3) LEC. 3. Introduction to the history, practice, and profession of technical and professional communication.

ENGL 7020 PEDAGOGY IN WRITING STUDIES (3) LEC. 3. Methods, practices, and theories of technical and professional communication for prospective teachers.

ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3. Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: ISSUES AND APPROACHES (3) LEC. 3. Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3. Advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 9 credit hours.

ENGL 7060 WEB DEVELOPMENT (3) LEC. 3. Research-based best practices in web development.

ENGL 7070 GRANT AND PROPOSAL WRITING (3) LEC. 3. Research-based best practices in grant and proposal writing.

ENGL 7080 DOCUMENT DESIGN (3) LEC. 3. Research-based best practices in document design.

ENGL 7090 TOPICS IN WRITING STUDIES (3) LEC. 3. Advanced study and practice in topics related to technical, scientific, business, and professional communication.

ENGL 7130 FICTION WRITING (3) LEC. 3. Workshop in the craft and writing of fiction. Course may be repeated for a maximum of 6 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3. Workshop in the craft and writing of poetry. Course may be repeated for a maximum of 6 credit hours.

ENGL 7150 STUDIES IN MEDIEVAL LITERATURE (3) LEC. 3. Major works and genres in Middle English and related literary traditions. Course may be repeated for a maximum of 9 credit hours.

ENGL 7160 EARLY MODERN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7170 18TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.
ENGL 7180 19TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7190 AMERICAN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7200 LITERARY MODERNISMS (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7210 CONTEMPORARY LITERATURE AND CULTURE (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7280 STUDIES IN LINGUISTICS (3) LEC. 3. Selected topic in English linguistics, including historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3. Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN AMERICAN LITERATURE (3) LEC. 3. Study of African American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN RACE, GENDER, AND SEXUALITY (3) LEC. 3. Focused topics in literature and theory of ethnicity, sexuality, gender, race, class, or disability. Course may be repeated for a maximum of 9 credit hours.

ENGL 7790 LITERARY THEORY: ISSUES AND APPROACHES (3) LEC. 3. Overview of significant theoretical issues, approaches, and conversations in literary and cultural theory, historical and/or contemporary.

ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3. Close study of particular theoretical approaches to literary study, including cultural studies, postmodernism, textual criticism, anthropological approaches. Course may be repeated for a maximum of 6 credit hours.

ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7830 MAJORS AUTHOR(S) (3) LEC. 3. One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7850 STUDIES IN GENRE (3) LEC. 3. Study of one or more genres across literary periods. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3. Special problems, topics, and materials in English studies not covered in other existing courses. Course may be repeated for a maximum of 9 credit hours.

ENGL 7910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) PRA. 3. Pr., Departmental approval. Supervised client-based experience in tasks commonly performed by technical communicators analyzed through current research in technical communication.

ENGL 7920 INTERNSHIP IN ENGLISH STUDIES (3) INT. 3. SU. Departmental approval. Supervised professional experience in workplace or university outreach settings.

ENGL 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENGL 7940 PRACTICUM IN TEACHING COLLEGE ENGLISH (1) LEC. 1. SU. An introduction to the teaching of English at Auburn University. Course may be repeated for a maximum of 2 credit hours.

ENGL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENGL 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.
**Curriculum in English: Creative Writing**

Students must take ENGL 2000 (Introduction to Creative Writing) as their gateway course to this track. ENGL 4240 (Special Project in Creative Writing) is the capstone course.

**Freshman**

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Foreign Language II (College Core)</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Fine Arts</td>
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<tr>
<td>Core Mathematics</td>
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<td>Core Social Science</td>
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<tr>
<td>Core Humanities (except COMM 1000)</td>
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13

**Sophomore**

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<th></th>
<th>Fall Hours</th>
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<tr>
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<tr>
<td>Core Science I</td>
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<td>Core Science II</td>
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<tr>
<td>HIST 1010/1017 World History I</td>
<td>3</td>
<td>HIST 1020/1027 World History II</td>
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16 15

**Junior**

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<th>Fall Hours</th>
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<tr>
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<td>ENGL 4220 Poetry Writing I</td>
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<td>ENGL Elective (3000-level or higher)</td>
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<td>Course from Group 2</td>
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<td>4000-level Literature Course</td>
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15 16

**Senior**

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<td>ENGL 4230 Poetry Writing II</td>
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<td>ENGL 4210 Fiction Writing II</td>
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<td>ENGL 4240 Special Project in Creative Writing</td>
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15 14

Total Hours: 120

1 If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
2 Students are required to complete a Core Literature **sequence**.
3 Students must complete a minor in a subject approved by the departmental adviser.
Students should see the departmental adviser to identify approved courses for Group 1 (Globalism, Sustainability, and Diversity), Group 2 (Linguistics or Rhetoric), and ENGL electives.

ENGL 4240 fulfills SLO 7.

## Curriculum in English: Literature

Students must take ENGL 2020 (Introduction to Literary Studies) as the gateway course to the Literature Track. ENGL 4800 (Seminar in Literature) is the capstone course for this track.

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>Foreign Language I (College Core)</td>
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<td>Foreign Language II (College Core)</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Fine Arts</td>
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<tr>
<td>Core Mathematics</td>
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<tr>
<td>Core Humanities (except COMM 1000)</td>
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| Total Hours: 13                           |       |                                             | 16    |

### Sophomore

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<th>Fall</th>
<th>Hours</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>Core Literature</td>
<td>3</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
<td>4</td>
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<td>HIST 1010/1017 World History I</td>
<td>3</td>
<td>HIST 1020/1027 World History II</td>
<td>3</td>
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<tr>
<td>ENGL 2020 Introduction to Literary Studies</td>
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<td>Group 2</td>
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<tr>
<td>Approved Minor</td>
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| Total Hours: 16                           |       |                                             | 15    |

### Junior

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<td>4300-level British literature course</td>
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<td>ENGL Elective (2000-level or higher)</td>
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<td>Course from Group 1</td>
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<tr>
<td>Electives</td>
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| Total Hours: 15                           |       |                                             | 15    |

### Senior

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<tr>
<th>Fall</th>
<th>Hours</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>4500-level Genre course</td>
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<td>4600- or 4700-level Author or Topics course</td>
<td>3</td>
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<tr>
<td>ENGL Elective (3000-level or higher)</td>
<td>3</td>
<td>ENGL 4800 Seminar in Literature</td>
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<tr>
<td>Approved Minor</td>
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<td>Approved Minor</td>
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<td>Electives</td>
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<td>ENGL Elective (3000-level or higher)</td>
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<td>UNIV 4AA0 University Graduation</td>
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</tr>
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</table>

| Total Hours: 15                           |       |                                             | 15    |
If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

Students are required to complete a Core Literature sequence.

Students must complete a minor in a subject approved by the departmental adviser.

Students should see the departmental adviser to identify approved courses for Group 1 (Globalism, Sustainability, and Diversity), Group 2 (Linguistics or Rhetoric), and ENGL electives.

ENGL 4800 fulfills SLO 7.

**Curriculum in English: Professional and Public Writing**

Students in this track must take ENGL 2010 (Introduction to Professional Writing) as the gateway course to this track. ENGL 4810 (Capstone in Professional Writing) is the capstone course.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>Fall</strong></td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>Core Fine Arts</td>
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<tr>
<td>Core Mathematics</td>
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<td>Core Social Science</td>
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<td>Core Humanities (except COMM 1000)</td>
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<td>ENGL 3120 Survey of Rhetoric or 4180 Rhetorical Theory and Practice</td>
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<td>ENGL 4020 Technical and Professional Editing or 4030 Document Design in Technical and Professional Communication</td>
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<td>ENGL Elective (3000-level or higher)</td>
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<td>Course from Group 2⁴</td>
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<td>4000-level Literature Course</td>
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<td>Select one of the following:</td>
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<td>ENGL 3040 Technical Writing</td>
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<td>ENGL 4010 Topics in Writing</td>
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<td>ENGL 3080 Business Writing</td>
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<td>ENGL 4040 Public Writing</td>
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<td>ENGL 4000 Advanced Composition</td>
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<td>ENGL 4160 Technology, Literacy, and Culture</td>
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<tr>
<td>ENGL Elective (3000-level or higher)</td>
<td>3</td>
<td>ENGL 4810 Capstone in Professional Writing⁵</td>
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</table>
Approved Minor

Electives 3

UNIV 4AA0 University Graduation 0

15

Total Hours: 120

1 If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

2 Students are required to complete a Core Literature sequence.

3 Students must complete a minor in a subject approved by the departmental adviser.

4 Students should see the departmental adviser to identify approved courses from Group 1 (Globalism, Sustainability, and Diversity), Group 2 (Linguistics), and ENGL electives.

5 ENGL 4810 fulfills SLO 7.

English Minor

Courses required: NONE

Elective Courses - See advisor for approved course listing.

Total Hours 15

1 Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn.

English Minor (Creative Writing)

ENGL 2000 Introduction to Creative Writing 3
ENGL 4200 Fiction Writing I 3
ENGL 4210 Fiction Writing II 3
ENGL 4220 Poetry Writing I 3
ENGL 4230 Poetry Writing II 3

Total Hours 15

1 Minimum 12 hours at 4000-level

Students must earn a ‘C’ or higher in all minor courses

English Minor (Technical & Professional Communication)

ENGL 2010 Introduction to Professional Writing 3
ENGL 4020 Technical and Professional Editing (formerly ENGL 5000) 3
ENGL 4030 Document Design in Technical and Professional Communication (formerly ENGL 5010) 3
ENGL 4040 Public Writing (formerly ENGL 5030) 3

Select one of the following:

ENGL 3040 Technical Writing
ENGL 3080 Business Writing
ENGL 4010 Topics in Writing
ENGL 4150 Topics in Language Study
ENGL 4160 Technology, Literacy, and Culture

Total Hours 15

1 Minimum 12 hours at 3000-level or above
Linguistics Minor

ENGL 3110 Survey of Linguistics 3
ENGL 4140 Language Variation 3
ENGL 4150 Topics in Language Study 3
ENGL 5410 History of the English Language 3
Select one of the following: 3
ENGL 3040 Technical Writing
ENGL 4160 Technology, Literacy, and Culture
ENGL 5840 Approaches to English Grammar
Total Hours: 15
Students must earn a "C" or better in all minor courses

Medieval and Renaissance/Early Modern Studies Minor

Courses required: See advisor for approved course listing. 15
Total Hours 15

1 Minimum 9 hours at 3000-level or above; no more than 6 hours at 2000-level.

Students must earn at least a C for all courses that count toward the minor.

Foreign Languages and Literatures

Graduates from the Department of Foreign Languages and Literatures have cited their foreign language studies and skills as the foundation for pursuing graduate studies or obtaining positions in communications, government, health professions, law, business, primary and secondary education, non-profit organizations, or academe. The Department of Foreign Languages and Literatures offers Bachelor of Arts degrees in French, French-International Trade, German, German-International Trade, Spanish, and Spanish-International Trade.

All students with previous language experience in French, German, or Spanish who wish to advance their studies in the same language must take the Foreign Language Placement Test prior to Camp War Eagle, Successfully Orienting Students, or enrollment in a foreign language course in these three areas.

Study Abroad is recommended for majors in Foreign Languages and Literatures.

Students must earn a C and maintain a 2.5 GPA in all major courses in order to graduate.

Major

• French (p. 916)
• French International Trade (p. 917)
• German (p. 918)
• German International Trade (p. 919)
• Spanish (p. 920)
• Spanish International Trade (p. 921)

Minor

• Asian Studies (p. 915)
• Classics (p. 915)
• French (p. 922)
• German (p. 922)
• German Linguistics (p. 922)
• Global Cultures (p. 923)
• Italian Studies (p. 923)
• Spanish (p. 923)
• Spanish Linguistics (p. 923)

Foreign Languages Courses

FLNG 1000 ELEMENTARY FOREIGN LANGUAGE ABROAD (1-10) AAB/FLD. Pr., Departmental approval. For languages not currently taught in the department of Foreign Languages and Literatures, but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 1010 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Language and Literatures.

FLNG 1020/1023 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4. Pr. FLNG 1010 or Departmental approval. For languages not currently taught in the Department of Foreign Language and Literatures.

FLNG 2000 INTERMEDIATE FOREIGN LANGUAGE (1-10) AAB/LEC. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Languages and Literatures, but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 4997 HONORS THESIS (1-6) IND. Pr. Honors College or Departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Asian Culture Courses

FLAS 3450 TOPICS IN ASIAN CULTURE (3) LEC. 3. Study of traditional and/or modern Asian culture with special emphasis on cross-cultural and transnational interactions with in Asia, as well as with the west. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Chinese Courses

FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Elementary coursework on approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 1010 ELEMENTARY CHINESE I (4) LEC. 4. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

FLCN 1020 ELEMENTARY CHINESE II (4) LEC. 4. Pr. FLCN 1010 or Departmental approval. Continued exposure to Chinese language and culture. Departmental approval. Fulfills College of Liberal Arts foreign language core requirement.

FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by the department. Intermediate course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 2010 INTERMEDIATE CHINESE I (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; introduction to intermediate language skills.

FLCN 2020 INTERMEDIATE CHINESE II (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar.

FLCN 3000 ADVANCED CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by department. Advanced course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6) AAB/LEC. Pr. FLCN 2010 or Departmental approval. Intense practice in spoken and written Chinese, both text-and situation-based. Course may be repeated for a maximum of 6 credit hours.

FLCN 3020 CHINESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLCN 3010. In this course, students will continue to develop integrated Chinese language skills of listening, speaking, reading, and writing. There will be increased focus on reading and writing skills in Chinese and on learning grammar patterns needed to write in Chinese.

FLCN 3050 CHINESE CINEMA (3) LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

FLCN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN CHINESE (1) IND. 1. Pr. FLCN 1020 or Departmental approval. Language component with reading and in-class discussion to complement a lecture course in English and in a discipline other than Chinese. Course may be repeated for a maximum of 3 credit hours.
FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6) AAB/LEC. Directed study of topics of interest. Course may be repeated for a maximum of 6 credit hours.

FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6) LEC. Chinese culture as depicted in art, film, literature, history. Course may be repeated for a maximum of 6 credit hours.

FLCN 3930 DIRECTED STUDY IN CHINESE (1-6) IND. Pr. FLCN 2010. Directed study in area of special interest for the superior student in Chinese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-French Courses

FLFR 1000 ELEMENTARY FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in French. Course may be repeated for a maximum of 10 credit hours.

FLFR 1010 ELEMENTARY FRENCH I (4) LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. Exposure to culture.

FLFR 1020 ELEMENTARY FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0241 or FLFR 1010. Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core foreign language requirement.

FLFR 1030 READING PROFICIENCY IN FRENCH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly materials in French related to their field of study. May not be used to satisfy undergraduate language requirements.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level, taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4) LEC. 3. LAB. 2. Pr. LFRE score of 0325 or FLFR 1020. Language skills, grammar review, readings in French culture, literature, and history.


FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 3010 FRENCH PHONETICS AND DICTION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Basic principles of French phonetics through sound recognition discrimination and intensive practice.

FLFR 3030 FRENCH CONVERSATION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary.

FLFR 3040 FRENCH COMPOSITION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLFR 3050 FRENCH CINEMA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Sampling of important films from the beginnings of French cinema in 1895 to the present day, including the intellectual, historical, cultural, and literary matrix of each film.

FLFR 3100 INTRODUCTION TO FRENCH LITERATURE (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 3040 or FLFR 3030 or Departmental approval. Grounding in basic analytical approaches, language, and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 FRENCH CIVILIZATION (3) LEC. 3. Pr. FLFR 2020 or Departmental approval. Cultural heritage of France as reflected in present-day life patterns, traditions, and institutions.

FLFR 3140 SURVEY OF FRENCH LITERATURE I (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. The Middle Ages to the 1800s, emphasizes coherent and effective writing in French.

FLFR 3150 SURVEY OF FRENCH LITERATURE II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Readings in French literature prose, drama, and poetry from the 19th century to the present, centered on a theme or topic.
FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1) LEC. 1. Pr. FLFR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than French. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLFR 3310/3313 BUSINESS FRENCH (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428. Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business vocabulary.

FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Topics drawing from French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

FLFR 3930 DIRECTED STUDIES (1-3) AAB/IND. Pr., Departmental approval. Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior or advanced level, taken on an approved Study Abroad program. Students should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 ADVANCED GRAMMAR AND STYLISTICS (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONTINUING CONVERSATION (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors.

FLFR 4040 FRENCH CONTINUING COMPOSITION (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in written French to maintain and upgrade proficiency.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. A grade of D or higher in FLFR 3000-3999 or Departmental approval. Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated on-the-job pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE, OR LANGUAGE (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428 or Departmental approval. Study of a special aspect or theme of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

FLFR 4740 TRANSLATION (3) LEC. 3. Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 ADVANCED DIRECTED STUDY (1-3) IND. Pr. A least 3 courses in FLFR 3000-3999. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Practice in managing, preparing, and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real-life pressures.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999. Pr., Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Seminar in advanced languages skills or topics from French literary genres and movements.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Departmental approval. Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.
FLFR 6980/6986 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) AAB/SEM. 3. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 9 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken in an approved Study Abroad program. Students should consult with the French graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 7010 ADVANCED FRENCH CIVILIZATION (3) LEC. 3. Pr., Departmental approval. In-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present.

FLFR 7020 ADVANCED COMPOSITION AND STYLISTICS (3) LEC. 3. Pr., Departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts, including literary, historical, commercial, and popular.

FLFR 7090 INTRODUCTION TO COLLEGE-LEVEL FRENCH INSTRUCTION (1) LEC. 1. SU. Pr., Departmental approval. Orientation for graduate students in French. Introduction to teaching at the college-level, including observation of performance and guidance by designated instructors.

FLFR 7430 FRENCH PRESS (3) LEC. 3. Pr., Departmental approval. Political, intellectual, and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3. Pr., Departmental approval. Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources.

FLFR 7920 FOREIGN LANGUAGE CAREER INTERNSHIP (1-6) INT. Pr., Departmental approval. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) IND. 3. Departmental approval. Pr., Course may be repeated for a maximum of 6 credit hours.

FLFR 7960 SPECIAL PROBLEMS IN FRENCH LANGUAGE, LITERATURE OR CULTURE (1-3) IND. Pr., Departmental approval. Study in a specialized area under close supervision of an instructor. Course may be repeated for a maximum of 6 credit hours.

FLFR 7970 SPECIAL TOPICS (1-3) AAB/SEM. Pr., Departmental approval. Study of a specific aspect of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

**Foreign Lng-German Courses**

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) IND. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in German. Course may be repeated for a maximum of 10 credit hours.

FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3. LAB. 2. Fundamentals of German language skills stressed. Exposure to Germanic civilization. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0241 or FLGR 1010. or acceptable score on the FL placement test. Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts foreign language core requirement.

FLGR 1030 READING PROFICIENCY IN GERMAN (3) LEC. 3. Instruction to enable graduate students to read and understand scholarly material in German related to their field of study. requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 1100/1103 ACCELERATED ELEMENTARY GERMAN (6) LEC. 6. Basic concepts of German grammar, vocabulary, and culture. Fulfills the College of Liberal Arts foreign language requirement.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.
FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3. LAB. 2. Pr. LGER score of 0325 or FLGR 1020. or acceptable score on FL placement test. Language skills stressed; structural review and composition; readings in German literature and German civilization.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0372 or FLGR 2010. or acceptable score on FL placement test. Continued review of German grammar and syntax, vocabulary building. Additional work in composition; readings in German literature and civilization.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 BEGINNING GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German. German grammar and syntax, vocabulary building. Fall.

FLGR 3020 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Further development of skills in written and spoken German; continued review of selected topics of grammar and syntax, and vocabulary acquisition. Spring.

FLGR 3030 ADVANCED GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3050 GERMAN CINEMA (3-6) LEC. Sampling of important films from the 1920s to the present, including the intellectual, historical, cultural, and literary matrix of each film. Course may be repeated for a maximum of 6 credit hours.

FLGR 3100 INTRODUCTION TO GERMAN LITERATURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Basic literary genres and major figures in German literature from the 18th century to the present; literary methodologies and bibliographical tools. Required of all majors. Fall.

FLGR 3110 GERMAN CULTURE AND CIVILIZATION I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of Germany from the Germanic tribes to 1870. Fall.

FLGR 3120 GERMAN CULTURE AND CIVILIZATION II (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political and cultural history of Germany from 1870 to the present. Spring.

FLGR 3150 TOPICS IN GERMAN LITERATURE, LANGUAGE, AND CULTURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Critical study of specific literary, linguistic, and/or cultural topics related to Germany. Course may be repeated with change in topics.

FLGR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN GERMAN (1) LEC. 1. Pr. FLGR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than German. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLGR 3930 DIRECTED STUDIES IN GERMAN (1-3) IND. Pr. LGER score of 0428 or Departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 9 credit hours.

FLGR 4000 SENIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 MASTERPIECES OF GERMAN LITERATURE I (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of German Classicism, Romanticism, and Realism Naturalism. Fall.

FLGR 4120 MASTERPIECES OF GERMAN LITERATURE II (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of the early 20th century, Weimar Republic, and Postwar Germany.

FLGR 4150 GERMAN DRAMA (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438. or Departmental approval. Consideration, analysis, and criticism of selected German theater works by representative authors. Fall.

FLGR 4160 CONTEMPORARY GERMAN LITERATURE (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438 or Departmental approval. Consideration, analysis, and criticism of recent selected German literary works.
FLGR 4310 GERMAN FOR BUSINESS AND ECONOMICS I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Emphasis on speaking, listening, reading and writing skills in professional, commercial German. Familiarization with German and European business practices. Fall.


FLGR 4330 GERMAN BUSINESS, MEDIA, AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. German language for business German media and society.

FLGR 4510 GERMAN LITERATURE TRANSLATION I (3) LEC. 3. Pr., Departmental approval. From Goethe to Thomas Mann. Reading and analysis of significant literary works by major German writers from 1750 to 1945.

FLGR 4520 GERMAN LITERATURE TRANSLATION II (3) LEC. 3. Pr., Departmental approval. Postwar German literature. Reading and analysis of significant literary works by major German writers from 1945 to the present.

FLGR 4910 PRACTICUM IN GERMAN (1-6) PRA. Pr., Departmental approval. Practical work experience related to major field. Number of credit hours and applicability toward major to be determined in consultation with the undergraduate director. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3. Pr. At least 3 credits in FLGR 3000-3999 or Departmental approval. Readings in German literature from selected periods or in selected genres.

FLGR 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

Foreign Lng-Global Cultures Courses

FLGC 1150/1153 GLOBAL FLUENCY AND AWARENESS (3) LEC. 3. Introduction to non-native languages as representational reflections of two different cultural regions and impetus for in-depth analysis of global identities. May count either FLGC 1150 or FLGC 1153.

Foreign Lng-Greek Courses

FLGK 1010 ELEMENTARY CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Classical Greek. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 1020 ELEMENTARY CLASSICAL GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading ancient Greek. Fulfills College of Liberal Arts foreign language core requirement.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Pr. FLGK 1020 or Departmental approval. Introduction to reading ancient Greek. prose and poetry.


FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topics.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topics.

Foreign Lng-Italian Courses

FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10) AAB/FLD. Pr. Departmental approval. Course work at the elementary level taken in an approved Study Abroad program. Students should consult the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 1010 ELEMENTARY ITALIAN I (4) LEC. 3. LAB. 2. Basic language skills in Italian; exposure to culture.
FLIT 1020 ELEMENTARY ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 1010 or Departmental approval. Continuation of basic language skills; exposure to culture. Fulfills the College of Liberal Arts foreign language core requirement.

FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLIT 2010 INTERMEDIATE ITALIAN I (4) LEC. 3. LAB. 2. Pr. FLIT 1020 or Departmental approval. Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall.

FLIT 2020 INTERMEDIATE ITALIAN II (4) LEC. 3. LAB. 2. Pr. FLIT 2010 or Departmental approval. Special emphasis on reading skills and Italian culture. Review of Italian grammar for English speakers. Spring.

FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLIT 3030 ITALIAN CONVERSATION (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society; includes review of vocabulary.

FLIT 3040 ITALIAN COMPOSITION (3) LEC. 3. Pr. FLIT 2020 or Departmental approval. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLIT 3050 ITALIAN CINEMA (3) LEC. 3. Sampling of important films from the time of the telefoni bianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

FLIT 3110 SPECIAL TOPICS IN ITALIAN (3) LEC. 3. Pr. FLIT 2010 or Departmental approval. Supplementary instruction in Italian language, literature, culture. Course may be repeated for a maximum of 9 credit hours.

FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1) LEC. 3. Pr. FLIT 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Italian. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Italian culture, as reflected in arts, film, literature, history. Course may be repeated for a maximum of 9 credit hours.

FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3) IND. Departmental approval. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topics.

FLIT 5970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Pr., Departmental approval. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval.

FLIT 6970/6976 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3) LEC. 3. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval. Course may be repeated for a maximum of 9 credit hours.

Foreign Lng-Japanese Courses

FLJP 1000 ELEMENTARY JAPANESE ABROAD (1-10) LEC. Course work at the elementary level take on an approved Study Abroad program. Learning modern Japanese listening, writing, and reading in an integrated manner through an approved Study Abroad program. Course may be repeated for a maximum of 10 credit hours.


FLJP 1020 ELEMENTARY JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 1010 or Departmental approval. Stress on language skills; structural review and composition: readings in Japanese literature and exposure to Japanese culture and civilization.
FLJP 2000 INTERMEDIATE JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 2010 INTERMEDIATE JAPANESE I (4) LEC. 3. LAB. 2. Pr. FLJP 1020 or Departmental approval. Stress on language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 2020 INTERMEDIATE JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 2010 or Departmental approval. Continuation of FLJP 2010. Language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 3000 ADVANCED JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 3010 JAPANESE COMPOSITION AND CONVERSATION (3-6) AAB. Pr. FLJP 2010 or Departmental approval. Intensive practice of written and spoken Japanese, based on contemporary social situations and texts. Course may be repeated for a maximum of 6 credit hours.

FLJP 3050 JAPANESE CINEMA (3) LEC. 3. Introduction to Japanese films, with particular focus on representations of history from the 1930s to the present. Course may be repeated for a maximum of 6 credit hours.

FLJP 3450 TOPICS IN JAPANESE LITERATURE AND CULTURE (3-6) AAB/LEC. Critical study of specific Japanese literary and cultural topics. Course may be repeated for a maximum of 6 credit hours.

FLJP 3930 DIRECTED STUDY IN JAPANESE (3) LEC. 3. Pr. FLJP 2020. Directed study in area of special interest for the superior student in Japanese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Korean Courses

FLKN 1010 ELEMENTARY KOREAN I (4) LEC. 4. Course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 1020 ELEMENTARY KOREAN II (4) LEC. 4. Pr. FLKN 1010. Course to help students continue to learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 2010 INTERMEDIATE KOREAN I (4) LEC. 4. Pr. FLKN 1020. or four years of high school Korean or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.


FLKN 1010 ELEMENTARY LATIN I (4) LEC. 3. LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin.

FLKN 1020 ELEMENTARY LATIN II (4) LEC. 3. LAB. 2. Pr. FLKN 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts core foreign language requirement.

FLKN 2010 INTERMEDIATE LATIN I (4) LEC. 3. LAB. 2. Pr. FLKN 2010. or four years of high school Latin or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.


FLKN 3030 READING PROFICIENCY IN LATIN (3) LEC. 3. Pr. Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Latin related to their field of study. May not be used to satisfy undergraduate language requirements. To prepare graduate students to pass the graduate proficiency exam in Latin. Students should check with their graduate director for departmental language requirements before enrolling.
FLLN 3110 LATIN LITERATURE (3) LEC. 3. Pr. FLLN 2010 or Departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLLN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN LATIN (1) LEC. 1. Pr. FLLN 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a language other than Latin. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLLN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Roman cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLLN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of Latin texts. Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

Foreign Lng-Russian Courses

FLRU 1010/1013 ELEMENTARY RUSSIAN I (4) LEC. 3. LAB. 2. Fundamentals of Russian. Language skills; progressive emphasis on conversation; exposure to Russian culture and civilization.

FLRU 1020/1023 ELEMENTARY RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FRLU 1010 or FRLU 1013. Fundamentals of Russian. Stress on language skills; progressive emphasis on conversation; exposure to Russian culture and civilization. Fulfills College of Liberal Arts foreign language core requirement.

FLRU 2010 INTERMEDIATE RUSSIAN I (4) LEC. 3. LAB. 2. Pr. FRLU 1020 or FRLU 1023 or Departmental approval. Language skills; structural review and composition: continued exposure to Russian civilization.

FLRU 2020 INTERMEDIATE RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FRLU 2010 or Departmental approval. Language skills; structural review and composition; continued exposure to Russian civilization.

FLRU 2510 RUSSIAN CULTURE IN ENGLISH (3) LEC. 3. Intensive exposure to Russian culture from the 10th century to the Revolution as reflected in the fine arts and literature.

FLRU 2520 RUSSIA TODAY IN ENGLISH (3) LEC. 3. Introduction to Russian culture from the Revolution to the present, as reflected in the fine arts and literature.

Foreign Lng-Spanish Courses

FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program credit may substitute for required 1000-level courses in Spanish. Course may be repeated for a maximum of 10 credit hours.

FLSP 1010/1013 ELEMENTARY SPANISH I (4) LEC. 3. LAB. 2. Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

FLSP 1020/1023 ELEMENTARY SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013. or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts foreign language core requirement.

FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3. LAB. 2. Pr. LSPA score of 0325 or FLSP 1020. or acceptable score on FL placement test or Departmental approval. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2017 HONORS INTERMEDIATE SPANISH I (4) LEC. 2. LAB. 2. Pr. FLSP 1020 or LSPA score of 0325. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.
FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0372 or FLSP 2010 or acceptable score on FL placement test. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2027 HONORS INTERMEDIATE SPANISH II (4) LEC. 2. LAB. 2. Pr. FLSP 2010 or FLSP 2013 or FLSP 2017 or LSPA score of 0372. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 3010 SPANISH PHONETICS (3) LEC. 45, AAB/LEC. 0. Pr. LSPA score of 0428 or FLSP 2020. Training in practical phonetics with an emphasis on pronunciation correctives. Fall, Spring.

FLSP 3050 SPANISH SYNTAX (3) LEC. 3. Pr. FLSP 2020 or exam. In this course, the function of the different parts of speech (e.g., prepositions, adverbs, determiners, pronouns, verbs, conjunctions) will be examined, and students will learn to diagram simple and complex hierarchical sentence structure using syntactic trees.

FLSP 3060 COMMUNICATIVE SKILLS IN SPANISH I (3) LEC. 3. Pr. LSPA score of 0428 or FLSP 2020. The first in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3070 COMMUNICATIVE SKILLS IN SPANISH II (3) LEC. 3. Pr. FLSP 3060. The second in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3080/3083 INTRO TO CULTURAL ANALYSIS (3) LEC. 3. Pr. FLSP 3060. A general introduction to the analysis of Hispanic societies through their diverse cultural practices, local customs, and languages. This class explores how were Hispanic societies formed, the effects of globalization, and their diverse cultural and national identities.

FLSP 3100 INTRODUCTION TO HISPANIC LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3060. Study of literary genres, rhetorical figures, and other critical concepts. Literary analysis of Spanish and Spanish-American texts. Fall, Spring.

FLSP 3110 CULTURES OF SPAIN (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Spain. This class explores the ethnic and linguistic diversity of the country, the historical events that forged contemporary Spain, and the cultural plurality of the country.

FLSP 3130 TOPICS IN HISPANIC FILM (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Study of film as a window into Hispanic cultures, both Spanish and Spanish American. Course may be repeated for a maximum of 6 credit hours.

FLSP 3140 TOPICS IN HISPANIC MUSIC (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Study of the interrelationship of Hispanic music and Spanish and Spanish-American cultures. Course may be repeated for a maximum of 6 credit hours.

FLSP 3150 TOPICS IN HISPANIC MEDIA (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Develops students' cultural awareness through a series of written assignments organized around major journalistic and academic genres. We will investigate contemporary issues as presented in the media of Spain, Latin America and U.S. Latino communities. Course may be repeated for a maximum of 6 credit hours.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1) LEC. 1. Pr. FLSP 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 CULTURES OF SPANISH AMERICA (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Spanish America. This class explores the cultural, ethnic and linguistic diversity of the Spanish American countries, and the historical events that forged them.

FLSP 3220 HISPANIC CULTURES IN THE U. S. (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Hispanic U.S. This class explores the diversity in ethnicity, traditions, and arts of Hispanics in the country, the historical events that forged such diversity, and their cultural plurality.
FLSP 3310 SPANISH TRANSLATION AND INTERPRETATION (3) LEC. 3. Pr. FLSP 3070. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

FLSP 3930 DIRECTED STUDY IN SPANISH (3) IND. 3. Pr. FLSP 3000. Development of an advanced-level of Spanish proficiency in listening, speaking, reading, and writing. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4010 ORAL PROFICIENCY IN SPANISH (3) LEC. 3. Pr. FLSP 3070. Proficiency oriented course designed to further develop speaking and comprehension skills in Spanish in a variety of topics.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 SPANISH LINGUISTICS (3) LEC. 3. Pr. FLSP 3070. This course introduces students to Spanish linguistics and the basic concepts of some of its principal branches. The primary areas include phonetics and phonology, syntax, morphology, semantics, pragmatics, history of the Spanish language, and linguistics as a cognitive science.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100. Major works of Spanish literature from medieval times to the present. Fall.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100. Readings in Spanish literature. Course may be repeated with change in topic. Spring.

FLSP 4210 MASTERPIECES OF SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100. Major works of Spanish American literature from colonial times to the present. Fall.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100. Readings in Spanish-American Literature. Course may be repeated with a change in topic. Spring.


FLSP 4330 TOPICS IN HISPANIC COMMERCIAL WORLD (3) LEC. 3. Pr. FLSP 3070. Study of an aspect of Spanish business terminology or documentation. Course may be repeated with change in topic. Course may be repeated for a maximum of 6 credit hours.

FLSP 4420 TOPICS IN HISPANIC LITERATURE AND CULTURE (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080 or Departmental approval. Analysis of the cultural milieu influencing artistic creativity within a historical period. Course may be repeated for a maximum of 6 credit hours.

FLSP 4510 SPANISH LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or Departmental approval. Major works of Spanish literature in English translation.

FLSP 4520 SPANISH-AMERICAN LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or Departmental approval. Major works of Spanish-American literature in English translation.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PRA. Pr., Departmental approval. Practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. FLSP 3070. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3070. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.
FLSP 5030 ADVANCED CULTURE AND LITERATURE OF THE SPANISH SPEAKING WORLD (3) LEC. 3. Pr. FLSP 3070 and FLSP 3080. A grade of C or better in at least 4 courses FLSP 3000-3999 or departmental approval. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 6030 ADVANCED CULTURE AND LITERATURE OF SPANISH SPEAKING WORLD (3) LEC. 3. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken on an approved Study Abroad program. Students should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. Diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3. Synchronic study of the Spanish language focusing on phonology, morphology, syntax, and lexicon, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. Critical study of current research in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3. Contemporary literary criticism and theory as it relates to Spanish and Spanish-American literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1. SU. Methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (3) LEC. 3. Instruction for GTAs, including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3. Critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3. Study of medieval Spanish literature through representative texts from the various genres of the period 1300-1500.

FLSP 7120 16TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th century.

FLSP 7130 17TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres in the 17th century with emphasis on Baroque literature.


FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3. Literature about the colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.
FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3. Study of representative literary genres and authors of Vice Regal America from Spanish transcription of pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH-AMERICAN POETRY I (3) LEC. 3. Critical and historical study of Spanish-American poetry from 1824 to the first generation of modernism.

FLSP 7230 SPANISH-AMERICAN POETRY II (3) LEC. 3. Critical and historical study of Spanish-American poetry from post-modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3. Critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3. Critical and historical study of major works of modernist and post-modernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3. Critical and historical study of the Spanish-American theater, with emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3. Critical and historical study of the Spanish-American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3. Critical study of Cervantes' masterpiece.

FLSP 7970/7976 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB/SEM. 3. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. In-depth study of an author or authors and analysis of the cultural milieu influencing their creativity or investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.

**Asian Studies Minor**

| Chinese, Japanese or Korean at the 2000 or 3000 level. | 3 |
| Elective Courses - See advisor for approved course listing. | 12 |
| **Total Hours** | **15** |

1 Minimum 12 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

**Classics Minor**

| Greek or Latin (at the 2000 or 3000 level) | 3 |
| Elective Courses - See advisor for approved course listing. | 12 |
| **Total Hours** | **15** |

1 Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Student must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.
# Curriculum in French

Students must earn a C and maintain a 2.5 GPA in all major courses.

## Freshman

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
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<tr>
<td>FLFR 1010 Elementary French I</td>
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## Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>Core History to complete sequence</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Humanities$^2$</td>
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<tr>
<td>Core Science II</td>
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<td>Core Fine Arts</td>
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<tr>
<td>FLFR 2010 Intermediate French I</td>
<td>4</td>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
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## Junior

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<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>Select one of the following courses:</td>
<td>3</td>
<td>Select one of the following courses:</td>
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<tr>
<td>FLFR 3030 French Conversation</td>
<td></td>
<td>FLFR 3040 French Composition</td>
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<tr>
<td>FLFR 3010 French Phonetics and Diction</td>
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<td>FLFR 4020 Advanced Grammar and Stylistics</td>
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<tr>
<td>FLFR 4030 French Continuing Conversation</td>
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<td>FLFR 4040 French Continuing Composition</td>
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<td>Select one of the following courses:</td>
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<td>FLFR 3110 French Civilization</td>
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<tr>
<td>FLFR 3100 Introduction to French Literature</td>
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<td>Electives$^1$</td>
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<tr>
<td>FLFR 3140 Survey of French Literature I</td>
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<tr>
<td>FLFR 3150 Survey of French Literature II</td>
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<td>COMM 1000 Public Speaking$^3$</td>
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<td>Electives$^1$</td>
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## Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>FLFR Electives$^1$</td>
<td>9</td>
<td>FLFR 4980 French Senior Capstone</td>
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<td>FLFR Electives$^1$</td>
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<td>UNIV 4AA0 University Graduation</td>
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</table>

Total Hours: 120
Students must meet with their advisers to identify approved FLFR electives and to select other electives.

If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

COMM 1000 fulfills SLO 7.

Curriculum in French-International Trade

Students must earn a C and maintain a 2.5 GPA in all major courses.

Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
<td>FLFR 1020 Elementary French II</td>
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<td>FLFR 1010 Elementary French I</td>
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<td>ENGL 1100/1107 English Composition I</td>
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<td>Core Mathematics</td>
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<td>Core History</td>
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Sophomore

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>ECON 2030 Principles of Macroeconomics</td>
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<tr>
<td>Core Literature</td>
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<td>Core Science II</td>
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<td>Core Science I</td>
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<td>FLFR 2020 Intermediate French II</td>
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<td>FLFR 2010 Intermediate French I</td>
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Junior

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<tr>
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<tbody>
<tr>
<td>Select one of the following courses:</td>
<td>3</td>
<td>ACCT 2210 Principles of Managerial Accounting</td>
<td>3</td>
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<tr>
<td>FLFR 3030 French Conversation</td>
<td></td>
<td>MKTG 3310 Principles of Marketing</td>
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</tr>
<tr>
<td>FLFR 3010 French Phonetics and Diction</td>
<td></td>
<td>FLFR 3110 French Civilization</td>
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<tr>
<td>FLFR 4030 French Continuing Conversation</td>
<td></td>
<td>FLFR 3310 Business French</td>
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<tr>
<td>ACCT 2110 Principles of Financial Accounting</td>
<td>3</td>
<td>Core Fine Arts</td>
<td>3</td>
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<tr>
<td>MNGT 3100 Principles of Management or 3810 Management Foundations</td>
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<td>Select one of the following courses:</td>
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<tr>
<td>FLFR 3040 French Composition</td>
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<tr>
<td>FLFR 4020 Advanced Grammar and Stylistics</td>
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<td>FLFR 4040 French Continuing Composition</td>
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<td>Elective</td>
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Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINC 3610 Principles of Business Finance</td>
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<td>FLFR 4980 French Senior Capstone</td>
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<tr>
<td>ECON 4300 International Economics</td>
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<td>FINC 3100 Fundamentals of Global Trade or 5510 Multinational Financial Management</td>
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<tr>
<td>Select one of the following courses:</td>
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<td>French Elective</td>
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</table>
**Curriculum in German**

Students must earn a C and maintain a 2.5 GPA in all major courses.

### Freshman

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<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>FLGR 1010 Elementary German I</td>
<td>4</td>
<td>FLGR 1020 Elementary German II</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>Core History</td>
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<td>Core Social Science</td>
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<td>Core Mathematics</td>
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### Sophomore

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<tr>
<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Literature</td>
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<td>Core Humanities</td>
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<td>Core Social Science</td>
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<td>Core History to complete sequence</td>
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<tr>
<td>Core Science II</td>
<td>4</td>
<td>Core Fine Arts</td>
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</tr>
<tr>
<td>FLGR 2010 Intermediate German I</td>
<td>4</td>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
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</tr>
<tr>
<td>FLGR 2020 Intermediate German II</td>
<td>4</td>
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<td><strong>Total</strong></td>
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### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
<td>FLGR 3020 Intermediate German Composition and Conversation</td>
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<tr>
<td>FLGR 3010 Beginning German Composition and Conversation</td>
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<td>German Elective</td>
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<tr>
<td>FLGR 3100 Introduction to German Literature</td>
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<td>Electives</td>
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### Senior

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>FLGR 3110 German Culture and Civilization I or 3120 German Culture and Civilization II</td>
<td>3</td>
<td>FLGR 4980 Senior Capstone</td>
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1. COMM 1000 fulfills SLO 7.
2. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
3. Students should meet with their advisors to identify appropriate French and other electives.
4. Students must meet with their advisors to determine approved required and elective business courses.
### Curriculum in German-International Trade

Students must earn a C and maintain a 2.5 GPA in all major courses.

#### Freshman

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>FLGR 1010 Elementary German I</td>
<td>4</td>
<td>FLGR 1020 Elementary German II</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
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<td>Core Humanities</td>
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<td>COMM 1000 Public Speaking</td>
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#### Sophomore

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<tr>
<th></th>
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<tbody>
<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>ECON 2030 Principles of Macroeconomics</td>
<td>3</td>
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<tr>
<td>Core Literature</td>
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<td>Core Science II</td>
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<tr>
<td>Core Science I</td>
<td>4</td>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
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<tr>
<td>FLGR 2010 Intermediate German I</td>
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<td>FLGR 2020 Intermediate German II</td>
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#### Junior

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<tbody>
<tr>
<td>ACCT 2110 Principles of Financial Accounting</td>
<td>3</td>
<td>ACCT 2210 Principles of Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>MKTG 3310 Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>MNGT 3100 Principles of Management or 3810 Management Foundations</td>
<td>3</td>
<td>FLGR 3020 Intermediate German Composition and Conversation</td>
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<tr>
<td>FLGR 3010 Beginning German Composition and Conversation</td>
<td>3</td>
<td>FLGR 3110 German Culture and Civilization I or 3120 German Culture and Civilization II</td>
<td>3</td>
</tr>
<tr>
<td>FLGR 3100 Introduction to German Literature</td>
<td>3</td>
<td>Core Fine Arts</td>
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#### Senior

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<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>FINC 3610 Principles of Business Finance</td>
<td>3</td>
<td>FLGR 4320 German for Business and Economics II</td>
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</table>
**Curriculum in Spanish**

Students must earn a C and maintain a 2.5 GPA in all major courses.

### Freshman

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>FLSP 1010 Elementary Spanish I</strong></td>
<td>4</td>
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<tr>
<td><strong>ENGL 1100 English Composition I</strong></td>
<td>3</td>
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<tr>
<td><strong>Core History</strong></td>
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<td><strong>Core Mathematics</strong></td>
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<tr>
<td>Elective(^1)</td>
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Total: 16

### Sophomore

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<tbody>
<tr>
<td><strong>Core Literature</strong></td>
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<td><strong>Core Social Science</strong></td>
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<td><strong>Core Science II</strong></td>
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<td><strong>FLSP 2010 Intermediate Spanish I</strong></td>
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Total: 14

### Junior

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<thead>
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<tbody>
<tr>
<td><strong>COMM 1000 Public Speaking(^3)</strong></td>
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<tr>
<td><strong>FLSP 3010 Spanish Phonetics</strong></td>
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<tr>
<td><strong>FLSP 3060 Communicative Skills in Spanish I</strong></td>
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<td>Electives(^1)</td>
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Total: 15

---

1. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
2. COMM 1000 fulfills SLO 3.
3. Students should meet with their advisers to determine appropriate German, business, and other elective courses.
4. FLGR 4110 and FLGR 4120 may be used.
### Senior

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>FLSP 3100 Introduction to Hispanic Literature</td>
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<tr>
<td>FLSP 4010 Oral Proficiency in Spanish</td>
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<tr>
<td>Group 1 courses(^4)</td>
<td>3 Electives(^1)</td>
<td>6 Electives(^1)</td>
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<tr>
<td>Electives(^1)</td>
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Students should check with their advisers to determine appropriate electives.

If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

COMM 1000 fulfills SLO 7.

Group 1 courses include: FLSP 3110, FLSP 3210, FLSP 3220

### Curriculum in Spanish-International Trade

Students must earn a C and maintain a 2.5 GPA in all major courses.

---

<table>
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<th>Total Hours</th>
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<tbody>
<tr>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td>COMM 1000 Public Speaking(^2)</td>
<td>3 Core Humanities(^1)</td>
<td>3 Elective(^3)</td>
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<tr>
<td>Core History</td>
<td>3 Core History (to complete sequence)</td>
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<tr>
<td>Core Mathematics</td>
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<td><strong>Total</strong></td>
<td><strong>16</strong></td>
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### Freshman

<table>
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<tr>
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<th>Spring Hours</th>
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</thead>
<tbody>
<tr>
<td>FLSP 1010 Elementary Spanish I</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td>COMM 1000 Public Speaking(^2)</td>
<td>3 Core Humanities(^1)</td>
<td>3 Elective(^3)</td>
<td></td>
</tr>
<tr>
<td>Core History</td>
<td>3 Core History (to complete sequence)</td>
<td>3</td>
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<td>Core Mathematics</td>
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<td><strong>16</strong></td>
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### Sophomore

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<tr>
<th></th>
<th>Fall Hours</th>
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<tr>
<td>Core Literature</td>
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<tr>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
<td>4</td>
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<tr>
<td>FLSP 2010 Intermediate Spanish I</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Core Science I</td>
<td>4 LBAR 2010 Liberal Arts Careers Preparation</td>
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### Junior

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<th>Fall Hours</th>
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<tr>
<td>ACCT 2110 Principles of Financial Accounting</td>
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<td>3</td>
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<td>FLSP 3010 Spanish Phonetics</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MNGT 3100 Principles of Management or 3810 Management Foundations</td>
<td>3</td>
<td>3</td>
<td></td>
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<tr>
<td>FLSP 3060 Communicative Skills in Spanish I</td>
<td>3 MKTG 3310 Principles of Marketing</td>
<td>3</td>
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<tr>
<td>Elective(^3)</td>
<td>3 Core Fine Arts</td>
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French Minor

Senior

<table>
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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tr>
<td>FINC 3610 Principles of Business Finance</td>
<td>3</td>
<td>FLSP 4980 Senior Capstone</td>
<td>1</td>
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<tr>
<td>ECON 4300 International Economics</td>
<td>3</td>
<td>FINC 3100 Fundamentals of Global Trade or 5510</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Multinational Financial Management</td>
<td></td>
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<tr>
<td>FLSP 3100 Introduction to Hispanic Literature</td>
<td>3</td>
<td>FLSP Electives</td>
<td>6</td>
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<tr>
<td>FLSP 4310 Business Spanish I</td>
<td>3</td>
<td>FLSP 4330 Topics in Hispanic Commercial World</td>
<td>3</td>
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<tr>
<td>FLSP 3310 Spanish Translation and</td>
<td>3</td>
<td>Business Elective</td>
<td>3</td>
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<tr>
<td>Interpretation or 4010 Oral Proficiency in Spanish</td>
<td></td>
<td>UNIV 4AA0 University Graduation</td>
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</tbody>
</table>

|       | 15   | 16   |

Total Hours: 120

1  If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
2  COMM 1000 fulfills SLO 7.
3  Students should meet with their advisers to determine appropriate Spanish, business, and other electives.

French Minor

At least 9 hours required for the minor must be completed at Auburn or through Auburn-approved study abroad.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

Minimum of 6 hours and no more than 8 hours equivalent to FLFR 2010 and FLFR 2020

<table>
<thead>
<tr>
<th>Elective courses</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hours</td>
<td>15-17</td>
</tr>
</tbody>
</table>

1  Students are required to complete a minimum 9 hours at the 3000-level or above. They must meet with their advisers to identify appropriate electives.

German Linguistics Minor

This minor has two required courses and a menu of courses to allow students flexibility in specific topics within the field.

| FLGR 2020 | Intermediate German II | 4 |
| ENGL 3110 | Survey of Linguistics  | 3 |

Select three of the following courses for 9 credit hours:

| FLGR 3030 | Advanced German Composition and Conversation |
| FLGR 4330 | German Business, Media, and Society |
| FLGR 3150 | Topics in German Literature, Language, and Culture |
| FLGR 3120 | German Culture and Civilization II |
| FLGR 3930 | Directed Studies in German |

Total Hours: 16

* Students majoring in German, German International Trade, International Business German, and Foreign Language Education German are required to take FLGR 2020 for those majors and thus will need to replace this required course by completing 4 courses from the menu of courses above which are not required courses for their major.

German Minor

At least 9 hours required for the minor must be completed at Auburn or through Auburn-approved study abroad.

Students must earn a C and maintain a 2.5 GPA in all courses that count toward the minor.
Minimum of 6 hours and no more than 8 hours in courses equivalent to FLGR 2010 and FLGR 2020 6-8
Elective courses 1 9
Total Hours 15-17

1 Students are required to complete a minimum of 9 hours at 3000-level or above. They must meet with their advisers to determine appropriate elective courses.

Global Cultures Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above). Students take a sequence of two language skills courses at the 2000 or 3000 level and three supporting courses (see advisor for approved course listing). Students must earn a C and maintain a 2.5 GPA for all courses that count toward the minor. Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Global Cultures minor.

Italian Studies Minor

Courses required: 3 hours of Italian (at the 2000 or 3000 level) 3
Elective Courses - See advisor for approved course listing. 12
Total Hours 15

1 Minimum 9 hours at 3000-level or above

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.

Spanish Linguistics Minor

This minor has two required courses and a menu of courses to allow students flexibility in specific topics within the field. Students must earn at least a "C" in all courses counting for the minor.

All students will take the following (7 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLSP 2020</td>
<td>Intermediate Spanish II *</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 3110</td>
<td>Survey of Linguistics</td>
<td>3</td>
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Students must choose three of the following courses (9 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLSP 3010</td>
<td>Spanish Phonetics</td>
<td></td>
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<tr>
<td>FLSP 3050</td>
<td>Spanish Syntax</td>
<td></td>
</tr>
<tr>
<td>FLSP 3930</td>
<td>Directed Study in Spanish</td>
<td></td>
</tr>
<tr>
<td>FLSP 4030</td>
<td>Spanish Linguistics</td>
<td></td>
</tr>
<tr>
<td>FLSP 4420</td>
<td>Topics in Hispanic Literature and Culture</td>
<td></td>
</tr>
<tr>
<td>FLSP 5010</td>
<td>Advanced Spanish Phonetics</td>
<td></td>
</tr>
<tr>
<td>FLSP 5020</td>
<td>Advanced Spanish Syntax</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 16

* Students majoring in Spanish, Spanish International Trade, International Business Spanish, and Foreign Language Education Spanish are required to take FLSP 2020 for those majors and thus will need to replace this required course by completing 4 courses from the menu of courses above which are not required courses for their major.

Spanish Minor

At least 9 hours required for the minor must be completed at Auburn or through Auburn-approved study abroad. At least 9 hours required for this minor must be completed at the 3000 level or above.

Students must earn a C and maintain a 2.5 grade-point average in all courses that count toward the minor.
Minimum of 6 hours and no more than 8 hours in courses equivalent to FLSP 2010 and FLSP 2020 6-8
FLSP 3060 Communicative Skills in Spanish I 3
FLSP 3080 Intro to Cultural Analysis 3
or FLSP 3100 Introduction to Hispanic Literature
FLSP Elective at 3000 or above 3
Total Hours 15-17

Students must see their advisers for approved elective courses.

History

The curriculum in History at Auburn endeavors to teach students both knowledge of the past and skills in the research and communication of that knowledge. As such, the Bachelor of Arts in History can serve as a sound foundation for graduates to pursue a number of career options. Auburn graduates in History have gone on to a diverse range of careers that include public history and archives, historic preservation, secondary education, public administration, law, military service, politics, and a range of business careers. While some students go on to teach history in schools and a small number pursue graduate education in history, most graduates are spread through career paths representing the broad possibilities that come with a well-developed ability to ask clear questions, research the information and sources necessary to construct an answer, write factually and persuasively, and think historically.

Students should check with their academic advisor to declare a History major.

Once they are admitted to the BA in History, students must meet these requirements:

- All History majors should take HIST 3800. Historian’s Craft as early as possible in their academic program after completing core history. Students must complete the course before enrolling in History courses above the 3000 level.
- Students must earn a grade of C or higher in HIST 3800 before taking HIST 4950 Senior Thesis.
- All students must complete a course at the 2000 level or above that is focused on a non-European, non-American topic.
- To graduate, students must earn a minimum 2.0 GPA overall and in the History major.

Major

- History (p. 933)

Minor

- History (p. 934)

Courses

HIST 1000 AUVERN IN THE WORLD: INDUSTRY AND SOCIETY (4) LEC. 3. LAB. 1. Part of the Auburn Global International Accelerator Program, HIST1000 exposes first-year students to Auburn, Alabama, and regional history from a wide range of perspectives, among them social, cultural, and environmental changes, economics, technology, and politics.

HIST 1010/1013 WORLD HISTORY I (3) LEC. 3. History Core. Survey of world history from early humanity to the late 18th century. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures. May count either HIST 1010 or HIST 1013.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3. Pr. Honors College. History Core. A survey of world history from early humanity to the late 18th century.

HIST 1020 WORLD HISTORY II (3) LEC. 3. History Core. Survey of world history since the Industrial Revolution.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3. Pr. Honors College. History Core. Survey of world history since the Industrial Revolution.

HIST 1210 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.
HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010/2013 SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Social, political, and economic development of the United States from earliest occupation through Reconstruction. May count either HIST 2010 or HIST 2013.

HIST 2017 HONORS SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Pr. Honors College. Social, political, and economic development of the United States from earliest occupation through Reconstruction.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3) LEC. 3. Social, political, and economic development of the United States from the end of Reconstruction to the present.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3) LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 PRESENT (3) LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3) LEC. 3. Latin American history from its Amerindian beginnings to the present.

HIST 2110 SURVEY OF ASIAN HISTORY (3) LEC. 3. Asian history from prehistoric times to the present.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3) LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.

HIST 2130 SURVEY OF MIDDLE EASTERN HISTORY (3) LEC. 3. Introduction to the history and culture of the Middle East.

HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3) LEC. 3. History of the southeastern Indians from pre-contact to removal, including native culture, cultural change, trade, imperial rivalries, and wars.

HIST 3010 HISTORY OF ALABAMA (3) LEC. 3. Broad study of Alabama history since its European settlement.

HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3) LEC. 3. History of women in America from colonial period to the present; explores differences of region, race, and class.

HIST 3030 AFRICAN-AMERICAN HISTORY (3) LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3) LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3050 HISTORY OF POLITICAL PARTIES IN THE UNITED STATES (3) LEC. 3. Political parties and party systems from the Constitution to the present, including party organization, campaign techniques and presidential leadership.

HIST 3060 ISSUES IN AFRICAN-AMERICAN HISTORY (3) LEC. 3. Issues and personalities in African-American history. Course may be repeated for a maximum of 6 credit hours.

HIST 3070 HISTORY OF UNITED STATES AIR POWER (3) LEC. 3. Development of air and spacecraft as weapons of war including doctrines, technology, major leaders and great events of air power.

HIST 3080 THE CIVIL RIGHTS MOVEMENT (3) LEC. 3. History of the civil rights movement and its place in the broader African-American struggle for freedom. Social, political, and cultural history, with geographic and chronological focus on the United States South in the post-World War II period.

HIST 3090 HISTORY OF APPALACHIA (3) LEC. 3. Survey of the history of the Appalachian region from before European contact to the present.
HIST 3100 THE CIVIL WAR IN AMERICAN MEMORY (3) LEC. 3. A survey of the ways that Americans have remembered their civil war from 1865 to the present.

HIST 3300 GRECO-ROMAN CIVILIZATION (3) LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.

HIST 3310 EUROPE IN THE MIDDLE AGES (3) LEC. 3. Survey of the thousand years that has been called the birth of Europe.

HIST 3320 HISTORY OF IRELAND (3) LEC. 3. History of Ireland from its beginnings to the present, including discussion of the present.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3) LEC. 3. Variable topics in the history of Germans, Slavs, and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 6 credit hours.

HIST 3340 ISSUES IN THE HISTORY OF MODERN FRANCE (3) LEC. 3. Focus on specific issues, themes, or topics within the political, social, or cultural history of France between the 18th and 20th centuries. Themes will vary.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3) LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.

HIST 3360 CONTEMPORARY RUSSIA SINCE WORLD WAR II (3) LEC. 3. Developments in contemporary Russia since World War II.

HIST 3370 EUROPE AND THE WORLD (3) LEC. 3. Variable topics in the history of European interactions with non-European peoples, cultures, politics, and societies.

HIST 3500 HISTORY OF AVIATION (3) LEC. 3. History of aviation from the beginnings of human flight to the present.

HIST 3510 HISTORY OF SPACE TRAVEL (3) LEC. 3. Historical origins of the space age and United States space policy, including patterns that define the present and constrain the future of humans and machines.

HIST 3520 SCIENTIFIC REVOLUTIONS (3) LEC. 3. History of science, focusing on the concept of scientific revolutions in their social and intellectual context.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3) LEC. 3. Interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3) LEC. 3. Issues such as the automobile, environment, industrialization, and popular culture relating to the role technology plays in society and culture. Course may be repeated for a maximum of 6 credit hours.

HIST 3550 AMERICAN ENVIRONMENTAL HISTORY (3) LEC. 3. Environmental history of the United States from colonial era to present.

HIST 3560 TECHNOLOGY AND GENDER HISTORY (3) LEC. 3. Exploration of the relationship between gender and technology in comparative cultural, social, and historical perspectives from 18th century to present.

HIST 3570 THE AUTOMOBILE IN HISTORY (3) LEC. 3. Global history of the automobile, including technological developments as well as role of the automobile in culture.

HIST 3600 ISSUES IN WOMEN’S AND GENDER HISTORY (3) LEC. 3. Topics in the history of women and gender. Course may be repeated for a maximum of 6 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3) LEC. 3. Examination of the shifting boundaries between the public and private in history including topics such as work, family, sexuality, and the state. Course may be repeated for a maximum of 6 credit hours.

HIST 3620 LANDSCAPE AND CULTURE (3) LEC. 3. Social and cultural history of architecture and built-space in Europe and/or the United States.

HIST 3630 HISTORY OF MEXICO (3) LEC. 3. History of Mexico in the 19th and 20th centuries.

HIST 3640 WORLD MILITARY HISTORY (3) LEC. 3. Economic, social, political, and technological roots of the ways of war employed by different civilizations throughout the ages.
HIST 3650 20TH-CENTURY WORLD WARS (3) LEC. 3. Causes, conduct, and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3) LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, and the influences of foreign policy and technological change.

HIST 3670 CONTEMPORARY HISTORY (3) LEC. 3. Examination of developments in the contemporary world to provide historical background on developments in selected areas or nations across the globe.

HIST 3800 HISTORIAN'S CRAFT (3) LEC. 3. Historical research methods and an introduction to historiography. For history majors only.

HIST 3920 HISTORY INTERNSHIP (3) LEC. 3. Pr., Departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, historical editing projects, and similar historical agencies.

HIST 3930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval and; 3.0 overall GPA. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3970 SPECIAL TOPICS (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 4950 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. with minimum grade of "C." Writing an original paper based on research in primary source materials.

HIST 4977 HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. Writing an original paper based on research in primary source materials.

HIST 5000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the North American colonies from European settlement to 1763.

HIST 5010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Revolutionary era and the foundations of the United States, including the struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 5020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the early nation, including the influences of Thomas War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflicts.

HIST 5030 SOUTH TO 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the American economy, rise of big business, agrarian and labor protests, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. United States history since 1929 with particular emphasis on the economy, changing role of government, America's role in world affairs and social changes.

HIST 5080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3. Pr. HIST 3080 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of United States diplomatic history since the Spanish-American War.
HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 5310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Cultural, economic, and social developments as well as the politics and international relations of the major European states.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 5340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of European culture and the interactions of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 5350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Analysis of the revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930’s.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the Roman period to the Tudor dynasty.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from 1485 to the early 18th century.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the political unification of England and Scotland to the present.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. The Industrial Revolution of 18th, 19th and 20th centuries, with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 5580 THE HISTORY OF FLIGHT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of flight in political, economic, social, and cultural perspective.

HIST 5600 MODERN EAST ASIA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China and Japan from 1800-2000.

HIST 5610 COLONIAL LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. European expansion into the western hemisphere from its Iberian background through the fall of the Spanish and Portuguese empires in the 19th century.

HIST 5620 MODERN LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Latin America in the 19th and 20th centuries, using a thematic approach arranged chronologically.

HIST 5640 HISTORY OF ISLAM (3) LEC. 3. Pr. HIST 3800. HIST 3800 with grade of “C” or better. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 5650 HISTORY OF MODERN SOUTH ASIA (3) LEC. 3. Pr. HIST 3800. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 5660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China from 1800-2000.
HIST 5670 HISTORY OF MODERN JAPAN: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in Japan from 1800-2000.

HIST 5680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Pr. HIST 3800. Students not majoring in history must obtain a waiver from the department. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 5810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 5820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Development of the North American colonies from European settlement to 1763.


HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Development of the early nation, including the influences of Thomas Jefferson, War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.

HIST 6030 SOUTH TO 1877 (3) LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Sectional conflict, Civil War, and Reconstruction, including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.


HIST 6070 MODERN UNITED STATES HISTORY: 1929 PRESENT (3) LEC. 3. United States history since 1929, with particular emphasis on the economy, changing role of government, America's role in world affairs, and social changes.

HIST 6080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3. Examination of United States diplomatic history since the Spanish-American War.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Cultural, economic, and social developments as well as the politics and international relations of the major European states between 1815-1918.
HIST 6330 20TH CENTURY EUROPE (3) LEC. 3. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 6340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3. Development of European culture and the interactions of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 6350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3. Analysis of the revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930s.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. British history from the Roman period to the Tudor dynasty.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. British history from 1485 to the early 18th century.

HIST 6380 MODERN BRITISH HISTORY (3) LEC. 3. British history from the political unification of England and Scotland to the present.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. The Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3. The history of flight in political, economic, social, and cultural perspective.

HIST 6600 MODERN EAST ASIA (3) LEC. 3. Examination and analysis of the political, social, economic, and intellectual changes in China and Japan from 1800-2000.

HIST 6610 COLONIAL LATIN AMERICA (3) LEC. 3. European expansion into the western hemisphere from its Iberian background through 19th century, fall of the Spanish and Portuguese empires.

HIST 6620 MODERN LATIN AMERICA (3) LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 6640 HISTORY OF ISLAM (3) LEC. 3. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 6650 HISTORY OF MODERN SOUTH ASIA, 1750-PRESENT (3) LEC. 3. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 6660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic and intellectual changes in China from 1800-2000.

HIST 6670 HISTORY OF MODERN JAPAN: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic, and intellectual changes in Japan from 1800-2000.

HIST 6680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 6710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 6810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 6820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 6970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 7100 INTRODUCTORY SEMINAR IN AMERICAN HISTORIOGRAPHY (3) SEM. 3. Major historiographical trends in general American history and in particular sub-fields.
HIST 7110 SEMINAR IN AMERICAN COLONIAL HISTORY (3) SEM. 3. Development of the British North American colonies, including discussions concerning Indians, English background, exploration, settlement, rebellions, religion, slavery, imperial rivalries, and women.

HIST 7120 SEMINAR IN AMERICAN REVOLUTION AND EARLY NATION (3) SEM. 3. Birth of the American nation and its re-birth under the Constitution.

HIST 7130 SEMINAR IN EARLY AMERICAN REPUBLIC (3) SEM. 3. Issues in the Early Republic, including political transformations, sectional conflict, women and gender roles, industrialization, and reform movements.

HIST 7140 SEMINAR IN OLD SOUTH (3) SEM. 3. History of the Old South, including discussions of colonial settlement, slavery, political transformations, sectional conflict, women and gender roles, and religion.

HIST 7150 SEMINAR IN CIVIL WAR ERA (3) SEM. 3. Sectional conflict, Civil War, and Reconstruction, including political, military and social development.

HIST 7160 SEMINAR IN NEW SOUTH (3) SEM. 3. The South in United States history since 1877.

HIST 7170 SEMINAR IN UNITED STATES PROGRESSIVE ERA (3) SEM. 3. In-depth history of the United States between 1877-1929.

HIST 7180 SEMINAR IN MODERN UNITED STATES HISTORY (3) LEC. 3. Broad introduction to United States history since 1929.

HIST 7190 SEMINAR IN AFRICAN-AMERICAN HISTORY (3) SEM. 3. Analysis of the major historiographical works on the social, political, and economic history of African Americans.

HIST 7200 SEMINAR IN UNITED STATES WOMEN'S HISTORY (3) SEM. 3. Change and continuity in the lives of American women.

HIST 7210 SEMINAR IN AMERICAN RELIGIOUS HISTORY (3) SEM. 3. Role of religion in American history; recent writing on religion; and sociological and anthropological theories of religion.

HIST 7220 DEVELOPMENT IN CIVIL RIGHTS MOVEMENT (3) LEC. 3. In-depth study of the civil rights movement, with emphasis on the United States South in the post-World War II period. Major topics, basic literature, and historiographical debates examined.

HIST 7400 INTRODUCTORY SEMINAR IN EUROPEAN HISTORIOGRAPHY (3) SEM. 3. Major topics and historiographical debates in European history from the Early Modern period to the 20th century.

HIST 7410 SEMINAR IN EARLY MODERN EUROPE (3) SEM. 3. Topics in the history of continental Europe, 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 7420 SEMINAR IN POPULAR CULTURE IN EARLY MODERN EUROPE (3) SEM. 3. Major themes in the popular culture of Early Modern Europe, 1450-1800.

HIST 7430 SEMINAR IN RUSSIAN SOCIETY IN REVOLUTION (3) SEM. 3. Examination of the literature, concepts, and history of the transformation of Russian society between 1861 and 1939.

HIST 7440 SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3) SEM. 3. Traditional and revisionist approaches to the study of the political uses of culture in 19th and 20th century Europe.

HIST 7450 SEMINAR IN THE FRENCH REVOLUTION (3) SEM. 3. Historiography in the French Revolution's origins and legacy.

HIST 7460 SEMINAR IN EARLY MODERN BRITAIN (3) SEM. 3. Main themes and events of British history between 1603 and the 1760s.

HIST 7470 SEMINAR IN EUROPEAN INTERNATIONAL HISTORY (3) SEM. 3. Relations among the European powers 1870-1945.

HIST 7510 INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3) SEM. 3. Problems and issues in the history of technology; reviews important, literature.

HIST 7520 SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3) SEM. 3. Political and technological context of the space age.

HIST 7530 SEMINAR IN SOUTHERN INDUSTRIALIZATION (3) SEM. 3. Significant scholarly works and primary sources dealing with the history of industrialization and technology in the American South.
HIST 7540 SEMINAR IN AEROSPACE HISTORY (3) SEM. 3. Central problems, issues, and literature in aerospace history.

HIST 7550 SEMINAR IN SCIENCE AND SOCIETY (3) SEM. 3. Exploration of the interactions between science and politics in the 20th century.

HIST 7560 SEMINAR IN THE INDUSTRIAL REVOLUTION (3) SEM. 3. Central questions and historiography relating to the Industrial Revolution.

HIST 7570 TECHNOLOGY IN SOCIAL AND CULTURAL HISTORY (3) SEM. 3. Literature in the history of technology from a social and cultural perspective.

HIST 7630 SEMINAR IN LATIN AMERICAN HISTORY (3) SEM. 3. Research tools, major issues, and sources in Latin American history.

HIST 7690 SEMINAR IN MODERN WORLD HISTORY (3) SEM. 3. Examination of world historiography and theory, with topical readings on comparative themes such as imperialism and colonialism, catch-up industrialization, decolonization, the Atlantic world, gender systems, religious diasporas, trade, and exploration.

HIST 7700 SEMINAR IN HISTORICAL METHODS (3) SEM. 3. Methodology and theory of historical research. Preparation of a significant original research paper.

HIST 7710 GRADUATE RESEARCH AND WRITING SEMINAR (3) SEM. 3. Pr. HIST 7700. A writing-intensive course designed to sharpen graduate students’ research and writing skills.

HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Development of archival theory in the major functional areas of archival practice, including appraisal, acquisition, description, preservation, reference and access, outreach, and advocacy.

HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.

HIST 7740 MANAGEMENT OF ARCHIVES AND RELATED ORGANIZATIONS (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Theory and practice of management in archives, libraries, museums, special collections and related organizations.

HIST 7750 ADVANCED APPRAISAL OF ARCHIVAL MATERIALS (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Only graduate students in History, or Archival Studies or Public History Graduate Certificate programs. Theory and practice in the selection and appraisal of materials in archives, libraries, museums, special collections and related organizations.

HIST 7760 DEVELOPING DIGITAL ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Only graduate students in History or Archival Studies Certificate program. Theory and practice of developing digital collections in archives, libraries, museums, special collections and related organizations.

HIST 7770 ISSUES IN ARCHIVAL STUDIES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Special topics in archival studies offered in conjunction with member institutions of the Archival Education Collaborative. Course may be repeated for a maximum of 9 credit hours.

HIST 7800 RESEARCH SEMINAR IN UNITED STATES HISTORY TO 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7810 RESEARCH SEMINAR IN UNITED STATES HISTORY SINCE 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7830 RESEARCH SEMINAR IN MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.
HIST 7840 RESEARCH SEMINAR IN HISTORY OF TECHNOLOGY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7850 RESEARCH SEMINAR IN LATIN AMERICAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7910 PUBLIC HISTORY INTERNSHIP (3) PRA. 3. Pr. HIST 6810 and P/C HIST 7700. Application of principles of public history practice within a functioning venue or site under supervision of public historian; final written report required. Course may be repeated for a maximum of 6 credit hours.

HIST 7920 ARCHIVAL INTERNSHIP (1-6) INT. Pr. HIST 6710 or Departmental approval. Application of the principles of archival practice within the context of a functioning archival repository under the supervision of professional archivists. Course may be repeated for a maximum of 6 credit hours.

HIST 7970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 9 credit hours.

HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the MA thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history to 1877. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history since 1877 Course may be repeated for a maximum of 6 credit hours.

HIST 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history to 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history since 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3. Pr., Departmental approval. Selected topics in the history of technology. Course may be repeated for a maximum of 6 credit hours.

HIST 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3. Pr., Departmental approval. Selected topics in Latin American history. Course may be repeated for a maximum of 6 credit hours.

HIST 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3. Pr., Departmental approval. Directed readings in modern world history, focusing on one or two geographic areas or themes.

HIST 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3. Exploration of the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HIST 8710 INTRODUCTION TO THE TEACHING OF HISTORY (1) SEM. 1. SU. Introduction to some of the challenges involved in teaching history at the college level.

HIST 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the PhD dissertation. Course may be repeated with change in topics.

Curriculum in History

Freshman

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<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
</tr>
<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Foreign Language II (College Core)</td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td>Core History to complete the sequence</td>
</tr>
<tr>
<td>Core Mathematics</td>
<td>3</td>
<td>Core Fine Arts</td>
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### History Minor

**Courses Required:** Minimum of 6 hours at the 2000-level and 9 hours at the 3000-level or above.

**Total Hours:** 15

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<td>2</td>
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<tr>
<td>If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3. 2 Group 1 courses consist of any 2000-level history course; Group 2 courses consist of any 3000-level history course; Group 3 courses consist of any 5000-level history course. One three-hour course must cover topics outside of European and United States history. The following courses will meet this one-course requirement: HIST 2100, HIST 2110, HIST 2120, HIST 2130, HIST 3630, HIST 3640, HIST 5600, HIST 5610, HIST 5620, HIST 5640, HIST 5650, HIST 5660, HIST 5670, and HIST 5680. The history adviser may also approve specific sections of HIST 3970 and HIST 5970 if they are focused on non-European and non-United States topics. 3 Students must meet with their advisers to identify liberal arts and free electives. 4 Students must successfully complete HIST 3800 before they can take 5000-level courses in history. In addition, they must complete HIST 3800 with at least a C to enroll in HIST 4950. 5 COMM 1000 fulfills SLO 7.</td>
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**History Minor**

**Courses Required:** Minimum of 6 hours at the 2000-level and 9 hours at the 3000-level or above.

**Total Hours:** 15

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1 All above the 1000-level

At least 9 hours required for the minor must be completed at Auburn or through AU approved study abroad.
Music

The Department of Music offers the Bachelor of Arts and Bachelor of Music degrees. Considered a professional degree by the National Association of Schools of Music, the Bachelor of Music degree prepares students for graduate study in music performance, for professional careers as performers, and for careers as applied music teachers. Other potential jobs can be found in churches, commercial music business, arts administration, and some private schools.

The Department of Music works in cooperation with the College of Education to provide course offerings for music education degrees. Students in music education must audition for placement in the required applied lessons.

The Department of Music provides qualified and interested students, regardless of their major, with a variety of music experiences. Performance groups, such as the Marching Band, Symphonic Band, Concert Band, Campus Band, Orchestra, Jazz Band, Percussion Ensemble, Chamber Choir, Concert Choir, Men’s Chorus, Women’s Chorus, University Singers, Gospel Choir, and various smaller music ensembles are available to all students. Many performance groups require a successful audition before admission.

Students must comply with these requirements to be admitted to the BA or BM in Music:

• Students must apply for admission.
• They must successfully complete an instrumental or vocal audition. Information about the audition is available from the departmental office.

Once they are admitted to a degree program in music, students have to meet these requirements in order to graduate:

• Students must earn a grade of C or higher in all music courses in order for those courses to count toward degree requirements.
• Students taking private instruction (MUAP) must successfully complete auditions before enrollment and must concurrently enroll in MUSI 1000 Performance Attendance. Information is available from the departmental office.

In all Fine Arts curricula, electives may include six hours Basic ROTC or Advanced ROTC. In curricula that do not allow for six hours of electives, ROTC may be taken in lieu of required courses with approval of the departmental adviser. University core courses may not be replaced by Basic or Advanced ROTC.

Majors

• Music (p. 951)
• Music Performance - Instrumental (p. 952)
• Music Performance - Piano (p. 953)
• Music Performance - Voice (p. 955)

Minor

• Music (p. 956)

Music - Applied Courses

MUAP 1110 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1210 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1110. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1310 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1410 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1520 PERFORMANCE I (2) PRL. 1. Pr., Successful audition and Departmental approval. Instruction in major performance medium for the first-year BM or BA in Music major. One-hour private lesson per week.
MUAP 1530 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

MUAP 1620 PERFORMANCE II (2) PRL. 1. Pr. MUAP 1520. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year BM or BA in Music major. One hour private lesson per week.

MUAP 1630 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1530. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

MUAP 2110 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1210. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week

MUAP 2210 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2110. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2310 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1410. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 2410 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 2520 PERFORMANCE III (2) PRL. 1. Pr. MUAP 1620. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2530 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1630. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

MUAP 2620 PERFORMANCE IV (2) PRL. 1. Pr. MUAP 2520. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2630 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2530. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

MUAP 3120 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2210. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3220 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3120. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3520 PERFORMANCE V (2) PRL. 1. Pr. MUAP 2620. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3530 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2630. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

MUAP 3620 PERFORMANCE VI (2) PRL. 1. Pr. MUAP 3520. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3630 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3530. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

MUAP 4120 PERFORMANCE VII (1) PRL. 1. Pr. MUAP 3220. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Education major. One-hour private lesson per week.

MUAP 4220 PERFORMANCE VIII (1) PRL. 1. Pr. MUAP 4120. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Education major. One-hour private lesson per week.

MUAP 4520 PERFORMANCE VII (2) PRL. 1. Pr. MUAP 3620. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.
MUAP 4530 PERFORMANCE VII (1) PRL. 1. Pr. MUAP 3630. and Departmental approval and successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

MUAP 4620 PERFORMANCE VIII (2) PRL. 1. Pr. MUAP 4520. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4630 PERFORMANCE VIII (1) PRL. 1. Pr. MUAP 4530. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

MUAP 7120 PERFORMANCE (2) PRL. Pr., Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7220 PERFORMANCE (2) PRL. Pr. MUAP 7120. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7320 PERFORMANCE (2) PRL. Pr. MUAP 7220. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7420 PERFORMANCE (2) PRL. Pr. MUAP 7320. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

Music Ensemble Courses

MUSE 1100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1140 CAMPUS BAND (1) LAB. 3. Pr., Successful audition. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 1150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 1160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.
MUSE 1230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 1300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 1430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.
MUSE 1600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 1620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 2100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2120 SYMPHONIC BAND (1) LAB. 3. Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 2150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 2160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 2300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.
MUSE 2310 CONDUCTOR’S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 2600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 2620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.
MUSE 2630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 3100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 3150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 3160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 3300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Lecture</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>MUSE 3340</td>
<td>WOODWIND ENSEMBLE (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 3350</td>
<td>WOODWIND QUINTET (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3360</td>
<td>TRUMPET ENSEMBLE (1)</td>
<td>LAB. 3.</td>
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<td>Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3370</td>
<td>BASSOON ENSEMBLE (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3380</td>
<td>SAXOPHONE ENSEMBLE (1)</td>
<td>LAB. 3.</td>
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<td>Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3390</td>
<td>HORN ENSEMBLE (1)</td>
<td>LAB. 3.</td>
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<td>Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 3400</td>
<td>CLARINET ENSEMBLE (1)</td>
<td>LAB. 3.</td>
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<td>Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3410</td>
<td>FLUTE ENSEMBLE (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3420</td>
<td>COLLABORATIVE PIANO (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3430</td>
<td>PIANO ENSEMBLE (1)</td>
<td>LAB. 3.</td>
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<td>Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3440</td>
<td>BRASS QUINTET (1)</td>
<td>LAB. 3.</td>
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<td>Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3450</td>
<td>BRASS ENSEMBLE (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3460</td>
<td>PIANO CHAMBER MUSIC (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3470</td>
<td>STRING CHAMBER MUSIC (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3480</td>
<td>JAZZ COMBO (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3600</td>
<td>INDIAN MUSIC ENSEMBLE (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 3610</td>
<td>MARCHING PERCUSSION SECTIONALS (1)</td>
<td>LAB. 3.</td>
<td>Departmental approval</td>
<td>Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 3620</td>
<td>AUXILIARY SECTIONALS (1)</td>
<td>LAB. 3.</td>
<td>Successful audition</td>
<td>Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>PEP BAND (1)</td>
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<td>Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4100</td>
<td>MARCHING BAND (1)</td>
<td>LAB. 6.</td>
<td>Successful audition</td>
<td>Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4110</td>
<td>CONCERT BAND (1)</td>
<td>LAB. 3.</td>
<td>Successful audition</td>
<td>Large performance group that rehearse and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.</td>
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MUSE 4120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 4150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 4160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 4300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.
MUSE 4380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4390 HORN ENSEMBLE (1) LAB. 3. Pr., Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 4430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 4450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 4600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 4610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 4620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 4630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 7400/7406 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7410/7416 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7500/7506 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7510/7516 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7600/7606 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7610/7616 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.
Music Courses

**MUSI 1000 PERFORMANCE ATTENDANCE (0)** LEC. 1. SU. Pr., Enrollment in MUAP. Required during each semester of MUAP enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Department of Music and the community. Course may be repeated with change in topics.

**MUSI 1020 PIANO SKILLS I - RUDIMENTS (1)** LEC. 2. Group instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1030, MUSI 2040, or MUSI 2050.

**MUSI 1030 PIANO SKILLS II (1)** LEC. 2. Pr. MUSI 1020 or Departmental approval. Group Instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2040 or MUSI 2050.

**MUSI 1050 SINGER'S DICTION (1)** LEC. 2. Coreq., Enrolled in MUAP (Applied Voice) class. Introduction to the rules of singing in English, Italian, German, and French as applied to art songs and arias through use of the IPA.

**MUSI 1090 THEATRE VOCAL SKILLS (1)** LEC. 1. Pr., Successful audition. Instruction and practice in the rudiments of music and vocal production for the Theatre major.

**MUSI 1310 MUSIC THEORY I (2)** LEC. 2. Coreq. MUSI 1320. Systematic study of music composition procedures, form, and style during the Period of Common Practice. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1410 or MUSI 2310.

**MUSI 1320 MUSIC SKILLS I (1)** LEC. 3. Coreq. MUSI 1310. Development of aural, keyboard and sight singing skills with an understanding of basic harmonic practices. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1420 or MUSI 2320.

**MUSI 1410 MUSIC THEORY II (2)** LEC. 2. Pr. MUSI 1310 or Departmental approval. Systematic study of music composition procedures, form, and style during the Period of Common Practice. For Music majors and minors. Normally taken with MUSI 1420. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2310. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1410 to enroll in this course.

**MUSI 1420 MUSIC SKILLS II (1)** LEC. 3. Pr. MUSI 1320 or Departmental approval. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices. For Music majors and minors. Normally taken concurrently with MUSI 1410. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2320. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1320 to enroll in this course.

**MUSI 2010 GUITAR AND STRINGS SKILLS (1)** LEC. 2. Pr. MUSI 1310. Group instruction and practice in the rudiments of music performance of fretted and unfretted string instruments, such as guitar, violin, viola, cello, and string bass.


**MUSI 2040 FUNCTIONAL PIANO I (1)** LEC. 2. Pr. MUSI 1030 or Departmental approval. MUSI 2040 is not a prerequisite for MUSI 2050. Development of functional piano skills for use in classroom, rehearsal or studio. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2050. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1030 to enroll in this course.

**MUSI 2050 FUNCTIONAL PIANO II (1)** LEC. 2. Pr. MUSI 1030 or Departmental approval. MUSI 2040 is not a prerequisite for MUSI 2050. Development of functional piano skills for use in classroom, rehearsal or studio. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1030 to enroll in this course.

**MUSI 2150 ADVANCED DICTION (1)** LAB. 2. Pr. MUSI 1050. Coreq., Enrolled in a MUAP (Applied Voice) class. Advanced study of the rules of singing in Italian, Spanish, German, and French through the use of the IPA. BA in Music and BM majors must receive a grade of "C" or better in MUSI 1050 to enroll in this course.

**MUSI 2210 MUSIC FUNDAMENTALS FOR MUSIC THEATRE (3)** LEC. 3. Fundamental study of music structural procedures, form, and style designed for students in the music theatre major.
MUSI 2310 MUSIC THEORY III (2) LEC. 2. Pr. MUSI 1410 and MUSI 1320 or Departmental approval. Systematic study of music composition procedures, form and style from the advent of chromaticism through the music of late 19th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1320 and MUSI 1410 to enroll in this course.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3. Pr. MUSI 1410 and MUSI 1420 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 1420 to enroll in this course.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2. Pr. MUSI 1420 and MUSI 2310 or Departmental approval. Systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1420 and MUSI 2310 to enroll in this course.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3. Pr. MUSI 1410 and MUSI 2320 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 2320 to enroll in this course.

MUSI 2730/2733 APPRECIATION OF MUSIC (3) LEC. 3. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3. Pr. Honors College. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2740/2743 SURVEY OF POPULAR MUSIC (3) LEC. 3. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740 or MUSI 2743.

MUSI 2750 MUSIC AND SCIENCE (3) LEC. 3. Fine Arts Core. Music and its connection to science throughout history. No previous music training required.

MUSI 3000 JUNIOR RECITAL (0) PRL. 0. SU. Pr. MUAP 2620 or MUAP 2630. Coreq., MUAP 3620. Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3030 VOCAL SKILLS (1) LEC. 1. Pr., Music Education major. Instruction and practice in the rudiments of music as applied to vocal performance.

MUSI 3040 BRASS INSTRUMENT SKILLS (2) LAB. 2. Pr., Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching brass musical instruments.

MUSI 3060 WOODWIND INSTRUMENT SKILLS (2) LAB. 2. Music Education major or Departmental approval. Class instruction and practice in the techniques of playing and teaching woodwind musical instruments.

MUSI 3080 PERCUSSION SKILLS (1) LAB. 2. Pr. MUAP 1210. Music Education major or Departmental approval. Instruction and practice in the rudiments of music as applied to various percussion instruments.

MUSI 3090 STRING INSTRUMENT SKILLS (1) LAB. 2. Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching upper and lower string musical instruments.

MUSI 3110 PIANO LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Renaissance to the Classical era, with emphasis on musical styles.

MUSI 3120 PIANO LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the literature for solo piano from the Romantic era to the present, with emphasis on musical styles.

MUSI 3130 VOCAL LITERATURE I (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Survey of representative art song repertoire, including techniques and application of song study, musicianship, interpretation, and performance practice.

MUSI 3140 VOCAL LITERATURE II (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Study of the development of opera and oratorio literature from 1600 to the present time.

MUSI 3150 BRASS LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on brass instruments.
MUSI 3160 PERCUSSION LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on percussion instruments.

MUSI 3170 WOODWIND LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on woodwind instruments.

MUSI 3180 STRING LITERATURE (2) LEC. 2. Pr. MUAP 2520 or Departmental approval. Intensive study of the literature and materials for teaching and performing on string instruments.

MUSI 3200 FORM AND ANALYSIS (3) LEC. 3. Pr. MUSI 2410. Study of the formal structure of music from 1700-1950 with an emphasis on standard forms and analytical techniques.

MUSI 3210 TONAL COUNTERPOINT (3) LEC. 3. Pr. MUSI 2410. Study of the standard practice of contrapuntal writing and analytical methods of contrapuntal music in the 18th century.

MUSI 3220 CONTEMPORARY MUSIC ANALYSIS TECHNIQUES (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. Study of the knowledge and analysis of contemporary art music.

MUSI 3290 JAZZ THEORY AND IMPROVISATION (3) LEC. 3. Pr. MUSI 1410. Major practical and theoretical areas informing jazz performance.

MUSI 3510 MUSIC HISTORY I (3) LEC. 3. Pr. MUSI 1410. Study of the development of music from the earliest times through early 18th-century styles through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 to enroll in this course.

MUSI 3520 MUSIC HISTORY II (3) LEC. 3. Pr. MUSI 1410. Study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 to enroll in this course.

MUSI 3610 CHORAL conducting I (2) LEC. 2. Pr. MUSI 1410. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3620 CHORAL conducting II (2) LEC. 2. Pr. MUSI 3610. Advanced conducting technique with practical experience in preparing choral groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3610 to enroll in this course.

MUSI 3630 INSTRUMENTAL conducting I (2) LEC. 2. Pr. MUSI 1410. Basic conducting technique and introduction to score reading and interpretation.

MUSI 3640 INSTRUMENTAL conducting II (2) LEC. 2. Pr. MUSI 3630. Advanced conducting technique with practical experience in preparing instrumental groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3630 to enroll in this course.

MUSI 3800 JUNIOR PERFORMANCE RECITAL (1) PRL. 1. SU. Pr. MUAP 3520. Coreq., Enrollment in a MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3. Study of substantive topics and issues in music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 MUSIC EDUCATION SENIOR RECITAL PROJECT (1) PRL. SU. Pr., Music Education major and MUAP 3120. Coreq., MUAP 3220. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital project.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. For prospective voice teachers. Intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. and BA in Music or BM major. For prospective instrumental teachers. Intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2. Music majors and minors specializing in piano or Departmental approval. Study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching.
MUSI 4040 MUSIC INSTRUMENTS REPAIR (1) LEC. 1. Selection, care, and repair of woodwind, brass, and percussion instruments with emphasis on the adjustments that should be made by the instrumental director.

MUSI 4090 MARCHING BAND TECHNIQUES (2) LEC. 2. Pr., Music Education major or Departmental approval. Fundamental methods and procedures of the marching band, including study of computer-aided band charting.

MUSI 4100 ORCHESTRAL TECHNIQUES (2) LEC. 2. Fundamental methods and procedures of rehearsing the orchestra in areas of articulation, tone production, blend, balance, intonation, and musical expression.

MUSI 4110 CHORAL TECHNIQUES (2) LEC. 2. Methods and procedures of rehearsing choral groups in diction, tone production, balance, blend, intonation, and musical expression.

MUSI 4200 MEDIEVAL AND RENAISSANCE MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the Medieval and Renaissance periods.

MUSI 4210 BAROQUE MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1600-1750.

MUSI 4220 CLASSICAL MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1730-1800.

MUSI 4230 ROMANTIC MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1800-1900.

MUSI 4240 MODERN ERA (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1900 to the present day.

MUSI 4280 AMERICAN ART MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or departmental approval. Survey of American art music from colonial times until the present.

MUSI 4290 FILM MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. History and analysis of film music. Basic scoring techniques will be applied to short scoring projects.

MUSI 4350 JAZZ HISTORY (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or Departmental approval. History of jazz from its evolution to the present day.

MUSI 4400 INSTRUMENTAL ARRANGING (2) LEC. 2. Pr. MUSI 2410. Project course in arranging various instrumental combinations from quartet to symphonic band.

MUSI 4500 CHORAL ARRANGING (2) LEC. 2. Pr. MUSI 2410. Project course in arranging for various vocal combinations.

MUSI 4600 ORCHESTRATION (2) LEC. 2. Pr. MUSI 2410. Project course in arranging for various orchestral combinations.

MUSI 4700 BA SENIOR THESIS/PROJECT (3) LEC. 1. SU. Capstone course requiring a senior thesis or project bringing together prior music coursework.

MUSI 4800 SENIOR PERFORMANCE RECITAL (2) PRL. 2. SU. Pr. MUAP 4520. Coreq., Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4930 DIRECTED STUDY (1-3) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

MUSI 5110/5113 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 5520 CHORAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Chronological study of choral music from the Middle Ages to the present.

MUSI 5530 WIND BAND LITERATURE (2) LEC. 2. Pr., Departmental approval. History of the development of the wind band and its literature from 1500 to the present.
MUSI 6110/6116 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 6520/6526 CHORAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Chronological study of choral music from the Middle Ages to the present.

MUSI 7000/7006 GRADUATE CHORAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7010/7016 GRADUATE CHORAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7000 or MUSI 7006. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040/7046 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050/7056 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7040 or MUSI 7046. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7060/7066 BRASS INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on brass instruments.

MUSI 7070/7076 WOODWIND INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on woodwind instruments.

MUSI 7080/7086 PERCUSSION INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on various percussion instruments.

MUSI 7090/7096 SURVEY OF CHORAL LITERATURE (3) LEC. 3. Coreq., Approved MUSE course. Detailed analysis of the styles, forms and performance practices of choral music of the Classic, Romantic, and Modern periods, working primarily with scores of representative works.

MUSI 7100/7106 CHORAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7110/7116 CHORAL ARRANGING II (3) LEC. 3. Pr. MUSI 7100 or MUSI 7106. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7120/7126 BAND ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various band organizations.

MUSI 7130/7136 BAND ARRANGING II (3) LEC. 3. Pr. MUSI 7120 or MUSI 7126. Coreq., Approved MUSE course. Advanced arranging for various band organizations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7150 ORCHESTRAL ARRANGING II (3) LEC. 3. Pr. MUSI 7140. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7160 SEMINAR IN MUSIC HISTORY (2) SEM. 2. In-depth study of the history of music through historic research, analysis of music, and performance practice.

MUSI 7170 SEMINAR IN RENAISSANCE MUSIC (2) SEM. 2. Study of selected music of the Renaissance through history, analysis and performance practice.

MUSI 7180 SEMINAR IN BAROQUE MUSIC (2) SEM. 2. Study of selected Baroque music through history, analysis, and performance practice.

MUSI 7190 SEMINAR IN CLASSICAL MUSIC (2) SEM. 2. Study of selected Classical music through history, analysis, and performance practice.
MUSI 7200 SEMINAR IN ROMANTIC MUSIC (2) SEM. 2. Study of selected Romantic music through history, analysis, and performance practice.

MUSI 7210 SEMINAR 20TH-CENTURY MUSIC (2) SEM. 2. Study of selected 20th-century music through history, analysis, and performance practice.

MUSI 7220/7226 AMERICAN ART MUSIC (3) LEC. 3. Study of American art music from colonial times until the present.

MUSI 7230/7236 ADVANCED FORMAL ANALYSIS (3) LEC. 3. Advanced formal analysis of standard music literature.


MUSI 7250/7256 WIND BAND LITERATURE II (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band from 1950 to present.

MUSI 7260 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION I (2) LEC. 2. Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7270 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION II (2) LEC. 2. Pr. MUSI 7260. Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7280 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION I (2) LEC. 2. Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7290 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION II (2) LEC. 2. Pr. MUSI 7280. Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7300 INTRODUCTION TO GRADUATE RESEARCH IN MUSIC (2) RES. 2. Extensive examination of research materials (books, music, and recordings). Includes the preparation of an outline for a research paper.

MUSI 7316 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.


MUSI 7360/7366 ARRANGING IN FINALE (3) LEC. 3. Advanced study of arranging using the Finale music notation program.

MUSI 7370/7376 FINALE TECHNIQUES FOR MUSIC EDUCATORS (3) LEC. 3. Advanced study of the techniques of the Finale music notation program, specifically relating to use in music classrooms.

MUSI 7500 THEORY REVIEW I (1) LEC. 1. Pr., Departmental approval. Study of and practical application of harmonic practices from before the Period of Common Practice to the present day, with emphasis on various theoretical approaches and analytical techniques. Degree credit will not be given to graduate students.

MUSI 7510 THEORY REVIEW II (1) LEC. 1. Pr., Departmental approval. Continuation of MUSI 7500. Degree credit will not be given to graduate students.

MUSI 7540 VOCAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of the vocal literature from the Baroque to the present day.

MUSI 7550 KEYBOARD LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of keyboard repertoire from the Baroque to the present.

MUSI 7560 INSTRUMENTAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of the literature of the major performance instrument from its beginning to the present.

MUSI 7930/7936 DIRECTED STUDIES (1-6) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Includes evaluation at regular interval. Course may be repeated with change in topic. Course may be repeated for a maximum of 12 credit hours.
**MUSI 7970/7976 SPECIAL TOPICS IN MUSIC (1-6) LEC.** Provides an opportunity for graduate students to pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

**MUSI 7980 QUALIFYING RECITAL (3) LEC.** 3. Pr. MUAP 7120. Public recital of graduate level repertoire. Recital may include a lecture component.

**BA Curriculum in Music**

Music majors must earn a grade of C or higher in music courses to have them count toward the degree.

### Freshman

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<td>1 MUSI 1030 Piano Skills II</td>
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### Sophomore

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### Junior

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<td>3 MUSI 3520 Music History II</td>
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<td>2 3000/4000-level elective course in Music⁴</td>
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<tr>
<td>Core Science I</td>
<td>4 Core Science II</td>
<td>4</td>
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<td>Core Math</td>
<td>3 Core Humanities⁵</td>
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¹ Core Social Science or Core History to complete sequence
³ Instrumental Conducting I
⁴ Elective course in Music
⁵ Core Humanities
### BM Curriculum in Music Performance - Instrumental

#### Minor

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<tr>
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<td>3000/4000-level elective course in Music</td>
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<td>Electives</td>
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**Total Hours: 120**

1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2. Requirements for minors vary. Students should check with their advisers for appropriate courses.

3. MUSI 3610 or 3630 fulfills SLO 7.

4. Students should meet with their advisers to determine appropriate music electives and other elective courses.

5. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

#### BM Curriculum in Music Performance - Instrumental

Music majors must earn a grade of C or higher in music courses to have them count toward the degree.

### Freshman

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<td>MUSI 1320 Music Skills I</td>
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<td>MUSE 1000-level Ensemble</td>
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<tr>
<td>MUSI 1020 Piano Skills I - Rudiments</td>
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<td>ENGL 1100 English Composition I</td>
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<td>Core History</td>
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**Total Hours: 13**

### Sophomore

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<td>MUSI 2040 Functional Piano I</td>
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</table>

**Total Hours: 13**
Core Literature$^1$  
3 Core Humanities (except COMM 1000) or Core Literature to complete sequence$^1$  

Core Social Science or Core History to complete sequence$^1$  
3 Core Social Science  

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**Junior**

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<td>MUAP 3520 Performance V</td>
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<td>MUAP 3620 Performance VI 2</td>
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<td>MUSI 3510 Music History I</td>
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<td>Select one of the following courses:</td>
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<td>MUSI 3160 Percussion Literature</td>
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<td>MUSI 3170 Woodwind Literature</td>
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**Senior**

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<td>MUAP 4520 Performance VII</td>
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<td>MUAP 4620 Performance VIII 2</td>
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<td>3000/4000-level course in Music History/Theory</td>
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<td>MUSI 4020 Instrumental Pedagogy</td>
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Total Hours: 120

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1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2. Students should meet with their advisers to determine appropriate elective courses.

3. MUSI 3630 fulfills SLO 7.

4. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

**BM Curriculum in Music Performance - Piano**

Music majors must earn a grade of C or higher in music courses to have them count toward the degree.
### Freshman

**Fall**

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<tr>
<th>Course Code</th>
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**Spring**

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### Sophomore

**Fall**

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**Spring**

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### Junior

**Fall**

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<td>MUSI 3510 Music History I</td>
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<td>MUSI 3800 Junior Performance Recital</td>
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<td>MUSI 3610 Choral Conducting I or 3630 Instrumental Conducting</td>
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**Spring**

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### Senior

**Fall**

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### 3000/4000-level course in Music History/Theory

- 3000/4000-level course in Music History/Theory \( \times 3 \)
- MUSE 4000-level Ensemble \( \times 1 \)
- MUSI 4030 Piano Pedagogy \( \times 2 \)
- Core Social Science \( \times 3 \)
- Foreign Language I (College Core) \( \times 4 \)
- UNIV 4AA0 University Graduation

**Total Hours:** 15

---

**Total Hours:** 120

1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2. Students should meet with their advisers to determine appropriate elective courses.

3. MUSI 3610 or 3630 fulfills SLO 7.

4. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

### BM Curriculum in Music Performance - Voice

Music majors must earn a grade of C or higher in music courses to have them count toward the degree.

#### Freshman

<table>
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<th>Semester</th>
<th>Hours</th>
<th>Summer</th>
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#### Sophomore

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<th>Summer</th>
<th>Hours</th>
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<tr>
<td>MUSI 2040 Functional Piano I</td>
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<td>Core Literature(^1)</td>
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<td>MUSI 2050 Functional Piano II</td>
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<td>Core Social Science or Core History to complete sequence (^1)</td>
<td>3</td>
<td>Core Humanities (except COMM 1000) or Core Literature to complete sequence (^1)</td>
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### Music Minor

To minor, arrange for a music theory skills test and performance audition with an applied music instructor. No course may be duplicated other than repeated ensembles. A minimum of nine (9) hours must be in 3000 or 4000 level courses.

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<tr>
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<td>MUSE 1320</td>
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<td>MUSE 1420</td>
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<tr>
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**Group A**

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**Group B**

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1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the area not selected as the sequence.

2. Students should meet with their advisers to determine appropriate elective courses.

3. MUSI 3610 fulfills SLO 7.

4. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
MUSI 3610 or MUSI 3630: Choral Conducting I or Instrumental Conducting I

Group B

- MUSI 4010: Vocal Pedagogy
- or MUSI 4020: Instrumental Pedagogy
- or MUSI 4030: Piano Pedagogy

Select from Group A or Group B: 2-3

Group A

- MUSI 3510 or MUSI 3520: Music History I or II

Group B

- MUSI 3110 or MUSI 3120 or MUSI 3130 or MUSI 3140 or MUSI 3150 or MUSI 3160 or MUSI 3170 or MUSI 3180: Piano Literature I or II or Vocal Literature I or II or Brass Literature or Percussion Literature or Woodwind Literature or String Literature

Electives

Select from Group A, Group B, Group C or Group D: 2-3

Group A

- MUAP 1310 or MUAP 1410: Performance I (I) or II (II)

Group B

- MUSI 3510: Music History I

Group C

- MUSI 3520: Music History II

Group D

- MUSI 3110 or MUSI 3120 or MUSI 3130 or MUSI 3140 or MUSI 3150 or MUSI 3160 or MUSI 3170 or MUSI 3180: Piano Literature I or II or Vocal Literature I or II or Brass Literature or Percussion Literature or Woodwind Literature or String Literature

Total Hours: 15-17

1. Entry is dependent upon successful audition and studio space.

Philosophy

Graduates from the Department of Philosophy have found positions in education, law, the ministry, business, politics, and news. Some have chosen to pursue graduate or professional education in philosophy, law, theology, and business.

Majors

- Philosophy (p. 961)
Minors

- Philosophy (p. 962)
- Philosophy and Religion (p. 962)

Philosophy Courses

PHIL 1010 INTRODUCTION TO LOGIC (3) LEC. 3. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1017 HONORS LOGIC (3) LEC. 3. Pr. Honors College. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

PHIL 1020/1023 INTRODUCTION TO ETHICS (3) LEC. 3. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought. May count either PHIL 1020 or PHIL 1023.

PHIL 1027 HONORS ETHICS (3) LEC. 3. Pr. Honors College. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought.

PHIL 1030/1033 ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1037 HONORS ETHICS AND THE HEALTH SCIENCES (3) LEC. 3. Pr. Honors College. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

PHIL 1040/1043 BUSINESS ETHICS (3) LEC. 3. Humanities Core. Types of ethical theory; application to such normative issues in commerce as advertising, management, and business abroad.

PHIL 1050/1053 INTRODUCTION TO POLITICAL PHILOSOPHY (3) LEC. 3. Humanities Core. Principal theories and thinkers in political philosophy from antiquity to the present.

PHIL 1060 PHILOSOPHY EAST AND WEST (3) LEC. 3. Humanities Core. Principal thinkers and theories in four philosophical traditions: Indian, Chinese, European, and Arabic.

PHIL 1070/1073 ART, VALUE, AND SOCIETY (3) LEC. 3. Humanities Core. Introduction to philosophical aesthetics, focusing on the relationship of artistic values and the extra-artistic values of societies that house them.

PHIL 1080/1083 INTRODUCTION TO PHILOSOPHY OF RELIGION (3) LEC. 3. Humanities Core. Philosophy of religion, including questions about God’s existence, relationship of reason and faith, religious epistemology, and language.

PHIL 1090/1093 PHILOSOPHY OF RACE AND GENDER (3) LEC. 3. Humanities Core. Philosophical issues associated with race and gender, including role of biology and social construction, nature of prejudice, questions about justice and redress.

PHIL 1100/1103 INTRODUCTION TO PHILOSOPHY (3) LEC. 3. Humanities Core. Methods of philosophical inquiry and examination of selected philosophical topics. May count either PHIL 1100 or PHIL 1103.

PHIL 1110/1113 ETHICAL AND CONCEPTUAL FOUNDATIONS OF SCIENCE (3) LEC. 3. Introduction to the moral and conceptual foundations of science, concentrating on ethical facets of scientific research, theorizing, and knowledge production, as well as conceptual issues regarding the nature of causation, induction, scientific explanation and confirmation. May count either PHIL 1110 or PHIL 1113.

PHIL 1120 INTRODUCTION TO ENVIRONMENTAL ETHICS (3) LEC. 3. Ethical inquiry into environmental issues such as non-human animal welfare, environmental justice, global climate change, resource use, and conservatism versus preservationism.

PHIL 2970 GATEWAY SEMINAR (3) LEC. 3. An introduction to philosophy through special topics. The course is designed to provide students with the basic skills required for more advanced work in philosophy. Topics vary. Course may be repeated for a maximum of 6 credit hours.

PHIL 3050 AESTHETICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Modern and contemporary theories of the nature of art.

PHIL 3060 PHILOSOPHY OF FILM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Consideration of philosophical issues raised within particular films and by the nature of cinematic representation in general.
PHIL 3100 INTERMEDIATE ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Overview of contemporary questions and positions in ethics, including moral realism, the rationality of moral action, subjectivism and non-cognitivism, naturalism, and various theories of practical reason.

PHIL 3110 SYMBOLIC LOGIC (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area IV) Propositional logic and predicate logic through relations; natural language and logic; some philosophical problems in logic.

PHIL 3300 PHILOSOPHY OF RELIGION (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Nature of religion, religious experience, religious knowledge, religious theories of humanity and evil, arguments for the existence of God and immortality of the soul.

PHIL 3330 HISTORY OF ANCIENT PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from the Pre-Socratics through the Hellenistic philosophers, emphasizing Plato and Aristotle.

PHIL 3340 HISTORY OF EARLY MODERN PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Descartes to Kant, emphasizing major figures in the rationalist and empiricist traditions.

PHIL 3350 HISTORY OF LATE MODERN AND PRE-ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Kant to the Pre-Analytic philosophers, possibly including Schopenhauer, Hegel, Nietzsche, Kierkegaard, James, Brentano, Frege, Meinong, Cook-Wilson, Bradley, and Moore.

PHIL 3360 HISTORY OF EARLY ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought in the early Analytic period, including the works of Russell, Moore, Wittgenstein, and members of the Vienna Circle.

PHIL 3400 MEDIEVAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from late antiquity through the Middle Ages, with emphasis on the ideas of Plotinus, Islamic thinkers, Augustine, Abelard, Anselm, and Thomas Aquinas.

PHIL 3500 EPISTEMOLOGY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Origin, nature, kinds, and validity of knowledge, with considerations of faith, institution, belief, opinion, certainty, and probability.

PHIL 3510 PHILOSOPHY OF SCIENCE (3) LEC. 3. Student must have taken at least one philosophy course prior to taking PHIL 3510. Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 3530 PHILOSOPHY OF PHYSICS (3) LEC. 3. An overview of the philosophy of physics, with attention to topics such as the nature of matter, motion, change, space, time, space-time, time travel, Einstein’s theories of special and general relativity, and non-relativistic quantum mechanics.


PHIL 3550 PHILOSOPHY OF LANGUAGE (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 CLASSICAL POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one course in philosophy at the 1000 level. Political thought of classical thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, and Marx. (Area I for PHIL major)

PHIL 3620 CONTEMPORARY POLITICAL PHILOSOPHY (3) LEC. 3. Pr. POLI 3020. or at least one PHIL course at the 1000 or 2000 level. A survey of major schools of 20th- and 21st-century political thought, including liberalism, communitarianism, libertarianism, feminism, and anarchism. May count either PHIL 3620 or POLI 4340.

PHIL 3640 PHILOSOPHY OF LAW (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Functions of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Advanced philosophical study of the ethical issues that arise in intellectual endeavors, such as law, business, military science, and engineering.

PHIL 3700 METAPHYSICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Critical analysis of such topics as monism and pluralism, freedom and determinism, realism and nominalism, and the mind-body problem.
PHIL 3740 EXISTENTIALISM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Selected works of such authors as Kierkegaard, Nietzsche, Sartre, Jaspers, and Heidegger.

PHIL 3970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Topics vary. Course may be repeated for a maximum of 6 hours.

PHIL 4110 ADVANCED LOGIC (3) LEC. 3. Pr. PHIL 3110 or Departmental approval. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics.

PHIL 4920 INTERNSHIP (3) INT. 200. SU. Opportunity to apply skills acquired in classroom in career setting. Internship must be supervised and appropriate to major.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Pr., Departmental approval. Reading program on a particular philosopher, period, or problem. Course may be repeated for a maximum of 6 credit hours.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Pr. Honors College or Departmental approval. Reading program on a philosopher, period, or problem. Course may be repeated for a maximum of 3 credit hours.

PHIL 4970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 6 credits in PHIL 3000-3999. Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours. Area distribution requirement fulfilled depends on class content.

PHIL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Senior thesis. Course may be repeated for a maximum of 3 credit hours.

PHIL 5950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an intensive study of one of the great thinkers. Course may be repeated for a maximum of 6 credit hours.

PHIL 6950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours.

Religion Courses

RELG 1010 INTRODUCTION TO RELIGIOUS STUDIES (3) LEC. 3. Major themes in religion, including religious experience, religion and society and the diversity of religions; examples from various religious traditions.

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3. Historical-critical study of the Hebrew scriptures in their cultural setting; emphasis on development of ancient Hebrew thought.


RELG 1040 INTRODUCTION TO WESTERN RELIGIONS (3) LEC. 3. Introduction to Islam, Judaism, and Christianity, with attention to Druze religion and Bah' al. May count either RELG 1040 or RELG 3340.

RELG 1050 INTRODUCTION TO EASTERN RELIGIONS (3) LEC. 3. Introduction to Hinduism, Buddhism, and Confucianism, with secondary attention to other Asian religions. May count either RELG 1050 or RELG 3330.


RELG 2030 HISTORY OF CHRISTIANITY (3) LEC. 3. Development of Christianity from 100 C.B. to the present; major personalities, events, and movements.

RELG 4350 20TH-CENTURY RELIGIOUS THOUGHT (3) LEC. 3. Major 20th-century theologians, including Protestant, Catholic, and Jewish.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4967 HONORS SPECIAL PROBLEMS (3) LEC. 3. Pr. Honors College. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4970 SPECIAL TOPICS (3) LEC. 3. Course may be repeated with change in topics.
Curriculum in Philosophy

Philosophy major requires a total of 33 hours (excluding PHIL 4920) with no more than 3 hours at the 1000 level, no more than 3 hours at the 2000 level, and at least 6 hours at the 4000 level (excluding PHIL 4920).

**Freshman**

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<td>Core Social Science</td>
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<td>Core Fine Arts</td>
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<td>Core History</td>
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<td>Core Humanities</td>
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**Sophomore**

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<td>Core Science I</td>
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<td>Courses from Part 3: 1000- or 2000-Level Topics in Philosophy(^2)</td>
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<td>Courses from Part 2: History of Philosophy(^1)</td>
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<td>Core Literature</td>
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<td>PHIL 3110 Symbolic Logic</td>
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**Junior**

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**Senior**

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Total Hours: 120

1. Part 2: History of Philosophy Courses - PHIL 3330, PHIL 3400, PHIL 3340, PHIL 3350, PHIL 3360, and PHIL 3740
2. Part 3: Topics in Philosophy Courses - Every 1000-Level PHIL course (can only count one 1000-level in major), PHIL 2970 (can only count once in Major), every 3000-Level PHIL course (except for PHIL 3110 and courses in Part 2 above)
3. COMM 1000 fulfills SLO 7.
4. The Philosophy Senior Seminar is PHIL 4970, and topics will be determined by the faculty member teaching the course.
Philosophy and Religion Minor

15 semester hours required in minor

**PHIL 1080**  Introduction to Philosophy of Religion  
3  
or **PHIL 3300**  Philosophy of Religion

12 additional hours from:

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<td>ENGL 3360</td>
<td>The Bible for Students of Literature</td>
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<td>ENGL 4600</td>
<td>Chaucer</td>
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<td>HIST 3040</td>
<td>American Religious History</td>
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<tr>
<td>HIST 5640</td>
<td>History of Islam</td>
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<td>PHIL 1080</td>
<td>Introduction to Philosophy of Religion</td>
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<td>PHIL 3300</td>
<td>Philosophy of Religion</td>
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<td>PHIL 3500</td>
<td>Epistemology</td>
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<td>Metaphysics</td>
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<td>PHIL 3740</td>
<td>Existentialism</td>
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<td>POLI 3390</td>
<td>Religion and Politics</td>
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<tr>
<td>POLI 3560</td>
<td>The Arab Spring</td>
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<tr>
<td>RELG (any course)</td>
<td>Any course approved by the Philosophy Department Chair. Examples of acceptable courses: Religion and Gender (Women's Studies), Islam and Politics (Political Science), Early Islamic History (History), and Religion and British Literature (English)</td>
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</tbody>
</table>

**Total Hours**  15

Philosophy Minor

15 hours of PHIL (excluding PHIL 4920) beyond courses taken in the University Core Curriculum, including at least 12 hours above the 1000 level and 9 hours at the 3000-level or higher.

Political Science

Graduates from the Department of Political Science have found employment in government, the legal profession, nonprofit organizations, and the private sector and have pursued graduate or professional education in political science and public administration. The Department of Political Science is committed to the goal of helping students become well-rounded, effective, and successful members of the global community. Political Science is a vast academic discipline that focuses on the processes and outcomes of collective public decision making. It endeavors to create a stimulating intellectual environment that challenges students to broaden their capacity for a reasoned analysis of political life.

The department offers three undergraduate majors: Political Science, Public Administration, and Health Services Administration. Students who wish to choose to major in a different academic discipline yet still develop a secondary expertise in government and politics can minor in Political Science. The Department of Political Science is also home to the Pre-Law Scholars Program.

Health Services Administration

Students must comply with these requirements to be considered for admission into the Health Services Administration major:

- Submit the Health Services Administration Application with all required documents.
- Complete 30 credit hours of course work, including the university core courses or equivalents.
- Earn a 2.3 or higher GPA in ACCT 2110, MATH 1680 or MATH 1610, and HADM 3000.
- Submit a statement of purpose of no more than 500 words.
- Potential students are encouraged to check with the program coordinator or department advisor for further information about entry requirements and application deadlines.
Majors

• Health Services Administration (p. 973)
• Law and Justice (p. 974)
• Political Science (p. 976)
• Public Administration (p. 977)

Minors

• Political Science (p. 978)
• Public Administration (p. 978)

Community Planning Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 5020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080/6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5120 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 5450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.
CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner’s role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.
CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7800 SYNTHESIS PROJECT (6) AAB/STU. 12. Departmental approval. Demonstration of competence in community planning and design through production of an original, comprehensive project that integrates knowledge and experience in addressing a complex planning and design problem.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.

Health Administration Courses

HADM 2100/2103 MEDICAL TERMINOLOGY (3) LEC. 3. Prefixes, suffixes, and word roots used in the language of medicine; medical vocabulary and terms related to the health care field.

HADM 3000 GATEWAY TO HEALTH CARE ADMINISTRATION (3) LEC. 3. Basic concepts and principles of health care administration.

HADM 3300 HEALTH CARE POLICY (3) LEC. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (P/C HADM 2100 or P/C HADM 2103). Political policies that affect health care services.

HADM 3700 HEALTH LAW (3) LEC. 3. Legal issues that arise between patients and health care providers.

HADM 3800 HEALTH CARE ANALYTICS (3) LEC. 3. Pr. (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683) and (ACCT 2110 or ACCT 2117). Majors only. This course focuses on using big data to drive decision making and improve health care quality through data aggregation and validation, strategic management data manipulation and technical reporting implementation.

HADM 4000 DEVELOPING CARE ORGANIZATIONS (3) LEC. 3. Pr. HADM 3300 and HADM 3800. Health Services Administration major only. Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.

HADM 4200 HEALTH CARE INSURANCE AND REIMBURSEMENT (3) LEC. 3. Pr. HADM 3000 and HADM 3700 and HADM 3800. Health Services Administration major only. Health insurance operations, principles, payment methods and contracts.

HADM 4800 HEALTH ADMINISTRATION AND REGULATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Government regulatory programs affecting administration of health services organizations.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE HEALTH CARE SYSTEMS (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Comparative Study and analysis of health care systems around the world.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Policy issues surrounding the provision of long-term care to the elderly.
HADM 4880 HEALTH INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HADM 4000 and HADM 4200. Health Services Administration major only. Overview and utilization of health care information technology in health care administration.

HADM 4893 ELECTRONIC HEALTH RECORD APPLICATIONS (3) DSL. 3. Pr. HADM 4000 and HADM 3300 and HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. This course covers the definition, benefits, regulations, standards, functionality, and impact of Electronic Health Records (EHR) in the healthcare environment. The course provides the student with a thorough understanding of the terminology of EHR systems as well as practical experience with the clinical and administrative use of EHRs in a medical setting.

HADM 4920 INTERNSHIP (6) AAB/INT. 6. SU. Pr. HADM 4000 and HADM 4200 and FINC 3810 or (FINC 3610 or FINC 3613 or FINC 3617) and (HRMN 3420 or HRMN 3423) or (MNGT 3423 or MNGT 3420). Health Services Administration major only. Internship in selected areas of Health Administration.

HADM 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. HADM 3000 and ACCT 2100 and (MATH 1680 or MATH 1683) and (MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513) or STAT 2610. Health Services Administration major only. This course is designed to facilitate an independent study in an area of special interest of the student and a sponsoring faculty member. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3. Pr. HADM 4000 and HADM 4200 and (FINC 3810 or FINC 3610 or FINC 3613 or FINC 3617). Health Services Administration major only. Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Pr. HADM 3300. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (3) ST1. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683) or (MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. Special Topics courses are used to inform and educate students about new and emerging changes within the health care field. The Topics addressed change to coincide with changes in the health care environment.

Political Science Courses

POLI 1050 GLOBAL POLITICS AND ISSUES (3) LEC. 3. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1057 HONORS GLOBAL POLITICS AND ISSUES (3) LEC. 3. Pr. Honors College. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1090/1093 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Pr. Honors College. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 2100 STATE AND LOCAL GOVERNMENT (3) LEC. 3. Organization and operation of American state and local governments, including their relationship to the United States federal system and their role in public policy issues.

POLI 2120 URBANIZATION AND THE CITY (3) LEC. 3. This course introduces students to main themes and problems in the interdisciplinary field of urban studies.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1020 or PHIL 1023 or PHIL 1027. Selected major themes in political thought from ancient to modern times.

POLI 3080 MODEL UNITED NATIONS (3) LEC. 3. This course offers an in-depth analysis of the workings of the United Nations. It involves thorough studies of countries, the veto-power of the Security Council, and prepares students to participate in a Model United Nations exercise.
POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3. International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3. Contemporary international politics and an evaluation of foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3. Methods of classifying governments by institutional and developmental characteristics.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3150 AMERICAN POLITICAL THOUGHT (3) LEC. 3. Principal American political philosophers and philosophies and their influence on political institutions.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3. Introduction to national security aspects of United States foreign policy.


POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3. Analysis of the political, social, and economics aspects of Latin American-United States relations.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3. Survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3. Components of the American legal system responsible for administration of public justice.

POLI 3250/3253 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3. Pr. P/C POLI 1090 or P/C POLI 1093 or P/C POLI 1097. Administration in the public sector with particular emphasis on public administration as it exists in modern American government. May count either POLI 3250 or POLI 3253.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3. Formulation and implementation of public policy; the roles of the major governmental institutions in policy-making.

POLI 3290 THE AMERICAN PRESIDENCY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Examination of political styles and personalities of recent presidents and presidential decision-making.

POLI 3300 LAW AND SOCIETY (3) LEC. 3. Introduction to how law and legal actors influence and mediate some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Principles, procedures, and problems of lawmaking in the United States; special attention to Congress and the state legislatures.

POLI 3320 JUDICIAL PROCESS (3) LEC. 3. Basic information about the structure and function of courts and the role of judges in all societies, with a special focus on American.

POLI 3340 INTRODUCTION TO CONFLICT RESOLUTION (3) LEC. 3. Methods of conflict resolution at various levels, from the interpersonal to international.

POLI 3350 CONTROVERSIES IN CONSTITUTIONAL LAW (3) LEC. 3. Origins and influence of controversial Supreme Court decisions, in such areas as religion, free speech, privacy, abortion, and criminal justice.

POLI 3360 FEDERAL JURISDICTION (3) LEC. 3. Introduction to the federal court system and Federal Jurisdiction under Article III.

POLI 3370 FEDERAL INDIAN LAW (3) LEC. 3. Introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand, and the states and federal governments, on the other.
POLI 3380 EVIDENCE AND LEGAL REASONING (3) LEC. 3. Introduction to the rules governing the presentation of evidence at trial.

POLI 3390 RELIGION AND POLITICS (3) LEC. 3. Interaction of religion with governmental institutions, elections, and public policies.

POLI 3400 POLITICAL PARTIES AND INTEREST GROUPS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1093 or PHIL 1097. Nature, organization and operation of political parties in the United States; suffrage; nominating and electoral processes; importance and nature of interest groups.

POLI 3410 POLITICAL PARTICIPATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1093 or PHIL 1097. Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.

POLI 3420 POLITICS AND THE MEDIA (3) LEC. 3. Influences of the media on political action, the electoral process and popular concepts of political institutions, role of the media and its regulation by government.

POLI 3430 JUSTICE AND SOCIETY (3) LEC. 3. Historical overview of issues affecting legal policy.

POLI 3510 THE EUROPEAN UNION (3) LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.

POLI 3520 COMPARATIVE POLITICS OF THE MIDDLE EAST (3) LEC. 3. Domestic politics in the states of the Middle East.


POLI 3540 EAST EUROPEAN POLITICS (3) LEC. 3. Survey and analysis of evolving political institutions and policies in eastern and central Europe under Communism and in the post-Communism period.

POLI 3550 GOVERNMENT AND POLITICS OF LATIN AMERICA (3) LEC. 3. Political environment, institutions and processes of Latin America, emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.

POLI 3560 THE ARAB SPRING (3) LEC. 3. Examination of the Arab Uprising that began in Tunisia in 2010 and spread to the rest of the region.

POLI 3610 ASIAN POLITICS (3) LEC. 3. Politics of the leading nations in East Asia with major attention being devoted to China, Japan, North and South Korea, and Taiwan.

POLI 3710 ISSUES IN AMERICAN POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1093 or PHIL 1097. Topics in American politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3720 ISSUES IN COMPARATIVE POLITICS (3) LEC. 3. Topics in comparative politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3730 ISSUES IN INTERNATIONAL RELATIONS (3) LEC. 3. Topics in international relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3740 ISSUES IN POLITICAL THOUGHT (3) LEC. 3. Topics in political thought. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1093 or PHIL 1097. Topics in public administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Topics in public policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Topics in public law and conflict resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3980 UNDERGRADUATE RESEARCH (1-3) LAB. Pr. POLI 3000. Supplementary learning concurrent with experience political science research. May be repeated twice, with change of topic. Course may be repeated for a maximum of 6 credit hours.
POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with separation of powers, federalism, and elections.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3. Constitutional law cases dealing with First Amendment freedoms of religion, speech, press, assembly, and association.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining gender discrimination, race discrimination, age discrimination, affirmative action, and such right to privacy issues as abortion, marriage, and physician-assisted suicide.


POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3. Pr. POLI 2100. Structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3. Politics and public agencies and their employees at all levels of government.

POLI 4140 PUBLIC FINANCE (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Theory and practice of public finance, with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.

POLI 4340 CONTEMPORARY POLITICAL THEORY (3) LEC. 3. Pr. POLI 3020 or PHIL 1050 or PHIL 1053. Survey of late 20th- and early 21st-century political philosophies, including neo-classicist, post-modernist, communitarian, and critical theories.

POLI 4920 INTERNSHIP (1-6) AAB/INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Course may be repeated with change in topics.

POLI 4960 SPECIAL PROBLEMS (1-3) IND. Directed readings in political science, including topics such as American policies, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4997 HONORS THESIS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 5170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 5180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 5210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and POLI 6210.
POLI 5270 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 5340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Theoretical and comparative perspectives on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and POLI 6340.

POLI 5350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 2.5. Introduction to the legal principles that apply to the governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 5370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 5380 INGS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Examines the size, scope, and role of global civil society, emphasizing organizations active in international development: grassroots NGOs, international nonprofits, and transnational aid agencies. Covers innovations in global philanthropy, and opportunities and challenges faced by global civil society.

POLI 5410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and government of the southern region of the United States. Credit will not be given for both POLI 5410 and POLI 6410.

POLI 5510 ISSUES IN AMERICAN POLITICS (1-3) LEC. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 5520 ISSUES IN COMPARATIVE POLITCS (1-3) LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) AAB/LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THEORY (1-3) LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 5550 ISSUES IN PUBLIC ADMINISTRATION (1-3) LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 5560 ISSUES IN PUBLIC POLICY (1-3) LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3. Examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5620 AFRICAN AMERICAN POLITICS (3) LEC. 3. Political values, theories, problems issues and behavior relating to African Americans in the United States. Credit will not be given for both POLI 5620 and POLI 6620.

POLI 5710 PERSIAN GULF POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1907. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes, and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 6170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>LEC.</th>
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<tr>
<td>POLI 6180</td>
<td>ADMINISTRATIVE LAW (3)</td>
<td></td>
<td>3</td>
<td>General nature of administrative law; types of administrative action and enforcement; analysis of rule making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.</td>
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<tr>
<td>POLI 6210</td>
<td>VOTING BEHAVIOR AND REPRESENTATION (3)</td>
<td></td>
<td>3</td>
<td>Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.</td>
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<tr>
<td>POLI 6270/6276</td>
<td>ELECTION ADMINISTRATION (3)</td>
<td></td>
<td>3</td>
<td>Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.</td>
</tr>
<tr>
<td>POLI 6340</td>
<td>THEORY AND PRACTICE OF MEDIATION (3)</td>
<td></td>
<td>3</td>
<td>Theoretical and comparative perspective on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.</td>
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<tr>
<td>POLI 6350</td>
<td>NONPROFIT LAW AND GOVERNANCE (3)</td>
<td></td>
<td>2.5</td>
<td>Introduction to the legal principles that apply to the formation, governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.</td>
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<tr>
<td>POLI 6370</td>
<td>NONPROFIT MANAGEMENT (3)</td>
<td></td>
<td>3</td>
<td>Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.</td>
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<tr>
<td>POLI 6380</td>
<td>INGOS AND INTERNATIONAL ORGANIZATIONS (3)</td>
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<td>2.5</td>
<td>Examines the size, scope, and role of global civil society outside of the US, with an emphasis on organizations active in international development, including international nonprofits, transnational aid agencies, and unilateral aid.</td>
</tr>
<tr>
<td>POLI 6410</td>
<td>SOUTHERN POLITICS (3)</td>
<td></td>
<td>3</td>
<td>Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 5410 and POLI 6410.</td>
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<tr>
<td>POLI 6510</td>
<td>ISSUES IN AMERICAN POLITICS (1-3)</td>
<td></td>
<td>1-3</td>
<td>Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>POLI 6520</td>
<td>ISSUES IN COMPARATIVE POLITICS (1-3)</td>
<td></td>
<td>1-3</td>
<td>Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>POLI 6530</td>
<td>ISSUES IN INTERNATIONAL RELATIONS (1-3)</td>
<td></td>
<td>1-3</td>
<td>Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>POLI 6540</td>
<td>ISSUES IN POLITICAL THEORY (1-3)</td>
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<td>Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>POLI 6550</td>
<td>ISSUES IN PUBLIC ADMINISTRATION (1-3)</td>
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<td>1-3</td>
<td>Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>POLI 6560</td>
<td>ISSUES IN PUBLIC POLICY (1-3)</td>
<td></td>
<td>1-3</td>
<td>Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.</td>
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<td>POLI 6570</td>
<td>ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3)</td>
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<td>1-3</td>
<td>Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>POLI 6610</td>
<td>WOMEN IN POLITICS (3)</td>
<td></td>
<td>3</td>
<td>A theoretical, historical, social, and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.</td>
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<td>POLI 6620</td>
<td>AFRICAN AMERICAN POLITICS (3)</td>
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<td>3</td>
<td>Political values, structure, and behavior of African Americans in the United States. Credit will not be given for both POLI 6620 and POLI 5620.</td>
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<tr>
<td>POLI 6710</td>
<td>PERSIAN GULF POLITICS (3)</td>
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<td>3</td>
<td>Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.</td>
</tr>
<tr>
<td>POLI 7000</td>
<td>RESEARCH METHODS (3)</td>
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<td>3</td>
<td>Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.</td>
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</table>
POLI 7050 STATE POLITICS (3) LEC. 3. Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3. Politics and public agencies and their employees at all levels of government. Credit will not be given for both POLI 7130 and POLI 4130.

POLI 7140 PUBLIC BUDGETING (3) LEC. 3. Comprehensive theoretical underpinning for research. Focuses on models associated with descriptive and prescriptive budgeting research.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Personnel policies, processes, and politics in American governments, including history, theory, and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3. Application of macroeconomic theory to public finance, with emphasis on capital budgeting, taxation, user charges, debt administration, cash management, and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3. Structure and functioning of government organizations, with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC GOVERNMENT (3) SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 SEMINAR IN PUBLIC ADMINISTRATION (3) SEM. 3. Introduction to public administration as practiced in the United States.

POLI 7360 SEMINAR IN POLICY AND ADMINISTRATION (3) SEM. 3. Formation, execution, and evaluation of public policy and an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3. Theory and practice of program evaluation in the public sector with attention to program planning, process assessment, and impact assessment.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3. Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3. Politics of economic development at the local, state, and national levels, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920/7926 MPA INTERNSHIP (3-6) INT. SU. Administrative experience in a governmental agency or participation in an approved governmental research project. May count either POLI 7920 or POLI 7926. Course may be repeated for a maximum of 6 credit hours.

POLI 7930/7936 MPA RESEARCH PROJECT (3-6) IND. SU. Completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960/7966 SPECIAL PROBLEMS (1-3) IND. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3. Nature of public administration as a field of study and different theoretical perspectives as reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3. Development and testing of causal models in political and social science. Students will develop a complex research design under the close supervision of the instructor.

POLI 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3. Advanced study of the nature of public policy development and implementation.

POLI 8040 DOCTORAL SEMINAR IN PUBLIC FINANCE (3) SEM. 3. Theory and practice of public finance in a comparative perspective.

POLI 8060 DOCTORAL SEMINAR IN PUBLIC POLICY ANALYSIS AND RESEARCH (3) SEM. 3. Examination of advanced policy analysis and research methodology and the relationship between evaluation and quantitative analysis and policy formulation and implementation.
POLI 8070 DOCTORAL SEMINAR IN HUMAN RESOURCE ADMINISTRATION IN THE PUBLIC SECTOR (3) SEM. 3. Major environmental values affecting public personnel administration and the major processes used in public personnel management.

POLI 8110 AMERICAN GOVERNMENT AND PUBLIC POLICY (3) LEC. 3. Survey of the literature on the main institutions and policy processes of American national government, with emphasis on research design, methodology, and validity.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3. Pr. POLI 8110. In-depth analysis of the use of qualitative methods in political science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3. Pr. POLI 8110. In-depth analysis of the use of quantitative methods in political science research.

POLI 8260 PUBLIC ORGANIZATIONAL THEORY AND MANAGEMENT (3) SEM. 3. Development and refinement of research on administrative and organizational theory in public management. Credit will not be given for both POLI 7260 and POLI 8260.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3. Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8550 INTERNATIONAL RELATIONS AND PUBLIC POLICY (3) LEC. 3. Application of the scholarship in international relations to public policy, with a focus on war, defense policy, and conflict management.


POLI 8750 PUBLIC LAW AND PUBLIC POLICY (3) LEC. 3. Role of the courts in public policy-making.

POLI 8970 SPECIAL TOPICS (3) LEC. 3. Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Research related to writing the dissertation. Course may be repeated with change in topics.

**Curriculum in Health Services Administration**

Students are admitted into Health Services Administration by application only. For admission into the HADM major, students must have completed 30 semester hours of course work, have earned a minimum 2.3 GPA in a list of specified courses. See the department chair or program coordinator for further information.

### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>HADM 2103 Medical Terminology</td>
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<tr>
<td>Foreign Language I (College Core)</td>
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<td>Select One:</td>
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<tr>
<td>COMM 1000 Public Speaking I</td>
<td>3</td>
<td>PHIL 1010 Introduction to Logic</td>
<td>3</td>
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<tr>
<td>MATH 1680 Calculus with Business Applications I or 1610 Calculus I</td>
<td>4</td>
<td>PHIL 1020 Introduction to Ethics</td>
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<tr>
<td>Free Electives</td>
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<td>PHIL 1030 Ethics and the Health Sciences</td>
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<td>PHIL 1040 Business Ethics</td>
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<td>ENGL 1120 English Composition II</td>
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#### Sophomore

#### Fall

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<th>Course</th>
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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core History</td>
<td>3</td>
<td>Core History to complete sequence</td>
<td>3</td>
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</table>
## Curriculum in Law and Justice

### Student Learning Outcomes

1. COMM 1000 fulfills SLO 7.
2. Students should meet with their advisers to determine appropriate electives.
3. Students must complete all prerequisites before being approved to enroll in an internship. Students should meet with the departmental adviser for more information.
4. Students should see the departmental adviser for a list of approved classes.

| Core Literature | 3 | Core Science II | 4 |
| ACCT 2110 Principles of Financial Accounting | 3 | HADM 3000 Gateway to Health Care Administration | 3 |
| Core Science I | 4 | choose one: |
| ECON 2020 Principles of Microeconomics | 3 | STAT 2510 Statistics for Biological and Health Sciences |
| | | STAT 2610 Statistics for Business and Economics |

### Junior

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<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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<tr>
<td>HADM 3300 Health Care Policy</td>
<td>3</td>
<td>HADM 4000 Developing Care Organizations</td>
<td>3</td>
<td>HADM 4920 Internship</td>
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<tr>
<td>HADM 3700 Health Law</td>
<td>3</td>
<td>HADM 4200 Health Care Insurance and Reimbursement</td>
<td>3</td>
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<tr>
<td>HADM 3800 Health Care Analytics</td>
<td>3</td>
<td>FINC 3610 Principles of Business Finance or 3810 Foundations of Business Finance</td>
<td>3</td>
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<tr>
<td>MNGT 3100 Principles of Management or 3810 Management Foundations</td>
<td>3</td>
<td>ECON 2030 Principles of Macroeconomics</td>
<td>3</td>
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<tr>
<td>ACCT 2210 Principles of Managerial Accounting</td>
<td>3</td>
<td>HRMN 3420 Human Resource Management</td>
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### Senior

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<tr>
<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>HADM 4880 Health Information Technology</td>
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<td>Health Administration Seminar class</td>
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<tr>
<td>Health Administration Seminar class</td>
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<td>HADM 4950 Capstone Seminar</td>
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<tr>
<td>Fine Arts Core</td>
<td>3</td>
<td>MKTG 3310 Principles of Marketing</td>
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<tr>
<td>PSYC 2010 Introduction to Psychology or SOCY 1000 Sociology: Global Perspective</td>
<td>3</td>
<td>Elective</td>
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<td>UNIV 4AA0 University Graduation</td>
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| Total Hours: 120 |
|---|---|
| 15 | 15 | 6 |

Total Hours: 120
### Freshman

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<tr>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>POLI 1090 American Government in Multicultural World</td>
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<td>Foreign Language II (College Core)</td>
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<td>Foreign Language I (College Core)</td>
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<td>Core Social Science</td>
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<td>Core Math</td>
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<td>Core History</td>
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### Sophomore

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<th>Fall</th>
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<tr>
<td>Core Literature</td>
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<td>Core Science II</td>
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<td>COMM 1000 Public Speaking</td>
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<td>Core Fine Arts</td>
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<td>PHIL 3110 Symbolic Logic</td>
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<tr>
<td>Core Philosophy Choice¹</td>
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<td>POLI 5570 Issues in Public Law and Conflict Resolution</td>
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<td>LBAR 2010 Liberal Arts Careers Preparation</td>
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### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>POLI 3360 Federal Jurisdiction</td>
<td>3</td>
<td>POLI 3380 Evidence and Legal Reasoning</td>
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<tr>
<td>PHIL 3640 Philosophy of Law</td>
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<td>Course from Group 3</td>
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<td>Recommended Elective²</td>
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### Senior

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<th>Hours</th>
<th>Spring</th>
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<tr>
<td>POLI 4920 Internship³</td>
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<td>Course from Group 3</td>
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<td>Recommended Elective²</td>
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**Total Hours: 120**

¹ Students will choose one of the following for a Philosophy core course: PHIL 1010, PHIL 1020, PHIL 1050, or PHIL 1090.
² Students must see their adviser for recommended electives.
³ Students may choose to complete a 6-credit internship or a second 3-credit internship. If they do their required general electives are reduced by 3 credits.
Curriculum in Political Science

POLI 1090 American Government with a C or better is a prerequisite for some higher-level political science courses. A score of 4 or higher on the AP American Government test satisfies the prerequisite requirement. Contact the department chair or program coordinator for further information.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3 ENGL 1120 English Composition II</td>
<td>3</td>
<td></td>
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<tr>
<td>POLI 1090/1097 American Government in Multicultural World</td>
<td>3 Foreign Language II (College Core)</td>
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<td>Foreign Language I (College Core)</td>
<td>4 Core Social Science(^1)</td>
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<tr>
<td>Core Math</td>
<td>3 Core Science I</td>
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<td>Core History</td>
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<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>Core Literature</td>
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<tr>
<td>Core Fine Arts</td>
<td>3 COMM 1000 Public Speaking(^4)</td>
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<td>Core Humanities(^2)</td>
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<tr>
<td>LBAR 2010 Liberal Arts Careers Preparation (new course from CLA)</td>
<td>2 POLI 3000 Political Science Research Methods I</td>
<td>3</td>
<td></td>
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<table>
<thead>
<tr>
<th>Junior</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>Course from Group 1 - Political Thought(^3)</td>
<td>3 Course from Group 2 - Distribution Requirement(^3)</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course from Group 2 - Distribution Requirement(^3)</td>
<td>3 Course from Group 3 - Concentration Requirement(^3)</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>9 Electives</td>
<td>9</td>
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<th>Senior</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Course from Group 3 - Concentration Requirement(^3)</td>
<td>3 Course from Group 3 - Concentration Requirement(^3)</td>
<td>3</td>
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<td></td>
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<tr>
<td>Courses from Group 4 - POLI Electives(^3)</td>
<td>6 Courses from Group 4 - POLI Electives(^3)</td>
<td>6</td>
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<tr>
<td>Electives</td>
<td>6 Electives</td>
<td>6</td>
<td>UNIV 4AA0 University Graduation</td>
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<td></td>
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</table>

Total Hours: 120

\(^1\) POLI 1050 is recommended.

\(^2\) If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
Students must see their advisers to identify approved courses for Groups 1, 2, 3, and 4.

COMM 1000 fulfills SLO 7.

## Curriculum in Public Administration

POLI 1090 American Government with a C or better is a prerequisite for some higher-level political science courses. A score of 4 or higher on the AP American Government test satisfies the prerequisite requirement. Contact the department chair or program coordinator for further information.

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Core Humanities (PHIL 1020 preferred)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
<td>4</td>
</tr>
<tr>
<td>POLI 1090 American Government in Multicultural World</td>
<td>3</td>
<td>POLI 1050 Global Politics and Issues&lt;sup&gt;or&lt;/sup&gt; ECON 2020 Principles of Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>GEEL 1000 General Elective</td>
<td>1</td>
<td>GEEL 1000 General Elective</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>Total</strong></td>
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### Sophomore

<table>
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<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>Foreign Language I</td>
<td>4</td>
<td>Foreign Language II (to complete sequence)</td>
<td>4</td>
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<tr>
<td>Core History</td>
<td>3</td>
<td>Core History to complete sequence</td>
<td>3</td>
</tr>
<tr>
<td>Core Mathematics</td>
<td>3</td>
<td>Core Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
<td>2</td>
</tr>
<tr>
<td>GEEL 1000 General Elective</td>
<td>2</td>
<td>POLI 2100 State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>Total</strong></td>
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### Junior

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<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>POLI 3000 Political Science Research Methods I</td>
<td>3</td>
<td>POLI 3270 Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3250 Introduction to Public Administration</td>
<td>3</td>
<td>Course from Group 2 - Nonprofit Organizations and Community Governance&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td>GEEL 1000 General Elective</td>
<td>3</td>
<td>Course from Group 3 - Elections and Democratic Practice</td>
<td>3</td>
</tr>
<tr>
<td>Course from Group 1 - Democratic, Political, and Administrative Systems</td>
<td>3</td>
<td>GEEL 1000 General Elective</td>
<td>6</td>
</tr>
<tr>
<td>Course from Group 4 - State and Local Governance</td>
<td>3</td>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>Total</strong></td>
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### Senior

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<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>POLI 3260 Organization Theory</td>
<td>3</td>
<td>POLI 4140 Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>POLI 4160 Public Personnel Administration</td>
<td>3</td>
<td>GEEL 1000 General Elective</td>
<td>6</td>
</tr>
<tr>
<td>Course from Group 7 - Public Law</td>
<td>3</td>
<td>Course from Group 5 - Community Planning</td>
<td>3</td>
</tr>
<tr>
<td>GEEL 1000 General Elective</td>
<td>6</td>
<td>Course from Group 6 - Global Public Service and Cultural Competency</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>Total</strong></td>
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</tbody>
</table>
Latin American Studies Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above). Student must test at the equivalent of FLFR 2010 or FLSP 2010 in either French, Spanish, or Portuguese, and complete a minimum of five courses in at least three different disciplines (see advisor for approved course listing). Students must earn a C and maintain a 2.5 GPA for all courses that count toward the minor. Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Latin American Studies minor.

1 If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
2 Students must meet with their advisers to determine approved courses for Groups 1 through 7.
3 COMM 1000 fulfills SLO 7.

Political Science Minor

The Political Science Minor requires 15 semester hours of Political Science courses above the 1000-level, with a minimum of 9 hours at the 3000-level or above. Students must earn a cumulative 2.00 GPA in the courses that count toward the minor. Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Political Science minor.

POLI 1090 American Government does not count toward the minor, but it is the prerequisite for some higher level Political Science courses.

See the Political Science Department for the approved course listing.

Public Administration Minor

The Public Administration minor requires 6 hours of foundations course work and 9 hours of emphasis in one of two tracks or Non-Profit Organizations and Community Governance. Students must meet prerequisites for all courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>POLI 3250</td>
<td>Introduction to Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3270</td>
<td>Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>Track A-Public Management. Select 9 additional hours from the following courses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POLI 2100</td>
<td>State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3260</td>
<td>Organization Theory</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3750</td>
<td>Issues in Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 3760</td>
<td>Issues in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>POLI 4050</td>
<td>American Local Government</td>
<td>3</td>
</tr>
<tr>
<td>POLI 4140</td>
<td>Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>POLI 4160</td>
<td>Public Personnel Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 5170</td>
<td>Election Law</td>
<td>3</td>
</tr>
<tr>
<td>POLI 5270</td>
<td>Election Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 5550</td>
<td>Issues in Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 5560</td>
<td>Issues in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>Track B: Non-Profit Organizations and Community Governance</td>
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</tr>
<tr>
<td>POLI 5370</td>
<td>Nonprofit Management</td>
<td>3</td>
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<tr>
<td>POLI 5550</td>
<td>Issues in Public Administration (Non-Profit Law)</td>
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Select three additional hours from the following:

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<thead>
<tr>
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<tbody>
<tr>
<td>POLI 3340</td>
<td>Introduction to Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>POLI 4140</td>
<td>Public Finance</td>
<td>3</td>
</tr>
<tr>
<td>POLI 5150</td>
<td>Intergovernmental Relations and Federalism</td>
<td>3</td>
</tr>
<tr>
<td>POLI 5180</td>
<td>Administrative Law</td>
<td>3</td>
</tr>
</tbody>
</table>
Psychology

Graduates from the Department of Psychology have found positions in psychological services, business, and other related areas such as government and education. Approximately, 25% of students pursue graduate or professional education in a variety of fields, ranging from service-oriented to science-oriented areas of the social sciences. The Bachelor of Arts in the Department of Psychology is well grounded in scientific foundations and equally concerned with shared social responsibilities. It affords students the opportunity to gain new and fascinating understandings of human behavior.

To graduate, students must earn a C or better in all major courses.

Major

- Psychology (p. 985)
- Neuroscience (p. 986)

Minor

- Psychology (p. 987)

Courses

PSYC 2010/2013 INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology. May count either PSYC 2010 or PSYC 2013.

PSYC 2017 HONORS INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology.

PSYC 2020 ORIENTATION TO PSYCHOLOGY MAJOR (1) LEC. 1. SU. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Orientation to the psychology major. Overview and design of psychology curriculum, faculty introduction, faculty expectations, student assessment, career development, study skills, diversity, and ethics.

PSYC 2130/2133 ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduces students to the cycle of collecting (using surveys and experiments), analyzing (using Excel) and reporting conclusions about psychological and other social and behavioral sciences data. The course provides a critical thinking approach for quantitative argumentation with data.

PSYC 2140/2143 RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133) and (PSYC 2010 or PSYC 2013 or PSYC 2140 or PSYC 2143). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3. Biological, social, and psychological dimensions of human sexuality.

PSYC 3120/3123 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 2010 or PSYC 2013 or PSYC 2017. Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 3500/3503 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Principles and procedures for management of human behavior. Fall, Spring.

PSYC 3510/3513 BEHAVIORAL NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of the relationships between the brain and behavior.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Phenomena involved in the acquisition of knowledge, skills, and patterns of action.

PSYC 3550 SENSATION AND PERCEPTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Study of perceptual phenomena and the structure and function of sensory systems.

PSYC 3540/3543 COGNITIVE PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Phenomena involved with thinking and remembering.
PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.

PSYC 3560/3563 ABNORMAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of our attempts to understand, explain, and classify abnormal behavior patterns.

PSYC 3570/3573 THEORIES OF PERSONALITY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Survey of selected classical and contemporary theories of personality.

PSYC 3580/3583 SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Scientific study of how people think about, influence, and relate to one another.

PSYC 3590/3593 PSYCHOLOGY IN THE WORKPLACE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Application of basic psychological principles and theories in the workplace. May count either PSYC 3590 or PSYC 3593.

PSYC 3600 TRAINING AND SUPERVISION IN INDUSTRY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Application of behavioral principles to problems common to the training and supervision of people in work organizations.

PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Inquiry into how motivation, emotion, personality, and other mind-body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges.

PSYC 3620 COGNITIVE NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of how mental functions are linked to neural processes to enable the mind.

PSYC 3630 HUMAN MEMORY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Theories and application of human memory research, emphasizing long-term and working memory. Applications include education, law, and aging.

PSYC 3640 MOTIVATION AND EMOTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Overview of historical and contemporary perspectives on human motivation and emotion.

PSYC 3650 DRUGS AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3700 BEHAVIORAL GAME THEORY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). This course is an introduction to behavioral economics involved in game theory using economics and psychological approaches to examine strategies and decision making when two or more people are involved with applications to real-world situations.

PSYC 3910 SUPERVISED RESEARCH EXPERIENCE (3) LEC. 3. SU. Pr., Departmental approval. Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIENTIAL LEARNING (3) PRA. 3. SU. Pr., Departmental approval. Supplementary instruction concurrent with job or volunteer experience involving the application of psychological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 4010/4013 CLINICAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Introduction to clinical psychology focusing on techniques of assessment and intervention.

PSYC 4080/4083 HEALTH PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Psychological principles in health maintenance and health problems.

PSYC 4110 INTRODUCTION TO DEVELOPMENTAL DISABILITIES (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Psychological principles in the care and treatment of developmentally disabled persons.
PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy.

PSYC 4250/4253 PSYCHOLOGY OF CHOICE AND DECISION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). In-depth exploration of the psychological science of choice and decision making.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3. SU. Pr., Departmental approval. Supervised experience in service-delivery settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. In-depth study of a psychological topic under the direction of a faculty member. Only 6 credit hours may be applied to the psychology major. Course may be repeated for a maximum of 9 credit hours.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. 2.30 GPA. STAT 2010. Course may be repeated for a maximum of 3 credit hours.

PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. STAT 2010. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 5620 DRUGS, BRAIN, AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). A review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1. May count either PSYC 5620 or PSYC 6620.

PSYC 5690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. PSYC 2130. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count PSYC 5960 or PSYC 6960.

PSYC 5960 SEMINAR IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated for a maximum of 6 credit hours.

PSYC 6020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. PSYC 2120 and PSYC 3560. Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Laboratory, occupational, and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 DRUGS, BRAIN, AND BEHAVIOR (3) LEC. 3. A review of drugs that affect nervous system function and their behavioral and neural mechanisms.

PSYC 6690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count either PSYC 5690 or PSYC 6690.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3. Pr., Departmental approval. Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours.

PSYC 7050 ASSESSMENT IN CLINICAL PSYCHOLOGY (3) LEC. 3. Survey of clinical methods of assessment, including test construction and validation.
PSYC 7100 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3. Historical developments in psychology with emphasis on the major theories and systems.

PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1. Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (3) LEC. 3. Problems and practices of teaching psychology at the college level. In addition to seminar meetings, students work with faculty in appropriate courses.

PSYC 7130 RESEARCH SEMINAR IN PSYCHOLOGY (1) SEM. 1. Overview of the research process, including the development of research questions, proposal writing, and issues involved in protecting the welfare of research participants.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3. Respondent conditioning and operant behavior, including acquisition of language and other forms of individual and environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3. Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3. Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.

PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3. Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3. Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3. Survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning, and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3. Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7210 ANIMAL BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Evolution of animal behavior, including mating, parental care, feeding, social, predatory, and defensive behavior.

PSYC 7220 BEHAVIORAL PRINCIPLES (3) LEC. 3. Concepts and principles of operant and respondent conditioning and their relevance to changing and interpreting human behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3. Pr. P/C PSYC 7270 and P/C PSYC 7280. Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3. Examination of strategies for measuring individual and environment interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICS (3) LEC. 3. Introduction to research methods and ethics in clinical psychology, with an emphasis on critical analysis of the scientific literature.

PSYC 7260 ETHICAL AND PROFESSIONAL ISSUES IN BEHAVIOR ANALYSIS (3) LEC. 3. Ethical and professional issues relevant to the practice of applied behavior analysis.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Introduction to the analysis of data collected under various different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7280 EXPERIMENTAL DESIGN IN PSYCHOLOGY II (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and Enrollment in Psychology PhD program. Correlational and regression models. Matrix based multiple and logistic regression, moderation and mediation, and introduction to path models.

PSYC 7300 ADULT PSYCHOPATHOLOGY (3) LEC. 3. Current theoretical conceptions and research in adult psychopathology.

PSYC 7310 AUTISM AND INTELLECTUAL DISABILITIES (3) LEC. 3. Survey of the definitions, terms, epidemiology, etiologies, and current issues in autism and intellectual disabilities.

PSYC 7320 CLINICAL PSYCHOPHARMACOLOGY (3) LEC. 3. The basic principles of psychopharmacology with special attention given to drugs used in applied or therapeutic settings, their effects, and their potential interactions with behavioral interventions.
PSYC 7400 COGNITIVE NEUROSCIENCE (3) LEC. 3. Exploring how mental functions are linked to neural processes to enable the mind.

PSYC 7700 FOUNDATIONS IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. This course is designed to be an advanced survey of the Industrial and Organizational Psychology field.

PSYC 7710 TRAINING AND DEVELOPMENT IN ORGANIZATIONS (3) SEM. 3. A graduate seminar that focuses on critical conceptual and empirical issues facing training and development in the workplace.

PSYC 7720 PERSONNEL SELECTION (3) SEM. 3. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection.

PSYC 7730 RESEARCH METHODS IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. An overview of basic research methodology applicable to the investigation of organizational phenomena.

PSYC 7740 ORGANIZATIONAL CULTURE (3) SEM. 3. Gain an understanding of organizational culture and provides the context in which organizational behavior may be understood.

PSYC 7750 ETHICS AND PROFESSIONAL ISSUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. An introduction to issues faced in professional practice and importance of ethical behavior in the practice of Industrial/Organizational Psychology.

PSYC 7760 OCCUPATIONAL HEALTH PSYCHOLOGY (3) SEM. 3. Occupational health psychology (OHP) is an emerging interdisciplinary field concerned with psychological factors in employee health, safety, and well-being.

PSYC 7770 LEADERSHIP AND MOTIVATION SEMINAR (3) SEM. 3. Analysis of historical and contemporary theories of leadership and motivation and related research.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) PRA. Pr., Departmental approval. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 9 credit hours.

PSYC 7970 RESEARCH IN SPECIAL TOPICS (3) IND. 3. Pr., Departmental approval. Supervised scholarly activity related to student's field of study. Course may be repeated with change in topics.

PSYC 7980 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) PRA. Pr., Departmental approval. Supervised practicum in applied psychology behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Pr., Course may be repeated with change in topics.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 7180. and Departmental approval. Theories, research and issues in contemporary social psychology.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and PSYC 7280. Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8260 ANALYSIS OF TIME-RELATED DATA IN PSYCHOLOGY (3) LEC. 3. Pr. STAT 7020 or PSYC 8250. Theory and practical applications of statistical approaches for time-related data.

PSYC 8270 FACTOR ANALYSIS (3) SEM. 3. Theoretical and statistical applications of exploratory and confirmatory factor analysis.

PSYC 8280 META-ANALYSIS (3) SEM. 3. Meta-analysis is a quantitative analysis using techniques to analyze and integrate effect sizes that accrue from research studies.

PSYC 8300 DEVELOPMENTAL PSYCHOPATHOLOGY (3) LEC. 3. Introduction to contemporary concepts, constructs, and controversies in developmental psychopathology.
PSYC 8310 INTRODUCTION TO CLINICAL METHODS AND ETHICS (3) LEC. 3. Enrollment in Clinical Psychology Program. Interviewing introduction to interviewing skills, behavioral assessment, crisis intervention, professional and ethical issues in providing clinical services.

PSYC 8320 PSYCHOLOGICAL ASSESSMENT OF ADULTS (3) LEC. 3. Pr. (STAT 7270 or PSYC 7270) and PSYC 8310. Theories and techniques of the psychological assessment of adults.


PSYC 8340 SYSTEMS OF PSYCHOTHERAPY (3) LEC. 3. Pr. PSYC 7300. Survey of theories and research related to modern systems of psychotherapy.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3. Analysis of classical and modern test theory, with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2. LAB. 2. Theories and techniques for the assessment of cognitive abilities and academic achievement.

PSYC 8370 FOUNDATIONS OF PSYCHOLOGICAL ASSESSMENT (3) LEC. 3. Enrollment in Clinical Psychology program. Measurement theory and introduction to widely used objective personality and behavioral checklists with attention to ethics and diversity.

PSYC 8400 ADVANCED CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. PSYC 7300. Examination of current research and theory of behavioral, cognitive, and emotional disorders in childhood and adolescence.


PSYC 8420 BEHAVIOR CHANGE IN CHILDREN (3) LEC. 3. Pr. PSYC 8310 and (PSYC 8400 or PSYC 8410). Introduction to methods of prevention and treatment of cognitive, behavioral, and emotional disorders of children.


PSYC 8440 HEALTH PSYCHOLOGY AND BEHAVIORAL MEDICINE (3) LEC. 3. Contemporary research in health psychology and behavioral medicine and the empirical foundations of clinical practice.

PSYC 8450 THEORY AND METHOD IN HUMAN ALCOHOL AND DRUG RESEARCH (3) LEC. 3. Pr., Departmental approval. Theoretical framework and methodological practices in basic research on human alcohol and drug abuse.


PSYC 8470 BEHAVIORAL ECONOMICS OF SUBSTANCE ABUSE (3) LEC. 3. Introduction to behavioral theories of choice and behavioral economics and the application of these theories to the study of substance abuse.

PSYC 8480 ADVANCED PROFESSIONAL AND ETHICAL ISSUES IN CLINICAL PSYCHOLOGY (3) LEC. 3. Pr., Enrollment in the Clinical Psychology PhD Program. Advanced discussion of professional issues and ethical mandates of contemporary clinical psychology, emphasizing critical thinking skills and planning for a successful career in psychology.

PSYC 8500 COGNITIVE AND BEHAVIORAL SCIENCES SEMINAR (1) SEM. 1. SU. Pr., Enrollment in Cognitive and Behavioral Sciences PhD program. Examination of professional preparation issues and recent scientific developments relevant to careers in the cognitive and behavioral sciences. Course may be repeated for a maximum of 3 credit hours.

PSYC 8510 CONTEXT AND CONSEQUENCES OF BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.

PSYC 8520 CONCEPTUAL AND THEORETICAL ANALYSIS IN PSYCHOLOGY (3) LEC. 3. Techniques of conceptual analysis relevant to the evaluation of theories and the interpretation of psychological data.
PSYC 8530 BEHAVIOR ANALYSIS AND HUMAN DEVELOPMENT (3) LEC. 3. Examination of conceptual, theoretical, and scientific issues relevant to the study of psychological development from a behavior analytic perspective.

PSYC 8540 BEHAVIORISM (3) LEC. 3. Exploration of the philosophical and theoretical underpinnings of behavior analysis.

PSYC 8550 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. PSYC 7140. and Departmental approval. Scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.


PSYC 8570 APPLIED BEHAVIOR ANALYSIS 2 (3) LEC. 3. Applications of behavioral principles to the assessment and treatment of problem behavior.

PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY (3) LEC. 3. Analysis of methods and content of industrial psychology.

PSYC 8710 ADVANCED ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3. Pr., Departmental approval. Analysis of major issues in organizational psychology.

PSYC 8730 PERFORMANCE APPRAISAL (3) LEC. 3. Analysis of classical, contemporary, theoretical, and practical issues related to the appraisal of employee work performance.

PSYC 8750 PROFESSIONAL ISSUES IN I/O PSYCHOLOGY (1) LEC. 1. Pr., Departmental approval. Analysis of contemporary professional issues in I/O psychology. Course may be repeated for a maximum of 6 credit hours.

PSYC 8760 DECISION MAKING IN THE WORKPLACE AND ORGANIZATIONS (3) SEM. 3. The application of behavioral decision theory and research to problems in Industrial/Organizational Psychology.

PSYC 8770 ORGANIZATIONAL CHANGE (3) SEM. 3. A conceptual overview of organizational change and organizational transformation and related specific topics.

PSYC 8780 WORK AND FAMILY (3) SEM. 3. A survey of research and theory in work and family, a content area of organizational psychology.

PSYC 8910 CLINICAL PRACTICUM (1-4) PRA. Pr. PSYC 8320 or PSYC 8410. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours, with 24 counting toward the degree.

PSYC 8920 INTERNSHIP (0) INT. Pr., PhD candidacy. Enrollment in full-time APA-approved 1-year pre-doctoral internship required for the PhD in Clinical Psychology. Student may not enroll in other course work.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Pr., Approved PhD plan of study. Review of literature leading to the writing and defense of the Major Area Paper (written portion of the general PhD examination). Course may be repeated for a maximum of 9 credit hours.

PSYC 8970 SPECIAL TOPICS (1-3) SEM. Pr., Departmental approval. In-depth study of issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Pr., Course may be repeated for a maximum of 98 credit hours.

Curriculum in Psychology

Students must earn a grade of C or higher in all major courses.

Freshman

Fall Hours | Spring Hours
--- | ---
ENGL 1100 English Composition I | 3
Foreign Language I (College Core) | 4
ENGL 1120 English Composition II | 3
Foreign Language II (College Core) | 4
<table>
<thead>
<tr>
<th>Elective¹</th>
<th>3 Core History</th>
<th>3</th>
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<tbody>
<tr>
<td>Core Mathematics</td>
<td>3 PSYC 2010/2013/2017 Introduction to Psychology</td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>Core History to complete sequence</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 2020 Orientation to Psychology Major</td>
<td>1</td>
<td>Core Social Science</td>
<td>3</td>
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<tr>
<td>PSYC 2130 Analytics for Social and Behavioral Sciences or 2133 Analytics for Social and Behavioral Sciences</td>
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<td>Core Science II</td>
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<td>Select one of the following:</td>
<td>3</td>
<td>PSYC 2140/2143 Research Methods in Psychology</td>
<td>3</td>
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<tr>
<td>SOCY 1000 Sociology: Global Perspective</td>
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<td>LBAR 2010 Liberal Arts Careers Preparation</td>
<td>2</td>
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<tr>
<td>ANTH 1000 Introduction to Anthropology</td>
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<tr>
<td>GEOG 1010 Global Geography</td>
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<tr>
<td>Core Science I</td>
<td>4</td>
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**Junior**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tr>
<td>Core Humanities²</td>
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<td>Core Fine Arts</td>
<td>3</td>
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<tr>
<td>Groups A and B Psychology Electives¹</td>
<td>6</td>
<td>Groups A and B Psychology Electives¹</td>
<td>6</td>
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<tr>
<td>Electives¹</td>
<td>8</td>
<td>Electives¹</td>
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**Senior**

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<tr>
<th>Fall</th>
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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>COMM 1000 Public Speaking³</td>
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<td>Group C Psychology Electives¹</td>
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<td>Group C Psychology Electives¹</td>
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<tr>
<td>Electives¹</td>
<td>3</td>
<td>UNIV 4AA0 University Graduation</td>
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</table>

Total Hours: 120

¹ Students should meet with the psychology adviser to determine approved course listings for psychology electives and other electives. It is recommended that students take foundational courses (those listed in Groups A and B) in their junior year and advanced electives (those in Group C) in their senior year.

² If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

³ COMM 1000 fulfills SLO 7.

**Neuroscience**

**Freshman**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>PSYC 2010 Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I¹</td>
<td>3</td>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
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<tr>
<td>Course</td>
<td>Fall Hours</td>
<td>Spring Hours</td>
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<tr>
<td><strong>Sophomore</strong></td>
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<tr>
<td>PHYS 1500 General Physics I</td>
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<td>CHEM 2070 Organic Chemistry I</td>
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<td>CHEM 2071 Organic Chemistry I Laboratory</td>
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<td>PSYC 3530 Sensation and Perception</td>
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<tr>
<td>PSYC 2130 Analytics for Social and Behavioral Sciences</td>
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<td>Core History I</td>
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<tr>
<td><strong>Junior</strong></td>
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<tr>
<td>PSYC 3520 Psychology of Learning</td>
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<td>BIOL 3000 Genetics</td>
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<td>BIOL 3001 General Genetics Laboratory</td>
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<td>3</td>
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<td>Core Literature</td>
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</tr>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Senior</strong></td>
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<tr>
<td>PSYC 5620 Drugs, Brain, and Behavior</td>
<td>3</td>
<td>4</td>
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<tr>
<td>BIOL 4100 Cell Biology</td>
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<td>BIOL 4101 Cell Biology Laboratory</td>
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<td>6</td>
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<tr>
<td>Core Foreign Language</td>
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<tr>
<td>Major Electives</td>
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</tbody>
</table>

Total Hours: 120

1. The Chemistry 1110/1111-1120/1121 sequence can substitute for CHEM 1030/1031-1040/1041. See advisor for details.
2. The Chemistry 1110/1111-1120/1121 sequence can substitute for CHEM 1030/1031-1040/1041. See advisor for details.
3. See Advisor for the list of Major Elective Courses.

### Psychology Minor

PSYC 2010/2013/2017 Introduction to Psychology 3

Select Minor Curriculum Track A or Track B: 9

**Track A**

Select 3 of the following courses (9 hours):

- PSYC 3120/3123 Developmental Psychology
- PSYC 3560/3563 Abnormal Psychology
PSYC 3570  Theories of Personality
PSYC 3580/3583  Social Psychology
PSYC 3590/3593  Psychology in the Workplace

**Track B**
Select 3 of the following courses (9 hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PSYC 3510</td>
<td>Behavioral Neuroscience</td>
</tr>
<tr>
<td>PSYC 3520</td>
<td>Psychology of Learning</td>
</tr>
<tr>
<td>PSYC 3530</td>
<td>Sensation and Perception</td>
</tr>
<tr>
<td>PSYC 3540</td>
<td>Cognitive Psychology</td>
</tr>
<tr>
<td>PSYC 3620</td>
<td>Cognitive Neuroscience</td>
</tr>
</tbody>
</table>

Take 1 additional 3000 level or above Psychology Course 3

Total Hours 15

**Calculated GPA in the Minor (2.0 minimum).** Students must earn a “C” grade or better in each course taken toward the minor.

* If PSYC 2010 or PSYC 2013 or PSYC 2017 was used to fulfill the Social Science core requirement, an additional psychology course is required to complete the minor.

** Students who wish to pursue a specialized minor should consult and obtain approval for minor coursework changes from the undergraduate program director before starting minor curriculum.

**Sociology, Anthropology, and Social Work**

The Department of Sociology, Anthropology, and Social Work offers three Bachelor of Arts degrees. Sociology graduates have found positions in law enforcement agencies such as the Drug Enforcement Agency, the military, and social service agencies. Some have chosen to pursue graduate or professional education in sociology, social work, criminology, and social forestry, among others. The Sociology major provides students a solid foundation within the discipline, particularly in theory, research methods and statistics, and human diversity. Anthropology graduates have found positions in cultural resource management and archaeology. Some have chosen to pursue graduate or professional education in anthropology and development studies. The Anthropology major takes a four-field approach, offering courses in archaeology, biological anthropology, cultural anthropology, and linguistic anthropology. Social Work graduates are trained to become beginning-level generalist practitioners eligible for licensure and to apply for advanced-standing social work graduate programs. The BA in Social Work is fully accredited by the Council on Social Work Education.

**Sociology**

To earn a BA in Sociology, students must meet these requirements:

- Students must earn a C or better in SOCY 1000, SOCY 3500, Theory, Methods and Statistics courses in order to graduate. If they choose to take ANTH 2000 rather than SOCY 3700, they must earn a C in that course.

**Social Work**

Students must comply with these requirements to be admitted to the BA in Social Work:

- Students are required to apply for admission to the Social Work major.
- Their applications must include two letters of recommendation and a personal-statement essay not longer than four double-spaced pages.
- Students must earn a C or better in SOCY 1000, SOWO 2000, and SOWO 3910 and a combined Social Work GPA of 2.5 before applying to the program.

Once they are admitted, students have to meet these requirements to move through the Social Work major and graduate:

- Admission to the Social Work major is required before students can take SOWO 4060.
- Students must earn an overall Social Work GPA of 2.5 to graduate.
- Students must have a Social Work GPA of 2.5 to take SOWO 4920, which is required for graduation.
Majors

- Anthropology (p. 996)
- Social Work (p. 997)
- Sociology (p. 998)

Minors

- Anthropology (p. 996)
- Social Work (p. 1000)
- Sociology (p. 1000)

Anthropology Courses

**ANTH 1000/1003 INTRODUCTION TO ANTHROPOLOGY (3)** LEC. 3. Social Science I Core. Introduction to the study of human evolution, early civilizations, and globalization; linguistic and cultural problems using the four sub-fields of anthropology, including biological/physical anthropology, archaeology, cultural anthropology, and linguistics.

**ANTH 1007 HONORS INTRODUCTION TO ANTHROPOLOGY (3)** LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of human evolution, early civilizations, and globalization; linguistic and cultural problems using the four sub-fields of anthropology, including biological/physical anthropology. Archaeology, cultural anthropology, and linguistics. Credit will not be given for both ANTH 1000 and ANTH 1007.

**ANTH 2000 ETHNOGRAPHIC METHODS (3)** LEC. 3, AAB/LEC. 0. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007) or (SOCY 1000 or SOCY 1007) or GEOG 1100. Approaches, techniques, and strategies for carrying out ethnographic research and analyzing qualitative data in the social sciences.

**ANTH 2500 ANTHROPOLOGY OF GLOBAL STUDIES (3)** LEC. 3. Any Social Science Core course. Broad-based study of processes and problems that transcend national boundaries, including global historical processes, politics, migrations, trade, disease, environmental change, and sustainability.

**ANTH 2700 PEOPLES AND CULTURES OF ASIA (3)** LEC. 3. Any Social Science Core course. Introduction to the traditions, religions, histories, and nation-states of the people of Asia, using a cultural approach.

**ANTH 2800 ANTHROPOLOGY OF THE AFRICAN DIASPORA (3)** LEC. 3. Any Social Science Core course. Anthropological perspectives on African Diasporas. Diaspora. Archaeological, ethnohistorical, and contemporary research exploring identity, symbols, power, and social relations in the lives of enslaved Africans and descendants in the Caribbean, Latin America, and North America.

**ANTH 2900 WORLD PREHISTORY (3)** LEC. 3. Explore broad patterns in human prehistory over the past 10,000 years, including the origins of culture, religion, domestication, and agriculture, writing, cities, and states.

**ANTH 3000 CULTURE, MARRIAGE, AND THE FAMILY (3)** LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Role and meaning of kinship and its universal and particularistic features in human society.

**ANTH 3100 LANGUAGE AND CULTURE (3)** LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Contemporary perspectives in cultural anthropology, emphasizing sociolinguistics, discourse, mythology, and folklore.

**ANTH 3200 ANTHROPOLOGY OF GENDER (3)** LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Gender relations and representations in different cultures, historical periods, and discourses.

**ANTH 3300 BIOLOGICAL ANTHROPOLOGY (3)** LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Overview of biological anthropology, including evolutionary theory and genetics, primatology, human origins, and biological variation of contemporary human populations. Concepts will be applied during in-class exercises and discussions.

**ANTH 3310/3313 RACE AND RACISM: BIOCULTURAL HISTORY OF HUMAN VARIATION (3)** LEC. 3. Core Social Science. Deconstructs the myths of biological races by examining human population variation from an anthropological and evolutionary perspective. Students will explore the social history of racism and contemporary issues related to race and human diversity. May count either ANTH 3310 or ANTH 2310.

**ANTH 3400 ARCHAEOLOGICAL FIELD SCHOOL (3)** LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Field methods, including archaeological surveying and excavation procedures at selected locations. Course may be repeated for a maximum of 6 credit hours.
ANTH 3410 APPLIED & PRACTICING ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores application and practice of anthropology in settings such as cultural resource management, museums, social and environmental policy, and healthcare. This course emphasizes how careers in anthropology contribute to resolving contemporary social problems.

ANTH 3500 ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Archaeology is the study of human societies based on the material remains they left behind. This course explores the history, theories, methods, and applications of archaeology.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3. Any Social Science Core course. Explores biological and cultural dimensions of global health from an anthropological perspective. Topics include the political economy of health, cross-cultural healing traditions, pluralistic medical systems, and evolutionary medicine.

ANTH 3610 FORENSIC ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores standards of practice in forensic anthropology and analysis of case studies. May count either ANTH 3610 or ANTH 2600.

ANTH 3700 POLITICAL ECOLOGY (3) LEC. 3. SSCI and junior standing. Problems in ethnoecology, cultural ecology, political ecology and environmentalism.

ANTH 3810 NORTH AMERICAN ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores archaeological evidence for the history of indigenous peoples in North America during the past 10,000 years.

ANTH 3850 MISSISSIPPIAN ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Diversity and complexity of late prehistoric cultures of the Southeastern and Midwestern United States.

ANTH 3900 BIOARCHAEOLOGY (3) LEC. 3. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Archaeologically-derived skeletal remains provide essential information for reconstructing broad patterns of human health and behavior over time. Students will learn to apply methods and theory in social bioarchaeology to understand demography, diet, disease, and physical activity in past populations.

ANTH 3950 CURATION (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. History, legislation, and ethical concerns associated with the accumulation and curation of archaeological collections.

ANTH 4310 ANTHROPOLOGICAL THEORY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Major thinkers in anthropology and their theoretical models considered in historical perspective.

ANTH 4910 LABORATORY PROBLEMS (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 and ANTH 2100. Investigation a specific archaeological problem or problems, involving students in laboratory techniques and research.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (3) AAB/INT. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Internship for practical work or research on anthropological problems, including federal or state agencies, NGOs, NPOs, community and voluntary organizations, and industry (e.g., internships healthcare and medicine, advertising/media, architecture/design, high technology, archaeology and historic preservation, etc.). Course must be approved by the faculty advisor and department.

ANTH 4930 FIELD PROBLEMS (3) LEC. 2. LAB. 1. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Practical investigation of a specific field problem in anthropology.

ANTH 4940 LABORATORY PRACTICUM (3) LEC. 2. LAB. 1. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 and ANTH 2100. Analysis, preservation, cataloging, and restoration of archaeological materials. May count either ANTH 4940 or ANTH 3910.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College. ANTH 1000. Departmental approval. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 3 credit hours.

ANTH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ANTH 1000. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

ANTH 5100 NORTH AMERICAN INDIANS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Comparative anthropological, cultural, and ethnohistorical overview of Native American cultures of North America, emphasizing change and contact situations.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Role of gender and culture in Third World development from an anthropological perspective.
ANTH 5600 CULTURE, MEDICINE, AND POWER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Pr. ANTH 3700. Meanings and structures of national and international development.

ANTH 5930 DIRECTED STUDIES (1-3) IND. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6100 NORTH AMERICAN INDIANS (3) LEC. 3. Advanced comparative cultural and ethnohistorical overview of the Native American cultures of North America, emphasizing change and contact situations.

ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3. Power in the context of illness and healing at local, national, and international levels.

ANTH 6700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Meanings and structures of national and international development in historical perspective, including cultural values, power, inequality, and resistance.

ANTH 6930 DIRECTED STUDY (1-3) IND. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

Social Work Courses

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3. Introduction to social work practice, examining career opportunities, history of the profession, practice settings, values, ethics, and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3. Development of social welfare policies and programs in the United States, analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3. Pr. SOCY 1000 or SOWO 2000 or SOCY 1007. Social work practice in settings dealing with child abuse and neglect, foster care, child care, and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Introduction to social services and social work with the elderly, considering socio-cultural issues and impact on the elderly.

SOWO 3700 ADDICTIONS (3) LEC. 3. Pr. PSYC 2010 or PSYC 2017 or PSYC 2013. Addictions, theories of causality, social impact, and treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3. Pr. SOWO 2000. Lifespan approach to biopsychosocial examination of behavior and early development, emphasizing influences of racism, sexism, and ethnocentrism.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3. Pr. SOWO 3800. Lifespan approach to biopsychosocial examination of behavior from adulthood through old age, emphasizing role of gender, sexism and sexual orientation.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) PRA. 3. Pr. SOWO 2000. Introduction to fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3. Pr. SOWO 2000 and SOWO 3910 and (SOCY 1000 or SOCY 1007). Introduction to generalist practice methods and skills in engagement, assessment, and goal setting with individual clients.

SOWO 4070 SOCIAL WORK METHODS II (3) LEC. 3. Pr. SOWO 4060. Practice skills and perspectives required for work with families and groups.
SOWO 4080 SOCIAL WORK METHODS III (3) LEC. 3. Pr. SOWO 4060. Generalist practice theory and skills as applied to communities, organizations, and oppressed populations, emphasizing issues of social justice and social action.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3. Pr. SOWO 2650. Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9. SU. Pr. SOWO 4080. 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 4080. Coreq. SOWO 4920 and Enrollment in SOWO 4920. Integrating theory with practice through analysis of behavior and evaluation of practice skills.

SOWO 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College or Departmental approval. Course varies based on faculty’s and student’s areas of interest and expertise. Course may be repeated for a maximum of 3 credit hours.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3) LEC. 3. Timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

SOWO 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

SOWO 7000 INTRODUCTION TO SOCIAL WORK AND SOCIAL WELFARE (3) LEC. 3. This course provides a review of the social work profession, history, and values and ethics. An overview of theory, practice, policy, and research are integrated in exploring the knowledge, values, and skills base of the social work profession.

SOWO 7010 ADVANCED CLINICAL PRACTICE (3) LEC. 3. Pr. SOWO 7020. This course provides intensive study on clinical interventions with individuals, families, and small groups across various fields of practice.

SOWO 7020 PSYCHOPATHOLOGY (3) LEC. 3. This advanced practice course teaches students to recognize selected major mental health disorders in adults, children, and youth and to become familiar with social work practice approaches used in the treatment of these disorders.

SOWO 7030 EVALUATION IN SOCIAL WORK PRACTICE (3) LEC. 3. This course examines quantitative and qualitative evaluation of agency programs and individual practice. Students will engage in hands-on individual and/or small-group research projects to experience all phases of the research process.

SOWO 7040 SOCIAL WORK PRACTICE IN THE HEALTH CARE FIELD (3) LEC. 3. This course will focus on the development of social work practice skills relevant to health care settings, including assessment of the impact of illness, disability, treatment, and hospitalization on patients and families.

SOWO 7050 MENTAL HEALTH (3) LEC. 3. Pr. SOWO 7020. This course focuses on mental health social work practice with children, adolescents and adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills. Special attention is given to strengths-based, evidence-based, and recovery-oriented practice models.

SOWO 7060 SOCIAL WORK PRACTICE WITH INDIVIDUALS AND FAMILIES (3) LEC. 3. This foundation course prepares students to apply a generalist perspective and systems framework to social work practice with individuals and families. It emphasizes the basics of communication, interviewing, relationship building, and practice skills essential to effective assessment, intervention, and evaluation.

SOWO 7070 SOCIAL WORK WITH GROUPS AND COMMUNITIES (3) LEC. 3. Pr. SOWO 7060. This macro social work course provides an advanced examination of social work practice in groups and larger systems. Students will develop knowledge, values, and skills in areas of: group practice, community assessment, social planning, community organization, and political strategies.

SOWO 7080 POLICY PRACTICE AND SOCIAL JUSTICE (3) LEC. 3. This course will critically apply conceptual frameworks and empirical research in the examination of social issues, policies, and services, focusing on how policies affect marginalized, oppressed and disadvantaged populations.

SOWO 7090 ADVANCED SOCIAL WELFARE POLICY (3) LEC. 3. The course will review the historical development of social welfare and social policies in the United States and explore their context and underlying values. This course builds knowledge and skills to analyze and make changes in social welfare policy.
SOWO 7100 GERONTOLOGY (3) LEC. 3. The course provides a clinical foundation for clinical work practice with older adults and their families. Primary focus will be on understanding how diversity factors into the physiological, psychological, and social aspects of later life.

SOWO 7110 TRAUMA INFORMED PRACTICE (3) LEC. 3. This course examines social work practice theories and intervention approaches as they apply to practice with survivors of crisis and trauma. The course will focus on engagement, assessment, planning, intervention, evaluation and follow up on all social work practice levels.

SOWO 7120 PSYCHOSOCIAL CONTEXT OF DISABILITY (3) LEC. 3. Prepares the social worker to be an effective practitioner for persons with disabilities by exploring the psychosocial context of the lives and experiences of persons with disabilities and their families from various perspectives.

SOWO 7130 SOCIAL WORK PRACTICE WITH CHILDREN AND ADOLESCENTS (3) LEC. 3. This course develops advanced clinical social work practice knowledge and skills to engage and intervene with children and adolescents with health and mental health risk and provides knowledge for community social workers serving children who are exposed to stress.

SOWO 7140 DIVERSITY AND DIFFERENCE IN PRACTICE (3) LEC. 3. Students must be admitted to the Masters of Social Work Program to enroll in this course.

SOWO 7700 FOUNDATIONS OF SOCIAL WORK RESEARCH (3) LEC. 3. This course provides a study of quantitative and qualitative research methods in order to build knowledge for social work practice. Students will be prepared to develop, implement and communicate ethical, empirically-based scientific knowledge.

SOWO 7800 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3) LEC. 3. This graduate-level foundation course covers theories, themes, and issues that influence individual and group and development across the life span- in interaction with the environment- as it underlies social work practice and research.

SOWO 7920 GENERALIST FIELD (10) INT. 10. SU. This course prepares students for responsible, competent entry into the profession by providing opportunities to practice social work with a generalist perspective in agency settings under educational supervision. This course requires completion of 432 total hours in an agency setting.

SOWO 7930 ADVANCED FIELD (12) INT. 12. SU. Pr. SOWO 7920. This course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 512 hours in an approved agency during this field experience. Course may be repeated for a maximum of 18 credit hours.

SOWO 7950 INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 7020 and P/C SOWO 7930. This seminar course assists students in integrating and applying classroom learning with the advanced field placement. Opportunities are provided for case presentation, discussion and peer consultation.

SOWO 7970 GRANT WRITING (3) LEC. 3. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations. Writing a successful grant proposal is a blend of art and science. It requires basic knowhow, content knowledge, writing proficiency, strong research skills, creativity, organizational ability, patience, and a great deal of luck. This course will provide students with the background necessary to develop a competitive funding proposal. Course may be repeated for a maximum of 6 credit hours.

Sociology Courses


SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 1050 AUBURN IN THE WORLD: SOCIETY AND CULTURE (4) LEC. 4. Auburn Global students. Part of the Auburn Global International Accelerator Program. The course will introduce students to American society and culture through core sociological concepts. May count either SOCY 1050 or HIST 1000.

SOCY 1100 CURRENT ISSUES IN RACE AND ETHNICITY (3) LEC. 3. An exploration of how race and ethnicity shape our daily lives and the world around us.
SOCY 2000 SOCIAL ISSUES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Exploration of the claims and conflicts of public issues and moral apprehensions, including crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. Distribution and measurement of crime, different variations in criminal behavior, and handling crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3. Survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science, and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3. Examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examination of etiological issues related to crime; major theories of crime causation from a wide variety of perspectives.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Sociological overview of policing and current issues that relate to the police.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3. Sociological perspectives on sports in the social system; organization and culture of sports in relationship to social class, race, and gender; and the interconnections between sport and society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. In-depth analysis of sentencing policies and the correction system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3. Family as a major social institution, with emphasis on the American family; cross-cultural comparisons for perspective.

SOCY 3500 MINORITY GROUPS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Exploration of the sources and uses of minority representations in the United States addressing inequalities such as race, ethnicity, gender, and sexual orientation.

SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

SOCY 3700 METHODS OF SOCIAL RESEARCH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation, and research design.

SOCY 4000 SOCIALIZATION (3) LEC. 3. Examination of mind, self, society, and interaction as symbolic phenomena grounded in social process; covers major intellectual influences, concepts, and figures.

SOCY 4100 DEVIANCE (3) LEC. 3. Analysis of creation and reaction to deviance through theoretical approaches; examines several deviant groups.

SOCY 4200 MEDICAL SOCIOLOGY (3) LEC. 3. Nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, and disease and to the relationship between culture, politics, and health.

SOCY 4300 FIELD INSTRUCTION (3) LEC. 3. Pr., Departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

SOCY 4400 CONTEMPORARY THEORY (3) LEC. 3. Survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis, and differences in theoretical approaches.

SOCY 4700 THEORIES OF CRIME AND CRIMINALITY (3) LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

SOCY 4800 SENIOR SEMINAR (3) LEC. 3. Building upon prior coursework in theory, methods, and statistics for an in-depth examination of substantive areas in sociology. Students must demonstrate proficiency in critical thinking and analysis and in written and oral communication.

SOCY 4960 SPECIAL PROBLEMS IN SOCIOLOGY (3) AAB/IND. 3. Pr., Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 6 credit hours.
SOCY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College or Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 3 credit hours.

SOCY 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

SOCY 5120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis.

SOCY 5200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective.

SOCY 5300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors.

SOCY 5310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Application of methods and techniques of information analysis and related report writing.

SOCY 5400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit with not be given for both SOCY 5400 and SOCY 6400

SOCY 5500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit with not be given for both SOCY 5500 and SOCY 6500.

SOCY 5600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit with not be given for both SOCY 5600 and SOCY 6600.

SOCY 5650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit with not be given for both SOCY 5650 and SOCY 6650.

SOCY 5670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit with not be given for both SOCY 5670 and SOCY 6670.

SOCY 5970 SPECIAL TOPICS IN SOCIOLOGY (3) LEC. 3. Pr., Departmental approval. Study of substantive areas sociology. Credit with not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 6120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis. Credit with not be given for both SOCY 5120 and SOCY 6120.

SOCY 6200 SOCIOLOGY OF LAW (3) LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective. Credit with not be given for both SOCY 5200 and SOCY 6200.

SOCY 6300 INFORMATION METHODS AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors. Credit will not be given for both SOCY 5300 and SOCY 6300.

SOCY 6310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 and (SOCY 5120 or SOCY 6120) or Departmental approval. Application of methods and techniques of information analysis and related report writing. Credit will not be given for SOCY 5310 and SOCY 6310.

SOCY 6400 SOCIOLOGY OF MENTAL HEALTH (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit will not be given credit for both SOCY 5400 and SOCY 6400.

SOCY 6500 VICTIMOLOGY (3) LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit with not be given for both SOCY 5500 SOCY 6500.

SOCY 6600 SEX CRIMES (3) LEC. 3. Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit with not be given for both SOCY 5600 and SOCY 6600.
SOCY 6650 DRUGS AND SOCIETY (3) LEC. 3. Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit with not be given for both SOCY 5650 SOCY 6650.

SOCY 6670 SOCIOLOGY OF GENDER (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit with not be given for both SOCY 5670 and SOCY 6670.

SOCY 6970 SOCIOLOGY SPECIAL TOPICS (3) LEC. 3. Study of substantive areas of sociology. Credit with not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.

SOCY 7000 ADVANCED SOCIOLOGICAL THEORY (3) LEC. 3. Pr. SOCY 4400 or Departmental approval. Review of major types of sociological theory within the context of theoretical paradigms and significant theoretical issues that face the discipline.

SOCY 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE, AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017 or Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.

SOCY 7200 SEMINAR IN SOCIAL BEHAVIOR (3) SEM. 3. Research and theory concerning social and group influences on behavior.

SOCY 7250 SOCIOLOGY OF VIOLENCE (3) LEC. 3. In-depth coverage of various forms of violence from the sociological perspective.

SOCY 7800 MENTORING IN THE CLASSROOM (1) LEC. SU. Pr., Departmental approval. First-hand experience in building and planning a course, constructing lectures, tests, and syllabi, presenting and taping a lecture, critiquing performance, developing discussions, and other instructional techniques.

SOCY 7850 TECHNOLOGY AND TEACHING IN SOCIOLOGY (1) LEC. 1. SU. Pr., Departmental approval. Technology as a teaching tool sociology classes.

SOCY 7930 DIRECTED STUDIES (3) IND. 3. Pr., Departmental approval. Independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. Preparation of a thesis. Course may be repeated with change in topics.

**Anthropology Minor**

Courses required: NONE

**Elective Courses** - See advisor for approved course listing.

| Total Hours | 15 |

1 Minimum 9 hours at 3000-level or above

**Curriculum in Anthropology**

The anthropology program takes a four-field approach to the study of the human condition, offering courses in archaeology, physical anthropology, cultural anthropology, and linguistic anthropology.

### Freshman

#### Fall

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<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ANTH 1000 Introduction to Anthropology</td>
<td>3</td>
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<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>Core History</td>
<td>3</td>
<td>Foreign Language II (College Core)</td>
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<tr>
<td>Core Mathematics</td>
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<td>Core Fine Arts</td>
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### Sophomore

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<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>ANTH 3500 Archaeology</td>
<td>3 Core Social Science or Core History to complete the sequence ¹</td>
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<tr>
<td>SOCY 1000 Sociology: Global Perspective or GEOG 1010 Global Geography</td>
<td>3 Core Science II</td>
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<tr>
<td>Core Literature ¹</td>
<td>3 ANTH 2000 Ethnographic Methods</td>
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<tr>
<td>Core Humanities (except COMM 1000) ²</td>
<td>3 LBAR 2010 Liberal Arts Careers Preparation</td>
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<tr>
<td>Core Science I</td>
<td>4 ANTH Directed Electives</td>
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<td>16</td>
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### Junior

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<th>Fall Hours</th>
<th>Spring Hours</th>
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<tr>
<td>Core Humanities (except COMM 1000) or Core Literature to complete sequence ¹</td>
<td>3 PSYC 2130 Analytics for Social and Behavioral Sciences</td>
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<tr>
<td>ANTH 3100 Language and Culture</td>
<td>3 Electives</td>
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<tr>
<td>Elective</td>
<td>6 ANTH 3300 Biological Anthropology</td>
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<tr>
<td>ANTH Directed Electives ³</td>
<td>3 ANTH Directed Electives ³</td>
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<tr>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

### Senior

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH Directed Electives ³</td>
<td>3 ANTH 4310 Anthropological Theory ⁴</td>
</tr>
<tr>
<td>ANTH Directed Electives ³</td>
<td>3 ANTH Directed Electives ³</td>
</tr>
<tr>
<td>Electives</td>
<td>9 Electives</td>
</tr>
<tr>
<td>15</td>
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</tr>
</tbody>
</table>

Total Hours: 120

¹ Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

² If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.

³ Students must meet with their ANTH Program advisors to identify approved courses for electives and ANTH Directed electives.

⁴ ANTH 4310 fulfills SLO 7.

## Curriculum in Social Work

The Bachelor of Arts in Social Work is fully accredited by the Council on Social Work Education. Graduates are trained to become beginning-level generalist practitioners eligible for licensure and to apply for advanced standing social work graduate programs. Admission to the program is required before enrolling in SOWO 4060. SOCY 1000, SOWO 2000 and SOWO 3910 must be completed with a C or better prior to application. Students must earn a C and maintain a 2.5 GPA in all major courses.

### Freshman

<table>
<thead>
<tr>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY 1000 Sociology: Global Perspective</td>
<td>3 BIOL 1010 A Survey of Life</td>
</tr>
<tr>
<td>BIOL 1000 Introduction to Biology &amp; BIOL 1001 Introduction to Biology Laboratory</td>
<td>4 ENGL 1120 English Composition II</td>
</tr>
</tbody>
</table>

& BIOL 1011 A Survey of Life Laboratory
### Curriculum in Sociology

A primary goal of the Sociology program is to provide undergraduate and graduate majors a solid foundation within the discipline, particularly in the area of theory, research methods and statistics, and human diversity.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENGL 1100 English Composition I</strong></td>
<td>3</td>
<td></td>
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<tr>
<td><strong>PSYC 2010 Introduction to Psychology</strong></td>
<td>3</td>
<td></td>
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<tr>
<td><strong>Elective</strong></td>
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<tr>
<td></td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>Core Literature</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Foreign Language I (College Core)</strong></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Core Social Science or Core History to complete sequence</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>SOWO 2000 Introduction to Social Work</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>SOWO 2650 History of Social Welfare</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
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</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td><strong>SOCY 3500 Minority Groups</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>SOWO 3800 Human Behavior in Social Environment I</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>SOWO Elective</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>SOCY 3700 Methods of Social Research</strong></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>15</strong></td>
<td><strong>15</strong></td>
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**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>SOWO 4080 Social Work Methods III</strong></td>
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<td><strong>Elective</strong></td>
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<tr>
<td><strong>Social Science Elective</strong></td>
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<tr>
<td><strong>PSYC 2130 Analytics for Social and Behavioral Sciences</strong></td>
<td>3</td>
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<tr>
<td><strong>SOWO 4070 Social Work Methods II</strong></td>
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<tr>
<td></td>
<td><strong>14</strong></td>
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</tr>
</tbody>
</table>

Total Hours: 120

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1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2. Students must meet with their advisers to identify approved courses for SOWO electives and social science electives.
### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY 1000 Sociology: Global Perspective</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
</tr>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>Core History to complete sequence</td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td>Core Fine Arts</td>
</tr>
<tr>
<td>Core Humanities</td>
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<td>Electives</td>
</tr>
<tr>
<td>COMM 1000 Public Speaking</td>
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<tr>
<td><strong>Total Hours:</strong> 15</td>
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</tbody>
</table>

#### Sophomore

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>Core Social Science</td>
</tr>
<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Foreign Language II (College Core)</td>
</tr>
<tr>
<td>Core Math</td>
<td>3</td>
<td>Core Science II</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>SOCY 3500 Minority Groups</td>
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<tr>
<td><strong>Total Hours:</strong> 14</td>
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<td><strong>16</strong></td>
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### Junior

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>PSYC 2130 Analytics for Social and Behavioral Sciences</td>
<td>3</td>
<td>SOCY Concentration</td>
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<tr>
<td>SOCY Concentration</td>
<td>3</td>
<td>ANTH 2000 Ethnographic Methods or SOCY 3700 Methods of Social Research</td>
</tr>
<tr>
<td>SOCY Directed Elective</td>
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<td>SOCY Directed Elective</td>
</tr>
<tr>
<td>Electives</td>
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<td>Electives</td>
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<tr>
<td><strong>Total Hours:</strong> 15</td>
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</table>

### Senior

#### Fall

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY Concentration</td>
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<td>SOCY Concentration</td>
</tr>
<tr>
<td>Select one of the following:</td>
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<tr>
<td>SOCY 4400 Contemporary Theory</td>
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<td>SOCY Concentration</td>
</tr>
<tr>
<td>SOCY 4700 Theories of Crime and Criminality</td>
<td>9</td>
<td>Electives</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td><strong>Total Hours:</strong> 15</td>
<td><strong>15</strong></td>
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</tr>
</tbody>
</table>

Total Hours: 120

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1. Students must earn a C or better in the following courses: SOCY 1000, SOCY 3500, and theory, methods, and statistics.
2. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
3. Students must meet with their advisers to identify approved courses for SOCY Directed Electives (6 hrs) and the SOCY Major Concentration (18 hrs).
4. COMM 1000 fulfills SLO 7.
Social Work Minor

SOWO 2000 Introduction to Social Work 3
SOWO 2650 History of Social Welfare 3
SOWO 3910 Field Practicum Seminar 3
Elective Courses - See advisor for approved course listing. 6
Total Hours 15
1 Minimum 9 hours at 3000-level or above

Sociology Minor

Courses required: NONE
Elective Courses - See advisor for approved course listing. 15
Total Hours 15
1 Minimum 12 hours at 3000-level or above

Theatre

Students graduating with degrees from the Department of Theatre find employment as actors, theatre technicians, administrators, and/or educators. The Department of Theatre provides instruction and production experience for students interested in developing their talents in the theatre arts, whether as majors or non-majors. Consequently, a broad range of classroom, laboratory, and performance experiences is provided in acting, directing, music theatre, dance, scenic and lighting design, costume design, theatre technology, construction and crafts, theatre history, dramatic literature, music theatre, theatre criticism, theatre administration, and management.

The Department of Theatre offers a Bachelor of Arts in Theatre and a Bachelor of Fine Arts in Theatre. The BA in Theatre is designed for students seeking to study theatre within the liberal arts curriculum. This degree is for students who choose to study theatre as a humanistic discipline or who wish to concentrate in theatre history, criticism, dramatic literature, dramaturgy, and directing. It is excellent preparation for more specialized training in graduate school or conservatory. The BFA in Theatre is designed for students who have specific professional goals in mind. It is for students seeking professional training in an intensive program in a single concentration—performance, music theatre, design/technology, or management.

BA in Theatre
To graduate with a BA in Theatre, students must earn a grade of C or higher in all theatre courses. Any course with a grade below a C must be repeated.

BFA in Theatre
Students must comply with these requirements to be admitted to the BFA in Theatre:

• Students must formally apply for admission to the BFA in Theatre.
• Students entering the BFA options in Design/Technology, Management, and Performance typically apply for admission in the spring of their sophomore year.
• Students entering the BFA option in Music Theatre audition in the fall semester prior to their freshman year.
• Application is through portfolio review (Design/Technology and Management options) or audition (Performance and Music Theatre options).

Once they are admitted to the BFA, students have to meet these requirements in order to graduate:

• Students must earn a grade of C or higher in all theatre courses. Any course with a grade below a C must be repeated.
• Continuance in the BFA degree tracks is subject to review each semester by faculty.
• Final recommendation for graduation is made after the successful presentation of a performance recital or the successful execution of a design or major production project during the student’s final year. The success of a performance recital, design, or production model is determined by the Department of Theatre faculty.
In all Fine Arts curricula, electives may include six hours Basic ROTC or Advanced ROTC. In curricula that do not allow for six hours of electives, ROTC may be taken in lieu of required courses with approval of the departmental adviser. University core courses may not be replaced by Basic or Advanced ROTC.

**Majors**
- Theatre (p. 1006)
- Theatre - Design / Technology (p. 1007)
- Theatre - Management (p. 1009)
- Theatre - Music Theatre (p. 1010)
- Theatre - Performance (p. 1011)

**Minors**
- Dance (p. 1013)
- Theatre (p. 1013)

**Courses**

**THEA 1010 INTRODUCTION TO THEATRE FOR MAJORS I (3)**
LEC. 2, LLB. 2. Overview of all areas of theatrical collaboration intended specifically for the incoming theatre majors. Introduces theatre majors to academic skills they will need to pursue the theatre major at Auburn University. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

**THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS II (3)**
LEC. 2, LLB. 2. Pr. THEA 1010. Introduction to a variety of perspectives regarding theatrical practices, theories, and texts. Focus on productive working relationships and collaborative skills necessary for a successful life in the theatre. Course culminates in the creation of a new performance piece. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

**THEA 1530 DANCE LAB 1 - TAP (1)**
LAB. 3. Introduction to traditional tap dance. Exploration of technical concepts, rhythm combinations, and improvisations designed to test and develop tap dance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

**THEA 1570 DANCE LAB 1 - BALLET (1)**
LAB. 4.5. Beginning studio introduction to ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

**THEA 1670 DANCE LAB 1 - JAZZ (1)**
LAB. 3. Studio introduction to and exploration of jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

**THEA 1910 PRODUCTION PRACTICUM I (1)**
STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

**THEA 2010/2013 INTRODUCTION TO THEATRE (3)**

**THEA 2017 HONORS INTRODUCTION TO THE THEATRE (3)**

**THEA 2020/2023 AESTHETICS OF ACTING (3)**
LEC. 3. Fine Arts Core. An orientation to acting aesthetics as a means of understanding and engaging the arte of theatre.

**THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3)**
LEC. 1, LST. 3. Theory and practice of specialized performance techniques for television and film. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

**THEA 2110 VOICE AND MOVEMENT FUNDAMENTALS (2)**
STU. 4. Coreq. THEA 2111. Exploration and study of fundamental issues in vocal production, articulation, and movement. Introduction to vocal anatomy, breathing/relaxation/alignment techniques, and integrated vocal and movement exercises applied in a variety of texts. Theatre majors who do not earn a grade of "C" or higher must repeat this course.
THEA 2111 VOICE AND MOVEMENT FUNDAMENTALS LAB (1) LAB. 2. Coreq. THEA 2110. Exploration and application of vocal and physical skills designed to enhance vocal production, physical flexibility and integrated execution of vocal and physical performance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2120 ACTING I (3) LEC. 2, LST. 2. Introduction to basic acting techniques, literature, and performance through improvisation, contemporary scene study and attendance at theatre performances. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2300 STAGE MANAGEMENT (3) LEC. 3. Examination of the theories and techniques of stage management in the producing organization, including management, organization, auditions, rehearsal, safety practices, and production procedures. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 3. A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2400 DESIGN AESTHETICS (3) LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2570 DANCE LAB 2 - BALLET (1) LAB. 4.5. Pr. THEA 1570. Intermediate studio training in ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3. Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2670 DANCE LAB 2 - JAZZ (1) LAB. 3. Pr. THEA 1670. Intermediate studio training in jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2700 TEXT ANALYSIS (3) LEC. 3. Script Analysis provides students with the tools to read and interpret scripts from a variety of perspectives with a focus upon implications for production. Students will analyze plays for character, plot, theme, action, given circumstances, and production requirements.

THEA 2810 THEATRE PRODUCTION I (3-6) STU. Departmental approval. Coreq. THEA 2820. Intensive study of theatre arts through participation in the Auburn University Summer Repertory Company, focusing mainly on technical work and design. Course may be repeated for a maximum of 12 credit hours.

THEA 2820 SUMMER REPERTORY THEATRE COMPANY I (3-6) STU. Departmental approval. Coreq. THEA 2810. Concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Course may be repeated for a maximum of 12 credit hours.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3. Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 2910 PRODUCTION PRACTICUM II (1) STU. 4. Pr. THEA 1910. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 2940 APPLIED THEATRE I: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3110 VOICE FOR THE ACTOR II (3) LEC. 2, LST. 2. Pr. THEA 2110. Continuing study of vocal production and articulation techniques in tests of increasing complexity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.
THEA 3120 ACTING II (3) LEC. 2, LST. 2. Pr. THEA 2120. Exploration of internal and external acting theory and techniques in modern and classical scene study. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3140 MUSIC THEATRE ACTING (3) LEC. 3. LAB. 3. Pr., Admission into the (THMU major) or Departmental approval. Exploration of acting techniques and performance through music theatre scene and song study, analysis, and history of music theatre repertoire culminating in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3150 BFA PERFORMANCE STUDIO I (4) LEC. 3, LST. 5. Pr., Admission into the THPR or THMU majors. Intensive study and practice integrating advanced contemporary scene study, audition technique, and the Fitzmaurice Voicework system. Students who do not earn a grade of "C" or better must re-audition for the BFA program and repeat the course.

THEA 3160 BFA PERFORMANCE STUDIO II (4) LEC. 3, LST. 5. Pr. THEA 3150. Intensive study and practice integrating Shakespeare and scene study of poetic texts with continuing work in Fitzmaurice Voicework system. Must earn a grade of "C" or higher or re-audition for the BFA program and repeat THEA 3150 and THEA 3160.

THEA 3190 SINGING PRACTICUM (1) STU. 1. Group instruction in musical theatre singing. Students will be introduced to the primary principles of posture, breathing, resonance, vocal health, direction, interpretation, and repertoire selection. Theatre majors who do not earn a grade of "C" or higher must repeat. Course may be repeated for a maximum of 2 credit hours.

THEA 3210 THE BUSINESS OF THEATRE (3) LEC. 3. Pr. THEA 1010 and THEA 1110 and THEA 2300 and THEA 2310 and THEA 1910 and THEA 2910. Discussion, research, and implementation of the practices necessary to be successful as a freelance artist in the current performing arts field.

THEA 3220 ARTS MANAGEMENT (3) LEC. 3. Pr. THEA 2300. THEA 2300 with a minimum grade of "C". Exploration of arts organizational structures, budgeting for non-profit and for-profit arts organizations, basic business and marketing practices, historical principles and practices of arts and cultural organizations.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2. Pr. THEA 2310. Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3330 SCENE PAINTING (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3350 TECHNICAL DIRECTION/PRODUCTION MANAGEMENT (3) LEC. 3. Pr. THEA 2310 and THEA 3320 or Departmental approval. Exploration of the roles and responsibilities of the technical director and the production manager in the coordination and execution of technical elements for theatre productions. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2, LAB. 2. Pr. THEA 2400 or Departmental approval. Traditional drawing and rendering techniques and media that help the designer to communicate scenic, costume, and lighting designs. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3450 DRAFTING FOR THE THEATRE I (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. Equipment and techniques used in sound design, as both a design and a technical medium. Theatre majors who do not earn a grade of "C" or higher must repeat this course.
THEA 3570 DANCE LAB 3 - BALLET (1) LAB. 4.5. Pr. THEA 2570. Intermediate advanced studio in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2. Pr. THEA 2610 or Departmental approval. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3670 DANCE LAB 3 - JAZZ (1) LAB. 3. Pr. THEA 2670. Intermediate advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3710 THEATRE HISTORY, THEORY AND CRITICISM II - BODY (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on the human body as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include such topics as historical and theoretical perceptions of the social status of the actor, the actor's body as a medium of representation, and theatrical representations of gender and ethnicity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3720 THEATRE HISTORY, THEORY AND CRITICISM III - SPACE (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on theatrical space as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include ritual landscapes as they pertain to the origin of drama, the development of the western playhouse, the avant-garde reconceptualization of theatre space, and the development of such spatially oriented American institutions as Broadway and regional theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3730 MUSIC THEATRE HISTORY (3) LEC. 3. Exploration of music theatre literature, performances, historical, analytical and critical trends from the early 20th century to the present day. Areas of exploration include music theatre as a work of art with unique conversations about aesthetics and form, as an entertainment media shaped by its historical and cultural context, and as a viable performance form for the 21st century. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3740 COSTUME HISTORY (3) LEC. 3. History of Western costume and its uses in the theatre from ancient times to the present. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3800 THEATRE EVENTS MANAGEMENT (3) SEM. 3. Pr. THEA 2300. THEA 2300 with a grade of "C" or higher. This course is an introduction to the researching, planning, coordinating, marketing, facilitation/management and assessment of special events, specifically as they relate to the performing arts. Through practical application, each student will gain experience in the basic entrepreneurial skills necessary to plan a public arts event.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3. Pr. THEA 2840. Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3. Pr. THEA 2840. Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3860 MOVEMENT FOR THE ACTOR (3) STU. 4. Introduction to the basic concepts of movement as it relates to the actor. Integrative ways of connecting the body to text and space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3910 PRODUCTION PRACTICUM III (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 3940 APPLIED THEATRE II: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.
THEA 3950 DIRECTING SEMINAR (3) LEC. 2, LST. 2. Pr. THEA 2120. Study of fundamental skills and collaborative processes needed to direct live theatre, including blocking, script analysis, research methods, approaches to casting, and rehearsal techniques. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3960 DRAMATURGY SEMINAR (3) LEC. 3. Study of fundamental skills and collaborative processes needed to dramaturg a piece of live theatre including both production and new play dramaturgy, critical analysis, research, presentations, and performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4150 BFA PERFORMANCE STUDIO III (4) LEC. 3, LST. 5. Pr. THEA 3160. Professional preparation with particular focus on individual rehearsal and performance techniques covering a broad spectrum of periods and styles geared toward graduate acting program placement and professional employment. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, and THEA 4150.

THEA 4160 BFA PERFORMANCE STUDIO IV (4) LEC. 3, LST. 5. Pr. THEA 4150. Special problems and topics in performance. Intensive work integrating and applying acting, voice, and movement techniques in an ensemble capstone recital of work in an adjudicated public performance. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 4150 and THEA 4160.

THEA 4420 SCENE DESIGN II (3) LEC. 2, LST. 2. Pr. THEA 3410 or Departmental approval. Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4450 DRAFTING FOR THE THEATRE II (3) LEC. 2, LST. 2. Pr. THEA 3450. Comprehensive study of computer and digital techniques used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4510 LIGHTING DESIGN II (3) LEC. 3. LAB. 1. Pr. THEA 2400 and THEA 3510. Lighting Design II provides students with in-depth study of advanced stage lighting techniques, including integration of computer graphics and projections with conventional lighting instruments.

THEA 4570 DANCE LAB 4 - BALLET (1) LAB. 4.5. Pr. THEA 3570. Advanced studio training in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3) LEC. 1, LST. 3. Pr. THEA 2650 or Departmental approval. Comprehensive study of specialized makeup, including film and television makeup, mask making, prosthesis, facial hair design, and wig making. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4670 DANCE LAB 4 - JAZZ (1) LAB. 3. Pr. THEA 3670. Advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4690 ARTISTS AND COMMUNITIES (3) SEM. 3. An in-depth analysis and exploration of the role and responsibility of the artist and art within communities. We will explore this idea from multiple perspectives: marketing, general management, artistic direction, performance, urban planning/creative placemaking, fundraising, and nonprofit management.

THEA 4750 PLAYWRITING (3) LEC. 3. Discussion of the principles of play construction, playwriting exercises, and completion of a one-act play. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4770 CAPSTONE SENIOR DANCE LAB (1) LAB. 4. Pr. THEA 1530 and THEA 2570 and THEA 2670. Students must be in good standing in BFA Performance Program. Culminating exploration of, and enrichment in musical theatre dance technique ranging from Ballet to Jazz to Hip-hop. Course culminates in a public capstone dance outcome performance.

THEA 4810 THEATRE PRODUCTION II (3-6) STU. Concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Course may be repeated for a maximum of 12 credit hours.

THEA 4820 SUMMER REPERTORY THEATRE COMPANY II (3-6) STU. Intensive and concentrated study of production skills and techniques and studio/laboratory experiences. Course may be repeated for a maximum of 12 credit hours.

THEA 4840 ADVANCED DANCE TECHNIQUES (3) LEC. 1, LST. 3. Pr. THEA 3850. Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 12 credit hours.
THEA 4910 PRODUCTION PRACTICUM IV (1-4) STU. Pr. THEA 3910. Or Admission into the THDT or THMN program and two semesters of THEA 3910 or departmental approval. Leadership experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8) INT. Pr., Departmental approval. Internship with professional or community theatre in the student's field of specialization. Each 10-hour work week equals one hour of credit. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4940 THEATRE SPECIAL PROJECTS (3) AAB/STU. 4. Pr., Departmental approval. Selected projects related to realizing a theatrical production in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 9 credit hours.

THEA 4950 THEATRE LITERATURE AND THEORY SEMINAR (3) LEC. 3. Thorough examination of dramatic literature and theory from a narrow perspective (such as genre, style, or era.) Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Subject areas to be determined between student and theatre instructor. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4970 SPECIAL TOPICS (3) LEC. 3. Special Topics in Theatre or Dance. Course may be repeated for a maximum of 9 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3. Capstone course to aid senior theatre majors in their transition to the professional world and/or graduate studies. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Final projects of varying natures in theatre Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

**BA Curriculum in Theatre**

Theatre majors must earn a grade of C or higher in theatre courses, or they must repeat those courses for credit toward their degree.

**Freshman**

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**Sophomore**

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THEA 2120 Acting I 3

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<td>THEA 3950 Directing Seminar or 3960 Dramaturgy Seminar</td>
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<td>THEA 4950 Theatre Literature and Theory Seminar</td>
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Total Hours: 120

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1. THEA 1110 and THEA 4980 fulfill SLO 7.
2. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not chosen as the sequence.
3. This must be a theatre design or technology course.
4. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
5. Students must meet with their advisers to determine approved theatre and other electives, unless approved courses are specified in this curriculum model.
6. This course must be in studio, lab, or practicum course.
7. To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

**BFA Curriculum in Theatre - Design/Technology**

Theatre majors must earn a C or higher in theatre courses, or they must repeat those courses for credit toward their degrees.

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**Freshman**

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1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature course in the discipline not selected as the sequence.
2. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
3. THEA 1110 and THEA 4980 fulfill SLO 7.
4. Students must meet with their advisers to determine appropriate theatre electives and other electives.
5. To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.
Theatre Design Emphasis can be in one of the following three. Students should complete all courses for their emphasis.

**Costume:** THEA 2650, THEA 3740, THEA 3450, Theatre Electives\(^4\), THEA 3640, THEA 4650, THEA 3610, and THEA 4940.

**Lighting:** THEA 3450, Theatre Electives\(^4\), THEA 3320, THEA 3510, Theatre Electives\(^4\), THEA 4940, THEA 3520, and THEA 4510.

**Scenic:** THEA 3450, Theatre Electives\(^4\), THEA 3320, THEA 3510, Theatre Electives\(^4\), THEA 4940, THEA 3420, and THEA 4420.

### BFA Curriculum in Theatre - Management

Theatre majors must earn a C or higher in theatre courses, or they must repeat those courses for credit toward their degrees.

#### Freshman

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<td>THEA 1110 Introduction to Theatre for Majors II(^2)</td>
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#### Sophomore

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<td>THEA 2300 Stage Management</td>
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<td>THEA 3210 The Business of Theatre or 4690 Artists and Communities</td>
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<td>THEA 3910 Production Practicum III (SM Assignment)</td>
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<td>THEA 3800 Theatre Events Management or 3350 Technical Direction/Production Management</td>
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<tbody>
<tr>
<td>THEA 4980 Senior Capstone Project</td>
<td>2, 4</td>
<td>THEA 4940 Theatre Special Projects (Senior Project)</td>
<td>3</td>
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<tr>
<td>THEA 4920 Professional Internship (Management Assignment)</td>
<td>3</td>
<td>Theatre Elective</td>
<td>3</td>
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<td>Theatre Elective</td>
<td>3</td>
<td>2 Movement Elective</td>
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<tr>
<td>THEA 4910 Production Practicum IV (Management Assignment)</td>
<td>1</td>
<td>Elective</td>
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<td>Elective</td>
<td>3</td>
<td>3 UNIV 4AA0 University Graduation</td>
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</table>

Total Hours: 120

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1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not chosen as the sequence.

2. THEA 1110 and THEA 4980 fulfill SLO 7.

3. Students must meet with their advisers to identify approved theatre electives and other electives.

4. To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

---

**BFA Curriculum in Theatre - Music Theatre**

The BFA in Music Theatre is a four-year degree track that offers practical, pre-professional skills in acting, dancing, and singing for the student whose ambition is to be a professional actor and musical theatre artist. In the first two years of the program, students study voice in private sessions, music theory and skills, piano, speech, music theatre acting, ballet, jazz and tap. Both the Performance and Music Theatre degree tracks combine a liberal arts education with applied skills in performance that will serve the undergraduate actor seeking graduate school placement or professional employment.

All members of our acting faculty are professional actors with years of experience in the industry as well as terminal degrees in their field.

Theatre majors must earn a grade of C or higher in theatre courses, or they must repeat those courses for credit toward their degrees.

---

**Freshman**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<td>Core Math</td>
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<td>THEA 1010 Introduction to Theatre for Majors I</td>
<td></td>
<td>3 MUAP 1630 Performance II</td>
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<td>MUAP 1530 Performance I</td>
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<td>THEA 1110 Introduction to Theatre for Majors II</td>
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<tr>
<td>MUSI 2210 Music Fundamentals for Music Theatre</td>
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<td>THEA 2111 Voice and Movement Fundamentals Lab</td>
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<td>MUSI 2030 Piano Skills for Music Theatre</td>
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<td>THEA 2110 Voice and Movement Fundamentals</td>
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<td></td>
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<td>ENGL 1120 English Composition II</td>
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14 16

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**Sophomore**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<tr>
<td>Core Science I</td>
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<td>Core Literature</td>
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<td>Core Fine Arts (exclude THEA)</td>
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<tr>
<td>THEA 2310 Theatre Technology I</td>
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<td>THEA 2570 Dance Lab 2 - Ballet</td>
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<table>
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<td>MUAP 2530</td>
<td>Performance III</td>
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<td>THEA 3140 Music Theatre Acting</td>
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<td>THEA 1570</td>
<td>Dance Lab 1 - Ballet</td>
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<td>THEA 2910 Production Practicum II</td>
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<td>THEA 2610</td>
<td>Costume Construction</td>
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<td>MUAP 2630 Performance IV</td>
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<td>THEA 1910</td>
<td>Production Practicum I</td>
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<td>THEA 2700 Text Analysis</td>
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<td>Core Social Science</td>
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<tr>
<td>MUAP 3530</td>
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<td>THEA 2670 Dance Lab 2 - Jazz</td>
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<td>MUAP 3630 Performance VI</td>
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<td>THEA 3730 Music Theatre History</td>
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<td>THEA 3710</td>
<td>Theatre History, Theory and Criticism II - Body</td>
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<td>THEA 4160 BFA Performance Studio IV</td>
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<td>THEA 4980</td>
<td>Senior Capstone Project¹, ⁴</td>
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<td>THEA 4770 Capstone Senior Dance Lab</td>
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<td>THEA 4150</td>
<td>BFA Performance Studio III</td>
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<td>Electives⁵</td>
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<td>Directing Seminar</td>
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<td>Core Social Science or Core History to complete sequence</td>
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¹ THEA 1110 and THEA 4980 fulfill SLO 7.
² Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not chosen as the sequence.
³ If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
⁴ To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.
⁵ Students must meet with their advisers to identify approved theatre, music, and other electives.

**BFA Curriculum in Theatre - Performance**

Theatre majors must earn a grade of C or higher in theatre courses or they must repeat those courses for credit toward their degrees.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100</td>
<td>English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>THEA 1110 Introduction to Theatre for Majors II</td>
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<td>THEA 2840 Beginning Dance Techniques</td>
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<td>THEA 2310 Theatre Technology I</td>
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<td>THEA 2120 Acting I</td>
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<td>THEA 2110 Voice and Movement Fundamentals</td>
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<td>Performance Elective</td>
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<td>Required Dance Elective 3</td>
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**Sophomore**

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<tr>
<td>Core Science I</td>
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<td>Core Literature</td>
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<td>THEA 2910 Production Practicum II</td>
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<td>3</td>
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<td>THEA 2700 Text Analysis</td>
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<td>Required Dance Elective</td>
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<td>THEA 2610 Costume Construction</td>
<td>3</td>
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<td>Performance Elective</td>
<td>3</td>
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<td>Required Dance Elective 3</td>
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<td>Performance Elective</td>
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**Junior**

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<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
<td>THEA 3150 BFA Performance Studio I</td>
<td>4</td>
<td>3</td>
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<td>THEA 3840 Intermediate Dance Techniques I or 3860 Movement for the Actor</td>
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<td>THEA 3710 Theatre History, Theory and Criticism II - Body</td>
<td>3</td>
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<td>THEA 3190 Singing Practicum</td>
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<td>THEA 3910 Production Practicum III</td>
<td>3</td>
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<td>THEA 2650 Stage Makeup</td>
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<td>THEA ELEC (Selected from any THEA course)</td>
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**Senior**

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<thead>
<tr>
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<tbody>
<tr>
<td>Total</td>
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<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
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<tbody>
<tr>
<td>Electives</td>
<td>3</td>
<td>3</td>
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<tr>
<td>THEA 3950 Directing Seminar</td>
<td>3</td>
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<tr>
<td>THEA 4150 BFA Performance Studio III</td>
<td>4</td>
<td>3</td>
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<td>THEA 4980 Senior Capstone Project 1, 6</td>
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<td>Core Humanities</td>
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**Total Hours: 120**

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1. THEA 1110 or THEA 4980 fulfill SLO 7.
2. Students are required complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or one Core Literature in the discipline not selected as the sequence.
3. Dance electives include the following: THEA 1570, THEA 1670, THEA 1530. Acting may be substituted for the dance elective; students then should select either THEA 2940 or THEA 3940.
4. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
5. Students must meet with their advisers to identify approved theatre and other elective courses.
To enroll in Senior Capstone Project, students must be senior theatre majors planning to graduate before the following fall semester.

Performance Electives are selected from THEA 2080, THEA 3110, THEA 3120, THEA 3140, or THEA 3860.

### Dance Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>THEA 2310</td>
<td>Theatre Technology I</td>
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<td>OR THEA 2610</td>
<td>or Approved Theatre Elective*</td>
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<tr>
<td>THEA 2840</td>
<td>Beginning Dance Techniques</td>
<td>3</td>
</tr>
<tr>
<td>OR THEA 1570</td>
<td>or THEA 1670 (2) and THEA 1670 (1)</td>
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<tr>
<td>THEA 3840</td>
<td>Intermediate Dance Techniques I</td>
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<td>THEA 3850</td>
<td>Intermediate Dance Techniques II</td>
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<tr>
<td>THEA 4840</td>
<td>Advanced Dance Techniques</td>
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Total Hours 15

Minimum 9 hours at 3000-level or above

* See theatre advisor for list of approved electives

### Theatre Minor

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<tr>
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<td>THEA 2700</td>
<td>Text Analysis</td>
<td>3</td>
</tr>
<tr>
<td>OR THEA 2400</td>
<td>or Design Aesthetics</td>
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</tr>
<tr>
<td>OR THEA 2120</td>
<td>or Acting I</td>
<td></td>
</tr>
<tr>
<td>OR THEA 2300</td>
<td>or Stage Management</td>
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</tbody>
</table>

THEA Electives: 9 hours at the 3000 level or above.

Total Hours 15

### School of Communication & Journalism

Majors from the School of Communication and Journalism are employed as news reporters, anchors, editors, producers, public relations specialists, not-for-profit managers, magazine writers, legislative aides, casting directors, HR managers, event coordinators, account executives, research associates, project managers, public affairs directors, sports reporters, and website designers. The school offers undergraduate degree programs in Communication, Journalism, Public Relations, and Media Studies. These programs offer students opportunities to create and understand the transmission and reception of messages within specific contexts.

Students must comply with these requirements to be admitted to any of the four majors in the School of Communication & Journalism:

**Communication (COMM)**

Students must apply for admission to the COMM major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a core Social Science course (may not use a History course); 2) Complete ENGL 1120, CMJN 2100 or 2103, and a Core Social Science course with a C or better; 3) Successfully complete COMM 1000 or COMM 1003 with a B or better; 4) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits); and 5) Write a 300-word essay explaining how the applicant expects to contribute to the field of Communication and his/her career goals. Students who transfer to Auburn University must apply to the COMM major and complete one semester at Auburn before applying for admission.

**Journalism (JRNL)**

Students must apply for admission to the JRNL major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course; 2) Complete ENGL 1120, CMJN 2100 or CMJN 2103, and a Core Social Science course with a C or better; 3) Successfully pass JRNL 1AA0 or JRNL 1100 with a "B" or better; 4) Complete JRNL 2210 with a "C" or better; 5) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits); and 6) Write a 300-word essay explaining how the applicant expects to contribute to the field of Journalism and his/her career goals. Students who transfer to Auburn University
must apply to the JRNL major, complete one semester at Auburn University before applying for admission and are required to take a minimum of 24 hours in the AU JRNL program.

**Media Studies (MDIA or MDIV)**

Students must apply for admission to the MDIA major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course; 2) Complete ENGL 1120, CMJN 2100 or CMJN 2103, and a Core Social Science course with a C or better; 3) Successfully complete COMM 1000 or COMM 1003 with a B or better; 4) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits); and 5) Write a 300-word essay explaining how the applicant expects to contribute to the field of Media Studies and his/her career goals. Students who transfer to Auburn University must apply to the MDIA major, complete one semester at Auburn before applying for admission and are required to take a minimum of 24 hours in the AU MDIA program.

**Public Relations (PRCM)**

Students must apply for admission to the PRCM major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course; 2) Complete ENGL 1120, CMJN 2100 or CMJN 2103, and a Core Social Science course with a C or better; 3) Successfully pass JRNL 1AA0 or JRNL 1100 with a “B” or better; 4) Complete PRCM 2400 with a “C” or better; 5) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits; and 6) Write a 300-word essay explaining how the applicant expects to contribute to the field of Public Relations and his/her career goals. Students who transfer to Auburn University must apply to the PRCM major, complete one semester at Auburn University before applying for admission and are required to take a minimum of 24 hours in the AU PRCM program.

**Major**

- Communication (p. 1034)
- Journalism (p. 1035)
- Public Relations (p. 1039)
- Media Studies (p. 1037)
- Media Studies — Visual Media Option (p. 1038)

**Minor**

- Communication (p. 1034)
- Intercultural Communication (p. 1040)
- Journalism (p. 1041)
- Sports Communication (p. 1041)

**Communication and Journalism Courses**

**CMJN 2100/2103 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3)** LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

**CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3)** PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

**CMJN 3110 SPORTS MEDIA RELATIONS (3)** LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count either sections CMJN 3110 or MDIA 4350.

**CMJN 3210 NEWS AND SPORTS ANNOUNCING (3)** LEC. 3. Pr. CMJN 2100 or CMJN 2103 or Departmental approval. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing.

**CMJN 3350/3353 VISUAL COMMUNICATION (3)** LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.
**CMJN 3410/3413 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3)** LEC. 2, LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions.

**CMJN 3650/3653 RHETORIC OF SPORTS (3)** LEC. 3. Examination of sports in the public sphere, using rhetorical theories to understand how sports contribute to social issues such as identity, community, ethnicity, gender, and politics. May count either CMJN 3650 or COMM 3650.

**CMJN 4000 MASS MEDIA LAW AND REGULATION (3)** LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

**CMJN 4340/4343 MASS COMMUNICATION AND FAMILY (3)** LEC. 3. Examination of the relationship between the American family and the mass communication industry.

**CMJN 4370 MASS COMMUNICATION AND RELIGION (3)** LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

**CMJN 4400/4403 GENDER COMMUNICATION (3)** LEC. 3. Examination of the ways in which gender is created, maintained, and/or changed through communication.

**CMJN 4410 ADVANCED SPORTS VIDEO PRODUCTION (3)** LEC. 2, LST. 1. Pr. CMJN 3410. This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process.

**CMJN 4430/4433 SPORTS, MEDIA AND SOCIETY (3)** LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

**CMJN 4970/4973 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3)** LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

**CMJN 5100 CMJN ABROAD (3)** AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

**CMJN 6100 CMJN ABROAD (3)** AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

**Communication Courses**

**COMM 1000/1003 PUBLIC SPEAKING (3)** LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

**COMM 1007 HONORS PUBLIC SPEAKING (3)** LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate (forensics).

**COMM 2010/2013 COMMUNICATION IN SOCIETY (3)** LEC. 3. Theory underlying the construction of rhetorical messages as well as critical perspectives for the analysis of public discourse. May count either COMM 2010 or COMM 2013.

**COMM 2400/2403 INTRODUCTION TO WORKPLACE COMMUNICATION (3)** LEC. 3. Communication in modern organizations, emphasizing practice in areas such as interviewing, managing meeting, and conducting professional presentations. May count either COMM 2400 or COMM 2403.

**COMM 2410/2413 SMALL GROUP COMMUNICATION (3)** LEC. 3. Theory and practice of competent communication in task-oriented small group settings such as committees. Topics include roles, leadership, decision making, problem solving, and conflict management. May count either COMM 2410 or COMM 2413.

**COMM 3100/3103 ADVANCED PUBLIC SPEAKING (3)** LEC. 3. Pr. COMM 1000 or COMM 1003. Refining the knowledge and skills necessary for communicating clearly and effectively in oral presentations. May count either COMM 3100 or COMM 3103.
COMM 3110/3113 PERSUASION (3) LEC. 3. Understanding and analyzing persuasive messages. Survey of theoretical approaches to attitude formation and change. Developing skills as a critical evaluator of persuasive messages. May count either COMM 3110 or COMM 3113.

COMM 3300/3303 COMMUNICATION AND CONFLICT (3) LEC. 3. Enhance awareness of and develop skills in managing conflict processes in interpersonal relationships. May count either COMM 3300 or COMM 3303.

COMM 3400/3403 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. This course examines theory, approaches, and processes associated with organizational communication. May count either COMM 3400 or COMM 3403.

COMM 3450/3453 INTERCULTURAL COMMUNICATION (3) LEC. 3. Different types of problems encountered when communicating with different cultures. May count either COMM 3450 or COMM 3453.

COMM 3500/3503 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Theories examining the nature of human communication. May count either COMM 3500 or COMM 3503.

COMM 3510/3513 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Introduction to and application of quantitative and qualitative methods of communication research. May count either COMM 3510 or COMM 3513.

COMM 3600/3603 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Rhetorical theory from its classical roots to contemporary thinkers. Relates rhetorical theory and analysis to understanding persuasive discourse in our society. May count either COMM 3600 or COMM 3603.

COMM 3610/3613 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Exploration of how to perform a critical analysis of various rhetorical artifacts. May count either COMM 3610 or COMM 3613.

COMM 3700/3703 ARGUMENTATION (3) LEC. 3. Examination of the critical tools necessary to evaluate arguments in current public discourse. May count either COMM 3700 or COMM 3703.

COMM 3800/3803 FAMILY COMMUNICATION (3) LEC. 3. Examines communication theory and research as applied to the family context (broadly defined). May count either COMM 3800 or COMM 3803.

COMM 3970/3973 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100/4103 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examination of persuasive strategies used in social movements to attract members, solidify support, and effect social change. May count either COMM 4100 or COMM 4103.

COMM 4410/4413 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Examination of theory and research in leadership as a communication variable and behavioral practice in small group and organizational settings. May count either COMM 4410 or COMM 4413.

COMM 4420/4423 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. This course examines creativity research and its practical applications, particularly in collaborative settings. May count either COMM 4420 or COMM 4423.

COMM 4430/4433 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theoretical and practical issues involved in communication training and consulting.

COMM 4480/4483 HEALTH PROMOTION MESSAGE AND DESIGN (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theoretical, practical, and ethics of health message and design as related to health promotion and behavior change. May count either COMM 4480 or COMM 4483.
COMM 4500/4503 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700/4703 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Examination of communication processes in legal contexts. May count either COMM 4700 or COMM 4703.

COMM 4800/4803 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Relationship between communication and the formation of self-identity and maintenance of relationships. May count either COMM 4800 or COMM 4803.

COMM 4810/4813 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Theory of non-language based communication and the impact of these messages on the overall communication process. May count either COMM 4810 or COMM 4813.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603). and Admission to Internship Program. Declared major in COMM. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4970/4973 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Topics in communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3600 or COMM 3603 and COMM 3500 or COMM 3503. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. and CMJN 2100 or CMJN 2103. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430/5433 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of gender, work, and communication. May count either COMM 5430 or COMM 5433.

COMM 5470/5473 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study and practice of health communication. May count either COMM 5470 or COMM 5473.

COMM 5600/5603 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examines communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity. May count either COMM 5600 or COMM 5603.
COMM 5700/5703 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613) and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examines the functions of language and social interaction as they reflect and shape our identity in various contexts. May count COMM 5700 or 5703 or 6700.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.
COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7650 THE MASS MEDIA AND AMERICAN POLITICS (3) LEC. 3. Examination of the role of the mass communication system in the American political system.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

**Journalism Courses**

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and spelling for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on spelling, grammar, Associated Press Style and word usage to mirror content covered in the in-person course. This course is not repeatable.

JRNL 2210/2213 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0. With a minimum grade of "B" in JRNL 1100. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. With a minimum grade of "B" in JRNL 1100. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.
JRNL 2320 ADVISING STUDENT PUBLICATIONS (3) LEC. 3. Primarily for non-journalism and non-communication majors. Role and responsibilities of the publication adviser in high school and college.

JRNL 3010 DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1A00. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 1100 and JRNL 1A00 and JRNL 3010 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3103 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) DSL. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1A00 and JRNL 2210 and JRNL 2310 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIV or MDIA. Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1A00 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1A00 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1A00 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1A00 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1A00 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1A00 and JRNL 2210 and JRNL 2310 and (JRNL 3220 and JRNL 3530) or (JRNL 3220 and JRNL 3530) or (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. JRNL 1100 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. or Departmental approval. Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4417 HONORS JOURNALISM HISTORY (3) LEC. 3. Pr. Honors College. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues. Credit will not be given for both JRNL 4410 and JRNL 4417.
JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and JRNL 3220 and (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4480 ADVANCED PUBLICATION DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and CMJN 2100 or CMJN 2103 and JRNL 2210 and JRNL 3470. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Desktop publishing to produce print publications, including brochures and newsletters, and with exposure to web page, advertising, and magazine design.


JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100. Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3510). With a minimum grade of "B" in JRNL 1100 and one specialized reporting course and one journalism production course and Declared major in JRNL. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 3. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. with a minimum grade of B in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

JRNL 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

Media Studies Courses

MDIA 2350/2353 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353 or RTVF 2350/RTVF 2353.

MDIA 2420 INTRODUCTION TO FILMMAKING (3) STU. 3. Developing technical and conceptual skills to communicate through digital film. May count either MDIA 2420 or RTVF 2420.

MDIA 2700 INTRODUCTION TO VISUAL MEDIA (3) STU. 3. Introduction to basic visual media production with emphasis on visual principles, terminology and compositional structure for various media types. May count either MDIA 2700 or RTVF 2700.

MDIA 2800 MULTIMEDIA PRODUCTION (3) LEC. 3. Introduction to basic multimedia production, with emphasis on radio and web-based audio/visual production. May count either MDIA 2800 or MDIA 2420 and MDIA 2800 or RTVF 2800.

MDIA 3100 INTERMEDIATE FILMMAKING (3) STU. 3. Pr. MDIA 2420 and MDIA 2700. Further develops conceptual and technical filmmaking skills. May count either MDIA 3100 or RTVF 3100.

MDIA 3210 Soundtracks, Music and Mass Media (3) LEC. 3. Historical, artistic and economic contexts of music and the mass media. May count either MDIA 3210 or RTVF 3210.

MDIA 3300/3303 FOUNDATION OF MASS COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Historical and theoretical bases of mass communication in the U. S., emphasizing social, cultural, regulatory and economic aspects. May count either MDIA 3300/MDIA 3303 or RTVF 3300/RTVF 3303.

MDIA 3350 WRITING FOR TELEVISION AND FILM (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. The study, practice, and development of writing skills and techniques for radio, television, and film, including commercials, features, PSAs, and dramatic scripts. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 3350 or MDIA 3380 and MDIA 3350 or RTVF 3350.
MDIA 3580 Reproducing Popular Culture (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or RTVF 3580.

MDIA 3820 Sequence Design (3) STU. 3. Pr. (MDIA 2420 or RTVF 2420 or RTVF 2700 or RTVF 2703) and MDIA 2700. Conceptual understanding, development and use of images and text for time based media. May count either MDIA 3820 or RTVF 3820.

MDIA 3970 Special Topics (3) AAB. 3. Special topics concentration on production, distribution, and exhibition of mass communication. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 History of American Broadcasting (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or CMJN 2100 or CMJN 2103. The social, economic and technological evolution of radio and television in the United States. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4200 or RTVF 4200.

MDIA 4210/4213 Popular Culture and Mass Media (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4210 or RTVF 4210.

MDIA 4220 Women and Mass Media (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of women and sociocultural definitions of women. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4220 or RTVF 4220.

MDIA 4260 Media and Reality (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103). Analysis of the representation of “reality” in the mass media. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4260 or RTVF 4260.

MDIA 4380 Diversity Issues and the Mass Media (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of minorities and socio-cultural definitions of minorities. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4280 or RTVF 4280.

MDIA 4390/4393 Film Authors (3) LEC. 2. LAB. 1. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4390 or RTVF 4390.

MDIA 4580 Fame, Celebrity, and Media Culture (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and CMJN 2100 or CMJN 2103. Examination of celebrity and fame as distinguishing cultural phenomena. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4580 or RTVF 4580.
MDIA 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or RTVF 3100 or RTVF 3103 or RTVF 3107. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4600 or RTVF 4600.

MDIA 4800 ADVANCED MULTIMEDIA PRODUCTION (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or MDIA 2800 or RTVF 3300 or RTVF 3303 or RTVF 2800 or RTVF 2803. Design and production of advanced multimedia projects. Departmental approval. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4800 or RTVF 4800.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. CMJN 2100 or CMJN 2103 and MDIA 3300 or MDIA 3303. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

MDIA 4940 VISUAL MEDIA PROJECTS (3) STU. 3. Pr. MDIA 3100 or MDIA 3820 or RTVF 3100 or RTVF 3103 or RTVF 3107 or RTVF 3820 or RTVF 3823. Capstone course in which students work as a team on a visual media project under the direction of the instructor and in collaboration with a resident scholar or artist. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4940 or RTVF 4940.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined RTVF topics not already covered in the current RTVF curriculum. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

Public Relations Commu Courses

PRCM 2400/2403 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector. May count either PRCM 2400 /PRCM 2043 or PRCM 3040/PRCM 3043.

PRCM 2500/2503 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself. May count either PRCM 2500/PRCM 2503 OR PRCM 3050/PRCM 3053.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media. May count either PRCM 3000 or PRCM 4080.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260/3263 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280/3283 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.
PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting. May count either PRCM 4400 or PRCM 4510.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043) and PRCM 3000 and PRCM 4400. JRNL 1100 with a minimum grade of "B" in JRNL 1100. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies. May count either PRCM 4500 or PRCM 4090.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. CMJN 2100 or CMJN 2103 and PRCM 2400 or PRCM 2403. Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum.

Communication and Journalism Courses

CMJN 2100/2103 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count either sections CMJN 3110 or MDIA 4350.

CMJN 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103 or Departmental approval. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing.

CMJN 3350/3353 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3410/3413 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions.

CMJN 3650/3653 RHETORIC OF SPORTS (3) LEC. 3. Examination of sports in the public sphere, using rhetorical theories to understand how sports contribute to social issues such as identity, community, ethnicity, gender, and politics. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.
CMJN 4340/4343 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

CMJN 4400/4403 GENDER COMMUNICATION (3) LEC. 3. Examination of the ways in which gender is created, maintained, and/or changed through communication.

CMJN 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. CMJN 3410. This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process.

CMJN 4430/4433 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970/4973 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Communication Courses

COMM 1000/1003 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate(forescnsics).

COMM 2010/2013 COMMUNICATION IN SOCIETY (3) LEC. 3. Theory underlying the construction of rhetorical messages as well as critical perspectives for the analysis of public discourse. May count either COMM 2010 or COMM 2013.

COMM 2400/2403 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Communication in modern organizations, emphasizing practice in areas such as interviewing, managing meeting, and conducting professional presentations. May count either COMM 2400 or COMM 2403.

COMM 2410/2413 SMALL GROUP COMMUNICATION (3) LEC. 3. Theory and practice of competent communication in task-oriented small group settings such as committees. Topics include roles, leadership, decision making, problem solving, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100/3103 ADVANCED PUBLIC SPEAKING (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Refining the knowledge and skills necessary for communicating clearly and effectively in oral presentations. May count either COMM 3100 or COMM 3103.

COMM 3110/3113 PERSUASION (3) LEC. 3. Understanding and analyzing persuasive messages. Survey of theoretical approaches to attitude formation and change. Developing skills as a critical evaluator of persuasive messages. May count either COMM 3110 or COMM 3113.

COMM 3300/3303 COMMUNICATION AND CONFLICT (3) LEC. 3. Enhance awareness of and develop skills in managing conflict processes in interpersonal relationships. May count either COMM 3300 or COMM 3303.

COMM 3400/3403 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. This course examines theory, approaches, and processes associated with organizational communication. May count either COMM 3400 or COMM 3403.

COMM 3450/3453 INTERCULTURAL COMMUNICATION (3) LEC. 3. Different types of problems encountered when communicating with different cultures. May count either COMM 3450 or COMM 3453.
COMM 3500/3503 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Theories examining the nature of human communication. May count either COMM 3500 or COMM 3503.

COMM 3510/3513 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Introduction to and application of quantitative and qualitative methods of communication research. May count either COMM 3510 or COMM 3513.

COMM 3600/3603 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Rhetorical theory from its classical roots to contemporary thinkers. Relates rhetorical theory and analysis to understanding persuasive discourse in our society. May count either COMM 3600 or COMM 3603.

COMM 3610/3613 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Exploration of how to perform a critical analysis of various rhetorical artifacts. May count either COMM 3610 or COMM 3613.

COMM 3700/3703 ARGUMENTATION (3) LEC. 3. Examination of the critical tools necessary to evaluate arguments in current public discourse. May count either COMM 3700 or COMM 3703.

COMM 3800/3803 FAMILY COMMUNICATION (3) LEC. 3. Examines communication theory and research as applied to the family context (broadly defined). May count either COMM 3800 or COMM 3803.

COMM 3970/3973 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100/4103 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examination of persuasive strategies used in social movements to attract members, solidify support, and effect social change. May count either COMM 4100 or COMM 4103.

COMM 4410/4413 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Examination of theory and research in leadership as a communication variable and behavioral practice in small group and organizational settings. May count either COMM 4410 or COMM 4413.

COMM 4420/4423 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. This course examines creativity research and its practical applications, particularly in collaborative settings. May count either COMM 4420 or COMM 4423.

COMM 4430/4433 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theoretical and practical issues involved in communication training and consulting.

COMM 4480/4483 HEALTH PROMOTION MESSAGE AND DESIGN (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theoretical and practical issues involved in communication training and consulting.

COMM 4500/4503 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700/4703 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Examination of communication processes in legal contexts. May count either COMM 4700 or COMM 4703.
COMM 4800/4803 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Relationship between communication and the formation of self-identity and maintenance of relationships. May count either COMM 4800 or COMM 4803.

COMM 4810/4813 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3613) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Theory of non-language based communication and the impact of these messages on the overall communication process. May count either COMM 4810 or COMM 4813.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603). and Admission to Internship Program. Declared major in COMM. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4970/4973 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Topics in communication. Course may be repeated for a maximum of 6 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3600 or COMM 3603 and COMM 3500 or COMM 3503. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. and CMJN 2100 or CMJN 2103. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

COMM 5430/5433 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of gender, work, and communication. May count either COMM 5430 or COMM 5433.

COMM 5470/5473 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study and practice of health communication. May count either COMM 5470 or COMM 5473.

COMM 5600/5603 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examines communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity. May count either COMM 5600 or COMM 5603.

COMM 5700/5703 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examines the functions of language and social interaction as they reflect and shape our identity in various contexts. May count COMM 5700 or 5703 or 6700.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.
COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.

COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.
COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7650 THE MASS MEDIA AND AMERICAN POLITICS (3) LEC. 3. Examination of the role of the mass communication system in the American political system.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020, and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

Journalism Courses

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and spelling for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on spelling, grammar, Associated Press Style and word usage to mirror content covered in the in-person course. This course is not repeatable.

JRNL 2210/2213 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0. With a minimum grade of "B" in JRNL 1100. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. With a minimum grade of "B" in JRNL 1100. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 2320 ADVISING STUDENT PUBLICATIONS (3) LEC. 3. Primarily for non-journalism and non-communication majors. Role and responsibilities of the publication adviser in high school and college.

JRNL 3010 DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0. With a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.
JRNL 3020 DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 1100 and JRNL 1AA0 and JRNL 3010 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3103 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) DSL. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIV or MDIA. Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.

JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 or (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3220 and JRNL 3020) or (JRNL 3220 and JRNL 3530) or (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. JRNL 1100 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. or Departmental approval. Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4417 HONORS JOURNALISM HISTORY (3) LEC. 3. Pr. Honors College. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues. Credit will not be given for both JRNL 4410 and JRNL 4417.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and JRNL 3220 and (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.
JRNL 4480 ADVANCED PUBLICATION DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and CMJN 2100 or CMJN 2103 and JRNL 2210 and JRNL 3470. With a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Desktop publishing to produce print publications, including brochures and newsletters, and with exposure to web page, advertising, and magazine design.


JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). With a minimum grade of "B" in JRNL 1100. Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3510 or JRNL 3470 or JRNL 3510). With a minimum grade of "B" in JRNL 1100 and one specialized reporting course and one journalism production course and Declared major in JRNL. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Admission to internship program.

JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 3. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. With a minimum grade of B in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

JRNL 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

Media Studies Courses

MDIA 2350/2353 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353 or RTVF 2350/R RTVF 2353.

MDIA 2420 INTRODUCTION TO FILMMAKING (3) STU. 3. Developing technical and conceptual skills to communicate through digital film. May count either MDIA 2420 or RTVF 2420.

MDIA 2700 INTRODUCTION TO VISUAL MEDIA (3) STU. 3. Introduction to basic visual media production with emphasis on visual principles, terminology and compositional structure for various media types. May count either MDIA 2700 or RTVF 2700.

MDIA 2800 MULTIMEDIA PRODUCTION (3) LEC. 3. Introduction to basic multimedia production, with emphasis on radio and web-based audio/visual production. May count either MDIA 2800 or MDIA 2420 and MDIA 2800 or RTVF 2800.

MDIA 3100 INTERMEDIATE FILMMAKING (3) STU. 3. Pr. MDIA 2420 and MDIA 2700. Further develops conceptual and technical filmmaking skills. May count either MDIA 3100 or RTVF 3100.

MDIA 3210 SOUNDTRACKS, MUSIC AND MASS MEDIA (3) LEC. 3. Historical, artistic and economic contexts of music and the mass media. May count either MDIA 3210 or RTVF 3210.

MDIA 3300/3303 FOUNDATION OF MASS COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Historical and theoretical bases of mass communication in the U. S., emphasizing social, cultural, regulatory and economic aspects. May count either MDIA 3300/MDIA 3303 or RTVF 3300/R RTVF 3303.

MDIA 3350 WRITING FOR TELEVISION AND FILM (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. The study, practice, and development of writing skills and techniques for radio, television, and film, including commercials, features, PSAs, and dramatic scripts. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 3350 or MDIA 3380 and MDIA 3350 or RTVF 3350.

MDIA 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or RTVF 3580.

MDIA 3820 SEQUENCE DESIGN (3) STU. 3. Pr. (MDIA 2420 or RTVF 2420 or RTVF 2700 or RTVF 2703) and MDIA 2700. Conceptual understanding, development and use of images and text for time based media. May count either MDIA 3820 or RTVF 3820.
MDIA 3970 SPECIAL TOPICS (3) AAB. 3. Special topics concentration on production, distribution, and exhibition of mass communication. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 HISTORY OF AMERICAN BROADCASTING (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or CMJN 2100 or CMJN 2103. The social, economic and technological evolution of radio and television in the United States. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4200 or RTVF 4200.

MDIA 4210/4213 POPULAR CULTURE AND MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4210 or RTVF 4210.

MDIA 4220 WOMEN AND MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of women and sociocultural definitions of women. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4220 or RTVF 4220.

MDIA 4260 MEDIA AND REALITY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103). Analysis of the representation of “reality” in the mass media. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4260 or RTVF 4260.

MDIA 4280 DIVERSITY ISSUES AND THE MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of minorities and socio-cultural definitions of minorities. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4280 or RTVF 4280.

MDIA 4300 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Introduces critical, theoretical, and organizational concepts, strategies, processes, and frameworks for programming for mass media systems. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4320 BROADCAST MANAGEMENT (3) LEC. 3. Investigates principles and practices of managing broadcast stations and cable operations. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4320 or RTVF 4320.

MDIA 4360 HISTORY OF INTERNATIONAL CINEMA (3) LEC. 2. LAB. 2. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of International Cinema including national cinemas, film movements, directors, and style. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4360 or RTVF 4360.

MDIA 4380/4383 HISTORY OF AMERICAN FILM INDUSTRY (3) LEC. 2. LAB. 2. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of the film industry and its relationship to U.S. society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4380/4383 or RTVF 4380/4383.

MDIA 4390/4393 FILM AUTHORS (3) LEC. 2. LAB. 1. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4390 or RTVF 4390.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of media technology from 18th-21st centuries. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4420 or RTVF 4420.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of celebrity and fame as distinguishing cultural phenomena. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4580 or RTVF 4580.

MDIA 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or RTVF 3100 or RTVF 3103 or RTVF 3107. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4600 or RTVF 4600.
MDIA 4800 ADVANCED MULTIMEDIA PRODUCTION (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or MDIA 2800 or RTVF 3300 or RTVF 3303 or RTVF 2800 or RTVF 2803. Design and production of advanced multimedia projects. Departmental approval. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4800 or RTVF 4800.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. CMJN 2100 or CMJN 2103 and MDIA 3300 or MDIA 3303. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

MDIA 4940 VISUAL MEDIA PROJECTS (3) STU. 3. Pr. MDIA 3100 or MDIA 3820 or RTVF 3100 or RTVF 3103 or RTVF 3107 or RTVF 3820 or RTVF 3823. Capstone course in which students work as a team on a visual media project under the direction of the instructor and in collaboration with a resident scholar or artist. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4940 or RTVF 4940.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined RTVF topics not already covered in the current RTVF curriculum. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

Public Relations Commu Courses

PRCM 2400/2403 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector. May count either PRCM 2400 /PRCM 2043 or PRCM 3040/PRCM 3043.

PRCM 2500/2503 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself. May count either PRCM 2500/PRCM 2503 OR PRCM 3050/PRCM 3053.

PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media. May count either PRCM 3000 or PRCM 4080.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3250/3253 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFIT ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280/3283 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.

PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.
PRCM 4400 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting. May count either PRCM 4400 or PRCM 4510.

PRCM 4500 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043) and PRCM 3000 and PRCM 4400. JRNL 1100 with a minimum grade of "B" in JRNL 1100. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies. May count either PRCM 4500 or PRCM 4090.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. CMJN 2100 or CMJN 2103 and PRCM 2400 or PRCM 2403. Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503). with a minimum grade of "B" in JRNL 1100. Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503). with a minimum grade of "B" in JRNL 1100. Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum.

**Communication Minor**

| CMJN 2100/2103 | 3 |
| Select two of the following: | |
| COMM 3500/3503 | 6 |
| COMM 3600/3603 | 6 |
| MDIA 3300/3303 | 6 |

Additional nine hours of 3000-4000-level courses in one of the following areas: COMM, PRCM, or MDIA.

| Total Hours | 18 |

1 Minimum 9 hours at 3000-level or above

See advisor for approved listing of elective and area courses. Minor requires 9 hours of foundations coursework and 9 hours of emphasis in one of the following areas: COMM, PRCM, MDIA. Students must meet prerequisites for all courses.

**Curriculum in Communication**

Students must apply for admission to the COMM major. All applicants must have successfully completed 30 hours of degree-applicable course credits (including AP and proficiency credits); earn a B or better in COMM 1000, and a C or better in (CMJN 2100 or CMJN 2103), ENGL 1120 and a core Social Science course (may not use a History course); and earn a minimum 2.3 GPA in ENGL 1120 and the Core Social Science course. See the School Director or the Associate Director for Communication for further information.

Students who transfer to Auburn University's COMM major are required to take a minimum of 21 credit hours in the AU Program.

**Freshman**

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<th>Hours</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>Foreign Language I (College Core)</td>
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Core History 3  Core Mathematics 3

Sophomore

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<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>Core History to complete sequence</td>
<td>3</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
<td>4</td>
</tr>
<tr>
<td>Core Humanities²</td>
<td>3</td>
<td>Core Fine Arts</td>
<td>3</td>
</tr>
<tr>
<td>CMJN 2100 Concepts in Communications and Journalism or 2103 Concepts in Communication and Journalism</td>
<td>3</td>
<td>Course from Group 1³</td>
<td>3</td>
</tr>
<tr>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
<td>2</td>
<td>Course for Supporting Area⁴</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total        | 15   | 16                  |

Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 3500 Foundations of Human Communication</td>
<td>3</td>
<td>COMM 3600 Foundations of Rhetoric and Social Influence</td>
<td>3</td>
</tr>
<tr>
<td>Course for Supporting Area⁴</td>
<td>3</td>
<td>Courses from Group 2³</td>
<td>6</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td>Course for Supporting Area⁴</td>
<td>3</td>
</tr>
<tr>
<td>Course from Group 2³</td>
<td>3</td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>COMM 3510 Research in Human Communication or 3610 Research in Rhetoric and Social Influence</td>
<td></td>
<td>3</td>
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</tr>
</tbody>
</table>

| Total        | 15   | 15                  |

Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>Courses from Group 3³</td>
<td>6</td>
<td>Courses from Group 3³</td>
<td>6</td>
</tr>
<tr>
<td>Courses from Group 4³</td>
<td>6</td>
<td>COMM 4920 Internship⁵</td>
<td>3-6</td>
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<tr>
<td>Course for Supporting Area⁴</td>
<td>3</td>
<td>Course for Supporting Area⁴</td>
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<tr>
<td></td>
<td></td>
<td>UNIV 4AA0 University Graduation</td>
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</tr>
</tbody>
</table>

| Total        | 15   | 12-15               |

---

1. COMM 1000 fulfills SLO 7.
2. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
3. Students must see their advisers for approved course listings for Groups 1, 2, 3, and 4.
4. Students must see their advisers for approved Supporting Area courses.
5. The internship may be taken part time for 3 credit hours or full time for 6 credit hours.

**Curriculum in Journalism**

Students must apply for admission to the JRNL major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course*; 2) Complete ENGL 1120, CMJN 2100 or 2103, and a Core Social Science course* with a C or better; 3) Successfully pass JRNL 1AA0 or JRNL 1100 with a “B” or better; 4) Complete JRNL 2210 with a “C” or better; 5) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits; and 6) Write a 300-word essay explaining how the applicant expects to contribute to the field of Journalism and his/her career goals. See the School adviser or the associate director for Journalism for further information. Students who transfer to Auburn University must apply to the JRNL major and complete one semester at Auburn University before applying for admission. Transfer students are required to take a minimum of 24 hours in the AU JRNL program.
* May not use a History course to fulfill the Core Social Science requirement

## Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100  English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Core History$^1$</td>
<td>3</td>
<td>COMM 1000 Public Speaking (or COMM 1003 Public Speaking)$^2$</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Social Science</td>
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</tr>
<tr>
<td>Core Math</td>
<td>3</td>
<td>Foreign Language II (College Core)</td>
<td>4</td>
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<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Course from Journalism Group 3$^3$</td>
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16

## Sophomore

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<tr>
<th>Fall</th>
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<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature$^1$</td>
<td>3</td>
<td>Core Humanities or Core Literature to complete sequence$^1$</td>
<td>3</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core Science II</td>
<td>4</td>
</tr>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Social Science or Core History to complete sequence$^3$</td>
<td>3</td>
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<tr>
<td>JRNL 2210 Newswriting</td>
<td>3</td>
<td>JRNL 2310 Reporting</td>
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<tr>
<td>CMJN 2100 Concepts in Communications and Journalism (or 2103 Concepts in Communication and Journalism)</td>
<td>3</td>
<td>LBAR 2010 Liberal Arts Careers Preparation (College Core)</td>
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16 | 15

## Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses from Journalism Groups 1, 2, or 3$^4$</td>
<td>9</td>
<td>Courses from Journalism Groups 1, 2, or 3$^4$</td>
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</tr>
<tr>
<td>Electives$^5$</td>
<td>6</td>
<td>Electives$^5$</td>
<td>6</td>
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</tbody>
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15 | 15 | 3

## Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMJN 4000 Mass Media Law and Regulation</td>
<td>3</td>
<td>Courses from Journalism Groups 3 or 4$^4$</td>
<td>9</td>
</tr>
<tr>
<td>Course from Journalism Groups 3 or 4$^4$</td>
<td>6</td>
<td>Electives$^5$</td>
<td>3</td>
</tr>
<tr>
<td>Electives$^5$</td>
<td>3</td>
<td>UNIV 4AA0 University Graduation</td>
<td>0</td>
</tr>
</tbody>
</table>

12 | 12

Total Hours: 120

1. Students are required to complete a two-course history sequence or a two-course literature sequence. They are also required to complete one Core History or Core Literature in the discipline not selected as the sequence.

2. COMM 1000/1003 fulfills SLO 7

3. If students do not pass the JRNL 1AA0 Journalism Fundamentals Entrance Exam, they must take JRNL 1100 Journalism Fundamentals as a Group 3 course.

4. Students should meet with their advisers about appropriate courses from Groups 1, 2 and 3.
Electives must be selected from courses outside the School of Communication and Journalism. Students must see their advisers for appropriate electives.

**Curriculum in Media Studies**

Students must apply for admission to the MDIA major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course*; 2) Complete ENGL 1120, CMJN 2100 or 2103, and a Core Social Science course* with a C or better; 3) Successfully complete COMM 1000 or COMM 1003 with a B or better; 4) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits); and 5) Write a 300-word essay explaining how the applicant expects to contribute to the field of Media Studies and his/her career goals. See the School adviser or the associate director for Media Studies for further information. Students who transfer to Auburn University must apply to the MDIA major and complete one semester at Auburn before applying for admission. Transfer students are required to take a minimum of 24 hours in the AU MDIA program.

*May not use a History course to fulfill the Core Social Science requirement

---

### Freshman

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 1000 Public Speaking (or COMM 1003 Public Speaking)¹</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td></td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Core Mathematics</td>
<td>3</td>
<td></td>
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<td>Core Humanities</td>
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</tr>
<tr>
<td><strong>Total Hours</strong></td>
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<td><strong>16</strong></td>
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</tbody>
</table>

### Sophomore

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMJN 2100 Concepts in Communications and Journalism (or CMJN 2103 Concepts in Communication and Journalism)</td>
<td>3</td>
<td>MDIA 2350 Introduction To Film Studies</td>
</tr>
<tr>
<td>LBAR 2010 Liberal Arts Careers Preparation</td>
<td>2</td>
<td>Core Science II</td>
</tr>
<tr>
<td>Core Science I</td>
<td>4</td>
<td>Core History</td>
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<tr>
<td>Core Literature</td>
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</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td>15</td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

### Junior

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMJN 3350 Visual Communication (or CMJN 3353 Visual Communication)</td>
<td>3</td>
<td>MDIA 3350 Writing for Television and Film</td>
</tr>
<tr>
<td>MDIA 2800 Multimedia Production <strong>or</strong> 2420 Introduction to Filmmaking</td>
<td>3</td>
<td>Course from Major Group 1³</td>
</tr>
<tr>
<td>MDIA 3300 Foundation of Mass Communication <strong>or</strong> 3303 Foundations of Mass Communication</td>
<td>3</td>
<td>Course from Major Group 2²</td>
</tr>
<tr>
<td>Core Fine Arts (Other than MDIA 2350 Introduction to Film Studies)</td>
<td>3</td>
<td>Supporting coursework²</td>
</tr>
<tr>
<td>Supporting coursework²</td>
<td>3</td>
<td><strong>Total Hours</strong></td>
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</table>

**Total Hours**

**15**
## Senior

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Courses from Major Group 1&lt;sup&gt;3&lt;/sup&gt;</td>
<td>3</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>Elective courses&lt;sup&gt;2&lt;/sup&gt;</td>
<td>2</td>
<td>MDIA 4920 Internship</td>
<td>12</td>
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<tr>
<td></td>
<td>6</td>
<td>UNIV 4AA0 University Graduation</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Courses from Major Group 1&lt;sup&gt;3&lt;/sup&gt;</td>
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<td>Course from Major Group 2&lt;sup&gt;3&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>15</td>
<td>12</td>
<td>12</td>
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</tbody>
</table>

**Total Hours: 120**

<sup>1</sup> COMM 1000 fulfills SLO 7.
<sup>2</sup> Students must meet with their advisers to determine appropriate electives and courses for their supporting coursework.
<sup>3</sup> Students must meet with their advisers to identify approved courses for Groups 1 and 2.

## Curriculum in Media Studies – Visual Media Option

Students must apply for admission to the MDIA major. Before applying, students must: 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course*; 2) Complete ENGL 1120, CMJN 2100 or 2103, and a Core Social Science course* with a C or better; 3) Successfully complete COMM 1000 or COMM 1003 with a B or better; 4) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits); and 5) Write a 300-word essay explaining how the applicant expects to contribute to the field of Media Studies and his/her career goals. See the School adviser or the associate director for Media Studies for further information. Students who transfer to Auburn University must apply to the MDIA major and complete one semester at Auburn before applying for admission. Transfer students are required to take a minimum of 24 hours in the AU MDIA program.

*May not use a History course to fulfill the Core Social Science requirement

## Freshman

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Foreign Language II (College Core)</td>
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<tr>
<td>Core Math</td>
<td>3</td>
<td>Core Social Science</td>
<td>16</td>
</tr>
<tr>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Core History to complete sequence</td>
<td>16</td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td>MDIA 2350 Introduction To Film Studies</td>
<td>16</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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</tr>
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<td></td>
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## Sophomore

<table>
<thead>
<tr>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>Core Science</td>
<td>16</td>
</tr>
<tr>
<td>Core Science</td>
<td>4</td>
<td>Core Humanities</td>
<td>16</td>
</tr>
<tr>
<td>COMM 1000 Public Speaking (or COMM 1003 Public Speaking)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
<td>LBAR 2010 Liberal Arts Careers Preparation (College Core)</td>
<td>16</td>
</tr>
<tr>
<td>CMJN 2100 Concepts in Communications and Journalism (or CMJN 2103 Concepts in Communication and Journalism)</td>
<td>3</td>
<td>MDIA 2700 Introduction to Visual Media</td>
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<tr>
<td>MDIA 2420 Introduction to Filmmaking</td>
<td>3</td>
<td>Supporting Coursework&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>16</td>
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<td>16</td>
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</table>

<sup>1</sup> May not use a History course to fulfill the Core Social Science requirement.
<sup>2</sup> Students must meet with their advisers to determine appropriate electives and courses for their supporting coursework.
<table>
<thead>
<tr>
<th>Year</th>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>CMJN 3350 Visual Communication (or 3353 Visual Communication)</td>
<td>3</td>
<td>MDIA 3350 Writing for Television and Film</td>
<td>3</td>
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<tr>
<td></td>
<td>MDIA 3100 Intermediate Filmmaking</td>
<td>3</td>
<td>MDIA 3820 Sequence Design</td>
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<td>MDIA 3300 Foundation of Mass Communication (or MDIA 3303 Foundation of Mass Communication)</td>
<td>3</td>
<td>Course from Major Group 1 or 2</td>
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<tr>
<td></td>
<td>Supporting Coursework$^2$</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td>Core Fine Arts (Other than MDIA 2350)$^3$</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>Total Hours: 15</td>
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<tr>
<td>Senior</td>
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<td></td>
<td>MDIA 4940 Visual Media Projects</td>
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<td>MDIA 4920 Internship</td>
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<td></td>
<td>Course from Major Group 1 or 2$^3$</td>
<td>3</td>
<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td></td>
<td>Supporting Coursework$^2$</td>
<td>6</td>
<td>Supporting Coursework$^2$</td>
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<td></td>
<td>Elective Course$^2$</td>
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<td>Elective Course$^2$</td>
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<td></td>
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<tr>
<td></td>
<td>Total Hours: 120</td>
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</table>

1. COMM 1000 fulfills SLO7.
2. Students must meet with their advisers to determine appropriate electives and courses for their supporting coursework.
3. Students must meet with their adviser to identify approved courses for Groups 1 and 2.

**Curriculum in Public Relations**

Students must apply for admission to the PRCM major. Before applying, students must 1) Have a minimum of a 2.3 GPA in ENGL 1120 and a Core Social Science course$^*$; 2) Complete ENGL 1120, CMJN 2100 or 2103, and a Core Social Science course$^*$ with a C or better; 3) Successfully pass JRNL 1AA0 or JRNL 1100 with a “B” or better; 4) Complete PRCM 2400 with a “C” or better; 5) Successfully complete 30 hours of degree-applicable course credits (including AP and proficiency credits; and 6) Write a 300-word essay explaining how the applicant expects to contribute to the field of Public Relations and his/her career goals. See the School adviser or the associate director for Public Relations for further information. Students who transfer to Auburn University must apply to the PRCM major and complete one semester at Auburn University before applying for admission. Transfer students are required to take a minimum of 24 hours in the AU PRCM program.

$^*$ May not use a History course to fulfill the Core Social Science requirement.

**Freshman**

<table>
<thead>
<tr>
<th>Year</th>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<td></td>
<td>Core History</td>
<td>3</td>
<td>Core Social Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Foreign Language I (College Core)</td>
<td>4</td>
<td>Foreign Language II (College Core)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Core Mathematics</td>
<td>3</td>
<td>Core Humanities$^2$</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>COMM 1000 Public Speaking$^1$</td>
<td>3</td>
<td>Course from Group 2$^3$</td>
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</tr>
<tr>
<td></td>
<td>Total Hours: 16</td>
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</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Year</th>
<th></th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Literature</td>
<td>3</td>
<td>Core Science II</td>
<td>4</td>
</tr>
</tbody>
</table>
Intercultural Communication Minor

Minor in Intercultural Communication

The 18 hour Intercultural Communication minor is designed to provide students with a comprehensive understanding of the nature of communication and culture in order to prepare them for living and working in a diverse and complex society. The minor is open to all undergraduates students with the exception of those majoring in programs housed within the School of Communication and Journalism.

**Required Courses (6 hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMJN 2100 Concepts in Communications and Journalism</td>
<td>3</td>
</tr>
<tr>
<td>or CMJN 2103 Concepts in Communication and Journalism</td>
<td>3</td>
</tr>
<tr>
<td>COMM 3450 Intercultural Communication Required</td>
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</tr>
<tr>
<td>or COMM 3453 Intercultural Communication (Distance Learning)</td>
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</table>

**Core History**

3 Core Fine Arts

**Core Science I**

4 ECON 2020 Principles of Microeconomics

**CMJN 2100 Concepts in Communications and Journalism (or CMJN 2103 Concepts in Communication and Journalism)**

3 LBAR 2010 Liberal Arts Careers Preparation (College Core)

**PRCM 2400 Foundations of Public Relations (or PRCM 2403 Foundations of Public Relations)**

3 PRCM 2500 Public Relations Case Studies (or PRCM 2503 Public Relations Case Studies)

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRCM 3000 Multimedia Writing for Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>JRN 2210 Newswriting</td>
<td>3</td>
</tr>
<tr>
<td>Course from Group 2$^4$</td>
<td>6</td>
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<tr>
<td>Supporting Course Work$^5$</td>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>PRCM 3260 Strategic Communication in Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>PRCM 4020 Digital Style and Design in Public Relations Messages</td>
<td>3</td>
</tr>
<tr>
<td>Course from Group 1$^4$</td>
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</tr>
<tr>
<td>Course from Group 2$^4$</td>
<td>3</td>
</tr>
<tr>
<td>Supporting Course Work$^5$</td>
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</table>

Fall Hours: 15. Spring Hours: 15. Total Hours: 30.

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>PRCM 4400 Public Relations Research$^3$</td>
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<td>Course from Group 2$^4$</td>
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<td>Elective (2)</td>
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<tr>
<td>Supporting Course Work$^5$</td>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PRCM 4500 Public Relations Campaigns</td>
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<tr>
<td>PRCM 4920 Internship</td>
<td>3</td>
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<td>UNIV 4AA0 University Graduation</td>
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</tr>
<tr>
<td>Elective</td>
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</table>

Fall Hours: 15. Spring Hours: 12. Total Hours: 27.

---

1. COMM 1000 fulfills SLO 7.
2. If Literature requirement was completed prior to Fall 2013, Core Humanities must cover SLO 3.
3. If students do not pass JRN 1AA0 Journalism Fundamentals Entrance Exam, they must take JRN 1100 Journalism Fundamentals as a Group 2 course.
4. Students should meet with their advisers about appropriate courses from Groups 1 and 2.
5. Students should meet with their advisers to identify Supporting Courses.
Electives (12 hours)

Group 1: See advisor for approved course list.* 6
Group 2: See advisor for approved course list.* 6

*at least nine hours from Group 1 & Group 2 must be at the 3000 level or higher.

Note: If a student has taken a course to fulfill requirements of the School/College core or the major, it cannot count toward the minor. In this case, the student must select an additional three hour course from the approved list of courses.

Total Hours: 18

Journalism Minor

CMJN 2100 Concepts in Communications and Journalism 3
JRNL 1100 Journalism Fundamentals 3
JRNL 2210 Newswriting 3
Select 9 additional hours from the following: 9

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<th>Hours</th>
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<tbody>
<tr>
<td>CMJN 4000</td>
<td>Mass Media Law and Regulation</td>
<td></td>
</tr>
<tr>
<td>JRNL 3220</td>
<td>Magazine and Feature Writing</td>
<td></td>
</tr>
<tr>
<td>JRNL 3410</td>
<td>Photojournalism</td>
<td></td>
</tr>
<tr>
<td>JRNL 3470</td>
<td>Editing and Design</td>
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</tr>
<tr>
<td>JRNL 3510</td>
<td>Multimedia Journalism</td>
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<td>JRNL 3530</td>
<td>Sports Reporting</td>
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<tr>
<td>JRNL 4320</td>
<td>Entrepreneurial Journalism</td>
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<tr>
<td>JRNL 4410</td>
<td>Journalism History</td>
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<td>JRNL 4417</td>
<td>Honors Journalism History</td>
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<tr>
<td>CMJN 4430</td>
<td>Sports, Media and Society</td>
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<tr>
<td>JRNL 4480</td>
<td>Advanced Publication Design</td>
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<td>JRNL 4490</td>
<td>Literary Journalism</td>
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<td>JRNL 4870</td>
<td>Community Journalism</td>
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<tr>
<td>JRNL 4970</td>
<td>Special Topics in Journalism</td>
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</tbody>
</table>

This minor requires 9 hours of foundations course work and 9 hours of course work from the list below. Students must talk with their advisers to identify appropriate area course work and ensure that they meet the prerequisites for each course.

Students must earn at least a 2.0 in the minor to successfully complete it.

Sport Communication Minor

Sport Communication is a rapidly growing area of study in colleges and universities. The billion dollar industry is demanding professionals with a full set of competencies to provide news and information to their growing public. The Sport Communication minor will prepare students in public relations, strategic communication, media writing, sports announcing and sports producing. The minor will engage students in problem-solving and critical writing through the variety of sports-related writing assignments given in courses offered through the School of Communication and Journalism. Students will also gain an understanding of the critical issues affecting society as they relate to professional, collegiate and recreational sports. Students will learn the methods and techniques for communicating about sports in a variety of formats and media.

This minor requires 6 hours of foundations course work and 12 hours from the course work from the list below. Students must talk with their advisers to identify appropriate area course work and ensure that they meet the prerequisites for each course.

Students must earn at least a 2.0 in the minor to successfully complete it.

18 semester hours

Required: 6 hours

<table>
<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>COMM 1000/1003</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>CMJN 2100/2103</td>
<td>Concepts in Communications and Journalism</td>
<td>3</td>
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</tbody>
</table>

Select 12 hours from the following:
CMJN 3110 Sports Media Relations
CMJN 3210 News and Sports Announcing
CMJN 3410 Introduction to Sports Video Production
CMJN 3650 Rhetoric of Sports
CMJN 4430/4433 Sports, Media and Society
CMJN 4410 Advanced Sports Video Production

Total Hours 18

University College

University College fosters the growth of interdisciplinary and cross-college academic programs. Its programs are designed to provide intellectual opportunities for students whose interests, aptitudes, and career goals range widely across college boundaries. It is the home of the Interdisciplinary University Studies undergraduate major, the Aviation Department (which offers the BS in Aviation Management, the BS in Professional Flight, and related minors), and the Sustainability, Information and Cyber Analysis, and Leadership minors. The Exploratory Advising Center for incoming freshmen who are in the process of determining the academic major they wish to pursue is also part of University College.

Majors
- Aviation Management (http://bulletin.auburn.edu/undergraduate/universitycollege/aviationmanagement_option)
- Interdisciplinary University Studies (http://bulletin.auburn.edu/undergraduate/universitycollege/interdisciplinarystudies)
- Professional Flight (http://bulletin.auburn.edu/undergraduate/universitycollege/professionalflight)

Minors
- Aviation Management (http://bulletin.auburn.edu/undergraduate/universitycollege/aviationmanagement_minor)
- Information and Cyber Analysis (http://bulletin.auburn.edu/undergraduate/universitycollege/informationandcyberanalysis)
- Leadership (http://bulletin.auburn.edu/undergraduate/universitycollege/leadership)
- Professional Flight (http://bulletin.auburn.edu/undergraduate/universitycollege/professionalflight_minor)
- Sustainability Studies (http://bulletin.auburn.edu/undergraduate/universitycollege/sustainabilitystudies)

Individuals applying to Auburn as first-time College students have the option to enroll as Exploratory students, without having to select a particular major or college. Exploratory students are advised by a group of cross-trained advisors and career counselors who provide intensive and personalized advising designed to help them choose the major that most closely meets their academic aptitudes and interests as well as their long-term goals. This option does not replace undeclared major options in Liberal Arts, Sciences and Mathematics, or Engineering. Instead, its goal is to assist students who are uncertain which broad academic area they wish to pursue. All students who enter Auburn University as Exploratory students must select a college or specific major by the end of their second semester. Students who enter Auburn as transfer students are not eligible to enroll as Exploratory.

Interdisciplinary Studies Courses
IDSC 1010 LIFE, CAREER, AND EVERYTHING (3) LEC. 3. This course provides an in-depth exploration of each student's strengths and interests, and includes a series of exercises and experiences designed to guide the student in the selection of a degree path.

IDSC 2000 CONTEMPORARY KOREA (3) LEC. 3. Overview of the human, physical, and technological context of the Republic of South Korea through a combination of lectures, readings, presentations, and discussions, utilizing the expertise of Auburn colleagues across the disciplines.

IDSC 2190/2193 FOUNDATIONS OF INTERDISCIPLINARY UNIVERSITY STUDIES (3) LEC. 3. Provides students with an introduction to (1) the major approaches and applications of interdisciplinary studies, (2) an examination of disciplinary and interdisciplinary thinking; and (3) an introduction to concepts and methods of interdisciplinary study.

IDSC 3210 ADVANCED INTERDISCIPLINARY PROBLEM SOLVING (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and IDSC 2190 or IDSC 2193. This is a synthesis course designed to provide students with practice in applying interdisciplinary methods to the solution of real-world problems and to prepare them to communicate those solutions to a diverse audience.
IDSC 4920 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) INT. 3. Pr. (IDSC 1010 and IDSC 2190 or IDSC 2193) and IDSC 3210. Capstone course designed to apply Interdisciplinary Degree Coursework to an internship project. Course may be repeated for a maximum of 6 credit hours.

IDSC 4930 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) LEC. 2. LAB. 2. Pr. (IDSC 1010 and IDSC 2190 or IDSC 2193) and IDSC 3210. Capstone course designed to apply Interdisciplinary Degree Coursework to a senior thesis project. Course may be repeated for a maximum of 6 credit hours.

IDSC 5950/5953 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

IDSC 6950/6956 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

Leadership Courses

LEAD 2000 FOUNDATIONS OF LEADERSHIP (3) LEC. 2. LAB. 1. Introductory course for students pursing the Leadership Minor.

LEAD 4000 LEADERSHIP IN PRACTICE (3) LEC. 3. Pr. LEAD 2000. Capstone course in interdisciplinary leadership minor.

Sustainability Studies Courses

SUST 2000 INTRODUCTION TO SUSTAINABILITY (3) LEC. 3. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

SUST 4900 DIRECTED STUDIES IN SUSTAINABILITY (1-3) IND. Departmental approval. Advanced individual research and/or coursework in the field of sustainability studies. Course may be repeated for a maximum of 3 credit hours.

SUST 5000 SENIOR CAPSTONE IN SUSTAINABILITY (3) LEC. 3. Pr. SUST 2000. Capstone research seminar for students completing the Minor in Sustainability Studies.

Aviation Management Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.

AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.


AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. SU. AVMG, AVMF, AVMN, and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, operation, and typical problems.

AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Junior Standing or Departmental Approval. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Junior Standing or Departmental Approval. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.

AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Junior Standing or Departmental Approval. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or Departmental Approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090/6096 AVIATION LAW AND POLICY (3) LEC. 3. Departmental approval. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170/6176 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180/6186 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

AVMG 6970/6976 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930/7936 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed though a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.
Flight Education Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 2. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and airplane flight time. Special fee.


AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2150 or Departmental approval. Dual and solo flight instruction and discussion to prepare for first solo in a single-engine airplane. Special fee.

AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2171 or Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA).

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2230. Flight instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating – Airplane Practical Test. Special fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2250 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX).

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2241. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating – Airplane Practical Test. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.


AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special Fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests.


AVMF 4320 PRINCIPLES OF PROFESSIONAL FLIGHT (3) LEC. 3. Pr. AVMF 2230. Multi-engine transport aircraft systems and operating procedures (normal, abnormal, and emergency). Includes hydraulic, electric, pneumatic, air conditioning and pressurization, auxiliary power unit (APU), landing gear, and flight control systems. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 6. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Special fees.


AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1000 or PHYS 1007. Private Pilot Certificate, or Departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affecting lift, thrust, drag, in-air performance, stability and flight control.

**Aviation Management Minor**

15 semester hours in minor (12 hours at 3000-level or above)

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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>AVMG 1010</td>
<td>Introduction to Aviation</td>
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<tr>
<td>AVMG 5090</td>
<td>Aviation Law and Policy</td>
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Elective Courses - See advisor for approved course listing.

| Total Hours | 15 |

**Aviation Management - BS**

**Freshman**

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<th>Hours</th>
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<tr>
<td>AVMG 1010</td>
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<td>ENGL 1120</td>
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<tr>
<td>MATH 1610</td>
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<td>PHYS 1000</td>
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<td>ENGL 1100</td>
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<td>SCMH 1010</td>
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<td>COMM 1000</td>
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<td>Fine Arts Core</td>
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**Sophomore**

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<tr>
<td>AVMG 2050</td>
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<td>AVMG 2600 Human Factors in Aviation</td>
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<td>PHIL 1040</td>
<td>3</td>
<td>SUST 2000 Introduction to Sustainability</td>
<td>3</td>
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<td>ECON 2020</td>
<td>3</td>
<td>ACCT 2810 Fundamentals Of Accounting</td>
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<td>HIST 1210</td>
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<td>HIST 1220 Technology And Civilization II</td>
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**Junior**

<table>
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<tr>
<td>AVMG 3050</td>
<td>3</td>
<td>AVMG 3600 Aircraft Maintenance Management</td>
<td>3</td>
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<tr>
<td>AVMG 3140</td>
<td>3</td>
<td>AVMG 3200 Applied Analysis in Transportation</td>
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<td>FINC 3810</td>
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<td>AVMG 3810 Professional Development in Aviation</td>
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<td>MNGT 3810</td>
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<td>MKTG 3310 Principles of Marketing</td>
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**Senior**

**Fall** | **Hours** | **Spring** | **Hours**
--- | --- | --- | ---
AVMG 4060 Commercial Aviation Safety | 3 | AVMG 4200 Air Cargo Operations | 3
AVMG 5090 Aviation Law and Policy | 3 | AVMF 4400 Applied Aerodynamics and Propulsion Systems | 3
AVMG 4130 Airport Management | 3 | AVMG 4080 Air Transport Planning | 3
AVMG 4190 Air Space Management | 3 | AVMG 5180 Global Air Transportation Management | 3
AVMG Directed Elective | 3 | AVMG Directed Elective | 3
| | UNIV 4AA0 University Graduation | 0

Total Hours: 123

§ General Business Minor is embedded in the Aviation Management Degree. Students must declare this minor no later than their sophomore year.

* Students enrolled in the University Honors College may enroll in the Honors equivalents of any of the core options.

1 MATH 1680 may substitute for MATH 1610.

2 PHIL 1020 may substitute for PHIL 1040.

3 HIST 1010/1020 sequence may substitute for HIST 1210/1220 sequence.

4 Any Core Social Science option may substitute for SUST 2000.

5 Approved AVMG Directed Electives:
   • AVMF 2150 Principles of Private Flight (3 hrs)
   • AVMG 4040 Business Aviation Management (3 hrs)
   • AVMG 4140 Airport Planning and Design (3 hrs)
   • COMM 2400 Communication in Organizations (3 hrs)
   • COMM 2410 Small Group Communication (3 hrs)
   • ENGL 3080 Business Writing (3 hrs)
   • INSY 3020 Occupational Safety and Ergonomics (3 hrs)
   • ISMN 5370 Project Management (3 hrs)
   • HRMN 3420 Human Resource Management (3 hrs)
   • HRMN 4430 Labor Relations (3 hrs)
   • HRMN 5480 Labor Relations Law (3 hrs)
   • MNGT 3460 Organizational Behavior (3 hrs)
   • POLI 2100 State and Local Government (3 hrs)
   • SCMN 3710 Logistics: Management of Fulfillment Processes (3 hrs)
   • SCMN 3720 Transportation: Management of Product Flows (3 hrs)
   • SCMN 3730 Purchasing: Supply Management and Searching (3 hrs)

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**Information and Cyber Analysis Minor**

Cyber is more than a computer network, but also a realm of numerous social processes that includes legitimate and illegitimate activities. The increasing complexity of technology for cyber security, information assurance and critical infrastructure requires personnel capable of dealing with complex data sets and having problem solving skills that transcend traditional academic boundaries. This interdisciplinary program is designed to provide students a wide exposure to analytically-oriented classes throughout the university.

**Requirements for Minor:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY 5120</td>
<td>Critical Thinking and Structured Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUAL 2650</td>
<td>Business Analytics II</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 9 hours from the following or other approved area:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUAL, COMP, ECON, GEOG, HIST, ISMN, POLI, SOCY, STAT, VBMS.</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Please see program advisor for approved courses within each area. The student is responsible for ensuring all pre-requisites are met.

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**Admission Requirements:**
Interdisciplinary University Studies (IDSC)

The Bachelor of Science in Interdisciplinary University Studies allows students to attain a broad education and acquire diverse skill sets unique to a profession they desire to enter. Students seeking an Interdisciplinary University Studies degree have the opportunity to create a personalized academic program, by customizing a curriculum that demonstrates proficiency in broad skills as well as discipline-specific knowledge.

Students may be admitted as freshmen. For progression to the third-year IDSC course (IDSC 3210), a student must first complete Life, Career, and Everything (IDSC 1010) with a grade of C or better and Foundations of Interdisciplinary University Studies (IDSC 2190/IDSC 2193) with a grade of C or better and complete an approved individualized curriculum plan prior to enrolling in IDSC 3210. Students with more than 90 hours of coursework must receive special permission to be admitted to the major.

Students must also earn a grade of C or better in Public Speaking (COMM 1000), and in one written communication class to be selected from Technical Writing (ENGL 3040), Business Writing (ENGL 3080) or Advanced Composition (ENGL 4000). Students may elect to use COMM 1000 to meet 3 hours of the Humanities Core requirements. Students admitted during Fall 2017 and after must take IDSC 3210 before they will be allowed to take the Capstone course. IDSC 3210 cannot be taken until the student has passed IDSC 2190/IDSC 2193 with a grade of C or better. All students must also complete a capstone experience (IDSC 4930 or IDSC 4920) with a grade of C or better. In the capstone experience, students integrate acquired knowledge through a research project (IDSC 4930), or an internship program (IDSC 4920). Students must earn 3 hours of capstone credit and may earn a maximum of 6 hours of capstone credit. Students electing to take the capstone course twice must use elective hours for the additional three hours.

The student creates two or three identifiable areas of emphasis using coursework from two or three different Schools or Colleges. The major must have a total of 45 hours of approved coursework. If a student elects to have two areas of emphasis they must have at least 21 hours of coursework in one emphasis (the majority of which is from one college or school) and up to 24 hours in the other (the majority of which is from the second college or school) for a total of 45 hours. Twenty-seven of the 45 hours in the major must be at or above the 3000 level. If a student elects to have three areas of emphasis they must have 15 hours of coursework in each emphasis. Students with three areas of emphasis may use existing minors as emphasis areas or they may work with the departmental representative in a specific area to develop an emphasis. Within the 15 hour emphasis plan, at least nine-hours of each emphasis must be 3000 level or above coursework. If a student elects to use existing minors and a minor requiring more than 15 hours is selected the student must complete the entire minor. Minors used as emphases become part of the Interdisciplinary Studies degree and will not be listed on the official transcript or the diploma.

Additional information about this major can be found at Interdisciplinary Studies (https://cla.auburn.edu/idsc).

Interdisciplinary University Studies

<table>
<thead>
<tr>
<th>Auburn University Core Curriculum (old or new core curriculum)</th>
<th>41-42</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDSC 1010 Life, Career, and Everything</td>
<td></td>
</tr>
<tr>
<td>IDSC 2190 Foundations of Interdisciplinary University Studies</td>
<td></td>
</tr>
<tr>
<td>IDSC 3210 Advanced Interdisciplinary Problem Solving</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Interdisciplinary Supporting Coursework</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Communications</td>
<td>3</td>
</tr>
<tr>
<td>Advanced Written Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following: (each course is 3 hours)
- ENGL 3040 Technical Writing
- ENGL 3080 Business Writing
- ENGL 4000 Advanced Composition

| Capstone Experience | 3     |
IDSC 4930  \hspace{1cm} \text{Interdisciplinary Capstone Experience} \\
or IDSC 4920  \hspace{1cm} \text{Interdisciplinary Capstone Experience} \\
\textbf{Major Course Hours} \hspace{1cm} 3,4 \hspace{1cm} 45 \\
\textbf{Prerequisites/Major Supporting Courses/Electives} \hspace{1cm} \text{Varies} \\
\textbf{Minimum Number of Required Hours} \hspace{1cm} 120 \\
\begin{enumerate}
\item Must have grade of C or better.
\item Oral Communication (COMM 1000) may be used to satisfy 3 hours of Humanities in the University Core Curriculum.
\item Major course hours are used to calculate the GPA in the major.
\item Total of 45 hours selected across two emphases (at least 21 hours in one emphasis and no more than 24 hours in the second emphasis) or across three emphases (each with 15 hours). Emphases must be selected from at least two different Schools or Colleges. Approval of the appropriate academic advisor, faculty advisor, program director or department head for courses in each emphasis is required. Students may use existing minors for emphases. Students must receive a grade of C or better in IDSC coursework to successfully progress to the upper level IDSC courses.
\item Total number of prerequisite/major supporting course/elective hours varies depending on choices made. Students who elect to use existing minors with more than 15 hours must use elective hours to complete the minor; students who elect to take a second capstone must use elective hours for the second course. Elective hours may also be used to allow the student to complete a minor outside of their areas of emphasis and must be used to bring the total number of hours in the students degree plan to 120. The minors used as emphases become part of the Interdisciplinary Studies degree and will not be listed on the official transcript or diploma.
\end{enumerate}

\section*{Leadership Minor}

\subsection*{Minor in Leadership}

Auburn University offers an interdisciplinary Leadership Minor (LEAD). In order to pursue a minor in leadership, students should file a minor declaration, in consultation with the LEAD advisor/coordinator, as early as possible. The declaration is ideally completed within the first semester of taking courses toward the minor. The completion and filing of the declaration is a prerequisite to enrolling the senior capstone class (LEAD 4000) in the LEAD minor. Courses required in the student’s major may not be counted toward the minor even if they are on the list of accepted courses. Courses counted toward Core Curriculum requirements may not be counted toward the minor. At least 3 hours must be taken from each of five competency areas, with 9 of the 15 hours at the 3000 level or above. The competency areas are: I. Leadership Knowledge and Theory, II. Communication, III. Problem Solving and Decision Making, IV. Vision of Civic and Social Responsibility, and V. Service Learning.

15 semester Hours in minor (minimum 9 hours at 3000-level or above)

\subsection*{Leadership Knowledge and Theory}

LEAD 2000  \hspace{1cm} \text{Foundations of Leadership} \\

\subsection*{Service Learning}

LEAD 4000  \hspace{1cm} \text{Leadership in Practice} \\

\subsection*{Communication}

Select 3 hours: \hspace{1cm} 3 \hspace{1cm} 3 \\
MNGT 3460  \hspace{1cm} \text{Organizational Behavior} \\
POLI 3340  \hspace{1cm} \text{Introduction to Conflict Resolution} \\
POLI 5340  \hspace{1cm} \text{Theory and Practice of Mediation} \\
PSYC 3580  \hspace{1cm} \text{Social Psychology} \\
AGRI 5840  \hspace{1cm} \text{Advanced Agricultural Leadership Development} \\
COMM 1000/1003  \hspace{1cm} \text{Public Speaking} \\
COMM 2400  \hspace{1cm} \text{Communication in Organizations} \\
COMM 2410  \hspace{1cm} \text{Small Group Communication} \\
COMM 3450/3453  \hspace{1cm} \text{Intercultural Communication} \\
COMM 3100  \hspace{1cm} \text{Advanced Public Speaking} \\

\subsection*{Problem Solving and Decision Making}

Select 3 hours: \hspace{1cm} 3
### Civic and Social Responsibility

Select 3 hours:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY 1000</td>
<td>Sociology: Global Perspective</td>
</tr>
<tr>
<td>SOCY 2200</td>
<td>Social Psychology: Sociological Perspectives</td>
</tr>
<tr>
<td>SOCY 3500</td>
<td>Minority Groups</td>
</tr>
<tr>
<td>POLI 3090</td>
<td>Introduction to International Relations</td>
</tr>
<tr>
<td>POLI 3100</td>
<td>Introduction to World Affairs</td>
</tr>
<tr>
<td>POLI 3290</td>
<td>The American Presidency</td>
</tr>
<tr>
<td>POLI 4050</td>
<td>American Local Government</td>
</tr>
<tr>
<td>POLI 5610</td>
<td>Women in Politics</td>
</tr>
<tr>
<td>POLI 5620</td>
<td>African American Politics</td>
</tr>
<tr>
<td>SOCY 2000</td>
<td>Social Issues</td>
</tr>
<tr>
<td>SOCY 3500</td>
<td>Minority Groups</td>
</tr>
<tr>
<td>RSOC 3620</td>
<td>Community Organization</td>
</tr>
<tr>
<td>HDFS 5300</td>
<td>HDFS and Social Policy</td>
</tr>
<tr>
<td>ANSC 4800</td>
<td>Issues in Animal Agriculture</td>
</tr>
<tr>
<td>&amp; ANSC 4970</td>
<td>and Special Topics in Animal Sciences</td>
</tr>
<tr>
<td>HUSC 2000/2003</td>
<td>Hunger: Causes, Consequences, and Responses</td>
</tr>
<tr>
<td>WMST 2100</td>
<td>Introduction to Women's Studies</td>
</tr>
<tr>
<td>RSOC 5650</td>
<td>Sociology of Natural Resources and the Environment</td>
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</tbody>
</table>

**Total Hours**: 9

### Professional Flight - BS

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVMG 1010 Introduction to Aviation</td>
<td>3</td>
<td>AVMF 2181 Private Pilot Flight Training II</td>
<td>2</td>
</tr>
<tr>
<td>AVMF 2150 Principles of Private Flight</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>AVMF 2171 Private Pilot Flight Training I</td>
<td>2</td>
<td>SCMH 1010 Concepts of Science</td>
<td>4</td>
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<tr>
<td>MATH 1610 Calculus I¹</td>
<td>4</td>
<td>COMM 1000 Public Speaking</td>
<td>3</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ECON 2020 Principles of Microeconomics</td>
<td>3</td>
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</table>

**Total Hours**: 15

#### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>AVMG 2050 Introduction to Unmanned Aircraft Systems (UAS)</td>
<td>3</td>
<td>AVMG 2600 Human Factors in Aviation</td>
<td>3</td>
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</table>

**Total Hours**: 15
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Course</th>
<th>Hours</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVMF 2230 Principles of Instrument Flight</td>
<td>3</td>
<td>AVMF 2250 Principles of Commercial Flight</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMF 2241 Instrument Flight Training I</td>
<td>2</td>
<td>AVSF 2251 Instrument Flight Training II</td>
<td>2</td>
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<tr>
<td>PHYS 1000 Foundations of Physics</td>
<td>4</td>
<td>PHIL 1040 Business Ethics</td>
<td>3</td>
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<tr>
<td>HIST 1210 Technology and Civilization I</td>
<td>3</td>
<td>HIST 1220 Technology And Civilization II</td>
<td>3</td>
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<tr>
<td><strong>Junior</strong></td>
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<td><strong>Fall</strong></td>
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<td><strong>Spring</strong></td>
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<tr>
<td>AVMG 3050 Aviation Weather</td>
<td>3</td>
<td>AVMG 3600 Aircraft Maintenance Management</td>
<td>3</td>
<td></td>
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<tr>
<td>AVMG 3140 Air Transport Industry Development</td>
<td>3</td>
<td>AVMG 3200 Applied Analysis in Transportation</td>
<td>3</td>
<td></td>
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<tr>
<td>AVMF 2261 Commercial Pilot Flight Training I</td>
<td>2</td>
<td>AVMG 4190 Airspace Management</td>
<td>3</td>
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<tr>
<td>AVMG 3810 Professional Development in Aviation</td>
<td>1</td>
<td>AVMF 2271 Commercial Pilot Flight Training II</td>
<td>2</td>
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<tr>
<td>SUST 2000 Introduction to Sustainability</td>
<td>3</td>
<td>AVMF 4271 Multi-Engine Flight Training</td>
<td>2</td>
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</tr>
<tr>
<td>Literature Core Option</td>
<td>3</td>
<td>AVMF 4400 Applied Aerodynamics and Propulsion Systems</td>
<td>3</td>
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<td></td>
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<tr>
<td></td>
<td>15</td>
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<td>16</td>
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<tr>
<td><strong>Senior</strong></td>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
<td><strong>Spring</strong></td>
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</tr>
<tr>
<td>AVMG 4060 Commercial Aviation Safety</td>
<td>3</td>
<td>AVMG 4200 Air Cargo Operations</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMG 5090 Aviation Law and Policy</td>
<td>3</td>
<td>AVMG 4080 Air Transport Planning</td>
<td>3</td>
<td></td>
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<tr>
<td>AVMG 4130 Airport Management</td>
<td>3</td>
<td>AVMG 5180 Global Air Transportation Management</td>
<td>3</td>
<td></td>
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<tr>
<td>AVMF 4280 Principles of Flight Instruction</td>
<td>3</td>
<td>AVMF 4351 Instrument Flight Instructor Training</td>
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<tr>
<td>AVMF 4281 Flight Instruction Training</td>
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<td>AVMF 4371 Multi-Engine Flight Instructor Training</td>
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<tr>
<td></td>
<td>15</td>
<td>Fine Arts Core Option</td>
<td>16</td>
<td>UNIV 4AA0 University Graduation</td>
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<tr>
<td><strong>Total Hours:</strong> 121</td>
<td></td>
<td><strong>Fall</strong></td>
<td></td>
<td><strong>Spring</strong></td>
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</tr>
</tbody>
</table>

* Students enrolled in the University Honors College may enroll in the Honors equivalents of any of the core options.
† Course credit for pilot certification/rating will be granted upon evidence of FAA pilot certificate/rating at the time of enrollment.
‡ One advanced pilot or flight instructor certification/rating MUST be completed at Auburn. Ground and flight training for commercial pilot certificate and instrument rating must be completed at Auburn to be R-ATP eligible.
1 MATH 1680 may substitute for MATH 1610.
2 HIST 1010/1020 sequence may substitute for HIST 1210/1220 sequence.
3 PHIL 1020 may substitute for PHIL 1040.
4 Any Core Social Science option may substitute for SUST 2000.
5 Non-CFI students must complete 10 hours of free electives in lieu of flight instruction sequence.

### Professional Flight Minor

20 semester hours in minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Course</th>
<th>Hours</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVMF 2230 Principles of Instrument Flight</td>
<td>3</td>
<td>AVMF 2250 Principles of Commercial Flight</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMF 2241 Instrument Flight Training I</td>
<td>2</td>
<td>AVMF 2251 Instrument Flight Training II</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMF 2250 Principles of Commercial Flight</td>
<td>3</td>
<td>AVMF 2251 Instrument Flight Training II</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMF 2261 Commercial Pilot Flight Training I</td>
<td>2</td>
<td>AVMF 2271 Commercial Pilot Flight Training II</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMF 2271 Commercial Pilot Flight Training II</td>
<td></td>
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</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------</td>
<td>-------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMF 4400</td>
<td>Applied Aerodynamics and Propulsion Systems</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVMG 3050</td>
<td>Aviation Weather</td>
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<td></td>
<td><strong>Total Hours</strong></td>
<td><strong>20</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sustainability Studies Minor

**Minor in Sustainability Studies**

15 semester Hours in minor (minimum 9 hours at 3000-level or above)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUST 2000</td>
<td>Introduction to Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>SUST 5000</td>
<td>Senior Capstone in Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>Approved Electives</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

1  Approved electives, see Minor in Sustainability Studies website for listing. [http://acadsustain.auburn.edu/electives/](http://acadsustain.auburn.edu/electives/)

### Majors

### Minors

#### Africana Studies Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRI 2000</td>
<td>Introduction to Africana Studies</td>
<td>3</td>
</tr>
<tr>
<td>Advisor-Approved Electives</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

1  Minimum 9 hours at 3000-level or above

#### Community and Civic Engagement Minor

16 total semester hours in minor, including CCEN 3000 and an additional minimum 9 hours at 3000-level or above.

See advisor for course options and distribution requirements.

Students must have a minimum of 2.5 grade-point average in the minor to be given credit for completing the minor.

#### Latin American Studies Minor

15 semester hours in minor (minimum 9 hours at 3000-level or above). Student must test at the equivalent of FLFR 2010 or FLSP 2010 in either French, Spanish, or Portuguese, and complete a minimum of five courses in at least three different disciplines (see advisor for approved course listing). Students must earn a C and maintain a 2.5 GPA for all courses that count toward the minor. Courses taken in fulfillment of the College Core or other majors and minors may not be counted toward the Latin American Studies minor.

#### Leadership for a Global Society - Undergraduate Certificate

The undergraduate certificate in Leadership for a Global Society is intended to help students from any major prepare to be leaders in a global environment. In addition to specific coursework on leadership, the certificate prepares leaders by encouraging critical thinking and stimulates reflection about the economic, social, political, and environmental contexts in which global community engagement and international interactions occur. Regularly enrolled and non-degree-seeking students who complete 12 hours of courses as outlined below may be awarded the certificate.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCEN 3200</td>
<td>Leadership for a Global Society</td>
<td>3</td>
</tr>
<tr>
<td>FLGC 1150</td>
<td>Global Fluency and Awareness</td>
<td>3</td>
</tr>
<tr>
<td>Choose two courses from approved courses</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
Women’s Studies Minor

Women’s studies, an interdisciplinary minor, advances teaching, research and scholarship about women and women’s perspectives. The minor sheds new light on existing knowledge of women and gender, integrates the study and voices of women into traditional disciplines, examines the impact of the social construction of gender and promotes change to improve women’s, men’s and children’s lives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 2100</td>
<td>Introduction to Women’s Studies</td>
<td>3</td>
</tr>
<tr>
<td>WMST 5980</td>
<td>Feminist Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses - See the Director of Women's Studies and the program website for approved course listings. 9

Total Hours 15

1. Students must complete a minimum 9 hours at 3000-level or above.

Options

Engineering

This program provides for enrollment in the Liberal Arts Curriculum and in the Samuel Ginn College of Engineering. Two degrees will be awarded: a bachelor of arts degree in the liberal arts major and a bachelor's degree in the designated engineering field. Students should receive dual advising through the Colleges of Liberal Arts and Engineering. Typically, five to six academic years are necessary to complete dual requirements.

Pre-Law

Most majors and curricula are accepted as preparation for the study of law, but students interested in attending law school should also consider majoring in Law and Justice. Courses deemed useful, and which may be taken as electives, in majors, and in some cases to fulfill certain core requirements, are available from the pre-law program, located in 7002 Haley Center, where students receive advice on preparing for law school admission and the study of law.

Pre-Health

Most majors and curricula in Liberal Arts are accepted as preparation for professional degrees in health, including advanced degrees from schools of medicine, dentistry, optometry, physical therapy, occupational therapy and others. Generally, particular courses in the sciences, mathematics and philosophy should be taken in the University Core. Additional sciences and mathematics may be needed as electives. The university’s pre-health advisor should be consulted for elective and core course guidance and for assistance in applying to graduate/professional schools. The liberal arts advisor is available for all other matters related to the student's undergraduate studies.

School of Nursing

Gregg E. Newschwander, Dean
Caralise W. Hunt, Associate Dean

THE SCHOOL OF NURSING, established in 1979, offers a program of study leading to the bachelor of science in nursing. The nursing curriculum prepares beginning professional nurse generalists who are capable of functioning as members of the healthcare team in providing care for individuals and groups in diverse settings. The program also provides an educational base for advancement in formal study, research and practice. The facilities and resources of the university are used to provide a broad academic background in the humanities and sciences. Graduates are eligible to make application to the NCLEX-RN examination to become registered nurses.

A pre-professional program in Nursing Science is required of students seeking admission to the professional curriculum. The first two years of course work are designated Pre-Nursing (PNUR). The Professional Curriculum requires five terms including 1-2 summer terms, depending on the semester of admission. The Curriculum includes classroom, laboratory and clinical experiences.
Admission

Freshman eligibility is determined by the Office of Enrollment Services. Admission requirements are stated elsewhere in this Bulletin. High school mathematics, chemistry and biology courses are strongly recommended, along with other college preparatory courses in social science, history, literature and English composition. Students are strongly encouraged to see the academic advisor in the School of Nursing on a regular basis.

Transfers from other institutions must apply through the Office of Enrollment Services. Review of transcripts by the School of Nursing will determine the amount of credit allowed for the pre-nursing requirements. Students planning to transfer from other universities are encouraged to contact the School of Nursing as soon as possible for advisement on transfer of credits. Students must possess the functional ability to perform the skills and behaviors required of a professional nurse. These abilities include but are not limited to:

1. Adequate vision, such as that required to observe changes in physical conditions, to read small print on labels and markings on syringes, and to discern subtle changes in color;
2. Adequate hearing, such as that required to distinguish muted sounds through a stethoscope;
3. Fine motor skills and manual dexterity, such as that required to handle small, delicate equipment;
4. Strength to turn and assist with lifting adults, and to lift and carry children;
5. The mobility to respond quickly in emergency situations;
6. The ability to communicate and interact effectively with others, orally and in writing;
7. The ability to detect odors; and
8. The ability to read independently and to comprehend the written word.

Professional Program

Admission to the professional program occurs in both Fall and Summer. Pre-nursing students must formally apply for admission to the professional program, typically during the sophomore year, and meet the deadlines and requirements for the admission cycle as posted on the AUSON website: https://cws.auburn.edu/Nursing/pm/transition . To be eligible for consideration for an interview and admission, applicants must have completed at least 3 of the 5 required science courses in the pre-nursing curriculum and have no more than 22 hours of pre-nursing coursework outstanding. Criteria considered for admission include unadjusted pre-nursing GPA, science GPA, number of hours completed at Auburn, successful completion (C or better) of all pre-nursing requirements and interview score.

While the GPA to be considered for an interview is an overall unadjusted GPA of 2.5 or higher, interviews will be granted based on the overall unadjusted GPA of the pool of applicants and in reality a higher GPA may be required to interview. Applicant interviews will be conducted once per year in February. Due to limited enrollment, all students who meet minimum requirements may not be interviewed or admitted.

Students will be notified of admission decisions in writing by March 1. Those applicants admitted must successfully complete all pre-nursing courses with a C or higher before entering the upper division.

Application for RN Licensure

Following successful completion of the registered nursing program, the graduate will apply for RN Licensure in Alabama or another state and follow all procedures as stipulated by the state board of nursing.

Academic Regulations

Advanced placement credit in pre-nursing courses is granted according to university policies stated elsewhere in the Bulletin. No advanced standing is allowed in the natural sciences by the School of Nursing. Proficiency examinations or Advanced Placement (CEEB), with accepted score, may be used for advanced placement.

A minimum grade of C is required in pre-nursing courses. Transfer credit will not be granted for courses in which a grade less than C is earned.

In the professional program, a minimum grade of C, or Satisfactory in all courses, must be achieved. An overall GPA of 2.0 must be maintained for progression through the professional program. Because the professional nursing curriculum is designed for progressive development of nursing knowledge and skills, students who earn an Unsatisfactory or grade less than C in a professional program course are not allowed to progress to the next clinical course. The course in which the student earns a grade less than C or Unsatisfactory may be repeated one time only. Students who earn a grade less than C or Unsatisfactory in two or more professional program courses or whose GPA falls below a 2.0 will be dropped from the professional program and are not eligible for readmission. Transfer credit is not generally allowed for courses in the professional program.
The Professional Program

Facilities

The School of Nursing is housed in the nursing building located at 710 South Donahue Drive. Clinical nursing experiences are conducted at acute care, community and long-term care facilities in a variety of locations. Students are responsible for complying with policies and procedures required by agencies in which clinical experiences are completed.

Expenses

Students accepted into the professional program should expect to incur additional expenses including a professional fee associated with the clinical courses. Uniforms, equipment, transportation to clinical sites, smart phone devices with the capability of retrieving required information, laptop with designated specifications, standardized exams and software, NCLEX reviews, a health examination and liability and health insurance coverage are among the requirements. Students are required to have a current drug screen and background check. The costs of such requirements will be the responsibility of the student. Additional information is located on the AUSON website: https://cws.auburn.edu/shared/files?id=201&filename=Detailed%20Nursing%20Expenses%20Per%20Semester_4.17.17.pdf

Accreditation

The School of Nursing operates with full approval of the Alabama Board of Nursing and is fully accredited by the Commission on Collegiate Nursing Education, One Dupont Circle NW, Suite 530, Washington, DC 20036-1120, (202) 887-6791, http://www.aacn.nche.edu/ccne-accreditation.

Program

• Nursing - Traditional (p. 1060)

Program

• Nursing - MSN (p. 1491)
  • Primary Care Practitioner Option - MSN (p. 1492)
  • Primary Care Nurse Practitioner - Graduate Certificate (p. 1491)
  • Nursing Education Option - MSN (p. 1491)
  • Doctor of Nursing: Doctor of Nursing Practice (p. 1489)

Courses

NURS 2017 HONORS INTRO TO NURSING (2) LEC. 2. Pr. Honors College. Study of professional nursing's role as the foundation of the health care system.

NURS 2023 DOSAGE CALCULATION AND MEDICAL TERMINOLOGY FOR HEALTHCARE PROFESSIONALS (1) DSL. Provides fundamental dosage calculation and medical terminology concepts essential for professional nursing and/or healthcare practice. Course may be repeated for a maximum of 2 credit hours.

NURS 3110 THEORETICAL CONCEPTS OF PROFESSIONAL NURSING PRACTICE (3) LEC. 3. Coreq. NURS 3141 and NURS 3130. Exploration of essential professional nursing concepts.

NURS 3120 NURSING PATHOPHYSIOLOGY (3) LEC. 3. Coreq. NURS 3130 and NURS 3141. Admission to the School of Nursing Upper Division. Pathophysiological concepts that guide nursing professionals in the assessment, planning, implementation and evaluation of care for patients across the lifespan.

NURS 3130 EVIDENCE BASED SKILLS, ASSESSMENT, AND HEALTH PROMOTION (4) LEC. 4. Coreq. NURS 3141 and NURS 3110. Integration of current evidence to guide nursing skills, assessment, and health promotion.

NURS 3141 CONCEPTS AND EVIDENCE BASED SKILLS FOR PROFESSIONAL CLINICAL PRACTICE (3) LAB. 9. SU. Coreq. NURS 3130 and NURS 3110. Application of foundational nursing concepts, skills, and assessment across the lifespan in diverse settings with emphasis on health promotion.

NURS 3210 CLINICAL PHARMACOLOGY (3) LEC. 3. Pr. NURS 3120 or NURS 3123. Nurse's role in therapeutic pharmacology.

NURS 3231 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN - CLINICAL (4) LAB. 12. SU. Pr. NURS 3212 or NURS 3120. Coreq. NURS 3210 and NURS 3230. Application of concepts inherent in the delivery of nursing care for acutely ill individuals and their families.


NURS 3730 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN (2) LEC. 2. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3330 and NURS 3731. Concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3731 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN CLINICAL (2) LAB. 2. SU. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3730. Clinical application of concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3813 HOLISTIC NURSING PATHOPHYSIOLOGY & HEALTH ASSESSMENT (6) DSL. 6. Coreq. NURS 3843. Pathophysiologival concepts that guide professional nurses in assessment, planning, implementation and evaluation of holistic care for patients across the lifespan.


NURS 3843 FORMATION OF PROFESSIONAL NURSING PRACTICE (5) DSL. 5. Coreq. NURS 3813. Admission to the School of Nursing RN to BSN Program. Examines concepts, theories, and competencies fundamental to the formation of professional nursing practice.

NURS 3940 HEALTHCARE AND LEADERSHIP IN NURSING ABROAD (3) LEC. 45. LAB. 0. Pr. NURS 3230 and NURS 3330. Study abroad learning opportunity to explore healthcare, culture, cultural values, nursing leadership, and nursing regulation in Seville, Spain.

NURS 3970 SPECIAL TOPICS IN NURSING (3) LEC. 3. Focused study plan designed for students who are out of sequence in the professional nursing curriculum. Course may be repeated for a maximum of 6 credit hours.

NURS 4110 CHILDREN WITH CHRONIC ILLNESS (3) LEC. 3. Departmental approval. Pr., Senior-level student in Nursing. Theories and concepts of care of children with special needs and/or chronic health problems.

NURS 4120 CAMP NURSING (2) LAB. 6. SU. Pr., Senior-level student in Nursing. Clinical experience in the care of children with chronic conditions in a camp setting.

NURS 4130 NURSING THE ART OF CARING (2) LEC. 2. Pr., Senior-level student in Nursing. Philosophical, social, and ethical principles inherent in the practice of professional nursing. Emphasis is on caring as a philosophy to guide clinical practice.

NURS 4140 CONTEMPORARY HEALTH ISSUES OF WOMEN (2) LEC. 2. Pr., Senior-level student in Nursing. Exploration of the health care delivery system as it pertains to women.

NURS 4150 HUMAN SEXUALITY IN HEALTH AND ILLNESS (2) LEC. 2. Pr., Senior-level student in Nursing. Human sexuality in relation to the health-illness continuum. Sexuality across the lifespan.

NURS 4160 SPIRITUAL PERSPECTIVES IN NURSING (2) LEC. 2. Pr., Senior-level student in Nursing. Use of the nursing process to help clients with various spiritual orientations meet spiritual needs.

NURS 4170 CARDIOLOGY FOR NURSES (2) LEC. 2. Pr., Senior-level student in Nursing. Emphasis on the nurse's role in the management of clients with cardiovascular disorders.
NURS 4180 TRAUMA NURSING (2) LEC. 2. Pr., Senior-level student in Nursing. A broad overview of the specialty of trauma nursing and the multiple factors that affect patient care in an emergency or trauma situation.

NURS 4190 AIDS: A SOCIAL EPIDEMIC (2) LEC. 2. Pr., Senior-level student in Nursing. The psychosocial, physical, emotional, ethical, legal, behavioral, and changing health care needs of clients, families, aggregates and populations as a result of AIDS.

NURS 4210 APPLIED CLINICAL NUTRITION FOR NURSES (2) LEC. 2. Pr. NUFS 2000 or NTRI 2000 or NTRI 2003 or NTRI 2007. Pr., Senior-level student in Nursing. Interdependent function of the nurse as a provider of nutritional care for the individual.

NURS 4220 INTEGRATIVE HEALING THERAPIES (2) LEC. 2. Pr., Senior-level student in Nursing. Theoretical and empirical bases for the use of selected interventions in clinical nursing practice.

NURS 4230 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS (5) LEC. 5. Pr. NURS 3120 or NURS 3123. Coreq. NURS 4231. Concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4231 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS - CLINICAL (5) LAB. 15. SU. Pr. NURS 3120 or NURS 3123. Coreq. NURS 4230. Applications of concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4240 CULTURAL EXPEDITIONS IN HEALTH CARE (2) LEC. 2. Pr., Senior-level student in Nursing. Hands-on experience with different aspects of culture including an overnight stay in a replica of a third world global village.

NURS 4250 COMPLICATIONS OF OBSTET NURSIN (2) LEC. 2. Pr., Senior-level student in Nursing. Concepts and theories underlying nursing care of complications of the childbearing family.

NURS 4260 MENTORING IN NURSING (2) LEC. 1. LAB. 3. Pr. NURS 3720 and NURS 3721. Pr., Senior-level student in Nursing. Theoretical and practical aspects of peer mentoring.

NURS 4270 PERIOPERATIVE NURSING (2) LEC. 1. LAB. 6. Pr., Senior-level student in Nursing. A broad overview focusing on the specialty area of peri-operative nursing and the multiple factors that will impact patient care from the preoperative phase through the recovery phase. Fall.

NURS 4280 ANIMAL-ASSISTED THERAPY (2) LEC. 2. Theoretical foundations and guidelines for practice of animal-assisted therapy.

NURS 4290 EVIDENCE BASED PRACTICE (2) LEC. 2. Pr. NURS 3230. Application of appropriate research findings and other evidence to influence nursing practice.

NURS 4310 INTERPROFESSIONAL EDUCATION EXPERIENCE (2) LEC. 2. Pr. NURS 3230. Nursing student collaboration with pharmacy professional practice teams in delivering care to patients in their home environments.

NURS 4810 PROFESSIONAL NURSING LEADERSHIP IN MICROSYSTEMS (2) LEC. 2. Pr. NURS 3230 and NURS 3231. The study of leadership and management concepts for direct patient care.

NURS 4833 LEADERSHIP AND MANAGEMENT IN PROFESSIONAL NURSING (3) DSL. 3. Pr. NURS 3813 and NURS 3843. Coreq. NURS 3833. Admission into Online RN-to-BSN Program. Addresses evidence-based leadership/management competencies for the professional nurse working with interprofessional team.

NURS 4843 TRANSITION TO PROFESSIONAL NURSING PRACTICE (6) DSL. 6. Pr. NURS 4833 and NURS 3833. Coreq. NURS 4853. Admission into Online RN-to-BSN Program. Integrate past nursing practice and acquired knowledge, skills, and attitudes for transition to the professional nursing role.


NURS 4900 INDEPENDENT STUDY IN NURSING (1-6) IND. Directed readings and/or clinical study in student-selected areas related to nursing. Course may be repeated for a maximum of 6 credit hours.

NURS 4930 COMMUNITY ASSESSMENT PROJECT (1) LEC. 1. LAB. 15. Pr. (NURS 3130 or NURS 3220) and NURS 4230 and NURS 4231. Coreq. NURS 4911 and NURS 4910. Capstone course for a community assessment project completed throughout the nursing program.
NURS 4970 SPECIAL TOPICS IN NURSING (1-4) STU. SU. Focused study plan designed for students who have not met an identified curricular benchmark. Course may be repeated for a maximum of 4 credit hours.

NURS 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

NURS 7110/7116 ADVANCED PHYSICAL ASSESSMENT/APPLIED CLINICAL CONCEPTS I (3) LEC. 2, LEC. 4. Departmental approval. Focus is on assessment, knowledge and techniques required for master's level prepared nurses in a clinical setting. Admission to the MSN Program

NURS 7120/7126 QUALITY IMPROVEMENT/PROCESS MGT. FOR APNS (3) LEC. 3. Addresses elements of quality improvements and organizational responsibilities related to quality assurance. May count either NURS 7120 or NURS 7126.

NURS 7220/7226 ROLES AND ISSUES OF THE PRIMARY CARE PRACTITIONER (3) LEC. 3. Departmental approval. This course explores the complex process of role development for the advanced practice nurse within current health care systems. Competencies and role development issues of advanced nursing practice are included. Role transition and strategies for facilitating role acquisition and implementation including social, legal and ethical issues governing advanced practice in primary health care are addressed. Admission to the MSN Program

NURS 7230/7236 ADVANCED PATHOPHYSIOLOGY (3) LEC. 3. Admission to the MSN Program or permission of MSN faculty. In-depth understanding of Pathophysiology associated with complex conditions to determine treatment options and prevention strategies across the lifespan.

NURS 7240/7246 ADVANCED PHARMACOLOGY (3) LEC. 3. Pr. NURS 7230 or NURS 7236. Admission to the MSN Program or permission of MSN faculty. Provides a process for students to think pharmacotherapeutically which is identifying a disease process, select a treatment based on the treatment goals, and how to adjust therapy.

NURS 7250/7256 HEALTHCARE POLICY AND ETHICS FOR THE NURSE LEADER (3) LEC. 3. Departmental approval. This course addresses the U.S. health care delivery system at micro and macro levels, problems, principles and the alternatives for managing problems in a systematic manner. Health policy, economic, and ethical principles and the relationship of these concepts to advocacy and leadership roles are explored. Admission to the MSN Program

NURS 7260/7266 NURSE EDUCATOR: TRANSITION TO A FACULTY ROLE (3) LEC. 3. Provides the nurse educator with a understanding regarding the components of the nurse faculty role. The student will explore dynamics that influences the development of the role and attainment of success in higher education.

NURS 7310/7316 TRANSITION TO ADVANCED PRACTICE NURSING (2) LEC. 2. This course is designed to introduce the Masters student to scholarly writing and inquiry for evidence-based practice. The principles of synthesis in writing and understanding of research are addressed. Course may be repeated for a maximum of 4 credit hours.

NURS 7320/7326 CURRICULUM DEVELOPMENT AND EVALUATION (3) LEC. 3. Departmental approval. Analysis and evaluation of curriculum construction, selection of teaching strategies for diverse groups and individuals, and evaluation of learning outcomes in education of patients, health providers, and nursing students. Admission to the MSN Program

NURS 7330/7336 DIAGNOSTIC REASONING AND CLINICAL MANAGEMENT (3) LEC. 3. Pr. NURS 7110 or NURS 7116. Focus is on the process of collecting data and arriving at diagnostic and therapeutic conclusions to guide clinical management for patients. Preq: NSG 6671, NSG 6649, NURS 7110.

NURS 7340/7346 ADVANCED THEORETICAL FOUNDATIONS OF NURSING (3) LEC. 3. Departmental approval. Students explore the theoretical foundations of advanced nursing practice. The roles of the Master's prepared nurse are explored, along with central concepts inherent to nursing practice. Theories from nursing and related disciplines are examined with emphasis on application of theory to nursing practice. Admission to the MSN Program

NURS 7350/7356 QUALITY, SAFETY, AND PREVENTION USING TECHNOLOGY (3) LEC. 3. Departmental approval. This course examines the concepts of clinical illness prevention, population health, quality and safety in health care, and the use of information technologies. Admission to the MSN Program

NURS 7360/7366 EVIDENCE-BASED PRACTICE I (2) LEC. 2. Departmental approval. This course is designed to introduce the Master's student to evidence-based practice. The foundations of EBP are explored including search strategies, research critique, and applications of EBP in advanced practice. Synthesis and evaluation of evidence using various models will be discussed. Admission to the MSN Program
NURS 7370/7376 EVIDENCE-BASED PRACTICE II (2) LEC. 2, Pr. NURS 7360 or NURS 7366 or departmental approval. This course focuses on the concepts necessary for implementation and evaluation of an EBP project. Data collection tools, data analysis, and the presentation of data will be explored. Students will discuss change strategies, protection of human subjects, and the development of measurable outcomes. Admission to the MSN Program.

NURS 7430 EVIDENCE BASED NURSING PRACTICE (2) LEC. 2, Pr. NURS 7316 or NURS 7310. This course is designed to introduce the Masters student to evidence-based practice (EBP). The foundations of EBP are explored including evidence-based models, search strategies, synthesis, and evaluation of research and other evidence, and application of EBP in advanced practice. Course may be repeated for a maximum of 4 credit hours.

NURS 7440/7446 PRIMARY CARE I: WOMEN AND CHILDREN (3) LEC. 1, SEM. 2, Pr. NURS 7330 or NURS 7336. Admission to the MSN Program, completion of pre-requisites, or departmental approval. Focus is on the primary care nurse practitioner's role in managing common acute and chronic health problems in the women and pediatric population in a variety of primary care settings.

NURS 7540 IMPLEMENTATION AND EVALUATION OF EVIDENCE-BASED NURSING PRACTICE (2) LEC. 2, Pr. NURS 7436 or NURS 7430. This course focuses on the concepts necessary for implementation and evaluation of an evidence-based practice project. Data collection tools, data analyses, and interpretation of data analysis will be explored. Students will discuss change strategies, development of measurable outcomes and dissemination of any results. Course may be repeated for a maximum of 4 credit hours.

NURS 7550/7556 PRIMARY CARE II: ADULTS AND ELDERLY (3) LEC. 1, SEM. 2, Pr. NURS 7330 or NURS 7336. Admission to the MSN Program, completion of pre-requisites, or departmental approval. Focus is on the primary care nurse practitioner's role in managing common acute and chronic health problems in the adult and geriatric population in a variety of primary care settings.

NURS 7810/7816 NURSING EDUCATION PRACTICUM (3) PRA. 3, Pr. (NURS 7340 or NURS 7346) and (NURS 7350 or NURS 7356) and (NURS 7360 or NURS 7366) and (NURS 7320 or NURS 7326) and (NURS 7370 or NURS 7376) and (NURS 7250 or NURS 7256) and EDLD 8500 or departmental approval. Synthesis of educational theories, research, and strategies in applying the roles of the educator in teaching clients, students, or care providers. Selected educational settings provide opportunities to practice the roles of the educator under guidance of qualified preceptor. This course will be a combination of professional seminars and teaching practice (180 hours). Admission to the MSN Program.

NURS 7920/7926 PRIMARY CARE PRACTICUM (7) LEC. 1, LEC. 6, Pr. (NURS 7440 or NURS 7446) and (NURS 7550 or NURS 7556) or departmental approval. This course focus is on the application of knowledge and skills in the transition to the role of the primary care nurse practitioner. Admission to the MSN Program, completion of pre-requisites.

NURS 7940/7946 EVIDENCE-BASED PRACTICE III (2) LEC. 2, Pr. (NURS 7370 or NURS 7376) and (NURS 7360 or NURS 7366) or departmental approval. The focus of this course is the application of evidenced based practice concepts in advanced nursing practice. EBP III is a practicum course in which the student may implement the project proposed in EBP I & II or prepare a manuscript from that project that synthesizes the evidence and submit to a national refereed professional journal. Admission to the MSN Program.

NURS 8320/8326 INFORMATICS AND MANAGEMENT OF HEALTH OUTCOMES (3) LEC. 3, Admission to DNP Program. Provides the DNP student with knowledge and skills to access and utilize health care data. May count either NURS 8320 or NURS 8326.

NURS 8330/8336 QUANTITATIVE METHODS FOR EVIDENCE-BASED PRACTICE (3) LEC. 3, Admission to DNP Program. Provides the DNP student with clinical data management and outcome skills with an essential component of any EBP. May count either NURS 8330 or NURS 8336.

NURS 8410/8416 THEORY APPLICATION FOR ADVANCED PRACTICE (3) LEC. 3, Admission to DNP Program. The course is the basis for the Doctor of Nursing Practice (DNP) project by identifying and investigating the various phenomena of interest in student's practice area. May count either NURS 8410 or NURS 8416.

NURS 8420/8426 POPULATION HEALTH OUTCOMES (3) LEC. 3, Admission to DNP Program. Provides the DNP student with knowledge and skills to examine population health issues across the lifespan, globally and regionally. May count either NURS 8420 or NURS 8426.

NURS 8430/8436 FINANCIAL MANAGEMENT FOR ADVANCED PRACTICE (3) LEC. 3, Admission to DNP Program. Provides DNP student with the knowledge and skills necessary to identify, evaluate, and consider costs associated with implementing and sustaining change. May count either NURS 8430 or NURS 8436.
**NURS 8440/8446 LEADERSHIP FOR ADVANCED HEALTH POLICY (3)** LEC. 3. Admission to DNP Program. Provides the DNP student with the knowledge and skills to be a leader in health care and to influence health policies at multiple levels. May count either NURS 8440 or NURS 8446.

**NURS 8510/8516 FOUNDATION FOR EVIDENCE-BASED PRACTICE (3)** LEC. 3. Admission to DNP Program. Provides the DNP student with the methodological basis for translating evidence into practice systems in a variety of health care environments. May count either NURS 8440 or NURS 8446.

**NURS 8540/8546 ADVANCED PRACTICE PRACTICUM (2)** LEC. 2. Provides the DNP student with opportunity to synthesize advanced practice knowledge and role behaviors in a advanced practice role. May count either NURS 8540 or NURS 8546. Course may be repeated for a maximum of 6 credit hours.

**NURS 8710/8716 TRANSITIONAL SKILLS FOR DNP PRACTICE (2)** LEC. 2. Admission to DNP Program. Provides the DNP student with the knowledge and skills to develop their DNP role as a leader in health care improvement efforts. May count either NURS 8710 or NURS 8716.

**NURS 8720/8726 HEALTH INNOVATIONS AND CLINICAL OUTCOMES IMPROVEMENTS (3)** LEC. 3. Admission to DNP Program. Provides the DNP student with knowledge and skills to develop, implement, and evaluate programs that improve health. May count either NURS 8720 or NURS 8726.

**NURS 8930/8936 DNP PROJECT PRACTICUM I : DEVELOPMENT (3)** LEC. 3. Pr. NURS 8516 and NURS 8716. First in a three-course sequence which provides the DNP student with the tools and direction needed to develop a comprehensive project proposal. May count either NURS 8930 or NURS 8936.

**NURS 8940/8946 DNP PROJECT PRACTICUM II : IMPLEMENTATION (4)** LEC. 4. Pr. NURS 8516 and NURS 8716. Second in a three-course sequence for the DNP student to execute the project plan in collaboration with the agency site. May count either NURS 8940 or NURS 8946.

**NURS 8950/8956 DNP PROJECT PRACTICUM III : EVALUATION AND PRESENTATIONS (4)** LEC. 4. Pr. NURS 8516 and NURS 8716. Third in a three-course sequence for the DNP student finalize, evaluate, and disseminate their DNP project. May count either NURS 8950 or NURS 8956.

### Curriculum in Nursing - Traditional

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<th>Fall</th>
<th>Hours</th>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>&amp; BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td>Core Literature OR Core Humanities</td>
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<td>PHIL 1020 Introduction to Ethics or 1030 Ethics and the Health Sciences</td>
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<td>HDFS 2010 Lifespan Human Development in Family Context</td>
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¹ Social Science Core includes courses in History, Literature, Fine Arts, and Social Science. ² Core Literature includes courses in English Composition I and II. ³ Core Social Science includes courses in Psychology, Sociology, and Anthropology.
### Fall Admissions

**Junior**

**Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 3110</td>
<td>Theoretical Concepts of Professional Nursing Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 3120</td>
<td>Nursing Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 3130</td>
<td>Evidence Based Skills, Assessment, and Health Promotion</td>
<td>4</td>
</tr>
<tr>
<td>NURS 3141</td>
<td>Concepts and Evidence Based Skills for Professional Clinical Practice</td>
<td>3</td>
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</table>

**Junior**

**Spring**

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>NURS 3210</td>
<td>Nursing Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 3230</td>
<td>Professional Nursing Concepts: Acute Care Across the Lifespan</td>
<td>6</td>
</tr>
<tr>
<td>NURS 3231</td>
<td>Professional Nursing Concepts: Acute Care Across the Lifespan - Clinical</td>
<td>4</td>
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<tr>
<td></td>
<td>NURS 3730 Professional Nursing Concepts: Mental Health Across the Lifespan</td>
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<td>NURS 3731 Professional Nursing Concepts: Mental Health Across the Lifespan - Clinical</td>
<td>2</td>
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<tr>
<td></td>
<td>NURS 4810 Professional Nursing Leadership in Microsystems</td>
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**Senior**

**Fall**

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<tr>
<th>Course Code</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>NURS 4230</td>
<td>Professional Nursing Concepts: Chronic and Complex Conditions</td>
<td>5</td>
</tr>
<tr>
<td>NURS 4231</td>
<td>Professional Nursing Concepts: Chronic and Complex Conditions - Clinical</td>
<td>5</td>
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<tr>
<td>NURS 4290</td>
<td>Evidence Based Practice</td>
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<tr>
<td>Elective (optional-major)</td>
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**Spring**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NURS 4910</td>
<td>Professional Nursing Leadership in Complex Systems</td>
<td>3</td>
</tr>
<tr>
<td>NURS 4911</td>
<td>Leadership Practicum</td>
<td>2</td>
</tr>
<tr>
<td>NURS 4920</td>
<td>Transitions to Professional Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 4921</td>
<td>Nursing Practice Preceptorship</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>NURS 4930 Community Assessment Project</td>
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</tr>
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<td></td>
<td>UNIV 4AA0 University Graduation</td>
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</table>

### Spring Admission
<table>
<thead>
<tr>
<th>Junior</th>
<th>Hours</th>
<th>Fall</th>
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<tbody>
<tr>
<td>NURS 3110 Theoretical Concepts of Professional Nursing Practice</td>
<td>3</td>
<td>NURS 3330 Professional Nursing Concepts in the Childbearing Family and Reproductive Health</td>
</tr>
<tr>
<td>NURS 3120 Nursing Pathophysiology</td>
<td>3</td>
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<tr>
<td>NURS 3130 Evidence Based Skills, Assessment, and Health Promotion</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>NURS 3141 Concepts and Evidence Based Skills for Professional Clinical Practice</td>
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<table>
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<tr>
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<tr>
<td>NURS 3230 Professional Nursing Concepts: Acute Care Across the Lifespan</td>
<td>6</td>
<td>NURS 3331 Professional Nursing Concepts in the Childbearing Family and Reproductive Health - Clinical</td>
</tr>
<tr>
<td>NURS 3231 Professional Nursing Concepts: Acute Care Across the Lifespan - Clinical</td>
<td>4</td>
<td>Elective Optional Major</td>
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<tr>
<td></td>
<td></td>
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<tr>
<td></td>
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<thead>
<tr>
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<th>Summer</th>
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<td>NURS 4921 Nursing Practice Preceptorship</td>
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<td></td>
<td></td>
<td>UNIV 4AA0 University Graduation</td>
</tr>
</tbody>
</table>

TOTAL HOURS - 125-127

Curriculum guides for the junior and senior year vary according to semester of admission to professional program.

1 Students must choose between PSYC 2010 or SOCY 1000 for at least 3 hrs if their social science credit.

2 Must have History sequence and one Literature course OR a Literature sequence and one History course.

3 Students who have AP or transfer credit for US History must complete one of the following: ECON 2020, ECON 2030, POLI 1050, or POLI 1090 as a social science.
Students must make a "C" or better in all PNUR and NURS courses

James Harrison School of Pharmacy

RICHARD HANSEN, Dean
PAUL JUNGNICKEL, Associate Dean for Academic and Student Affairs
DAVID RIESE, Associate Dean for Research and Graduate Programs

DANIEL SURRY, Associate Dean for Curriculum and Assessment

KAREN MARLOWE, Assistant Dean for Mobile Campus
KIMBERLY BRAXTON-LLOYD, Assistant Dean for Health Services

VISHNU SUPPIRAMANIAM, Assistant Dean for Research and Graduate Programs

THE AUBURN Doctor of Pharmacy (PharmD) degree program is a four-year course of study that requires the completion of the pre-pharmacy curriculum prior to enrollment. The curriculum is designed to facilitate the development of those abilities necessary for entry-level practitioners in various practice settings. Consistent with accreditation standards and guidelines, the curriculum provides an appropriate balance of course work in the following areas: biomedical sciences (basic and clinical); pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; pharmacy practice; and pharmacy practice experience. The goal of the curriculum is to prepare students who are ready to enter practice at the time of graduation and are life-long learners. To accomplish this, the curriculum involves students in continuous patient care responsibilities starting upon entry into the School. Students also participate as active, self-directed learners in interdisciplinary teaching models. Team-based learning is extensively utilized.

Admission

Course requirements for admission to the James Harrison School of Pharmacy may be satisfied by completing the Pre-Professional Curriculum in the College of Sciences and Mathematics. Any or all of these requirements may be met by transfer of appropriate credit from other institutions.

Admission is limited and is contingent upon available facilities and faculty. To be considered for admission the applicant must have a satisfactory GPA and satisfactory scores on the Pharmacy College Admissions Test (PCAT). A grade of D in any prerequisite course will not be accepted. Students are matriculated into the James Harrison School of Pharmacy only during fall semester. All pre-pharmacy course work must be completed by the end of the summer term before the professional program begins at the start of fall semester.

Applicants must apply to the James Harrison School of Pharmacy through the Pharmacy College Application Service (PharmCAS) and must also complete the School's Supplemental Application. The James Harrison School of Pharmacy admits students using a rolling admissions process and student applications are prioritized in the order in which they are received. The final deadline for receipt of all application materials is March 1. Students who are successful in meeting the school's initial screening criteria are required to come to the campus for a personal interview in order to be further considered for admission.

The James Harrison School of Pharmacy's Doctor of Pharmacy Program admits students to two campuses: the main Auburn Campus and the Mobile Campus located at the University of South Alabama. Students may express a preference for a specific campus, but assignments are made based on available space. Admitted students are notified of their campus assignment at the time an offer of admission is made.

Prospective students may obtain application materials and information, which further outlines policies and procedures, from the school’s website at www.pharmacy.auburn.edu or by contacting the Office of Academic and Student Affairs, 2316 Walker Building, Auburn, AL 36849-5501. Applications through PharmCAS are submitted online at  http://www.pharmcas.org/ .

Admission Requirements

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>4</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
<td>1</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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</tbody>
</table>
ENGL 1100 English Composition I 3 PHIL 1030 Ethics and the Health Sciences 3
Literature 3 or other philosophy course 3
MATH 1610 Calculus I 4 Additional Humanities 3
PHYS 1500 General Physics I 4 Core Fine Arts 3
Core History 3 Core History 3
CHEM 2070 Organic Chemistry I 3 CHEM 2080 Organic Chemistry II 3
CHEM 2071 Organic Chemistry I Laboratory 1 CHEM 2081 Organic Chemistry II Laboratory 1
BIOL 2500 Human Anatomy and Physiology I 4 STAT 2510 Statistics for Biological and Health Sciences 3
BIOL 3200 General Microbiology 3 BIOL 2510 Human Anatomy and Physiology II 4
BIOL 3201 General Microbiology Laboratory 1 BIOL 3020 Genomic Biology 2 4
BIOL 5600 Mammalian Physiology (Biomedical Physiology) 5 BCHE 3200 Principles of Biochemistry 3
Core Social Science 3 BIOL 3500 Perspectives in Immunology 3
Core Social Science 3

Total Hours: 88

1 Specific prerequisite requirements may be waived by the Associate Dean for Academic and Student Affairs for students who will be entering the Harrison School of Pharmacy with a bachelor’s degree. Applicants should contact the School’s Office of Academic and Student Affairs for additional information.

2 BIOL 3000 can be substituted for BIOL 3020

3 BIOL 5500 can be substituted for BIOL 3500

Doctor of Pharmacy

A copy of the revised Doctor of Pharmacy Curriculum is attached to this proposal.

File: Revised PharmD Curriculum.pdf

The revised curriculum will be phased in over 4 years

During the implementation process, there will be Doctor of Pharmacy students in both the current curriculum and in the revised curriculum.

• Year 1 Pharmacy Curriculum - FALL 2017 (Students in Years 2, 3 & 4 will remain in the current curriculum)
• Year 2 Pharmacy Curriculum - FALL 2018 (Students in Years 3 & 4 will remain in the current curriculum)
• Year 3 Pharmacy Curriculum - FALL 2019 (Students in Year 4 will remain in the current curriculum)
• Year 4 Pharmacy Curriculum - FALL 2020 (All students will be in the revised PharmD curriculum)

NOTE: A new course prefix (PYPD) that is unique to courses in the revised Doctor of Pharmacy Program has been created. Courses in the existing curriculum will continue to use the PYDI prefix (for the most part) while courses in the new curriculum will use the new PYPD prefix (for the most part). This will enable the faculty, staff, students, and other stakeholders to quickly and easily keep track of which courses are associated with the current curriculum and which are associated with the revised curriculum.

Academic Performance Standards

The implementation of all guidelines will be in addition to those existing policies and standards of the University.

To remain in good standing, students are required to achieve a James Harrison School of Pharmacy GPA of at least 2.25. GPAs will be calculated only from professional course work, which is defined as core pharmacy courses approved by the faculty and listed in the Doctor of Pharmacy curriculum.

The James Harrison School of Pharmacy students with semester or cumulative GPAs below 2.25, or who receive Ds and Fs in required courses, may be dismissed from the James Harrison School of Pharmacy or required to undergo a remedial plan of study as directed
by the Committee on Academic Requirements and Professionalism. The remedial plan of study may require students to retake courses in which they received grades of less than C. Policies concerning academic progression, probation, and dismissal are specified in the James Harrison School of Pharmacy’s Academic Performance Standards. A copy of the Standards may be obtained from the James Harrison School of Pharmacy’s Office of Academic and Student Affairs or from the School’s website.

Students must observe pre-requisites and co-requisites stated in the current Auburn University Bulletin. A pre-requisite statement denoting " -year PYDI standing" indicates that the student must have passed all courses in the prior year of the curriculum.

Notes:

- Students are required to file an application with the Alabama State Board of Pharmacy for registration as an intern at the time they are enrolled in the James Harrison School of Pharmacy. Information and intern registration forms may be obtained from the Alabama State Board of Pharmacy, 111 Village Street, Hoover, AL 35242, or at www.albop.com. Students must maintain a valid Alabama Internship License as a condition of continued enrollment in the James Harrison School of Pharmacy.
- Upon entering pharmacy school, and at the beginning of each academic year, students are required to furnish documentation of professional liability insurance, current CPR and First Aid certification, personal medical insurance and up-to-date immunizations. Students who fail to maintain documentation will be dis-enrolled and will not be allowed to re-enroll until current documentation has been provided.
- Pharmacy students are required to attend the Professional Seminar Series.
- Questions about computer specifications should be directed to the School’s Office of Information Technology. Computer literacy must be demonstrated upon entry to pharmacy school.
- Students are required to adhere to all of the James Harrison School of Pharmacy’s codes, policies, and professional requirements. The School will take disciplinary action against those students who violate such codes, policies, and professional requirements.
- Students will be required to periodically take examinations and other assessments to assess their ability to integrate the knowledge, skills, and attitudes learned to date. Students may be required to complete remedial course work should their performance be unsatisfactory.
- Consistent with the policies of Auburn University, The James Harrison School of Pharmacy reserves the right to make changes at any time in its academic programs, codes, policies, and professional requirements.
- Students will be notified of their site assignments for the Advanced Practice Experiences at the earliest feasible time, to enable them to make housing arrangements. Rotation sites are located throughout Alabama, western Georgia, the Mississippi Gulf Coast, and the Florida panhandle. Although students may request specific sites, each site has a limited enrollment and students may be assigned to sites they do not request. Students are responsible for procuring housing, including the assessment of its safety and living conditions. Students are also responsible for housing and other living expenses incurred when assigned to rotation sites away from the Auburn campus.

Degrees

- Health Outcomes Research and Policy - MS (p. 1459)
- Health Outcomes Research and Policy - PhD (p. 1501)
- Medicinal Chemistry - MS (p. 1486)
- Medicinal Chemistry - PhD (p. 1487)
- Pharmaceutics - MS (p. 1500)
- Pharmaceutics - PhD (p. 1501)
- Pharmacology - MS (p. 1504)
- Pharmacology - PhD (p. 1505)

Drug Discovery and Development Courses

**DRDD 5800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING** (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

**DRDD 6800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING** (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

**DRDD 7000 INTRODUCTION TO GRANT WRITING** (3) LEC. 3. Departmental approval. Course will train students to prepare NIH RO1 grant applications. Students will prepare mock applications on topics of their choosing.
DRDD 7010 PHARMACOKINETICS (4) LEC. 4. Departmental approval. Pharmacokinetic and pharmacodynamic principles and methods used to study the absorption, distribution, metabolism and excretion of drugs.

DRDD 7020 SCIENCE AND TECHNOLOGY OF TABLETING (2) LEC. 2. Pr. (PYPS 7030 or DRDD 7030) or Departmental approval. Formulation, compression, coating and evaluation of tablets.

DRDD 7021 SCIENCE AND TECHNOLOGY OF TABLETING LAB (2) LAB. 6. Pr. (PYPS 7020 or DRDD 7020). Actual formulation, compression, coating and evaluation of tablets.

DRDD 7030 DRUG PRODUCTS AND BIOPHARM (4) LEC. 4. Departmental approval. Formulation, evaluation, and use of various pharmaceutical dosage forms including biopharmaceutical aspects.

DRDD 7040 PHYSICAL PHARMACY (4) LEC. 4. Departmental approval. Application of physical chemical principles to dosage form design and evaluation.

DRDD 7050 NOVEL DOSAGE FORMS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Theoretical basis and design of controlled release and site specific drug delivery systems.

DRDD 7060 FORMULATION AND DELIVERY OF PEPTIDE/PROTEIN DRUGS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Formulation and delivery problems unique to peptide/protein pharmaceuticals and strategies to overcome such problems.


DRDD 7080 ADVANCED BIOPHARMACEUTICS (3) LEC. 3. Pr. PYPS 7010 or DRDD 7010. The mathematical and pharmacokinetic relationships between physical and chemical properties of a drug and its dosage form and biological effects.

DRDD 7090 PHARMACEUTICAL SCIENCE I: TARGETS (4) LEC. 4. Pharmaceutical Science Graduate Student or Departmental Approval. Study of nature and function of drug targets, advanced molecular mechanisms by which drugs interact with these targets and the basic principles of drug design.

DRDD 7100 PHARMACEUTICAL SCIENCE II: ADME (4) LEC. 4. Pharmaceutical Science Graduate Student or Departmental Approval. Study of the mechanisms of drug absorption, distribution, metabolism and elimination with an advanced study of drug design strategies and methods to optimize these processes.

DRDD 7110 STABILITY KINETICS OF PHARMACEUTICALS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Principles of chemical kinetics as applied to the unique stability problems of the various pharmaceutical dosage forms.

DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I (3) LEC. 3. Departmental approval. Explanation of the principles of Medicinal Chemistry progressing to qualitative and quantitative descriptions of the synthesis, influence of physical and chemical properties of chemical substances on biological activity and biodisposition.

DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II (3) LEC. 3. Pr. PYPS 7230. Departmental approval. Advanced study of organic medicinal agents featuring organic synthesis, chemical and pharmacological properties and current literature topics.

DRDD 7250 DRUG ACTION AND DESIGN (3) LEC. 3. Pr. (PYPS 7230 or DRDD 7230) and (PYPS 7240 or DRDD 7240). Modern molecular modeling methods with emphasis on computer-aided drug design, quantitative structure activity relationships and combinatorial chemistry.

DRDD 7260 SEPARATION SCIENCE (4) LEC. 4. Departmental approval. A survey of modern separation science with emphasis on analytical scale techniques including gas chromatography, liquid chromatography and electrokinetic separations.

DRDD 7270 MASS SPECTROMETRY OF ORGANIC COMPOUNDS (4) LEC. 4. Departmental approval. A survey of modern techniques in mass spectrometry with emphasis on fragmentation chemistry and structure education.

DRDD 7290 NEUROPHARMACOLOGY OF DRUG ABUSE (2) LEC. 2. Departmental approval. An in-depth study of drugs of abuse, including mechanisms of action, pharmacokinetics, addiction, physical dependence and the effects of drug use during pregnancy. Substance abuse treatment strategies will also be discussed.
DRDD 7300 NEUROPHARMACOLOGY (3) LEC. 3. Neurochemical mechanisms related to the pharmacological actions of medicinal agents affecting the central nervous system.

DRDD 7310 PSYCHOPHARMACOLOGY I (3) LEC. 3. Discussions on anxiety, depression and related disorders.

DRDD 7320 PSYCHOPHARMACOLOGY II (3) LEC. 3. Discussions on schizophrenia, Alzheimer's disease, experimental methods and animal models of disorders.

DRDD 7330 PHARMACOLOGY RESEARCH METHODS (3) LEC. 1. LAB. 9. Experimental design, research methods and data analysis in pharmacology.

DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I (3) LEC. 3. The course will evaluate the basic principles and rationale for current and novel pharmaceutical therapeutics for various disease states.

DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II (3) LEC. 3. The course will evaluate the mechanism of action and rationale for current and novel pharmaceutical therapeutics for various disease states.

DRDD 7360 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY I (3) LEC. 3. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels.

DRDD 7370 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY II (3) LEC. 3. Pr. PYPS 7360 or DRDD 7360. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels. This is a continuation of PYPS 7360/DRDD 7360.

DRDD 7500 METABOLISM AND DISPOSITION XENOBIOTICS (2) LEC. 2. Portals of entry, absorption, distribution and elimination of drugs and xenobiotics. Metabolic mechanisms relevant to chemical structure and principles of pharmacokinetics will be emphasized.

DRDD 7510 ENVIRONMENTAL TOXICOLOGY (3) LEC. 3. Mechanisms of action of agricultural and industrial chemicals, drugs, radiation, metals, gases, air particulates, food additives, plant and food poisons in the environment.

DRDD 7600 HETEROCYCLIC MEDICINAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7220. Departmental approval. A survey of chemical nature of heterocyclic moieties of medicinal substances with emphasis on methods of synthesis of medicinally important compounds containing a heterocyclic ring.

DRDD 7930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 98 credit hours.

DRDD 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 6 credit hours.

DRDD 7960 SPEC PROB IN PHARM SCIE (1-3) IND. At least 6 credits each with a minimum grade of B in DRDD 7000-7999. Selected study topics in the pharmaceutical sciences. Departmental approval and 6 hours of 7000-level courses. Course may be repeated for a maximum of 6 credit hours.

DRDD 7980 NON-THESIS RESEARCH (1-3) RES. Non-thesis research project, to be determined by faculty advisor and student's graduate advisory committee. Course may be repeated for a maximum of 14 credit hours.

DRDD 7990 RESEARCH AND THESIS (1-10) MST. Research And Thesis. Course may be repeated with change in topics.

DRDD 8930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 10 credit hours.

DRDD 8960 DIRECTED READINGS IN PHARMACAL SCIENCES (1-3) IND. Pr. At least 6 credits each with a minimum grade of B in DRDD 7000-7999. Selected study topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research for doctoral students. Course may be repeated with change in topics.
Health Outcomes Research Pol Courses

HORP 7510 HEALTH SERVICES DELIVERY AND EVALUATION (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Introduction to basic methods and frameworks for undertaking research and program evaluation within health services organizations and systems.

HORP 7520 SOCIAL AND BEHAVIORAL THEORY IN HEALTH (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option. Introduction to the basic theories of behavior and intervention used in practice and research to evaluate changes in health, humanistic, and economic outcomes among patients.

HORP 7530 PHARMACEUTICAL ECONOMICS, OUTCOMES, AND POLICY (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. The graduate-level course is intended to introduce students to concepts relevant to pharmaceutical outcomes, economics, and policy. The course provides foundational knowledge surrounding healthcare.

HORP 7540 PHARMACOEPIDEmiOLOGY: METHODS AND APPLICATIONS (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. STAT 6110 or equivalent SAS training. The course covers topics in pharmacoepidemiology focusing on the methods and applications of analyzing large healthcare claims databases and electronic medical records.

HORP 7720 MOTIVATIONAL INTERVIEWING FOR HEALTH BEHAVIORS (3) LEC. 2, IND/LEC. 1. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Concepts, current research applications, and intervention development training in motivational interviewing for health behavior change interventions.

HORP 7820 RESEARCH METHODS AND DESIGN HEALTH SCIENCE I (2) LEC. 2. Departmental approval. Application of scientific methods in health care.

HORP 7830 RESEARCH METHODS IN THE HEALTH SCIENCES (3) LEC. 3. Pr. PYPC 7820 or HORP 7820. Application of the principles and concepts obtained in PYPC 7820/HORP 7820.

HORP 7840 MEDICATION INFORMATION SYSTEMS (3) LEC. 3. Health system informatics theories and methodologies. Demonstration of how information reduces uncertainty in health-care decision-making.

HORP 7860 THE PHARMACIST’S ROLE IN IMPROVING PATIENT ADHERENCE (3) LEC. 3. Pr. PYPC 7820. Theories and methodologies involved in adherence to medication regimens.

HORP 7870 SOCIAL, BEHAVIORAL, AND ADMINISTRATIVE ASPECTS OF PHARMACY PRACTICE (3) LEC. 3. Theories and applications in social, behavioral, and administrative aspects of pharmacy practice and medication use systems.

HORP 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science MS students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 6 credit hours.

HORP 7960 SPECIAL PROBLEMS IN PHARMACY CARE SYSTEMS (2-3) LEC. Departmental approval. Special problems. Course may be repeated for a maximum of 6 credit hours.

HORP 7980 NON-THESIS RESEARCH (1-3) RES. SU. Pharmaceutical Sciences Non-Thesis MS Graduate Student and approval from the Graduate Program Coordinator. The specific research topic and its credit hour(s) will be decided by the student’s research advisor, in collaboration with the student and the student’s research advisory committee. Course may be repeated for a maximum of 4 credit hours.

HORP 7990 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

HORP 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science PhD students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 10 credit hours.

HORP 8960 SPECIAL PROBLEMS IN PHARMACY CARE SYSTEMS (1-3) LEC. Departmental approval. Credit hours to be arranged. Course may be repeated for a maximum of 6 credit hours.

HORP 8990 RESEARCH AND DISSERTATION (1-10) DSR. Credit hours to be arranged. Course may be repeated with change in topics.
Interdept Pharmacy Courses

PYDI 4980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN PHARMACY (1-3) IND. SU. Departmental approval. Individual problems course. Students will work under the direction of a faculty member on some problem of mutual interest. Course may be repeated for a maximum of 6 credit hours.

PYDI 9000/9006 DRUGS AND DISEASES I (5) LEC. 5. Integrated study of pathophysiology and chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Fall.

PYDI 9010/9016 PATIENT CENTERED SKILLS (2) LEC. 2. Development of methods for developing positive, therapeutic relationships with patients through the application of communications skills (empathy, assertiveness training, effective listening, etc.) and other behavioral interventions. Fall.

PYDI 9020 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE I (2) LAB. 6. This course integrates the skills necessary for the provision of pharmaceutical care. Source material introduces and integrates knowledge and skills focusing on patient assessment and communication. Fall.

PYDI 9100/9106 DRUGS AND DISEASES II (5) LEC. 5. Pr. PYDI 9000 or PYDI 9006 or PYDI 5000 or PYDI 5000. Presents, in an integrated manner, pathophysiology and chemical, pharmacological and biotechnology principles to explain the action of drugs; continuation of PYDI 9000/PYDI9006. Spring.

PYDI 9110/9116 PHARMACY LAW AND ETHICS (2) LEC. 2. Basic legal and ethical principles of pharmaceutical care and their effect on the patient drug use process. Spring.

PYDI 9120 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE II (2) LAB. 6. Pr. PYDI 9020 or PYDI 5020. This course integrates pharmaceutical care skills. Source material introduces and integrates knowledge and skills focusing on pharmaceutical calculations, communication, physical assessment and use of clinical literature. Spring.

PYDI 9136 DRUG LITERATURE EVALUATION (2) DSL. 2. Development of the ability to effectively and efficiently retrieve drug information and critically evaluate and interpret studies published in medical and pharmaceutical literature. Spring.

PYDI 9140/9146 PRINCIPLES OF PHARMACOKINETICS (3) LEC. 3. Pr. PYDI 9000 or PYDI 9006 or PYDI 5000. To prepare students to use pharmacokinetic information and measurements to evaluate drug therapy and recommend appropriate dosing strategies for drug administration and monitoring. Spring.

PYDI 9200/9206 DRUGS AND DISEASES III (8) LEC. 8. Pr. (PYDI 9100 or PYDI 9106 or PYDI 5100) and (PYDI 9140 or PYDI 9146 or PYDI 5140). Presentation in an integrated manner of and pathophysiology chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Continuation of PYDI 9100/PYDI 9106. Fall.

PYDI 9210/9216 PHARMACY PRACTICE DEVELOPMENT, MANAGEMENT, AND EVALUATION I (3) LEC. 3. Overview of the development, management, and evaluation of systems that support the provision of pharmaceutical care for patients in multiple health systems. Fall.

PYDI 9220 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE III (2) LAB. 6. Pr. PYDI 9120 or PYDI 5120. Integrates the provision of pharmaceutical care and pharmacy-specific skills related to drug-related problems. Supportive skills for the pharmaceutical sciences and other integrated skills are a major emphasis. Fall.

PYDI 9230/9236 DRUG PRODUCTS I (3) LEC. 3. Pr. (PYDI 9100 or PYDI 5100 or PYDI 9106 or PYDI 5106) and (PYDI 9120 or PYDI 5120). Physical-chemical and biopharmaceutical principles and technologies used in the preparation of pharmaceutical dosage forms and novel drug delivery systems. Fall.

PYDI 9290 PHARMACY PRACTICE EXPERIENCE III (2) PRA. 2. SU. Pr. PYDI 9190 or PYDI 5190. Third in six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients.

PYDI 9300/9306 DRUGS AND DISEASES IV (8) LEC. 8. Pr. PYDI 9200 or PYDI 9206 or PYDI 5200. Presentation, in an integrated manner, of pathophysiology and chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Continuation of PYDI 9200/PYDI 9206. Spring.

PYDI 9310/9316 PHARMACY PRACTICE DEVELOPMENT, MANAGEMENT, AND EVALUATION II (3) LEC. 3. Pr. PYDI 9210 or PYDI 9216 or PYPC 5210. An overview of the development, management, and evaluation of systems that support the provision of pharmaceutical care for patients in multiple health systems. Continuation of PYDI 9210/PYDI 9216. Spring.
PYDI 9320 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE IV (2) LAB. 6. Pr. PYDI 9220 or PYDI 5220. Continuation of PYDI 9220. Spring.

PYDI 9330/9336 DRUG PRODUCTS II (3) LEC. 3. Pr. (PYDI 9230 or PYDI 9236 or PYPS 5230) and PYDI 9200 or PYDI 5200 or PYDI 9206 and PYDI 9220 or PYDI 5220. Physical-chemical and biopharmaceutical principles and technologies used in the preparation of pharmaceutical dosage forms and novel drug delivery systems. Continuation of PYDI 9230/PYDI 9236. Spring.

PYDI 9390 PHARMACY PRACTICE EXPERIENCE IV (2) PRA. 2. SU. Pr. PYDI 9290. Fourth in a six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients. Spring.

PYDI 9420 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE V (2) LAB. 6. Continuation of PYDI 9320 Fall.

PYDI 9470 INTEGRATED PHARMACOTHERAPY I (6) RCT. 6. Application of the basic, clinical, and socio-behavioral sciences to identifying, preventing and solving health and drug related problems. Fall.

PYDI 9480 INTEGRATED PHARMACOTHERAPY II (6) RCT. 6. Continuation of PYDI 9470. Fall.

PYDI 9490 PHARMACY PRACTICE EXPERIENCE V (2) PRA. 2. SU. Fifth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Fall.

PYDI 9510 GERIATRIC CARE (2) LEC. 25. This course focuses on environmental, psychological, and physiological characteristics that are unique to, or more prevalent among, geriatric patients. Students will be required to evaluate how pharmacists can impact care through interprofessional teams while optimizing the patient’s quality of life.

PYDI 9520 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE VI (2) LAB. 6. Pr. PYDI 9420 or PYDI 5420. Continuation of PYDI 9420.

PYDI 9570 INTEGRATED PHARMACOTHERAPY III (6) RCT. 6. Pr. PYDI 5480 or PYDI 9480. Continuation of PYDI 9480. Spring.

PYDI 9580 INTEGRATED PHARMACOTHERAPY IV (6) RCT. 6. Pr. PYDI 5480 or PYDI 9480. Continuation of PYDI 9570. Spring.

PYDI 9590 PHARMACY PRACTICE EXPERIENCE VI (2) PRA. 2. SU. Pr. PYDI 9490 or PYDI 5490. Sixth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Spring.

PYDI 9600 DRUG INFORMATION-SELECTIVE (5) PRA. 5. Advanced practice experience in providing drug information services to health care providers. Fall, Spring, Summer.

PYDI 9610 COMMUNITY PHARMACEUTICAL CARE (5) PRA. 5. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities. Fall, Spring, Summer.

PYDI 9620 MEDICINE I (5) PRA. 5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Fall, Spring, Summer.

PYDI 9630 MEDICINE II - SELECTIVE (5) PRA. 5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Additional experience beyond PYDI 9620. Fall, Spring, Summer.

PYDI 9640 PRIMARY/AMBULATORY CARE I (5) PRA. 5. Advanced practice experience in providing care to patients as they initially access the health care system. Fall, Spring, Summer.

PYDI 9650 PRIMARY/AMBULATORY CARE II (5) PRA. 5. Advanced practice experience in providing pharmaceutical Care to patients as they initially access the health care system. Continuation of PYDI 9640. Fall, Spring, Summer.

PYDI 9660 HEALTH SYSTEM PRACTICE (5) PRA. 5. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services. Fall, Spring, Summer.

PYDI 9670 PRACTICE ELECTIVE I (5) PRA. 5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYDI 9680 PRACTICE ELECTIVE II (5) PRA. 5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.
PYDI 9690 PROFESSIONAL SEMINAR (1) PRA. 2. SU. Student will demonstrate the ability to evaluate and synthesize pertinent literature, and effectively communicate pharmacotherapy-related material in one platform (seminar) presentation. Spring.

PYDI 9700 ADVANCED PRACTICE EXPERIENCE PROFESSIONAL COMMUNICATION (0) PRA. SU. Students will synthesize pertinent literature, and communicate pharmacotherapy-related material in patient, journal club, in-service, and written presentations. Spring.


PYDI 9720/9726 MOTIVATIONAL INTERVIEWING (2) LEC. 2. Pr. PYDI 9010 or PYDI 9016 or PYPC 5010 or PYPC 5016. Basic and advanced training and exploration of motivational interviewing. Fall

PYDI 9730/9736 DRUGS IN PREGNANCY (2) LEC. 2. Medication issues related to pregnancy and lactation. Fall.

PYDI 9740/9746 PEDIATRIC PHARMACOTHERAPY (2) LEC. 2. Medication issues related to the pediatric population. Fall.

PYDI 9750/9756 ANTITHROMBOTIC/THROMBOLYTIC THERAPY (2) LEC. 2. Provides the student with a working knowledge of both basic and advanced pharmacotherapeutics issues related to antithrombotic and thrombolytic therapy. Spring.

PYDI 9770/9776 WOMEN'S HEALTH ISSUES (2) LEC. 2. Understanding factors that affect women's premature morbidity and mortality.

PYDI 9780/9786 ACUTE CARE PHARMACOTHERAPY (2) LEC. 2. This course is designed to orient the pharmacy student to the acute care environment and familiarize them with patient disease states and pharmacotherapy associated with the acutely ill patient. Spring.

PYDI 9790/9796 PSYCHIATRIC PHARMACOTHERAPY (2) LEC. 2. To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced pharmacotherapeutic issues related to psychopharmacology. Spring.

PYDI 9800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING FOR PHARM.D. (2) LEC. 2. State-of-the-art survey of molecular imaging techniques and clinical imaging modalities that are available and their use to monitor the progression of various human diseases.

PYDI 9810/9816 EVIDENCE-BASED PHARMACOTHERAPY (2) LEC. 2. Student pharmacists will become more proficient at literature evaluation and application of evidence-based pharmacotherapy/medicine to patient care. Spring.

PYDI 9960/9966 SPECIAL PROBLEMS IN PHARMACY (1-3) IND. Independent study of problems related to pharmacy under the direction of a faculty member. Departmental approval. Fall. Spring. Course may be repeated for a maximum of 6 credit hours.

PYDI 9970/9976 SPECIAL TOPICS IN PHARMACY (2) LEC. 2. Instruction and discussion in a selected current topic in Pharmacy. Fall, Spring. Course may be repeated for a maximum of 4 credit hours.

Pharmacy PharmD Courses

PYPD 9000 ORIENTATION (1) WSP. 12.5. This one week course introduces the expectations for a student in the Harrison School of Pharmacy's Practice Ready Curriculum. The course introduces aspects of the role of the pharmacist in healthcare including team member, interprofessional practice, and continual professional development.

PYPD 9010/9016 DRUGS IN PREGNANCY AND LACTATION (1) LEC. 1. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). The purpose of this course is to introduce pharmacy students to the concepts of teratogenicity, pregnancy and lactation. Non-pharmacological and pharmacological therapy is focused to common pregnancy disease states and lactation issues.

PYPD 9020/9026 FOUNDATIONS OF LEADERSHIP WITHIN THE PHARMACY PROFESSION (1) LEC. 1. This course will allow students to identify leadership skills, traits and values. Leadership tools and resources will be discussed. Students will be exposed to leadership within the practice of pharmacy as well as pharmacy organizations.

PYPD 9030/9036 INTRODUCTION TO PEDIATRICS (1) LEC. 1. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). The purpose of this course is to introduce students to the basic concepts regarding pediatric development and care including but not limited to normal growth and development, pediatric calculations, community based care, counseling skills, and common disease states.
PYPD 9040/9046 KIDNEYS, DRUGS AND ELIMINATION: WHAT PHARMACISTS NEED TO KNOW (1) LEC. 1. Pr. PYPD 9250 or PYPD 9256. Students will gain in-depth knowledge of how declining kidney function and renal replacement modalities affect biopharmaceutics and develop experience in evaluating drug information related to renal dosing.

PYPD 9050/9056 ONCOLOGY CARE (1) LEC. 1. This course will provide student pharmacists with a working knowledge of cancer as a disease state, as well as the pharmacotherapeutics of chemotherapy, targeted therapy, and biologic therapy. Additionally, students will explore aspects of supportive care, ADR and drug interaction management, chemotherapy administration, and drug monitoring. The structure of the course is highly collaborative and interactive. Students are expected to participate in group activities with a professional and collegial spirit.

PYPD 9060/9066 SELF-CARE AND NONPRESCRIPTION PHARMACOTHERAPY (1) LEC. 1. This course will introduce students to nonprescription pharmacotherapy and other self-care measures used in the outpatient setting to treat minor medical problems. As the most accessible health care professionals, pharmacists are often approached by members of the community to recommend treatments for common ailments. It is important for pharmacists to quickly and accurately assess patients to determine if they are an appropriate self-care candidate or if referral to another health care provider is warranted. This course will expand upon self-care and nonprescription pharmacotherapy topics introduced in the required curriculum, introduce students to self-care issues specific to various special populations, and allow students to learn from one another through group presentations and case discussions.

PYPD 9100 PHARMACY PRACTICE EXPERIENCE I (2) PRA. 2. SU. First of a six-course sequence of introductory practice experience in which the concept of pharmaceutical care is introduced by the provision of basic care to community based patients. Fall.

PYPD 9110 PHARMACY PRACTICE EXPERIENCE II (2) PRA. 2. SU. Pr. (PYPD 9100 or PYDI 9090 or PYDI 5090). Second of a six-course sequence of introductory practice experience in which the concept of pharmaceutical care is introduced by the provision of basic care to community-based patients. Spring.

PYPD 9120 PHARMACY PRACTICE EXPERIENCE III (2) PRA. 2. SU. Pr. (PYPD 9110 or PYDI 9190 or PYDI 5190). Third in six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients.

PYPD 9130 PHARMACY PRACTICE EXPERIENCE IV (2) PRA. 2. SU. Pr. (PYPD 9120 or PYDI 9290). Fourth in a six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients. Spring.

PYPD 9140 PHARMACY PRACTICE EXPERIENCE V (2) PRA. 2. SU. Pr. PYDI 9330 or PYDI 9130. Fifth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Fall.

PYPD 9150 PHARMACY PRACTICE EXPERIENCE VI (2) PRA. 2. SU. Pr. (PYDI 9140 or PYDI 9490 or PYDI 5490). Sixth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Spring.

PYPD 9200/9206 INTEGRATED LEARNING EXPERIENCE I (6) LEC. 12.5. Students will acquire foundational knowledge of Hypertension, Diabetes Mellitus, Obesity Management, Diarrhea and Constipation, Fluid and Electrolytes, and Hypersensitivity. These disease states will provide context for students to develop knowledge and skills of various aspects of the Patient Care Process.

PYPD 9210/9216 INTEGRATED LEARNING EXPERIENCE II (6) LEC. 12.5. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. Students will acquire foundational knowledge of Lipids, Depression, Alzheimer’s/Dementia, Hypothyroid, Asthma, Chronic obstructive pulmonary disease (COPD), and Smoking Cessation. These disease states will provide context for students to develop knowledge and skills of various aspects of the PPCP.

PYPD 9220/9226 INTEGRATED LEARNING EXPERIENCE III (6) LEC. 12.5. Pr. PYPD 9200 or PYPD 9206 and PYPD 9210 or PYPD 9216. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences. Students will acquire foundational knowledge related to Pain, Osteoarthritis (OA), Seizures, Gastroesophageal reflux disease (GERD), Stable ischemic heart disease (SIHD), Stroke, Thromboembolism, and Heart Failure.
PYPD 9230/9236 INTEGRATED LEARNING EXPERIENCE IV (6) LEC. 12.5. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216). This six-week course will focus on knowledge and skills related to various aspects of the Pharmacists' Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient information. The course includes an introduction to pharmaceutical compounding and foundational knowledge related to over-the-counter treatment of cough, cold, and various dermatologic conditions.

PYPD 9240/9246 INTEGRATED LEARNING EXPERIENCE V (6) LEC. 12.5. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice ready pharmacist. During this ILE, students will acquire foundational knowledge related to generalized anxiety disorder; bipolar disorder/schizophrenia; dementia; Parkinson’s disease, attention-deficit/hyperactivity disorder (ADHD); sleep disorders; hepatitis and cirrhosis; pancreatitis; and hyperthyroidism.

PYPD 9250/9256 INTEGRATED LEARNING EXPERIENCE VI (6) LEC. 12.5. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice ready pharmacist. During this ILE, students will acquire foundational knowledge related to diabetic ketoacidosis (DKA)/ hyperosmolar hyperglycemic state (HHS); acid-base disturbances; nausea and vomiting; dehydration; chronic kidney disease (CKD) and secondary complications; acute kidney injury (AKI); nutrients/nutrition; and iron deficiency.

PYPD 9260/9266 INTEGRATED LEARNING EXPERIENCE VII (6) LEC. 12.5. Pr. (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256). Students will acquire foundational knowledge related to HIV/AIDS, fungal and opportunistic infections, upper respiratory tract infections, allergic rhinitis, viral infections, meningitis, and sepsis. Students will increase the depth of disease states and medications encountered in ILE 4 including: skin and soft-tissue infections, pneumonia, urinary tract infections, sexually transmitted diseases, cough and cold, and dermatologic conditions. The disease states will be integrated to allow student understanding of the relationship between the disease states and medications used to treat these disorders. These disease states will provide context for students to apply knowledge and skills of various aspects of the Pharmacists' Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient care plans in the SOAP format and/or in the electronic health record (EHR). Students will explore the relationship between medicinal chemistry and the physical and chemical properties which affect ADME, as well as how these relate to differences within and between drugs and drug classes. ILE 7 will reinforce previous competencies introduced in ILEs 1-6, allowing students to apply what was learned in a different context (varying disease states and/or more complex situations).

PYPD 9270/9276 INTEGRATED LEARNING EXPERIENCE VIII (6) LEC. 12.5. Pr. (PYPD 9240 or PYPD 9246) and (PYPD 9250 or PYPD 9256). This six week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences with the primary focus on assessment, collecting information, communication, planning, and management.

PYPD 9280/9286 INTEGRATED LEARNING EXPERIENCE IX (6) LEC. 12.5. Pr. (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). This six week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences with the primary focus on communication, drug information / evidence-based medicine, distribution, and planning.

PYPD 9290/9296 INTEGRATED LEARNING EXPERIENCE X (6) LEC. 12.5. Pr. (PYPD 9260 or PYPD 9266) and (PYPD 9270 or PYPD 9276). This six week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences with the primary focus on the collection and assessment of information, distribution, planning, and professionalism.

PYPD 9300/9306 INTEGRATED LEARNING EXPERIENCE XI (6) LEC. 12.5. Pr. (PYPD 9280 or PYPD 9286) and (PYPD 9290 or PYPD 9296). This six week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences with the primary focus on assessment, communication, planning, patient education / public health, and team skills.

PYPD 9310/9316 INTEGRATED LEARNING EXPERIENCE XII (6) LEC. 12.5. Pr. (PYPD 9280 or PYPD 9286) and (PYPD 9290 or PYPD 9296). This six week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences with the primary focus on the preparation of learners for the Advanced Pharmacy Practice Experience.

PYPD 9320/9326 LONGITUDINAL EXPERIENCE I (3) LEC. 2.5. This semester-long course focuses on navigating the health care system. Learners will explore key issues related to patient education / public health, communication, assessment, advocacy, and management.
PYPD 9330/9336 LONGITUDINAL EXPERIENCE II (3) LEC. 2.5. Pr. (PYPD 9320 or PYPD 9326). Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This semester long course integrates multiple disciplines, including social/behavioral/administrative sciences and clinical sciences to introduce students to issues related to public health, population health, and individual health and wellness.

PYPD 9340/9346 LONGITUDINAL EXPERIENCE III (3) LEC. 2.5. Pr. (PYPD 9330 or PYPD 9336). This longitudinal experience will introduce students to topics related to strategic marketing strategies for pharmacists’ services and will expose students to different types of innovative pharmacy services in different practice settings. The overall goal of this longitudinal experience is to teach students the pertinent skills and decision-making tools needed to establish a new non-dispensing pharmacy service and justify its existence through both financial and intangible values, as well as to design systems and processes that will foster effective and appropriate communication between the pharmacist and patients, other healthcare providers, and stakeholders.

PYPD 9350/9356 LONGITUDINAL EXPERIENCE IV (3) LEC. 2.5. Pr. PYPD 9340 or PYPD 9346. This semester-long course focuses on program development and continuous quality improvement. Learners will explore key issues related to advocacy, drug information / evidence-based medicine, patient education / public health, leadership, and management.

PYPD 9360/9366 LONGITUDINAL EXPERIENCE V (3) LEC. 2.5. Pr. PYPD 9350 or PYPD 9356. This semester-long course focuses on personnel and formulary management. Learners will explore key issues related to assessment, communication, leadership, management, planning, and team skills.

PYPD 9370/9376 LONGITUDINAL EXPERIENCE VI (3) LEC. 2.5. Pr. PYPD 9360 or PYPD 9366. This semester-long course focuses on providing learners with learning opportunities related to their personal and professional goals. Learners will explore key issues related to drug information / evidence-based medicine, leadership, professionalism, and professional development.

PYPD 9400/9406 WORKSHOP I (1) LEC. 12.5. In this workshop, will explore the use of drug information resources and related to the use of drug information resources and population levels.

PYPD 9410/9416 WORKSHOP II (1) LEC. 12.5. Pr. PYPD 9400 or PYPD 9406. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to the Pharmacists’ Patient Care Process.

PYPD 9420/9426 WORKSHOP III (1) LEC. 12.5. Pr. PYPD 9410 or PYPD 9416. This is a focused, intensive, one-week workshop where students will acquire theoretical and practical knowledge related to a contemporary issue in the field of pharmacy. In this workshop, students will explore the provision of pharmacy-based immunization services utilizing the APhA Pharmacy-Based Immunization Delivery course materials and additional supplemental instructional materials. At the end of this workshop students will have the knowledge and skills related to the development and provision of pharmacy-based immunization services, will know how to serve as a vaccine advocate, and will receive a certificate of completion for the APhA Pharmacy-Based Immunization Delivery course.

PYPD 9430/9436 WORKSHOP IV (1) LEC. 12.5. Pr. PYPD 9420 or PYPD 9426. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to pharmacokinetics and its application to therapeutically important areas such as drug delivery.

PYPD 9440/9446 WORKSHOP V (1) LEC. 12.5. Pr. PYPD 9430 or PYPD 9436. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to pharmacoeconomics and its application to the economic evaluation of pharmaceuticals and the overall healthcare system.

PYPD 9450/9456 WORKSHOP VI (1) LEC. 12.5. Pr. PYPD 9440 or PYPD 9446. In this focused, intensive, one week workshop students will review and update their patient care skills, determine their own long term career goals, and develop a plan for achieving those goals.

PYPD 9500/9506 AMBULATORY CARE ANTICOAGULATION (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of pharmacotherapeutic issues related to anticoagulation therapy in the out-patient setting including an introduction to the various roles of pharmacists in the management of anticoagulation therapy.
PYPD 9510/9516 EXPLORING DIABETES CARE FROM THE PATIENT PERSPECTIVE (1) LEC. 12.5. Pr. (PYPD 9200 or PYPD 9206 and PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226 and PYPD 9230 or PYPD 9236), or permission of the Associate Dean for Academic and Student Affairs. Students will learn from pharmacists who specialize in diabetes to discuss pivotal literature sources and their impact on patient care. Students will gain appreciation of Standards of Care through active participation in a weekly deconstructed “diabetes experience” documented with reflective individual writings and/or group video recordings.

PYPD 9520/9526 DRUGS OF ABUSE AND MISUSE (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of the current trends in drugs of abuse, the public health implications from abuse of these drugs, and the role of different community stakeholders in the fight against this epidemic.

PYPD 9530/9536 RESEARCH METHODS IN HEALTH SERVICES I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. The course is designed to provide a comprehensive introduction to the primary research methods used in clinical and health services research. It will focus on an introduction to various research designs including experimental and non-experimental, as well as quantitative and qualitative research methods. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9540/9546 RESEARCH METHODS IN HEALTH SERVICES II (1) LEC. 12.5. PYPD 9530 or enrolled in PYPD 9530 during the same semester. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9550/9556 ACUTE CARE PHARMACOTHERAPY I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is designed to orient the pharmacy student to the acute care environment and familiarize the student with patient disease states and pharmacotherapy issues associated with the acutely ill patient in an inpatient setting.

PYPD 9570/9576 HISTORY OF PHARMACY (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. History influences nearly everything we do and that is certainly the case for the profession of pharmacy. Every course taught can provide historical contexts for the information and application. A general course in pharmacy history can give a firm foundation for any student and graduate to fully embrace their chosen profession, understand its beginnings and development, and be a competent practitioner. The intent of this course is to provide that background so that the student has an appreciation for what has come before and an understanding of the many symbols and advances of the profession that surround any pharmacy practitioner. This ranges from the Rx to the patient counseling booth to the pharmacokinetic consult.

PYPD 9580/9586 PALLIATIVE CARE AND END OF LIFE (1) LEC. 12.5. Students will be introduced to the pharmacist’s role in hospice/palliative care and symptoms experienced by the dying with an emphasis on interdisciplinary care. Students will also examine the impact of multicultural aspects of providing care in palliative and hospice care.

PYPD 9610 COMMUNITY PHARMACEUTICAL CARE (5) PRA. 62.5. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities. Fall, Spring, Summer.

PYPD 9620 MEDICINE I (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Fall, Spring, Summer.

PYPD 9630 MEDICINE II - SELECTIVE (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Additional experience beyond PYDI 9620. Fall, Spring, Summer.

PYPD 9640 PRIMARY/AMBULATORY CARE I (5) PRA. 62.5. Advanced practice experience in providing care to patients as they initially access the health care system. Fall, Spring, Summer.

PYPD 9650 PRIMARY/AMBULATORY CARE II (5) IND. 62.5. This culminating course will require a comprehensive review and application of knowledge gained throughout the first 3 years of the PharmD Curriculum. Through case, problem and project based learning, learners will apply didactic and clinical knowledge/skills in a self-directed manner.
PYPD 9660 HEALTH SYSTEM PRACTICE (5) PRA. 62.5. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services. Fall, Spring, Summer.

PYPD 9670 PRACTICE ELECTIVE I (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9680 PRACTICE ELECTIVE II (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9690 DRUG INFORMATION-SELECTIVE (5) PRA. 62.5. Status of a 4th Year Doctor of Pharmacy Student (P4) or Permission of the Associate Dean for Academic and Student Affairs. Advanced practice experience in providing drug information services to health care providers. Fall, Spring, Summer.

PYPD 9700 SUMMATIVE EXPERIENCE (3) IND. 37.5. This culminating course will require a comprehensive review and application of knowledge gained throughout the first 3 years of the PharmD Curriculum. Through case, problem and project based learning, learners will apply didactic and clinical knowledge/skills in a self-directed manner.

PYPD 9710/9716 COMMUNITY PHARMACY PRACTICE I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will focus on legal and business aspects of community pharmacy practice. Students will be paired with a mentor for this course who will provide real world examples of these aspects of community pharmacy.

PYPD 9720/9726 COMMUNITY PHARMACY PRACTICE II (1) LEC. 12.5. This course will focus on the development and implementation of clinical services within the community pharmacy setting. Students will receive training on concept development through implementation of medication therapy management services in this setting.

PYPD 9730/9736 INFECTIOUS DISEASES I (1) LEC. 1. This course will provide the student with an in depth exposure to the treatment of bacterial infectious diseases, with a particular focus on antimicrobial stewardship and the treatment of multidrug-resistant organisms.

PYPD 9750/9756 ADVANCED MOTIVATIONAL INTERVIEWING (1) LEC. 1. Motivational interviewing (MI) is an evidence-based method for facilitating voluntary health behavior change with patients and with providers. Target behaviors for patients engaged in comprehensive disease management may include outcome enhancing behaviors like medication taking, healthy eating, monitoring, physical activity, sleep management, smoking cessation, among others. This course will 1) explore the conceptual basis for why motivational interviewing is effective in facilitating health behavior change, and 2) provide basic and advanced training and practice for using motivational interviewing to help patients with self-management of their health conditions. This course is intended and designed to support and build student self-efficacy for using MI in patient encounters within a health/disease management context. MI principles and micro skills will be applied by the instructor in the process of helping facilitate student learning. It is hoped that the student will come away from the course encouraged, not discouraged, about using MI for improved patient outcomes in future practice/research.

PYPD 9760/9766 POST-GRADUATE TRAINING PREPARATION (1) LEC. 1. This course will review post-graduate education opportunities for pharmacists with a focus on pharmacy residency training. Students will learn about post-graduate opportunities within pharmacy and develop skills and tools necessary in securing a position after graduation.

PYPD 9980 PHARMACY RESEARCH (1-3) LEC. 1-3. The student will be expected to learn to conduct independent research activity. The specific research topic will lie within the scope of the School of Pharmacy writ large and will be decided by the student’s faculty research advisor. Course may be repeated for a maximum of 6 credit hours.

College of Sciences and Mathematics

NICHOLAS J GIORDANO, Dean
JACK FEMINELLA, Associate Dean for Academic Affairs
RAY HENRY, Associate Dean for Research

THE COLLEGE OF SCIENCES AND MATHEMATICS provides programs in the physical sciences, life sciences, and mathematics at the undergraduate and graduate levels. The college also offers scientific and mathematical service courses for students enrolled in all of the other colleges and schools. The college includes the departments of Biological Sciences, Chemistry and Biochemistry, Geosciences, Mathematics and Statistics, and Physics. The Arboretum and the Leach Science Center are also included in the College of Sciences and Mathematics.
Undergraduate Degrees

1. Four-year bachelor's degree programs are offered in two areas:
   a. Departmental curricula are available in actuarial sciences, biomedical sciences, biochemistry, chemistry, clinical laboratory and medical sciences, geography, geology, microbiology, molecular biology, marine biology, mathematics, applied mathematics, organismal biology, and physics.
   b. Pre-professional curricula are offered in pre-dentistry, pre-medicine, pre-optometry, pre-physical therapy, pre-pharmacy, pre-physician assistant and pre-veterinary medicine.

   Embodied in these curricula are the requirements of the University Core Curriculum.

2. Admission - The academic requirements and demands on majors in sciences and mathematics necessitate a high school preparation of high intellectual quality. The following courses are recommended as minimum preparation: English, four units; mathematics (including algebra, geometry, trigonometry and pre-calculus), four units; chemistry, one unit; biology, one unit; history, literature, social science, two or three units. Both physics and foreign language are highly recommended.

   Students not prepared for MATH 1610 must first take a lower-numbered course. See advisor for details.

   On-campus transfers may declare a major in the College of Sciences and Mathematics if they: (1) have a cumulative Auburn grade-point average of at least 2.0 (on all work attempted) and (2) have completed at least 10 hours of Auburn University course work in the desired major with at least a 2.0 grade-point average in all such courses. Courses in the major are those carrying the appropriate prefix(es) of the specific curriculum. Students not meeting these standards may enroll in the Undeclared Sciences and Mathematics (UNSM) curriculum if they have not reached senior standing. Students in the UNSM curriculum may declare a Sciences and Mathematics major after satisfying the above requirements. A student who enters the UNSM curriculum because he or she is not qualified to declare a major can remain in UNSM for a maximum of one year or until senior standing is reached. After this, if the student is still not qualified to declare a major, he or she will be disenrolled from the College of Sciences and Mathematics.

Graduate Degrees

Master of science and doctor of philosophy degrees are offered in the College of Sciences and Mathematics. Degree programs are described in this Bulletin.

Web Page

Additional information about the College of Sciences and Mathematics can be found at: http://www.auburn.edu/cosam/.

General Sciences and Mathematics Curriculum (UNSM)

This curriculum is primarily for freshmen who have not decided on a specific major field of study and for transfer students having deficiencies which preclude their acceptance in a degree program. Freshmen entering this curriculum must declare a major by the end of their first year. Transfer students must complete a specific approved program to clear their admission to a major field of study.

The General Curriculum (UNSM)

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<th>First Year</th>
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<td>ENGL 1120 English Composition II</td>
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Departmental Curricula

Departmental curricula leading to the bachelor's degree include actuarial sciences, biomedical sciences, biochemistry, chemistry, clinical laboratory and medical sciences, geography, geology, microbiology, molecular biology, marine biology, mathematics, applied mathematics, organismal biology, and physics.
Majors

- Actuarial Science (p. 1191)
- Applied Discrete Mathematics (p. 1192)
- Applied Mathematics (p. 1193)
- BA Chemistry (p. 1154)
- BS Chemistry (p. 1155)
- Biochemistry (p. 1153)
- Biomedical Sciences (p. 1201)
- Geography (p. 1167)
- Geology (p. 1168)
- Geology - Earth System Science Option (p. 1170)
- Laboratory Sciences (p. 1156)
- Marine Biology (p. 1139)
- Mathematics (p. 1190)
- Medical Laboratory Sciences (p. 1157)
- Microbial, Cellular and Molecular Biology Microbiology Option (MCMB) (p. 1143)
- Microbial, Cellular and Molecular Biology Cell & Molecular Biology Option (MCCM) (p. 1141)
- Microbiology/Pre-Veterinary Medicine Option (p. 1203)
- Organismal Biology - Conservation & Biodiversity Option (p. 1145)
- Organismal Biology - Ecology, Evolution & Behavior Option (p. 1144)
- Organismal Biology - Integrative Biology Option (p. 1140)
- Organismal Biology - Pre Veterinary Medicine Option (p. 1206)
- Physics (p. 1198)
- Pre-Dentistry and Pre-Medicine (p. 1204)
- Pre-Optometry (p. 1207)
- Pre-Pharmacy (p. 1208)
- Pre-Physical Therapy (p. 1209)
- Pre-Veterinary Medicine (p. 1205)

Minors

- Mathematics (p. 1191)
- Statistics (p. 1194)
- Physics (p. 1199)
- Geo (http://bulletin.auburn.edu/undergraduate/collegeofsciencesandmathematics/geologyandgeography/geography_minor)

Program

- Biological Sciences - MS, PhD, Graduate Certificate (p. 1345)
- Biomedical Sciences - MS, PhD (p. 1347)
- Chemistry and Biochemistry - MS, PhD (p. 1357)
- Geography, ABM (p. 1455)
- Geography - MS (p. 1454)
- Geology, ABM (p. 1456)
- Geology - MS (p. 1458)
- Interdisciplinary PhD program in Earth System Science - PhD (p. 1473)
- Mathematics and Statistics - MS, MME, PhD (p. 1483)
- Physics - MS, PhD (p. 1506)
- Statistics - MS, MPS (p. 1535)
Biochemistry Courses

**BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3)** LEC. 3. Pr. CHEM 2030 or CHEM 2080 or CHEM 2087. Departmental approval. Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings. Credit will not be given for both BCHE 3180 and BCHE 3200.

**BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3)** LEC. 3. Pr. (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087). Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

**BCHE 3201 PRINCIPLES OF BIOCHEMISTRY LABORATORY (1) LAB. 2.** Coreq. BCHE 3200. Fundamental theory and techniques used in the isolation, characterization, and study of biomolecules.

**BCHE 5180 BIOCHEMISTRY I (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Shall be an introduction to the principles of the structure and function of biomolecules and includes detailed discussion of the major metabolic pathways in living systems. BCHE 5180 is the first in a series of biochemistry courses that is intended for students in the biological sciences. It is required for life science majors and highly recommended for students considering careers in medicine, veterinary medicine, dentistry, and pharmacy.

**BCHE 5181 BIOCHEMISTRY I LABORATORY (1) LAB. 3.** Pr. P/C BCHE 5180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

**BCHE 5190 BIOCHEMISTRY II (3)** LEC. 3. Pr. P/C BCHE 5180 or P/C BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

**BCHE 5191 BIOCHEMISTRY II LABORATORY (1) LAB. 3.** Pr. P/C BCHE 5190 or P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

**BCHE 5250 PLANT METABOLIC PATHWAYS (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Shall be an introduction to the processes of metabolism specific to plants.

**BCHE 6180 BIOCHEMISTRY I (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics.

**BCHE 6181 BIOCHEMISTRY I LABORATORY (1) LAB. 3.** Pr. P/C BCHE 6180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

**BCHE 6190 BIOCHEMISTRY II (3)** LEC. 3. Pr. BCHE 6180. Departmental approval. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

**BCHE 6191 BIOCHEMISTRY II LABORATORY (1) LAB. 3.** Pr. P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

**BCHE 6250 PLANT METABOLISM (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Shall be an introduction to the processes of metabolism specific to plants.

**BCHE 7200 ADVANCED BIOCHEMISTRY I (3)** LEC. 3. Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

**BCHE 7210 ADVANCED BIOCHEMISTRY II (3)** LEC. 3. Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Or equivalent.

**BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMEOLOGY (3)** LEC. 3. Pr. BCHE 6190 or CHEM 6190 or BCHE 7200. Departmental approval. The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes.


**BCHE 7250 BIOCHEMISTRY OF LIPIDS AND LIPOPROTEINS (3)** LEC. 3. Pr. BCHE 7200. Departmental approval. The regulation of lipid and lipoprotein metabolism, role of lipid mediators in signaling pathways and protein modification, assembly and dynamics of lipoproteins and biomembranes.


**BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3-6)** LEC. Pr. BCHE 6190 or CHEM 6190. Departmental approval. Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours.
BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr. BCHE 7210. Directed studies in biochemistry. Departmental approval and BCHE 7210 or equivalent. Course may be repeated for a maximum of 3 credit hours.

Biology Courses

BIOL 1000/1003 INTRODUCTION TO BIOLOGY (3) LEC. 3. Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1000 or P/C BIOL 1003. Laboratory course for BIOL 1000 or BIOL 1003.

BIOL 1010 A SURVEY OF LIFE (3) LEC. 3. Pr. BIOL 1000 or BIOL 1003 or BIOL 1020 or BIOL 1027 or (SCMH 1010 or SCMH 1013 or SCMH 1017) or (SCMH 1020 or SCMH 1023 or SCMH 1027). Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (1) LAB. 2. Pr. P/C BIOL 1010. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (3) LEC. 3. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1020 and BIOL 1000 or BIOL 1027.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1020. Laboratory Course for BIOL 1020.

BIOL 1027 HONORS BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1027 and BIOL 1000 or BIOL 1020.

BIOL 1030 ORGANISMAL BIOLOGY (3) LEC. 3. Pr. BIOL 1020 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1030 and BIOL 1010 or BIOL 1037.

BIOL 1031 ORGANISMAL BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. BIOL 1020 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1037 and BIOL 1010 or BIOL 1030.

BIOL 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Pr. BIOL 1030 or BIOL 1037. Introduction to career opportunities and student development options for majors in biological sciences. Students will investigate post-graduation academic and professional options, develop writing skills by creating resumes and ePortfolios, and explore course and research options with the department.

BIOL 2425 MARINE BIOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. (DISL).

BIOL 2500 HUMAN ANATOMY AND PHYSIOLOGY I (4) LEC. 4. Pr. BIOL 1000 or BIOL 1020 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2501 HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY (1) LEC. 1. Pr. BIOL 1000 and (BIOL 1020 or BIOL 1027). Coreq. BIOL 2500. Lab course for study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2510 HUMAN ANATOMY AND PHYSIOLOGY II (4) LEC. 4. Pr. BIOL 2500 and BIOL 2501. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 2511 HUMAN ANATOMY AND PHYSIOLOGY II LABORATORY (1) LEC. 1. Pr. BIOL 2500. Coreq. BIOL 2510. Lab course for study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500 , concentrating on the individual organ systems.

BIOL 3000/3003 GENETICS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027). An overview of theoretical principles of transmission, cytological, molecular, and population genetics. Problem solving will be emphasized. May count either BIOL 3000 or BIOL 3003.

BIOL 3001 GENERAL GENETICS LABORATORY (1) LAB. 2. Pr. BIOL 1020 or BIOL 1027 and (P/C BIOL 3000 or P/C BIOL 3003). Laboratory provides practical experience in the areas of transmission, cytological, molecular, and population genetics. Problem solving is emphasized though analysis of simulated and real genetics data sets.
BIOL 3010/3013 COMPARATIVE ANATOMY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Evolution and function of craniates and their organ systems.

BIOL 3011 COMPARATIVE ANATOMY LABORATORY (1) LAB. 1. Pr. BIOL 1030 or BIOL 1037 and (P/C BIOL 3010 or P/C BIOL 3013). Coreq. BIOL 3010 or BIOL 3013. Laboratory to accompany Comparative Anatomy Lecture. This lab course will explore the diverse morphologies of vertebrates.

BIOL 3020 GENOMIC BIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1020 or BIOL 1027. An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

BIOL 3030/3033 EVOLUTION AND SYSTEMATICS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

BIOL 3040 BIOLOGY OF MARINE SYSTEMS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

BIOL 3060 ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037. Departmental approval. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. 8 hours of Biology.

BIOL 3075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 4. Pr. (MATH 1150 or MATH 1153) and (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and PHYS 1500. Departmental approval. The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 3100 PLANT BIOLOGY (4) LEC. 4. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1010 or CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Introduction to the morphology, anatomy, physiology and classification of plants with laboratory.

BIOL 3200 GENERAL MICROBIOLOGY (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 3201 GENERAL MICROBIOLOGY LABORATORY (1) LAB. 2.8. Pr. (BIOL 1020 or BIOL 1027) and (P/C BIOL 4000 or P/C BIOL 4003). Coreq. BIOL 4000. Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 3500 PERSPECTIVES IN IMMUNOLOGY (3) LEC. 3. Pr. (P/C BIOL 3000 or P/C BIOL 3003 or P/C FISH 3000 or P/C AGRI 3000 or P/C BIOL 3020) and BIOL 3200. Introduction to the cells and components of the immune response with an emphasis on host response to infection and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 4000/4003 HISTOLOGY (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 1031. Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.

BIOL 4001 HISTOLOGY LABORATORY (1) LAB. 2.8. Pr. (BIOL 1030 or BIOL 1037) and (P/C BIOL 4000 or P/C BIOL 4003). Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4010 INVERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.

BIOL 4015 BIOLOGY AND CONSERVATION OF MARINE TURTLES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. OR permission of Marine Biology coordinator. An introductory overview of the biology of marine turtles. Topics include: identification, distribution, nesting & migratory behavior, feeding, population biology, development, paleontology and conservation. Extensive laboratory and field studies of multiple species of turtles.


BIOL 4025 ECOLOGY OF THE FLORIDA EVERGLADES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Examines the natural history, ecology and evolution, and human impact on the Everglades. Includes intensive lectures and a more than 1-week long campsite based field trip in the Everglades. Multiple short trips to various locales within the Everglades.
BIOL 4033 HISTOLOGY LABORATORY (1) DSL. 3. Pr. (BIOL 1030 or BIOL 1037) and (P/C BIOL 4000 or P/C BIOL 4003).
Laboratory investigation of the morphology and classification of tissues using prepared digital slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4035 INTRODUCTION TO MARINE ANIMAL NEUROBIOLOGY (3) LEC. 15. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037. The neuroanatomy and neurophysiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses and neurotransmitters, muscle contraction, sensorimotor integration; neurophysiological bases of behavior; labs include computer simulation of cellular neurobiology.

BIOL 4045 MARINE MAMMAL BIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Introduction to the evolution, taxonomy and classification, anatomy, physiology, behavior, conservation and management issues of marine mammals, including cetaceans, pinnipeds, mustelids, sirenians and the polar bear. Lab and field research methods used to study marine mammals will be covered.

BIOL 4055 MARINE CONSERVATION BIOLOGY (4) LEC. 45. LAB. 30. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and (BIOL 3040 or BIOL 3060). Study of major threats to marine biodiversity as and potential solutions to the threats. Students discuss current topics in marine conservation biology and critically debate marine conservation literature. Field trips to impacted and pristine sites will demonstrate principles.

BIOL 4085 HURRICANES OF THE GULF OF MEXICO (2) LEC. 30. An introductory survey with emphasis on Gulf of Mexico hurricanes. Hurricane features. Basic principles of the atmosphere, review of Gulf, Atlantic and Caribbean hurricanes, El Nino, changes in the Atlantic circulation, hurricane formation, development, features, movement, steering and forecasting.

BIOL 4095 COASTAL BIRDS OF ALABAMA (2) LEC. 15. LAB. 30. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Behavior and ecology-oriented avian field biology. Identification, banding, record/broadcast, other survey methods. Emphasis on behavioral ecology. Extensive field effort along the Gulf Coast and in the Mobile/Alabama/Tombigbee/Tensaw River Delta, other riparian environments, and salt marshes.

BIOL 4100/4103 CELL BIOLOGY (3) LEC. 3. Pr. CHEM 2030 or (CHEM 2070 or CHEM 2077) and (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 1030 or BIOL 1037). Introduction to cellular structure and processes, including evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles as well as energy, transport, motility, cell division, signaling, transcription, and translation.

BIOL 4101 CELL BIOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 4100 or P/C BIOL 4103. Light/electron microscopy, cell structure, origins of life, centrifugation, protein/nucleic acid electrophoresis, and blotting, motility, DNA purification, chromatography, pH, fluorescence microscopy.

BIOL 4135 MARINE BEHAVIORAL ECOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Animal behavior in the context of the marine environment. Students study the ecological and evolutionary significance of behavior in a marine setting. Topics include principles of marine behavioral ecology, techniques for observing behavior, conducting behavior experiments, and data collection.

BIOL 4150 HUMAN GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

BIOL 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3. LAB. 4. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIOL 4415 SHARK AND RAY BIOLOGY (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. An introduction to the biology of sharks and rays with special emphasis on regional shark fauna and field technique. Topics: chondrichthyan origin, systematics, sensory biology, trophic ecology, reproductive biology, life history, ecology, fisheries and conservation. Extensive lab and field work.

BIOL 4425 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Departmental approval. Fisheries management philosophy, objectives, problems, and principles involved in management decisions. Taught at Gulf Coast Research Laboratory.

BIOL 4435 SPECIAL TOPICS IN MARINE SCIENCE (1-6) LEC. Departmental approval. An opportunity for students to study in an area in which GCRL offers no formal course; not research oriented. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.
BIOL 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) AAB/LEC. Departmental approval. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.


BIOL 4465 PARASITES OF MARINE ANIMALS (6) LEC. 3. LAB. 6. Pr. BIOL 5110. Departmental approval. A study of the parasites of marine estuarine animals with emphasis on morphology, taxonomy, life histories, and host-parasite relationships. Taught at Gulf Coast Research Laboratory.

BIOL 4475 MARINE ICHTHYOLOGY (6) LEC. 6. Departmental approval. Biology of the major piscine taxa in Mississippi Sound. Principles involved in classification and evolutionary relationships of these organisms. Taught at Gulf Coast Research Laboratory.

BIOL 4485 MARINE ECOLOGY (5) LEC. 5. Pr. BIOL 4010. The relationship of marine organisms to their environment and the effects of environment on abundance and distribution on marine organisms. Taught at Gulf Coast Research Laboratory, Departmental approval and 16 hours of Biological Science including BIOL 4010.

BIOL 4515 MARINE INVERTEBRATE ZOOLOGY (4) LEC. 4. Pr. At least 10 credits in BIOL 2000-8990. Departmental approval. The natural history, systematics, and morphology of marine invertebrates from the Gulf of Mexico; oriented toward a field and laboratory approach. Participation in extended field trips is part of the course. Taught at DISL.

BIOL 4525 DOLPHINS AND WHALES (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Classification, anatomy, and ecology of the cetaceans. Taught at DISL.

BIOL 4535 COASTAL ZONE MANAGEMENT (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Management of shorelines and flood plains, and current legislation. Water quality and ecosystem quality management. Taught at DISL.

BIOL 4545 COASTAL ORNITHOLOGY (3) LEC. 3. Pr. BIOL 4020. Departmental approval. Coastal and pelagic birds with emphasis on ecology, taxonomy, and distribution. Taught at GCRL.

BIOL 4565 MARINE VERTEBRATE ZOOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Systematics, zoogeography and ecology of marine fishes, reptiles, and mammals. Taught at DISL. May not be substituted for BIOL 4020.

BIOL 4575 MARINE ECOLOGY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1027. Prerequisites: BIOL1020 or marine biology. Departmental approval. Experimental ecological theory and its application to interactions of marine organisms with each other and the environment. Includes laboratory, extensive field trip experience. Taught at DISL.

BIOL 4585 PLANKTON BIOLOGY (2) LEC. 15. LAB. 45. Pr. (BIOL 1020 and BIOL 1021 or BIOL 1027) and (BIOL 1030 and BIOL 1031 or BIOL 1037). Students will learn about the biology of all forms of plankton and the methods for their study including optical, chemical and molecular techniques. Students will understand the basic methods of study and be able to sight-identify major groups.

BIOL 4920 INTERNSHIP IN BIOLOGY (1-4) INT. SU. Application of biology concepts and skills in a professional experience. 12 credit hours in 3000-level or higher BIOL courses. Departmental approval. Student must be enrolled in a major offered by the Department of Biological Sciences. Course may be repeated for a maximum of 4 credit hours.

BIOL 4950 SENIOR SEMINAR (1) LEC. 1. Departmental approval. Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required for all majors. Course may be repeated for a maximum of 3 credit hours.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Departmental approval and membership in the Honor College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Departmental approval. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BIOL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.
BIOL 5020 DEVELOPMENTAL BIOLOGY (3) LEC. 3. Pr. BIOL 4100 and BIOL 4410. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 5110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 2500. Students must have Junior or Senior standing. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife. May count either BIOL 5110 or LABT 4050.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or BIOL 5130). Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 5150 COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Dynamics of ecological communities, including niches, species interactions, succession, island biogeography, biodiversity and food webs. May count BIOL 5150 or BIOL 6150.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Prereq. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. BIOL 3200 and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3200 and BIOL 3200 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or (CHEM 2030 or CHEM 2070 or CHEM 2077). General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Credit will not be given for both BIOL 5260 and BIOL 6260.
BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3200 and BIOL 3201 and (BIOL 5220 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and 6270.

BIOL 5280 GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3. LAB. 4. Pr. BIOL 3100. Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 3100. Departmental approval. Genetic expression of genetic elements in plants from the recent literature.

BIOL 5330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 5330 or BIOL 6330.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 5360 POPULATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060 and (MATH 1610 or MATH 1613 or MATH 1617). Departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5425 MARINE BOTANY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1027. Departmental approval. Pr. BIOL 1020 or equiv. Survey of microscopic and macroscopic algae, salt marsh vegetation, sea grasses, mangroves and maritime forests with regard to identification, distribution, structure, ecology and physiology. Field trips and laboratory work. Taught at DISL.

BIOL 5465 MARINE MICROBIOLOGY (5) LEC. 3. LAB. 2. Pr. BIOL 3200 and BIOL 3201. Departmental approval. The role of microorganisms in marine environments.

BIOL 5500 IMMUNOLOGY (3) LEC. 3. Pr. P/C BIOL 3200 and (BIOL 3000 or BIOL 3003 or BIOL 3020). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 5501 IMMUNOLOGY LAB (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 3500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 5510 BIOGEOGRAPHY (3) LEC. 3. Patterns and processes associated with the distribution of living and fossil organisms.

BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or P/C BIOL 5260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Prereq. Vertebrate and Invertebrate Zoology. Taught at DISL.

BIOL 5535 MARINE CONSERVATION BIOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Major threats to marine biodiversity, current topics in marine conservation biology and critical examination of the literature. Pr. General or Marine Ecology course. Taught DISL.
Biology Courses

**Biol 5600 Mammalian Physiology (Biomedical Physiology)** (5) Lec. 4.25. Lab. 2.75. Pr. (Biol 1030 or Biol 1037 or Biol 2500) and (Chem 2030 or Chem 2070 or Chem 2077). An in-depth investigation of the physiology of the major mammalian organ systems.

**Biol 5650 Ethology** (4) Lec. 3. Lab. 3. Pr. (Biol 1030 or Biol 1037) and Biol 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

**Biol 5660 Food Microbiology** (4) Lec. 3. Lab. 3. Pr. Biol 3200 and Biol 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, Biol 5660, FDSC 6600, or Biol 6600.


**Biol 5740 Herpetology** (4) Lec. 3. Lab. 3. Ecology and evolution of living amphibians and reptiles of the world.

**Biol 5750 Ornithology** (4) Lec. 3. Lab. 3. Pr. (Biol 3030 or Biol 3033) and Biol 3060. Taxonomy, evolution, ecology, and behavior of birds.

**Biol 5760 Mammalogy** (4) Lec. 3. Lab. 3. Departmental approval. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

**Biol 5800 Introduction to Computational Biology** (3) Lec. 2. Lab. 1. Pr. Stat 2510. Overview of computational approaches to biological data analysis. Additionally, students will learn basic statistical and graphical analysis. May count either Biol 5800 or Biol 6800.

**Biol 5850 Functional Genomics** (3) Lec. 3. Pr. (Biol 3000 or Biol 3003 or Biol 3020 or Fish 3000 or Agric 3000) and Biol 4100 and Biol 5800. An active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either Biol 5850 or Biol 6850.

**Biol 5860 Bioinformatics and Genome Analysis** (3) Lec. 2. Lab. 1. Pr. (Biol 3000 or Biol 3003 or Biol 3020 or Fish 3000 or Agric 3000) and Biol 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging ‘omics fields. May count either Biol 5860 or Biol 6860.

**Biol 6020 Developmental Biology** (3) Lec. 3. Pr. Biol 4100 and Biol 4410. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

**Biol 6090 Conservation Biology** (3) Lec. 3. Pr. Biol 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both Biol 5090 and Biol 6090.

**Biol 6110 Parasitology** (4) Lec. 3. Lab. 3. Pr. (Biol 1030 or Biol 1037) or Biol 2500. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals, and wildlife.

**Biol 6120 Systematic Botany** (4) Lec. 3. Lab. 3. Pr. (Biol 1030 or Biol 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

**Biol 6130 Advanced Plant Physiology** (3) Lec. 3. Pr. Biol 3100 and (Chem 2030 or Chem 2080 or Chem 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.


**Biol 6140 Plant Ecology** (4) Lec. 3. Lab. 4. Pr. (Biol 1030 or Biol 1037) and Biol 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

**Biol 6150 Community Ecology** (3) Lec. 3. Pr. Biol 3060. Dynamics of ecological communities, including niches, species interactions, succession, island biogeography, biodiversity and food webs. May count Biol 5150 or Biol 6150.
BIOL 6160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Pr. At least 15 credits each with a minimum grade of C in BIOL 1000-8990. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours. Departmental approval and 15 hours of biology.

BIOL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220 and (CHEM 2080 or CHEM 2087). Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. BIOL 3200 and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 6210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3200 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 6220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or AGRI 3000) and BIOL 3200. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL 6230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or CHEM 2030 or CHEM 2070 or CHEM 2077. General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3200. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3200. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL 5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3200 and BIOL 3201 and (BIOL 5200 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 6280 GENETHICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 2. LAB. 4. Pr. BIOL 6130. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 6330 or BIOL 5330.

BIOL 6340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 6360 POPULATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.
BIOL 6370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3060 and BIOL 6800. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6425 MARINE BOTANY (4) LEC. 4. Departmental approval. Identification, distribution, structure, ecology and physiology of microscopic and macroscopic algae, sea grasses, salt marsh vegetation, mangroves and maritime forests. Experimental manipulation of these organisms. Taught at DISL.

BIOL 6465 MARINE MICROBIOLOGY (5) LEC. 3. LAB. 2. Pr. BIOL 3200 and BIOL 3201. Departmental approval. The role of microorganisms in marine environments.

BIOL 6500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003 or FISH 3000 or BIOL 3020) and P/C BIOL 6501. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

BIOL 6501 IMMUNOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 6510 BIOGEOGRAPHY (3) LEC. 3. Departmental approval. Patterns and processes associated with the distribution of living and fossil organisms.

BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or BIOL 6220 or BIOL 5260 or BIOL 6260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 6525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Vertebrate and Invertebrate Zoology required. Taught at DISL.

BIOL 6535 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Examination of conservation biology based on previous study of marine ecology. General or Marine Ecology course required. Taught at DISL.

BIOL 6600 MAMMALIAN PHYSIOLOGY (BIOMEDICAL PHYSIOLOGY) (5) LEC. 4.25. LAB. 2.75. Pr. (BIOL 1030 or BIOL 1037 or BIOL 2500) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation of the physiology of the major mammalian organ systems.


BIOL 6750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Departmental approval. An intensive investigation of the present literature and relevant research dealing with birds.

BIOL 6760 MAMMALOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, fieldtrips, data analysis and report preparation.

BIOL 6800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510. Overview of computational approaches to the analysis of biological data. Students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.
BIOL 6850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. Active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 6860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging ‘omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 7000 ADVANCED PARASITOLOGY (3) LEC. 3. Pr. BIOL 6110 or BIOL 5110. Departmental approval. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. Eight hours of Biology.

BIOL 7010 FUNDAMENTALS OF TEACHING BIOLOGY (1) LEC. 1. SU. Course may be repeated for a maximum of 6 credit hours.

BIOL 7035 MARINE ANIMAL NEUROBIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 and BIOL 1021 and BIOL 1030 and BIOL 1031 and BIOL 4100. Biophysical neurobiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses, neurotransmitters, muscle contraction, sensorimotor integration, computer simulation and extensive technical methods: extra-, intracellular, patch recording, molecular neuroimmunology, confocal fluorescence microscopy. Evening/ Saturday classes.

BIOL 7060 ADVANCED MAMMALOGY (4) LEC. 3. LAB. 3. Pr. BIOL 6760. Current literature in mammalogy, collections management, and professional aspects of mammalogy. Labs include preparing specimens, curating research collections, fieldtrips, library work, data analysis, and report preparation.

BIOL 7075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 30. LAB. 60. Pr. MATH 1150 or MATH 1153 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and PHYS 1500 and BIOL 3040. An in-depth examination of the physics, chemistry, geology and biology of the oceans. Lectures cover the interrelationships of these components to each other. Field and lab work will introduce students to research on oceanographic processes of the Gulf of Mexico.

BIOL 7170 POPULATION GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

BIOL 7180 SCRIPTING FOR BIOLOGISTS (3) LEC. 2. LAB. 1. Pr. BIOL 6800 and STAT 7000. or Instructor approval. A hands-on course to teach students concepts, applications, and best practices of utilizing computer scripting languages in the life sciences.

BIOL 7200 EVOLUTIONARY BIOLOGY (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Topics of current interest in evolution. Readings and presentation required.

BIOL 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. or equivalent; or permission of the instructor. Data from the life sciences and advanced statistical techniques for data analyses and computation are brought together through a cross-fertilization of graduate student students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects. May count either BIOL 7250 or STAT 7250.

BIOL 7280 PLANT HORMONES (2) LEC. 2. Pr. BIOL 6130. Synthesis, physiology, and mode of action of the major plant hormones including abscisic acid, auxins, cytokinins, ethylene, and gibberellins.

BIOL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 6170. Departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7370 STREAM ECOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Physical, chemical, and biological aspects of stream ecosystems emphasizing effects of natural environmental factors and human influences on stream biota, and quantitative methods used to study stream ecology.

BIOL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7470 GENOME EVOLUTION (3) LEC. 3. Provides a broad evolutionary perspective on the origin, composition, and architecture of eukaryotic genomes. Students will participate in a literature-driven discussion format and will complete weekly writing assignments.
BIOL 7485 ADVANCED MARINE ECOLOGY (4) LEC. 2. LAB. 2. Pr. BIOL 1020 and BIOL 1021 and BIOL 1030 and BIOL 1031 and (BIOL 3060 or BIOL 3040). An advanced course open only to MS or PhD students. Interactions between marine organisms and the environment. In-depth discussion of ecological theory with emphasis on the latest research, using extensive reference to the literature. Lecture, lab and overnight field trips.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3) LEC. 3. Pr. BIOL 3060. A study of the physiological adaptations that allow animals to survive in unusual environments. A course in ecology required.

BIOL 7500 STRESS PHYSIOLOGY (2) LEC. 2. Pr. (BIOL 4100 or BIOL 5240 or BIOL 5600). This course is a discussion-based course focusing on physiological stress responses at various levels of organization and communication among them, from molecules, cells, organ, to whole organism.

BIOL 7510 NATURAL HISTORY MUSEUM PRACTICUM (1) LAB. 3. Practical methods in natural history museum curation. Students will assist in curating collections at the Auburn University Museum of Natural History. Course may be repeated for a maximum of 4 credit hours.

BIOL 7525 MARINE INVERTEBRATES (4) LEC. 2. LAB. 2. Morphology, natural history, physiology, evolution and ecology. Students examine modern literature and develop an advanced presentation on invertebrate biology involving problem solving in an area such as sensory biology, molecular evolution or management. Term paper, classroom presentation and lecture.

BIOL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Morphological and molecular approaches to modern systematics of plants.

BIOL 7540 PROFESSIONAL ASPECTS OF BIOLOGY (3) LEC. 3. Departmental approval. Instruction on practical aspects of a career in biological sciences.

BIOL 7550 PHYSIOLOGICAL ECOLOGY OF REPRODUCTION (3) LEC. 3. This course focuses on physiological ecology of reproduction by identifying key physiological mechanisms linking the environmental change, reproductive constraints, and reproductive performance and describing how variation in reproductive performance are impacted by ecological and evolutionary processes.

BIOL 7560 PLANT/ANIMAL INTERACTIONS (3) LEC. 3. Pr. BIOL 3100 and BIOL 3060. Departmental approval. Overview of ecological and evolutionary interrelationships between animals and plants, including pollination biology, dispersal ecology, carnivory, and plant-herbivore interactions.

BIOL 7620 MICROBIOLOGY OF EPIDEMICS (3) LEC. 3. Departmental approval. Epidemics of communicable disease outbreaks are analyzed according to the hosts, modes of transmission, environment, and pathogenesis of the agents.

BIOL 7705 TROPICAL BIOLOGY: ECOLOGICAL APPROACH (8) LEC. 4. LAB. 12. Pr. At least 15 credits each with a minimum grade of C in BIOL 6000-8990. An in-depth introduction to the principles of ecology in the tropics. Orientation and introductory lecture in San Jose, Costa Rica, followed by field work during an 8 week period. 15 hours of graduate level biological science.

BIOL 7720 PROKARYOTIC GENE REGULATION (3) LEC. 3. Pr. BIOL 6210 or CHEM 6180. Discussion of gene expression in bacteria using the current literature.

BIOL 7950 MASTERS THESIS SEMINAR (1) LEC. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

BIOL 7960 SPECIAL PROBLEMS (1-4) LEC. Pr. P/C BIOL 6220. Oral presentation and discussion of recent scientific publications from a selected area molecular biology. Credit will not be given for both BIOL 7960 and CMBL 7960. Course may be repeated for a maximum of 4 credit hours.

BIOL 7970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in botany, microbiology, molecular biology, or zoology. A different topic for advanced study will be selected each semester this course is offered. Course may be repeated for a maximum of 8 credit hours.

BIOL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BIOL 8950 DOCTORAL SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 3 credit hours.

BIOL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.
Cell and Molecular Biology Courses

CMBL 4150 HUMAN GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

CMBL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4220 and CHEM 2090. The study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches.

CMBL 5500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms and medical immunology.

CMBL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4050 and CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches. Credit will not be given for both CMBL 6190 and BIOL 6190.

CMBL 6220 INTRODUCTION TO MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4510. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both CMBL 6220 and BIOL 6230.

CMBL 6230 VIROLOGY (4) LEC. 4. Pr. (BIOL 3000 or BIOL 3003) and BIOL 3200 and BIOL 4520. Molecular mechanisms of virus biology including virus-cell replication, assembly and release pathogens. Credit will not be given for both CMBL 6230 and BIOL 6230.

CMBL 6320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL and CMBL 6320.

CMBL 6500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

CMBL 6501 TECHNIQUES IN IMMUNOLOGY (2) LAB. 4. Coreq. BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

CMBL 7070 PLANT BIOTECHNOLOGY (4) LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement.

CMBL 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems and gene regulation.

CMBL 7270 ULTRASTRUCTURE OF PLANT CELLS AND MICROBES (5) LEC. 3. LAB. 4. Departmental approval. Theory and practice of transmission and scanning electron microscopy and their application to the biological sciences. Credit will not be given for both CMBL 7270 and BIOL 7290.

CMBL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 6170. Departmental approval. Examines two major topics: the role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both CMBL 7290 and BIOL 7290.

CMBL 7330 MOLECULAR BIOLOGY OF PLANT DEVELOPMENT (2) LEC. 2. Pr. BIOL 6130 and BIOL 7280. Departmental approval. Physiological, biochemical and molecular aspects of plant growth and development. Credit will not be given for both CMBL 7330 and BOIL 7330.

CMBL 7400 PLANT VIROLOGY (4) LEC. 3. LAB. 2. Pr. (PLPA 3000 or PLPA 3003 or PLPA 6000) and CHEM 6180. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

CMBL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both CMBL 7440 and BIOL 7440.
CMBL 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

CMBL 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concept underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.


CMBL 7510 MOLECULAR GENETICS I (5) LEC. 5. Pr. CHEM 7200. Bacterial, bacteriophage, and eukaryotic genetics, with a focus on gene structure, and molecular mechanisms regulation expression. Critical review of current literature will be emphasized.

CMBL 7520 MOLECULAR GENETICS II (5) LEC. 5. Pr. VBMS 7510. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

CMBL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Pr. BIOL 6120. Morphological and molecular approaches to modern systematics of plants.

CMBL 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7510 and VBMS 7520. Viral gene expression and evasion of host defense mechanisms.

CMBL 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Departmental approval. Principles and applications of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies. Credit will not be given for both CMBL 7660 and FISH 7660.

CMBL 7960 READINGS IN MOLECULAR BIOLOGY (1) RCT. 1. Pr. P/C BIOL 7220. Oral presentation and discussion of recent scientific publications from a selected area of molecular biology. Credit will not be given for both CMBL 7960 and BIOL 7960. Course may be repeated for a maximum of 4 credit hours.

CMBL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 4520 and BIOL 4530. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both CMBL 8160 and POUL 8160.

CMBL 8880 PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6000 and CHEM 6180 and BIOL 4230. Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions.

Chemistry Courses

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1011 SURVEY OF CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1010. Science Core. Laboratory experiments emphasizing course material in CHEM 1010.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr. CHEM 1010. Science Core. Survey of important topics from organic and biochemistry. Aldehydes and ketones, carboxylic acids, carbohydrates, lipids, proteins, enzymes, extracellular fluids, metabolism, nucleic acids, radioactivity.

CHEM 1021 SURVEY OF CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1020 and CHEM 1011. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.

CHEM 1030/1033 FUNDAMENTALS CHEMISTRY I (3) LEC. 3. Science Core. Atomic and molecular theory, chemical equations, stoichiometry, gas laws, thermochemistry, bonding, electronic structure, molecular geometries, solids, liquids, properties of solutions, problem-solving techniques. Credit will not be given for both CHEM 1030 and CHEM 1110 or CHEM 1117.

CHEM 1031 FUNDAMENTAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1030 or P/C CHEM 1033. Science Core. Laboratory experiments emphasizing course material in CHEM 1030. Credit will not be given for both CHEM 1031 and CHEM 1111 or CHEM 1118.
CHEM 1040 FUNDAMENTAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Science Core. Chemical kinetics; chemical equilibrium; acids and bases; calculations of pH; equilibrium constants and thermodynamical properties; electrochemistry; descriptive chemistry. Credit will not be given for both CHEM 1040 and CHEM 1120 or CHEM 1127.

CHEM 1041 FUNDAMENTAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1040 and (CHEM 1031 or CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1040. Credit will not be given for both CHEM 1041 and CHEM 1121 or CHEM 1128.

CHEM 1110 GENERAL CHEMISTRY I (3) LEC. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Science Core. Chemical principles for chemistry and related majors. Atomic and molecular theory, periodicity, chemical reactions, Stoichiometry, gases, thermochemistry, bonding, molecular geometries, liquids, solids, and solutions. Credit will not be given for both CHEM 1110 and CHEM 1030 or CHEM 1117.

CHEM 1111 GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1110 or P/C CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1110. Credit will not be given for both CHEM 1111 and CHEM 1031 or CHEM 1118.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3) LEC. 3. Pr. Honors College. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth. Credit will not be given for both CHEM 1117 and CHEM 1030 or CHEM 1110.

CHEM 1118 HONORS GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. Honors College. CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117. Credit will not be given for both CHEM 1118 and CHEM 1031 or CHEM 1111.

CHEM 1120 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3) LEC. 3. Pr. CHEM 1110 or CHEM 1117. Science Core. Continuation of CHEM 1110. Chemical kinetics, chemical equilibrium, acids and bases, thermodynamics, electrochemistry, representative element and transition metal chemistry. Credit will not be given for both CHEM 1120 and CHEM 1040 or CHEM 1127.

CHEM 1121 GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1120 or P/C CHEM 1127) and CHEM 1111 or CHEM 1118. Science Core. Laboratory experiments emphasizing course material in CHEM 1120. Credit will not be given for both CHEM 1121 and CHEM 1041 or CHEM 1128.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3) LEC. 3. Pr. Honors College. CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth. Credit will not be given for both CHEM 1127 and CHEM 1040 or CHEM 1120.

CHEM 1128 HONORS GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. Honors College. Science Core. Laboratory experiments emphasizing course material in CHEM 1127. Credit will not be given for both CHEM 1128 and CHEM 1041 or CHEM 1121.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest. Credit will not be given for both CHEM 2030 and CHEM 2070.

CHEM 2070 ORGANIC CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. In-depth study of organic chemistry including structure, nomenclature, reactions, reaction mechanisms, stereochemistry, synthesis and spectroscopic structure determination organized by the functional group approach. Considers alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, and aromatic compounds. Credit will not be given for both CHEM 2070 and CHEM 2030.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. (P/C CHEM 2070 or P/C CHEM 2077) and (CHEM 1041 or CHEM 1128 or CHEM 1121). Laboratory for CHEM 2070.

CHEM 2077 HONORS ORGANIC CHEMISTRY I (3) LEC. 3. Pr. Honors College. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2070, but covered in more depth. Additional credit will not be given for CHEM 2070. Member of the Honors College or CHEM 1110 with grade of A or B or CHEM 1040 with grade of A.

CHEM 2078 HONORS ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 2070 or P/C CHEM 2077. Laboratory experiments emphasizing course material in CHEM 2077. Additional credit will not be given for CHEM 2071. Course may be repeated for a maximum of 3 credit hours.
CHEM 2080 ORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Continuation of CHEM 2070. Aldehydes, ketones, amines, carboxylic acids, esters, amides, anhydrides, polymers, carbohydrates and amino acids.

CHEM 2081 ORGANIC CHEMISTRY II LABORATORY (1) LAB. 1. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2071 or CHEM 2078) and (P/C CHEM 2080 or P/C CHEM 2087). Laboratory for CHEM 2080.

CHEM 2087 HONORS ORGANIC CHEMISTRY II (3) LEC. 3. Pr. Honors College or departmental approval. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2080, but covered in more depth. Additional credit will not be given for CHEM 2080. Member of the Honors College or CHEM 2077

CHEM 2088 HONORS ORGANIC CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 2080 or P/C CHEM 2087. Laboratory experiments emphasizing course material in CHEM 2087. Additional credit will not be given for CHEM 2081. May count either CHEM 2081 or CHEM 2088. Course may be repeated for a maximum of 3 credit hours.

CHEM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN CHEMISTRY (1-3) LAB. SU. Individual problems course. Students will work under the direction of a staff member on some problem of mutual interest. Departmental approval required. Only Freshman or Sophomore. Course may be repeated for a maximum of 6 credit hours.

CHEM 3000 CHEMICAL LITERATURE (1) LEC. 1. Pr. CHEM 2080 or CHEM 2087. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.

CHEM 3050 ANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Theory and application of volumetric, potentiometric and photometric chemical analysis.

CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127). The principles of physical chemistry.

CHEM 4070 PHYSICAL CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and MATH 2650 and (PHYS 1610 or PHYS 1617). Principles of chemical thermodynamics, principles of application to problems of chemical interest.

CHEM 4071 PHYSICAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 4070.

CHEM 4080 PHYSICAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and MATH 2650 and (PHYS 1610 or PHYS 1617). Principles of quantum mechanics and spectroscopy; application in molecular structure and in statistical thermodynamics.

CHEM 4081 PHYSICAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 4080. Laboratory for CHEM 4080.

CHEM 4100 INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 4080 or CHEM 3160. Principles of inorganic chemistry emphasizing periodic properties, bonding, structure and symmetry, the solid state, acid-base theory and coordination chemistry.

CHEM 4101 INORGANIC CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 4100. Synthesis and characterization of a variety of inorganic compounds.

CHEM 4110 INORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 4100. Departmental approval. Survey of main group, transition metal and organometallic chemistry.

CHEM 4111 INORGANIC CHEMISTRY LABORATORY II (1) LAB. 3. Pr. CHEM 4101 and P/C CHEM 4110. Laboratory for CHEM 4110.

CHEM 4130 INSTRUMENTAL ANALYSIS (3) LEC. 3. Pr. P/C CHEM 3050. Fundamental concepts used in instrumental analytical chemistry emphasizing spectrophotometric, electroanalytical and chromatographic analysis.

CHEM 4131 INSTRUMENTAL ANALYSIS LABORATORY (1) LAB. 3. Pr. P/C CHEM 4130. Laboratory for CHEM 4130.

CHEM 4950 UNDERGRADUATE SEMINAR (1) LEC. 1. Oral presentation and discussion of research in the area of specialization.
CHEM 4980 UNDERGRADUATE RESEARCH IN CHEMISTRY (3) LAB. 9. Departmental approval. This is an individual problem course. Each student will work under the direction of a staff member on some problem of mutual interest. Course may be repeated for a maximum of 9 credit hours.

CHEM 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Departmental approval. Honors College Members Only; Course may be repeated for a maximum of 6 credit hours.

CHEM 5180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Molecular Structure: classification, structure and reactions of the major constituents of living matter. Also includes binding phenomena and bioenergetics. Credit will not be given for both CHEM 5180 and BCHE 5180.

CHEM 5181 BIOCHEMISTRY I LABORATORY (1) LEC. 3. Pr. P/C CHEM 5180 or P/C BCHE 5180. Identification and quantification of compounds from the important biochemical classes. Examples include amino acid chromatography, dipeptide sequencing, glucose concentration etc. Credit will not be given for both CHEM 5181 and BCHE 5181.

CHEM 5190 BIOCHEMISTRY II (3) LEC. 3. Pr. CHEM 5180. Metabolism: survey of design and regulation of the major catabolic and biosynthetic (including photosynthesis) metabolic pathways. An overview of the flow of genetic information. Credit will not be given for both CHEM 5190 and BCHE 5190.

CHEM 5191 BIOCHEMISTRY II LABORATORY (1) LEC. 3. Pr. P/C CHEM 5190 or P/C BCHE 5190. Partial purification, Kinetic studies and characterization of enzymes and nucleotides from various plants, animals and bacteria. Credit will not be given for both CHEM 5191 and BCHE 5191.

CHEM 5280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 5310 LEARNING ASSISTANT PEDAGOGY (1) ST1. 1. Departmental approval. The Learning Assistant Pedagogy course is a special topics course reserved for students (undergraduate or graduate) serving as learning assistants in active learning classrooms. This seminar style class incorporates literature on student-centered learning with reflective writing and discussion.

CHEM 6180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Molecular Structure: classification, structure and reactions of the major constituents of living matter. Also includes binding phenomena and bioenergetics. Credit will not be given for both CHEM 6180 and BCHE 6180.

CHEM 6190 BIOCHEMISTRY II (3) LEC. 3. Pr. CHEM 6180. Departmental approval. Metabolism: survey of design and regulation of the major catabolic and biosynthetic (including photosynthesis) metabolic pathways. An overview of the flow of genetic information. Credit will not be given for both CHEM 6190 and BCHE 6190.

CHEM 6280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 7100 ADVANCED INORGANIC CHEMISTRY (3) LEC. 3. Departmental approval. Current concepts of inorganic chemistry with an emphasis on theory, structure, bonding and reactivity.

CHEM 7110 PHYSICAL METHODS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Or equivalent. Theory and application of techniques for obtaining information inorganic compounds including magnetism, multinuclear nmr, mass spectrometry, x-ray diffraction, vibrational and electronic spectroscopies.

CHEM 7120 ORGANOMETALLIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Main group and transition metal organometallic chemistry.

CHEM 7160 ADVANCED TOPICS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Currently active research areas in inorganic chemistry. Course may be repeated for a maximum of 12 credit hours.

CHEM 7200 PHYSICAL ORGANIC CHEMISTRY (3) LEC. 3. This course will combine the foundations of undergraduate organic chemistry reactions and add to this the physical properties of chemical reactions as affected by real laboratory applications.
CHEM 7210 STRUCTURE ELUCIDATION OF ORGANIC COMPOUNDS (3) LEC. 3. Pr. CHEM 7200 or CHEM 7220. The early stages of this course will focus on the identification of functional groups, saturated, unsaturated and cyclic compounds using IR and NMR spectroscopy, as well as mass spectrometry. Detailed analyses of 1H NMR spectra, i.e., chemical shift, multiplet shape, and coupling constants will demonstrate the power of these methods in ascertaining atom connectivity in simple organic molecules. More advanced two-dimensional NMR techniques such as COSY, HSQC and HMBC will be discussed and used for determining the structures of more complex organic molecules. The determination of absolute and relative stereochemistry using Mosher ester analyses and NOESY, respectively, in chiral molecules will also be covered. Most of the structures that will be discussed and analyzed will be stereochemically complex systems and polycyclic molecules that require a combination of multiple one-dimensional and two-dimensional NMR techniques.

CHEM 7220 ORGANIC REACTIONS (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2073 or CHEM 2077) and (CHEM 2080 or CHEM 2083 or CHEM 2087). Organic reactions are described in the context of oxidation; reduction; C-C, C-N, C-O bond forming; olefination; aldol (and related) condensations; pericyclic, fragmentation, ring-expansion and ring-contraction reactions; and, named organic reactions and their reaction mechanisms and their application to chemical synthesis. Concurrent enrollment with CHEM 7200 is highly recommended.

CHEM 7230 COMPLEX MOLECULE SYNTHESIS (3) LEC. 3. Pr. CHEM 7220. This class is focused on target-oriented chemical synthesis of complex organic molecules. The main objective is to teach students how to use retrosynthetic analysis, a method for disconnecting a complex molecule into simpler starting materials, as well classical and modern organic reactions to plan syntheses of organic compounds that are biologically relevant and important in the development of better pharmaceuticals. During the course of the semester, students will be introduced to important classes of natural products including terpenes, terpenoids, alkaloids, macrolides, polycyclic ethers, as well as designed molecules that are biologically relevant, but not natural products themselves. Identifying key structural components (i.e., retrons), stereogenic centers, and substructures that can be derived from the chiral pool will be emphasized in synthesis planning. All lecture content will come from the current literature, with only manuscripts published in the past 12 months being discussed in class. Students will be responsible for reading Classics in Total Synthesis on their own and tested on the content of this book as well as assigned current literature in class. Emphasis will be placed on identifying economical and streamlined synthetic protocols that can employ cascade or domino reaction sequences.

CHEM 7260 SPECIAL TOPICS IN ORGANIC CHEMISTRY (1-3) LEC. Pr. CHEM 7200. Advanced course in a research area in organic chemistry which is of mutual interest to graduate students and the instructor. Course may be repeated for a maximum of 6 credit hours.

CHEM 7270 SUPRAMOLECULAR CHEMISTRY: SYNTHESIS, STRUCTURES, AND APPLICATIONS (3) ST1. 3. Pr. CHEM 2080. Supramolecular Chemistry bridges organic, inorganic, surface science, and analytical chemistries. It is a topical area that explores synthesis, spatial organization, weak bonding interactions, hydrogen bonding or covalent bonding, and is interest for numerous industrial or pharmacy applications.

CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3) LEC. 3. Topics of general and current interest; may vary from year to year.

CHEM 7330 CHEMICAL KINETICS (3) LEC. 3. Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

CHEM 7350 QUANTUM AND STATISTICAL MECHANICS (3) LEC. 3. Pr. CHEM 7300. A quantum mechanical and statistical approach to molecular structure and chemistry.

CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3) LEC. 3. Pr. CHEM 7300. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

CHEM 7380 MOLECULAR SPECTROSCOPY (3) LEC. 3. Pr. CHEM 7300. Theory and application of optical and magnetic resonance spectroscopy.

CHEM 7410 A DBER APPROACH TO TEACHING AND LEARNING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 1030 and CHEM 1040. Discipline-based education research (DBER) theory and trends, consuming and evaluating DBER research, active learning in advanced chemistry topics, action research, review of pedagogical tools, assessment. This course will be of use to chemistry graduate students aiming for careers in academia, masters education students looking to take a chemistry course for the fulfillment of their degree requirements, and other fields that want to know more about evaluating and critiquing current DBER literature and methods.

CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3) LEC. 3. Analytical principles, applications and methods, mathematical interpretations and current developments.

CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical applications of electrochemistry.
CHEM 7520 SURFACE CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Basic concepts in surface chemistry and surface analytical methods.

CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical Chemistry of microfluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1) LEC. 1. Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15) IND. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

CHEM 7950 SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CHEM 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CHEM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Geography Courses

GEOG 1010/1013 GLOBAL GEOGRAPHY (3) LEC. 3. Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3. Pr. Honors College. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOG 2010 HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3. Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.

GEOG 2800 GEOGRAPHIC METHODS AND TECHNIQUES (4) LEC. 3. LAB. 2. Pr. COMP 1000 or COMP 1003. Departmental approval. Key geographical concepts and production of basic geographical tools for portraying spatial data through laboratory exercises.

GEOG 2850 MAP READING AND ANALYSIS (3) LEC. 2. LAB. 2. Introduction to basic concepts and techniques used to interpret map symbols and to analyze geographic patterns.

GEOG 3000 SPORTS GEOGRAPHY (3) LEC. 3. Geographical basis of sports at different spatial scales, including locational strategies, sportive nationalism, and the urban political economy of sports.

GEOG 3110 UNITED STATES AND CANADA (3) LEC. 3. Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.

GEOG 3120 ALABAMA AND THE SOUTHEAST (3) LEC. 3. Study of the physical and cultural environments of the state.

GEOG 3130 LATIN AMERICA (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.

GEOG 3140 AFRICA (3) LEC. 3. Analysis of the relationships among diverse population groups and the physical environments of sub-Saharan Africa.

GEOG 3150 EUROPE (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development, and problems and prospects affecting several of the major countries.

GEOG 3160 ASIA (3) LEC. 3. Survey of the physical and cultural landscape of Asia, including its development and spatial distribution of resources, with a focus on major countries.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 3300</td>
<td>INTERNATIONAL TRAVEL AND TOURISM</td>
<td>3</td>
<td>Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.</td>
</tr>
<tr>
<td>GEOG 3810</td>
<td>CARTOGRAPHY AND GRAPHICS</td>
<td>4</td>
<td>LEC. 3. LAB. 2. Pr. GEOG 2800. Departmental approval. Techniques of map production including relevant computer graphics applications and related laboratory exercises.</td>
</tr>
<tr>
<td>GEOG 4740</td>
<td>SENIOR SEMINAR</td>
<td>2</td>
<td>SEM. 2. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count GEOG 4740 or GEOL 4740.</td>
</tr>
<tr>
<td>GEOG 4920</td>
<td>INTERNSHIP</td>
<td>3</td>
<td>LEC. 3. Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>GEOG 4930</td>
<td>DIRECTED STUDIES</td>
<td>(1-4)</td>
<td>IND. Departmental approval. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours.</td>
</tr>
<tr>
<td>GEOG 5010</td>
<td>URBAN GEOGRAPHY AND SUSTAINABILITY</td>
<td>3</td>
<td>LEC. 3. Senior standing or Departmental approval. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.</td>
</tr>
<tr>
<td>GEOG 5210</td>
<td>CLIMATOLOGY</td>
<td>3</td>
<td>LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth’s climate system (e.g. surface-atmosphere energy balance, the hydrologic cycle, and atmospheric motion) as well as climate change and sea level rise.</td>
</tr>
<tr>
<td>GEOG 5220</td>
<td>GEOMORPHOLOGY</td>
<td>3</td>
<td>LEC. 2. LAB. 2. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Study of the origin of landforms with emphasis on the eologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.</td>
</tr>
<tr>
<td>GEOG 5300</td>
<td>ADVANCED REGIONAL STUDIES IN GEOGRAPHY</td>
<td>3</td>
<td>LEC. 3. Departmental approval. Spatial patterns of socio-economic development of Latin America and the Caribbean.</td>
</tr>
<tr>
<td>GEOG 5310</td>
<td>GEOGRAPHY OF RURAL CHANGE</td>
<td>3</td>
<td>LEC. 3. Examination of the patterns and processes associated with population levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.</td>
</tr>
<tr>
<td>GEOG 5380</td>
<td>POLITICAL GEOGRAPHY</td>
<td>3</td>
<td>LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.</td>
</tr>
<tr>
<td>GEOG 5400</td>
<td>GEOGRAPHY OF NATURAL HAZARDS</td>
<td>3</td>
<td>LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.</td>
</tr>
<tr>
<td>GEOG 5510</td>
<td>HUMAN-ENVIRONMENT INTERACTION</td>
<td>3</td>
<td>LEC. 3. Departmental approval. Investigation of the inter-relationships between humans and their natural or physical environments.</td>
</tr>
<tr>
<td>GEOG 5550</td>
<td>GEOGRAPHY OF WATER RESOURCES</td>
<td>3</td>
<td>LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.</td>
</tr>
<tr>
<td>GEOG 5600</td>
<td>GLOBAL RESOURCES AND THE ENVIRONMENT</td>
<td>3</td>
<td>LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.</td>
</tr>
<tr>
<td>GEOG 5700</td>
<td>QUANTITATIVE METHODS AND SPATIAL ANALYSIS</td>
<td>3</td>
<td>LEC. 3. Pr. STAT 2510 or STAT 2513. Pr., STAT 2510 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5710 and GEOG 6710.</td>
</tr>
</tbody>
</table>
GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills, evaluates written materials in geography, reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 5830/5833 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 5850 GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. Introducing the concepts and implementations of the geographic information analysis and integrate GIS with real-world applications. This is a follow-up course of GEOG 5830/GEOG/6830.

GEOG 5860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOG 3810. Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 5870 ADVANCED REMOTE SENSING (3) LEC. 2. LAB. 2. Pr. GEOG 5800. Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 5880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 5830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 6010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 6210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g. surface-atmosphere energy budget, the hydrologic cycle, and atmospheric motion, as well as climate change and sea level rise.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6300 ADVANCED REGIONAL STUDIES IN GEOGRAPHY (3) LEC. 3. Departmental approval. Spatial patterns of socioeconomic development of Latin America and the Caribbean.

GEOG 6310 GEOGRAPHY OF RURAL CHANGE (3) LEC. 3. Examination of the patterns and processes associated with population levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 6380 POLITICAL GEOGRAPHY (3) LEC. 3. Pr. GEOG 5800. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.
GEOG 6500 GEOGRAPHY OF ENVIRONMENTAL MANAGEMENT (3) LEC. 3. Departmental approval. Understanding and application of the theories and methods for the United States' version of environmental impact assessment.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation the inter-relationships between humans and their natural or physical environments.

GEOG 6550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 6600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5700 and GEOG 6700.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama’s environment via a mix of lectures, hands-on activities and field trips.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 6830/6836 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Departmental approval. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 6850 GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. Introducing the concepts and implementations of the geographic information analysis and integrate GIS with real-world applications. This is a follow-up course of GEOG 5830/GEOG/6830.

GEOG 6860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOG 3810. Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 6870 ADVANCED REMOTE SENSING (3) LEC. 2. LAB. 2. Pr. GEOG 6820. Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 6830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Departmental approval. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 7930 DIRECTED STUDIES (1-3) IND/RES. Departmental approval. Individualized literature, field and/or laboratory research not available through regularly offered coursework. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOG 7980 CAPSTONE RESEARCH (1-3) RES. SU. Departmental approval. enrolled as GEOG MS non-thesis student. Literature, field and/or laboratory research directed toward the completion of capstone project for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOG 7990 M.S. RESEARCH AND THESIS (1-10) RES. Research and Thesis. Course may be repeated with change in topics.
Geology Courses

GEOL 1100/1103 DYNAMIC EARTH (4) LEC. 3. LAB. 2. Coreq. GEOL 1101. Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3150.

GEOL 1101 DYNAMIC EARTH LABORATORY (0) LAB. 2. Coreq. GEOL 1100. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and land forms study of geologic maps.

GEOL 1107 HONORS DYNAMIC EARTH (4) LEC. 3. LAB. 2. Pr. Honors College. Coreq. GEOL 1108. General physical geology for Honors students and for Geology majors. Topics similar to GEOL 1110 but covered in greater depth. Science Core.

GEOL 1108 HONORS DYNAMIC EARTH LABORATORY (0) LAB. 2. Pr. Honors College or Departmental approval. Coreq. GEOL 1107. General physical geology for Honors students and for Geology majors. Topics similar to those in GEOL 1101 but covered in more depth. Science Core.

GEOL 1110/1113 EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Coreq. GEOL 1111. Science Core. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans.

GEOL 1111 EARTH AND LIFE THROUGH TIME LABORATORY (0) LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Coreq. GEOL 1110. Examination of rock, fossil, and related data sets bearing on the geological development of the earth with emphasis on North America.

GEOL 1117 HONORS EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107 or Departmental approval. Coreq. GEOL 1118. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans. For Honors students and Geology majors. Science Core.

GEOL 1118 HONORS EARTH AND LIFE THROUGH TIME LABORATORY (0) LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107 or Departmental approval. Coreq. GEOL 1117. General historical geology for Honors students and Geology majors. Topics similar to those in GEOL 1111 but covered in greater depth. Science Core.

GEOL 1200 MARINE TECHNICAL METHODS (2) LAB. 8. Departmental approval. Introduction to procedures utilized aboard marine research vessels; physical, biological and geological measurements and sampling techniques. Taught only at Dauphin Island Sea Lab. Summer.

GEOL 1220 COASTAL CLIMATOLOGY (2) LEC. 7. Departmental approval. Controlling factors and features of world climates, with attention to coastal areas; application and interpretation of climate data. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOL 2010/2013 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4. LAB. 2. Departmental approval. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2020 MARINE GEOLOGY (4) LEC. 2. LAB. 4. Departmental approval. Geology of ocean basins; special emphasis on continental shelves, their sediments and the sedimentary process at work there. Taught only at Dauphin Island Sea Lab. Summer only.


GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.

GEOL 3100 TERRESTRIAL VEGETATION THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 2200 and (BIOL 1020 or BIOL 1027). Plants are primary producers and are the foundation upon which the global ecosystem is based. This course focuses on the development, evolution, and application of the plant fossil record to problems in earth history.

GEOL 3150 ENGINEERING GEOLOGY (3) LEC. 2. LAB. 2. Fundamental geologic principles, materials, and processes that affect engineering projects and programs. Emphasis on pre-construction geological analysis to recognize potential hazards and problems. Credit will not be given for both GEOL 3150 and GEOL 1100.

GEOL 3200 INTRODUCTION TO PALEOBIOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1110 or GEOL 1113 or GEOL 1107. The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.

GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs.


GEOL 3650 FIELD CAMP (6) LEC. 1. LAB. 10. Pr. GEOL 3400. Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformatinal analysis. Summer only.

GEOL 4010 SEDIMENTARY PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050. Departmental approval. Detailed description and classification of sediments and sedimentary rocks with emphasis on interpretation of origins, transport histories, depositional environments and diagnostic histories.


GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3400. The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.

GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3. Pr. CHEM 1040 and GEOL 2050. Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3. Pr. GEOL 3400 and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 SENIOR SEMINAR (2) SEM. 2. Geology majors with upperclass standing. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count either GEOL 4740 or GEOG 4740.

GEOL 4920 INTERNSHIP (1-3) INT. SU. Geology majors with upper-class standing (juniors or seniors). An opportunity to apply classroom experience to a real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) AAB. Departmental approval. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours.

GEOL 4970 SPECIAL TOPICS IN GEOLOGY (1-4) ST1. Instruction and discussion of selected topics in geosciences. Course may be repeated for a maximum of 8 credit hours.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Departmental approval. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours.

GEOL 4997 HONORS THESIS (2-4) LEC. 3. Pr. Honors College. May incorporate library, field or laboratory research in any proportion. Written thesis and thesis defense required. Course may be repeated for a maximum of 4 credit hours.

GEOL 5060 INTRODUCTION TO MICROPALEONTOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3200 and (BIOL 1030 or BIOL 1037). A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.
GEOL 5100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of the origin of landforms with emphasis on the geologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOL 5240 COASTAL GEOMORPHOLOGY (2) LEC. 5. LAB. 4. Departmental approval. Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 5300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. P/C GEOL 4010. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 5440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction in the theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). The course provides an understanding of EMPA as a research tool for evaluating the composition and structure of a wide range of materials.

GEOL 5500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. GEOL 4010. Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanisms. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 5720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Pr., Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOL 6060 INTRODUCTION TO MICROPAL EONTOLOGY (3) LEC. 3. LAB. 1. A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 6220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Study of origin of landforms with emphasis on geologic processes and structures that generate landforms; includes the applications of landform analysis. May count either GEOL 6220 or GEOG 6220.

GEOL 6240 COASTAL GEOMORPHOLOGY (2) LEC. 5. LAB. 4. Departmental approval. Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 6440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction to theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). Provides an understanding of EMPA as a research tool for evaluating composition and structure of wide range of materials. GEOL 5440 or GEOL 6440.

GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3. Departmental approval. Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations.


GEOL 7200 TECTONICS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes.

GEOL 7220 GEOGRAPHIC INFORMATION SYSTEMS AND MARINE RESEARCH (3) LEC. 10. LAB. 15. Departmental approval. Introduction to geographical information system (GIS) techniques with a focus on application in the marine environment. Taught only at Dauphin Island Sea Lab. Summer only.


GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Departmental approval. Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of trace elements; groundwater pollution, remediation and geomicrobiology.

GEOL 7286 CLIMATE CHANGE LITERACY AND COMMUNICATION (3) DSL. 3. Must be a graduate student, or obtain departmental consent after undergraduate student meets Auburn University criteria for taking a 7000-level course. Investigates the discipline-based geoscience education lenses of people's understanding (cognitive), emotional influences (affect), and actions (behavior) about climate change literacy. Critically analyzes misconceptions, mental models, cultural influences, risk perceptions and the best practices for addressing these barriers. May count either GEOL 7280 or GEOL 7286.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 4100 and GEOL 4260. Discussion of the fundamental processes controlling sedimentary cycles at different physical, biotic, and temporal scales.

GEOL 7310 ISSUES IN PALEONTOLOGY (3) LEC. 3. Pr. GEOL 3200. Advanced applications of paleontological data sets to topics that may include taphonomy, biogeochmy, evolution, asystematic functional morphology, paleoecology, paleoclimatology and biostratigraphy.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 4210. Departmental approval. The practical and theoretical aspects of economic geology as applied to exploration and development of natural resources.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon- source rocks and coals. Laboratory and field trips required.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Overview of geology and geographic distribution of mineral resources; economic aspects affecting their extraction; environmental impacts and cost of mineral resource extraction.

GEOL 7500 PALEOClimatology (3) LEC. 3. Explores how Earth's climate has evolved dynamically over time, varying within restricted boundaries that allowed life to exist and evolve. Explores interactions among Earth's surface abiotic and biotic components, and includes plate tectonics, atmospheric chemistry and physics, and ocean productivity.
GEOL 7550 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2. LAB. 2. Pr. GEOL 6600. Departmental approval. Advanced treatment of geophysical methods, data interpretation and modeling. Applications to resource development and environmental assessments will be explored, with emphasis on seismic methods.

GEOL 7600 PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. The description, classification, formative processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 3400 and GEOL 3650. Quantitative analysis of dynamic, kinematic and chemical responses of rocks and minerals to crustal movements and dynamo thermal metamorphism.

GEOL 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. Systematic analysis of modern and ancient deposition facies, and their interpretation in a sequence stratigraphic context. Laboratory and field trips required.

GEOL 7700 ANALYTICAL ISOTOPE GEOCHEMISTRY (3) LEC. 2. LAB. 1. Pr. CHEM 1040 or PHYS 1510 or MATH 1620. Biweekly lectures will teach the theory and principles of isotope geochemistry and mass spectrometry, leading to applications in geoscience research. Lab sessions and problem sets will support lectures and emphasize work with various mass spectrometers in the Department of Geosciences.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3. Departmental approval. Directed studies. May incorporate literature, field and/or laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. SU. Literature, field and/or laboratory research directed towards completion of capstone project required for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Departmental Approval. Course may be repeated with change in topics.

GEOL 8900 DIRECTED STUDY (3) IND. 3. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-system problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis.

Laboratory Science Courses

LBSC 2010 BASICS IN LABORATORY SCIENCE (2) LEC. 1. LAB. 1. Basic laboratory skills, quality control and assurance, standard precautions for biohazard testing; requirements for careers in medical and laboratory science.


LBSC 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5) LEC. 3. LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and (BIOL 1020 or BIOL 1027). Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

LBSC 4250 CLINICAL BIOCHEM INSTRUMNT (4) LEC. 3. LAB. 3. Pr. BCHE 5180 or BCHE 3200. Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gaschromatograph-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.

LBSC 4910 CLINICAL PRACTICUM (0) PRA.

LBSC 4920 CLINICAL INTERNSHIP (0) INT/PRA.

Mathematics Courses

MATH 1000/1003 COLLEGE ALGEBRA (3) LEC. 3. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.
MATH 1100 FINITE MATH AND APPLICATIONS (3) LEC. 3. Pr. A02 score of 22 or S02 score of 520 or S12 score of 550 or MATH 1000 or MATH 1003 or MPME score of 052. Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

MATH 1120/1123 PRE-CALCULUS ALGEBRA (3) LEC. 3. Pr. A02 score of 22 or S02 score of 520 or S12 score of 550 or MATH 1000 or MATH 1003 or MPME score of 052. Mathematics Core. Preparatory course for calculus. Algebra of functions including polynomial, rational, exponential, and logarithmic functions. Systems of equations and inequalities, quadratic inequalities, the Binomial Theorem. No credit is given to students with higher-numbered math course. Credit for only one of MATH 1120/MATH 1123.

MATH 1121 PRE-CALCULUS ALGEBRA WORKSHOP (2) LAB. 4. SU. Coreq. MATH 1120 and MATH 1123 and MATH 1003. Workshop for College Algebra and Pre-Calcus Algebra. Course may be repeated for a maximum of 4 credit hours.

MATH 1130/1133 PRE-CALCULUS TRIGONOMETRY (3) LEC. 3. Pr. A02 score of 23 or S02 score of 540 or S12 score of 565 or MATH 1120 or MATH 1123 or MPME score of 060. Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, De Moivre's Theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not also receive credit for this course. Students may receive credit for only one of MATH 1130 or MATH 1133.

MATH 1150/1153 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4) LEC. 4. Pr. A02 score of 23 or S02 score of 540 or S12 score of 565 or MATH 1000 or MATH 1003 or MPME score of 060. A "C" or better in MATH 1000 or MATH 1003. Mathematics Core. Algebraic functions, Exponential Logarithmic functions. Analytic and geometric properties of trigonometric functions. Students with previous credit in any higher-numbered math course may not also receive credit for this course. Students may receive credit for only one of MATH 1150 or MATH 1153.

MATH 1151 MATHEXCEL PRECALCULUS WORKSHOP (2) LEC. 2. SU. Coreq. MATH 1150. Appropriate score on the mathematics placement exam or grade of "C" or better in MATH 1000. Workshop for MATH 1150. Two 2-hour sessions per week.

MATH 1610/1613 CALCULUS I (4) LEC. 4. Pr. A02 score of 26 or S02 score of 600 or S12 score of 620 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MPME score of 076. "C" or better in MATH 1130, MATH 1133, MATH 1150 or MATH 1153. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610, MATH 1613, or MATH 1617.

MATH 1621 MATHEXCEL CALCULUS WORKSHOP I (2) LEC. 2. SU. Coreq. MATH 1610. Workshop for Math 1610. Two 2-hour sessions per week.

MATH 1617 HONORS CALCULUS I (4) LEC. 4. Pr. Honors College. MATH 1130 or MATH 1150 or MATH 1133 or MATH 1153 or A02 minimum score of 26 or S02 minimum score of 600 or MPME minimum score of 76. C or better in MATH 1130, MATH 1133, MATH 1150 or MATH 1153. Mathematics Core. This course covers the same material as MATH 1610 but in a greater depth appropriate for honors students. Credit will not be given for both MATH 1617 and MATH 1680. Students may receive credit for only one of MATH 1610, MATH 1613, or MATH 1617.

MATH 1620/1623 CALCULUS II (4) LEC. 4. Pr. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610, MATH 1613, or MATH 1617. Techniques of integration, applications of the integral, parametric equations, polar coordinates. Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620, or MATH 1627.

MATH 1621 MATHEXCEL CALCULUS WORKSHOP II (2) LEC. 2. SU. Coreq. MATH 1620. Workshop for MATH 1620. Two 2-hour sessions per week.

MATH 1627 HONORS CALCULUS II (4) LEC. 4. Pr. Honors College. MATH 1610 or MATH 1617 or MATH 1613. "C" or better in MATH 1610, MATH 1613, or MATH 1617. The same material as MATH 1620, but in greater depth appropriate for honors students. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1680/1683 CALCULUS WITH BUSINESS APPLICATIONS I (4) LEC. 3, LEC. 2. Pr. A02 score of 25 or S02 score of 580 or S12 score of 600 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MPME score of 068. Students in College of Business. Mathematics Core. Differentiation and integration of exponential logarithmic algebraic functions, applications to business. Functions of several variables, partial derivatives, multiple integrals.

MATH 1681 MATHEXCEL BUSINESS CALCULUS WORKSHOP I (2) LEC. 2. SU. Coreq. MATH 1680. Workshop for MATH 1680. Two 2-hour sessions per week.
MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or MATH 1610 or MATH 1617 or MATH 1613 or Departmental approval. Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics.

MATH 1691 MATH EXCEL BUSINESS CALCULUS WORKSHOP II (2) LEC. 2. SU. Coreq. MATH 1690. Workshop for MATH 1690. Two 2-hours sessions per week.

MATH 2630/2633 CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2637 HONORS CALCULUS III (4) LEC. 4. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. The same material as MATH 2630, but in greater depth appropriate for honors students. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. P/C MATH 2630 or P/C MATH 2637 or P/C MATH 2730. First and second order linear differential equations including the solutions by infinite series, applications.

MATH 2660 TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Mathematical foundations of the theory of interest necessary as preparation for the Society of Actuaries examination on the theory of interest.

MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3. For Elementary Education major or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3. Pr. MATH 2850. For Elementary Education majors or departmental approval. Mathematical insights into measurement and geometry for elementary school teachers. Shapes in two and three dimensions. Similarities, congruences and transformations.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3. For Elementary Education majors or departmental approval. Mathematical insights into probability, data analysis and functions for elementary school teachers. Uncertainty, probability spaces and an introduction to statistics. Relationships, functions and change.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Departmental approval. The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and Math 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3. Pr. MATH 2660. Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3100.

MATH 4110 ADVANCED LOGIC (3) LEC. 3. Pr. MATH 2630 or MATH 2637 and MATH 2730. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either MATH 4110 or PHIL 4110.

MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3. Pr. MATH 2790. Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 examination.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3. Pr. STAT 3600. or equivalent. Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination.
MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. Departmental approval. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours.

MATH 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

MATH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours. Membership in Honors College.

MATH 5000 MATH MODELING CONTINUOUS (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term project. Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and MATH 2660. Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green’s Theorem, Stoke’s Theorem, Gauss’ Theorem. Tensors and differential forms. Applications.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Pr. MATH 2650. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 5030. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Pr. MATH 2660. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 2650. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5120 INFORMATION THEORY (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman’s algorithm), maximum likelihood decoding, Shannon’s Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650. Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.


MATH 5180 CRYPTOGRAPHY (3) LEC. 3. Pr. MATH 2660. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3. Pr. MATH 2650. Approximation of functions by polynomials, spline functions or trigonometric functions, expansions in series.
MATH 5200 ANALYSIS I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity. Emphasis on proofs.

MATH 5210 ANALYSIS II (3) LEC. 3. Pr. MATH 5200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; \( \mathbb{R}^n \) and abstract spaces, functions of several variables. Emphasis on proofs.


MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Pr. MATH 2660. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 5310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 5310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 2660. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces, matrix representations, eigenvalues, eigenspaces.

MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 5380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 5460 PERTURBATION METHODS I (3) LEC. 3. Pr. MATH 2660. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods.

MATH 5470 DYNAMICAL SYSTEMS I (3) LEC. 3. Pr. MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii's Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

MATH 5480 DYNAMICAL SYSTEMS II (3) LEC. 3. Pr. MATH 5470. Higher dimensional and complex dynamics. Lorenz map, Henon map, toral automorphisms, stable and unstable manifolds, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Pr. MATH 3100. C or better in MATH 3100. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 5620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3. Pr. MATH 2650. A programming language, or departmental approval. An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.

MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Pr. MATH 2660. Programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigen vectors, error analysis. Written programs using the algorithms.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 5670 or STAT 5670. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 5680 and STAT 5680.

MATH 5690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematica, supported by internet resources. Credit will not be given for both MATH 5690 and STAT 5690. Basic programming.


MATH 5730 ENUMERATION (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.


MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.


MATH 5810 ACTUARIAL MATHEMATICS II (3) LEC. 3. Pr. MATH 5800. A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and MATH 2650 and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 5970 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3) LEC. 3. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Programming ability.

MATH 6030/6036 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 6030 or MATH 6036. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6120 INFORMATION THEORY (3) LEC. 3. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 6130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650. Fundamental concepts of extrema functions and functionals; first and second generalizations; sufficient conditions; constrained functionals; the general Lagrange problem; optimal control.

MATH 6140 DATA COMPRESSION (3) LEC. 3. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 6150/6156 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.


MATH 6180 CRYPTOGRAPHY (3) LEC. 3. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3. Pr. MATH 2650. Approximation of functions by polynomials, spline functions or trigonometric function, expansions in series.

MATH 6200 ANALYSIS I (3) LEC. 3. or equivalent course, subject to departmental approval. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity; intermediate value and extreme-value theorems. Emphasis on proofs.

MATH 6210 ANALYSIS II (3) LEC. 3. Pr. MATH 6200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.


MATH 6280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 6300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.
MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 6310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, and Galois Theory.

MATH 6330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 6310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Grobner bases, Buchberger’s Algorithm, kinematic/robotics problems, and symbolic manipulation software.

MATH 6370 LINEAR ALGEBRA (3) LEC. 3. Introduction to the theoretical foundations of Linear Algebra Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces matrix representations, eigenvalues, eigenspaces.

MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 6380. Planar graphs and Euler’s theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, and advanced theorems on the circle.

MATH 6460/6466 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

MATH 6470 DYNAMICAL SYSTEMS I (3) LEC. 3. Pr. MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii’s Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

MATH 6480 DYNAMICAL SYSTEMS II (3) LEC. 3. Pr. MATH 6470. Higher dimensional and complex dynamics. Lorenz map, Henonmap, toral automorphisms, stable and unstable manifolds, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 6500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Departmental approval. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 6620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3. An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.


MATH 6640/6646 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms. Programming ability.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.

MATH 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.
MATH 6690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematica, supported by Internet resources. Credit will not be given for both MATH 6690 and STAT 6690.

MATH 6710 LINEAR OPTIMIZATION (3) LEC. 3. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6730 ENUMERATION (3) LEC. 3. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.


MATH 6770 COMBINATORIAL DESIGNS (3) LEC. 3. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.


MATH 6810 ACTUARIAL MATHEMATICS II (3) LEC. 3. Pr. MATH 6800. A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 6840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Divisibility, Diophantine equations, congruencies.

MATH 6850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 6860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 6870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and MATH 2650 and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 6970/6976 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.


MATH 7010/7016 APPLIED MATHEMATICS II (3) LEC. 3. Pr. MATH 7000 or MATH 7006. Calculus of variations, asymptotic expansions, Spectral theory, Fourier transform, Partial differential equations, transform methods and eigenfunction expansions, vibrations, diffusion processes, equilibrium states, Green's functions, boundary layer problems.

MATH 7040/7046 APPROXIMATION THEORY I (3) LEC. 3. Departmental approval. Introduction and theory of some of the important methods of approximation. Includes uniform approximation, best approximation, best trigonometric approximation.

MATH 7050/7056 APPROXIMATION THEORY II (3) LEC. 3. Pr. MATH 7040 or MATH 7046. Least square approximation and rational approximation, and advanced topics of current interest.

MATH 7070 INTERPOLATION I (3) LEC. 3. Departmental approval. Techniques of approximation by interpolation, rates of convergence and methods of estimating error. Simultaneous approximation of functions and their derivatives; spline function interpolation; curve and surface fitting.

MATH 7100 SPECIAL FUNCTIONS (3) LEC. 3. Departmental approval. Special functions from classical complex analysis which play an important role in the mathematics of physics, chemistry, and engineering.


MATH 7130 TENSOR ANALYSIS (3) LEC. 3. Departmental approval. Manifolds, differential structure, vector and tensor fields, vector and tensor bundles, differential forms, chains. elements of differential geometry, advanced topics.


MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3. Departmental approval. Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin's Axiom.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3. Pr. MATH 7150. Introduction to forcing, independence results, iterated forcing, consistency of Martin's Axiom.

MATH 7170 ALGORITHMS DISCRETE OPTIMIZATION (3) LEC. 3. Pr. MATH 6750. Theory and practice of discrete algorithms: complexity class classes, reductions, approximate algorithms, greedy algorithms, search techniques, heuristics, randomized algorithms, and numeric algorithms.


MATH 7200 REAL ANALYSIS I (3) LEC. 3. Departmental approval. Sigma algebras, measures, measurable functions, integratability, properties of Lebesgue measure, density, Lusin's theorem, Egeroff's theorem, product measures, Fubini's theorem. Limit theorems involving pointwise convergence and integration.


MATH 7220 FUNCTIONS OF A COMPLEX VARIABLE I (3) LEC. 3. Departmental approval. Complex numbers, analytic functions, derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles, Riemann surfaces.

MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE II (3) LEC. 3. Pr. MATH 7230. Conformal mappings, families of analytic functions and harmonic analysis.

MATH 7240 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Existence and continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems, differential inequalities, Sturm theory.


MATH 7260 ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems.

MATH 7270 ALGEBRA II (3) LEC. 3. Pr. MATH 710. Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PID's are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.
MATH 7330 LINEAR REPRESENTATIONS OF FINITE GROUPS (3) LEC. 3. Pr. MATH 7320. Maschke's Theorem, characters, orthogonality relations, induced modules, Frobenius reciprocity, Clifford's Theorem, Mackey's Subgroup Theorem, Burnside's theorem on solvability.

MATH 7340 RING THEORY (3) LEC. 3. Pr. MATH 7320. Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ABELIAN GROUPS (3) LEC. 3. Pr. MATH 7320. Torsion groups: Decompositions, Ulm's theorem, uniqueness theorem for Axion 3 groups, Torsion-free groups: Completely decomposable groups, Butler groups, p-local groups, Warfield groups, splitting criteria. Homological topics.

MATH 7360 LIE ALGEBRA (3) LEC. 3. Pr. MATH 7320. General introduction of Lie algebras including their structures and classifications of semisimple Lie algebras.

MATH 7370 MATRICES I (3) LEC. 3. Departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, inertia; topics of current interest.

MATH 7380 MATRICES II (3) LEC. 3. Pr. MATH 7370. Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7390 MULTILINEAR ALGEBRA (3) LEC. 3. Pr. MATH 5370 or MATH 6370. Multilinear algebra, symmetry class of tensors, induced operators, generalized matrix functions, and current research topics.


MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 7400. C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.

MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristic domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7440. Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.


MATH 7470 NUMBERS AND OPERATIONS FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of the base ten place value system and the operations and algorithms used with this system.

MATH 7480 MEASUREMENT AND GEOMETRY FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of topics in measurement, 2-D and 3-D geometry needed for teaching elementary school students.

MATH 7490 DATA, STATISTICS AND FUNCTIONS FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of topics in data analysis, probability, statistics and algebra needed for teaching elementary school students.

MATH 7500 TOPOLOGY I (3) LEC. 3. Departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

MATH 7510 TOPOLOGY II (3) LEC. 3. Pr. MATH 7500. Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.

MATH 7530 CONTINUUM THEORY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3) LEC. 3. Pr. MATH 7530. Topics in continuum theory such as confluent mappings, epsilon mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7550. Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7570 EUCLIDEAN TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. An introduction to concepts basic in algebraic and geometric topology through the study of simple objects such as polyhedra, manifolds, retracts, and the Brouwer fixed point theorem.

MATH 7580 EUCLIDEAN TOPOLOGY II (3) LEC. 3. Pr. MATH 7570. Further study of basic geometric topology. Retracts, absolute neighborhood retracts, maps into spheres, invariance of domain.

MATH 7600/7606 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3. Departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610/7616 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Pr. MATH 2650 and MATH 2660 and MATH 5630 or MATH 6630 and MATH 5640 or MATH 6640. Finite difference methods for ordinary and partial differential equations.

MATH 7620 OPTIMIZATION THEORY (3) LEC. 3. Unconstrained problems: basic descent, conjugate gradient and quasi-Newton methods. Constrained problems: gradient projection, penalty, cutting plane and Lagrange methods. Credit will not be given for both MATH 7620 and INSY 8420. An ability to program in high-level language.


MATH 7650 HARMONIC ANALYSIS I (3) LEC. 3. Departmental approval. Fourier series, Fourier transforms, maximal functions, singular integral theory, introduction to function spaces.

MATH 7660 HARMONIC ANALYSIS II (3) LEC. 3. Pr. MATH 7650. Function spaces and interpolation, Calderon's reproducing formulas, wavelets, frames, connections to function spaces applications.

MATH 7680/7686 ADVANCED TOPICS IN NUMERICAL ANALYSIS (3) LEC. 3. Departmental approval. Topics include: sparse systems of equations, parallel and vector algorithms, nonlinear and singular partial differential equations, calculation of eigenvalues and eigenvectors, pseudo-random numbers, filtering techniques.

MATH 7700 INTRODUCTION TO GRAPH THEORY FOR GRADUATE STUDENTS (3) LEC. 3. Algorithmic, enumerative and theoretical aspects of graph theory: matchings and factors, colorings, Hamiltonicity, connectivity, trees, extremal graphs, planarity. May count either MATH 6750 or MATH 7700.

MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3. Departmental approval. Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3. Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed-Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3. Pr. MATH 7720. Departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 7740</td>
<td>ADVANCED COMBINATORIAL DESIGNS (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Topics of current interest and research in combinatorial design theory. Areas included: latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.</td>
</tr>
<tr>
<td>MATH 7750</td>
<td>ADVANCED TOPICS IN GRAPH THEORY (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 6750</td>
<td>Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.</td>
</tr>
<tr>
<td>MATH 7760</td>
<td>INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7510</td>
<td>Departmental approval. Homology of chain complexes, the axioms of homology and their verification, computations of homology groups.</td>
</tr>
<tr>
<td>MATH 7770</td>
<td>INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7760</td>
<td>Homology with coefficients and universal coefficient theorem theorems, Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.</td>
</tr>
<tr>
<td>MATH 7780</td>
<td>ADVANCED ALGEBRAIC TOPOLOGY I (3)</td>
<td>LEC. 3</td>
<td></td>
<td>Departmental approval. Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.</td>
</tr>
<tr>
<td>MATH 7790</td>
<td>ADVANCED ALGEBRAIC TOPOLOGY II (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7780</td>
<td>Continuation of MATH 7780; advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.</td>
</tr>
<tr>
<td>MATH 7800</td>
<td>PROBABILITY I (3)</td>
<td>LEC. 3</td>
<td>Pr., a full year of undergraduate mathematical analysis at a level commensurate with MATH 5200/5210. Measure-theoretic foundations, independence, conditioning, martingales, Markov property, stationarity, random walks, Markov chains, Poisson processes.</td>
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</tr>
<tr>
<td>MATH 7810/7816</td>
<td>PROBABILITY II (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7800</td>
<td>Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both MATH 7810 and STAT 7810.</td>
</tr>
<tr>
<td>MATH 7820/7826</td>
<td>APPLIED STOCHASTIC PROCESSES I (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7800</td>
<td>Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.</td>
</tr>
<tr>
<td>MATH 7830</td>
<td>APPLIED STOCHASTIC PROCESSES II (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7800</td>
<td>Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances).</td>
</tr>
<tr>
<td>MATH 7870</td>
<td>REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I</td>
<td>LEC. 3</td>
<td>Pr. MATH 7210 or MATH 7500</td>
<td>Borel classification of sets, the Baire classification of real functions. Derivatives and approximately continuous functions. The Lebesgue density topology.</td>
</tr>
<tr>
<td>MATH 7880</td>
<td>REAL FUNCTIONS AND DESCRIPTIVE SET THEORY II</td>
<td>LEC. 3</td>
<td>Pr. MATH 7870</td>
<td>Analytic and coanalytic sets. Lebesgue measurable, universally measurable and Marczewski measurable sets and functions. Baire properties. Singular sets. Category analogs to real analysis.</td>
</tr>
<tr>
<td>MATH 7950</td>
<td>SEMINAR (1-3)</td>
<td>SEM. SU</td>
<td></td>
<td>Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>MATH 7960</td>
<td>SPECIAL PROBLEMS (1-10)</td>
<td>IND.</td>
<td>Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours.</td>
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</tr>
<tr>
<td>MATH 7970</td>
<td>SPECIAL TOPICS (1-10)</td>
<td>IND.</td>
<td>Departmental approval. Topics may vary as needed. Course may be repeated with change in topics.</td>
<td></td>
</tr>
<tr>
<td>MATH 7980</td>
<td>RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10)</td>
<td>RES. SU</td>
<td>Departmental approval. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours.</td>
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</tr>
<tr>
<td>MATH 7990</td>
<td>RESEARCH AND THESIS (1-10)</td>
<td>MST.</td>
<td></td>
<td>Course may be repeated with change in topics.</td>
</tr>
<tr>
<td>MATH 8310</td>
<td>HOMOLOGICAL ALGEBRA I (3)</td>
<td>LEC. 3</td>
<td>Pr. MATH 7320</td>
<td>Departmental approval. Homology and cohomology. Hom and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules, the classification of certain rings using homological tools.</td>
</tr>
</tbody>
</table>
MATH 8320 HOMOLOGICAL ALGEBRA II (3) LEC. 3. Pr. MATH 8310. Localizations of modules, nonsingular rings and modules, the Goldie dimension, homological classification of modules; Whitehead modules, reflexive modules, R-modules as modules over their rings of endomorphisms.

MATH 8330 INTRODUCTION TO LIE GROUPS (3) LEC. 3. Pr. MATH 7310 or MATH 7370. Introduce Lie groups via matrix groups. Topics include exponential map, Lie algebras, classical groups, structures and classifications, manifolds, representations.

MATH 8400 ADVANCED FUNCTIONAL ANALYSIS I (3) LEC. 3. Pr. MATH 7210 and MATH 7400. Topics concerning bounded and unbounded linear operators in Banach and Hilbert spaces; theory of distributions and topological vector spaces with applications, current research.

MATH 8410 ADVANCED FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 8400. Topics from the theory of bounded and unbounded linear operators in Banach and Hilbert spaces; elements of nonlinear functional analysis, topics of current research interest.

MATH 8600 ADVANCED PROBABILITY I (3) LEC. 3. Processes, distributions, independence, Random sequences, series, averages, characteristic functions. Classical limits theorems, conditioning. Some experience with graduate level mathematics, preferably in the areas of analysis and topology.

MATH 8610 ADVANCED PROBABILITY II (3) LEC. 3. Pr. MATH 8600. Martingales, Markov chains, random walks, renewal theory, Poisson processes and ergodic theory.

MATH 8630 ADVANCED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 8610. Gaussian processes, Brownian motion, invariance principles, convergence of random processes, measures and sets, stochastic integrals and quadratic variation.

MATH 8640 ADVANCED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 8630. Continuous martingales and Brownian motion, stochastic differential equations and martingale problems, local time, excursions, one-dimensional SDE’s and diffusions.

MATH 8700 FINITE GEOMETRY I (3) LEC. 3. Pr. MATH 5370. Projective and affine spaces over finite fields. Inversive planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8710 FINITE GEOMETRY II (3) LEC. 3. Pr. MATH 8700. Projective and affine spaces over finite fields. Inversive planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Physics Courses

PHYS 1000/1003 FOUNDATIONS OF PHYSICS (4) LEC. 3. LAB. 2. Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1001 FOUNDATIONS OF PHYSICS LABORATORY (1) LAB. 2. Coreq. PHYS 1003. Core-curriculum laboratory course in physics focusing on practical applications and hands-on experience. Topics include: Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics.

PHYS 1150 ASTRONOMY (4) LEC. 3. LAB. 3. Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1500 or PHYS 1600 or PHYS 1607. Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected.
PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3. LAB. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton’s Laws, gravitation, cosmology, conservation of energy, momentum and angular momentum, special relativity, and fluids using introductory calculus. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3. LAB. 3. Pr. Honors College. Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1600 or PHYS 1607 and (P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627). Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is expected at least concurrently.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3. LAB. 3. Pr. Honors College. MATH 1620 and PHYS 1600 or PHYS 1607. Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1620 or higher is expected, at least concurrently. Physics at the level of PHYS 1600 or higher is expected.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and (P/C MATH 2630 or P/C MATH 2637). Principles and applications of Newtonian mechanics, noninertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3. Pr. PHYS 1617 or PHYS 1610. Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (2) LAB. 6. Pr. PHYS 1617 or PHYS 1610. The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.

PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3. Pr. (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2637 or MATH 2730). Electrostatics, Magnetostatics, Laplace’s equation, boundary-value problems, multipole expansions, dielectric and magnetic materials. Faraday’s law, AC circuits, and Maxwell’s equations.

PHYS 3200 STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.

PHYS 3500 PHYSICS OF THE WORLD AROUND US (3) LEC. 3. Interdisciplinary topic e.g. Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.

PHYS 3501 PHYSICS OF THE WORLD AROUND US LABORATORY (1) LAB. 3. Laboratory course required for certain topics for PHYS 3500. One 3 hour session per week.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 2200 and MATH 2650. Schrödinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.

PHYS 4200 FUNDAMENTAL EXPERIMENTS IN PHYSICS (2) LAB. 6. Pr. PHYS 2300. Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.

PHYS 4900 DIRECTED STUDIES (1-5) IND. SU. Departmental approval. Student will investigate a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4930 DIRECTED STUDIES IN PHYSICS (1-5) IND. Departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

PHYS 4980 UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.
PHYS 5100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 4100. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 5500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 5600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 5610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 5620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Pr. PHYS 3100. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 6100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 6500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3. Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3. Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3. Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3. Time-dependent approximation methods, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7520 NONLINEAR DYNAMICS (3) LEC. 3. Dynamical systems, maps, flows, fixed points and neighborhoods, chaos, fractals and fractal dimensions. Lyapunov exponents, strange attractors, dissipative and Hamiltonian systems, controlling chaos.

PHYS 7540 NON-EQUILIBRIUM STATISTICAL MECHANICS (3) LEC. 3. Introduces the fundamental concepts of non-equilibrium statistical mechanics, develops basic transport theories, and simulates statistic properties with Monte-Carlo and molecular dynamic methods.

PHYS 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.
PHYS 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate. Course may be repeated with change in topics.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PHYS 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PHYS 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PHYS 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electrical, optical and transport properties.

PHYS 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours.

PHYS 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate. Course may be repeated with change in topics.

Sciences Math Courses

SCMH 1010/1013 CONCEPTS OF SCIENCE (4) LEC. 3. AAB/LEC. 3. Coreq. SCMH 1011. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1011 CONCEPTS OF SCIENCE LABORATORY (0) LAB. 2, AAB/LAB. 2. Coreq. SCMH 1010. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. If a student takes SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science core. May count SCMH 1011 or SCHM 1018.

SCMH 1017 HONORS CONCEPTS OF SCIENCE (4) LEC. 3. AAB/LLB. 3. Pr. Honors College. Coreq. SCMH 1018. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1018 CONCEPTS OF SCIENCE LABORATORY (0) LAB. 2. Coreq. SCMH 1017. Interdisciplinary course for Honors students which presents major scientific concepts in physical and biological sciences. If a student takes SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science core. May count either SCMH 1011 or SCHM 1018.

SCMH 1890 PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Orientation and guidance for freshmen and transfer students planning to seek admission to health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 2150 OPS: MANAGEMENT OF BUSINESS PROCESSES (2) LEC. 2. Fundamental concepts, techniques and tools of business processes.
SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2. SU. Departmental approval. Direct observation of physical therapists at an approved facility in the Auburn-Opelika area.

SCMH 3890 PRE-MEDICAL PRECEPTORSHIP (1) LAB. 25. SU. Departmental approval. Direct observation and interaction with physicians at East Medical Center and in individual medical offices.

SCMH 4920 SCIENCES AND MATHEMATICS INTERNSHIP (3) LEC. 3. SU. Practical on-the-job training in some area related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 1. Pr. SCMH 5010. A continuation of SCMH 5010.

SCMH 5940 GLOBAL STUDY/TRAVEL IN SCIENCES AND MATHEMATICS (1-12) AAB. and departmental approval. Application required. Students international study travel on topics relevant to Sciences and Mathematics. Course may be repeated for a maximum of 12 credit hours.

Statistics Courses

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4) LEC. 3. LAB. 2. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.


STAT 2510/2513 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or P/C COMP 1000 or COMP 1003. Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results. Minimum 2.0 overall cumulative undergraduate GPA.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3. Pr. MATH 1690. Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1. Pr. (P/C STAT 2010 or P/C STAT 2017) and (P/C STAT 2510 or STAT 2513) and P/C STAT 2610 and P/C STAT 3010. Introduction to basic statistical computing programs and methods.

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710. Introduction to statistical methods and analysis used in engineering and science.

STAT 3600/3603 PROBABILITY AND STATISTICS I (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3. Pr. STAT 3600. Departmental approval. Continuation of STAT 3600.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2. Departmental approval. Coreq. STAT 3610. The application of statistical techniques from STAT 3610.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 3610 or STAT 3010. Least squares estimation, hypothesis testing and confidence interval estimation in regression; simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.
STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3. Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3. ARIMA models: the autoregressive process, the moving average process, and the ARMA process; forecasting, errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.

STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 6 credit hours.

STAT 5000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT3610 or STAT3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time dependent data with a focus on Data Science.

STAT 5110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/6336.

STAT 5600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010 or MATH 1620. Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, maximum likelihood estimation, Bayesian statistics, hypothesis testing, prediction, sampling and resampling methods, multivariate statistics.

STAT 5630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling, systematic sampling ratio estimations.

STAT 5650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 5000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5670 and MATH 5670.

STAT 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 5670 or MATH 5670. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 5680 and MATH 5680.

STAT 5690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5690 and MATH 5690.

STAT 6000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time-dependent data.

STAT 6110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3601 or P/C STAT 7000. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/6336.
STAT 6600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010 and MATH 1620. Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, time series, convergence of random processes, Markov chains, Maximum Likelihood Estimation, Bayesian statistics, hypothesis testing, prediction, Sampling and Resampling methods, multivariate statistics.

STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling systematic sampling ratio estimations.

STAT 6650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 6000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 6690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 6690 and MATH 6690.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4. Departmental approval. Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3. Pr. STAT 7000. Advanced topics in experimental design: writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3. Pr. STAT 3600 or MATH 3600 or STAT 7000. Departmental approval. Methods for analysis or categorical response data. Topics include Chi-square tests, Likelihood Ratio tests, Logistic Regression, and Loglinear Modeling.

STAT 7040 BIOSTATISTICS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Epidemiology, biometry, methods of survival analysis.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017. Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100.

STAT 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. Data from the life sciences and advanced statistical techniques for data analyses and computaMon are brought together through a cross-fertilization of graduate students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Pr. STAT 7000 and STAT 7020. Introduction to the analysis of data collected under differential experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Pr. STAT 3610. Departmental approval. Advanced concepts of experimental design including blocking, regression approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300.
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STAT 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. STAT 7300 or STAT 7306 or INSY 7300 or INSY 7306. Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both STAT 7310 and INSY 7310.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3. Pr. STAT 3600. Departmental approval. Random variables, probability theory, random variables, probability distributions, sampling distributions, convergence.

STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3. Pr. STAT 7600. Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.


STAT 7650 COMPUTATIONAL STATISTICS (3) LEC. 3. Pr. STAT 7020 and STAT 7610. This course covers the theory and practice of common algorithms used for simulation, computing, and optimization in Statistics.

STAT 7670 APPLIED LONGITUDINAL DATA ANALYSIS (3) LEC. 3. To introduce students to statistical models and methods for the analysis of longitudinal date, i.e. data collected repeatedly on individuals (humans, animals, etc) over time (or other conditions).

STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3. Pr. STAT 7600. Departmental approval. Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, count data, estimating equations.


STAT 7800 LINEAR MODELS (3) LEC. 3. Pr. STAT 7610 and MATH 2660. Departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810/7816 MODERN STOCHASTIC PROCESSES I (3) LEC. 3. Pr. (MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676) and MATH 6210. Classical and Modern Topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820/7826 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 7810 or MATH 7816 or STAT 7810 or STAT 7816. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion.) Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 7810 or STAT 7816.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3. Pr. STAT 7610. Departmental approval. Bayesian methods, Markov Chain Monte Carlo methods, resampling techniques.

STAT 7860 APPLIED TIME SERIES ANALYSIS (3) LEC. 3. Pr. STAT 3610. Departmental approval. Autoregressive and moving average models, differencing, estimation and forecasting, spectral theory.

STAT 7940 CAPSTONE PROJECT (3) LEC. 3. Discuss various topics while working on an industry-level project. Students will complete a semester-long project under the supervision of instructors.

STAT 7960 SPECIAL PROBLEMS IN STATISTICS (1-10) RES. Credit will not be given for both MATH 7960 and STAT 7960. Course may be repeated for a maximum of 10 credit hours.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit hours.
Biological Sciences

Marine Biology
The Marine Biology major provides students with a strong foundation in basic biological concepts such as genetics, ecology, cell biology and marine systems as well as chemistry and mathematics. The plan of study provides the opportunity to choose elective courses from a wide variety of courses offered at Auburn University. In addition, students are required to take summer courses offered at marine labs around the United States, including Dauphin Island Sea Lab and Gulf Coast Research Lab. Students are also encouraged to consider internships and undergraduate research. Marine Biology graduates are well-prepared for advanced study in any marine science area or employment with marine labs, various governmental and nongovernmental agencies involved with coastal management and conservation, and tourism.

Microbial, Cellular and Molecular Biology
The Microbial, Cellular and Molecular Biology major provides students with an excellent foundation in the areas of microbiology, cellular and molecular biology that emphasizes the understanding of life at the cellular and molecular level. The choice of a formal option within the major allows students to concentrate on a particular area of interest. Each option provides a wide variety of courses and opportunities for undergraduate research. Students selecting the Microbiology option will be well prepared for postgraduate work or career advancement in a number of areas including food, environmental and medical microbiology. Students selecting the Cell and Molecular Biology option would also be well prepared for postgraduate study or career advancement in any area of eukaryotic cell or molecular biology. Both options provide excellent preparation for students interested in biotechnology or professional programs in the health sciences.

Organismal Biology
The Organismal Biology major provides students with a solid foundation in basic biological concepts, such as evolution, ecology, genetics and cell biology and also provides a foundation in physics, chemistry and mathematics. The three formal options within the major allow students to specialize in various ways, while focusing on the study of plants or animals through the choice of elective courses. The major provides a solid foundation for pursuing graduate degrees (M.S. or Ph.D.) in biological fields, but also prepares students for a wide range of laboratory and field-based research positions in environmental resource assessment, management and conservation within federal, state and private agencies or organizations.

Majors

- Marine Biology (p. 1139)
- Microbial, Cellular and Molecular Biology Microbiology Option (MCMB) (p. 1143)
- Microbial, Cellular and Molecular Biology Cell & Molecular Biology Option (MCCM) (p. 1141)
- Microbiology/Pre-Veterinary Medicine Option (p. 1203)
- Organismal Biology - Conservation & Biodiversity Option (p. 1145)
- Organismal Biology - Ecology, Evolution & Behavior Option (p. 1144)
- Organismal Biology - Integrative Biology Option (p. 1140)
- Organismal Biology - Pre-Veterinary Medicine Option (p. 1206)
Biology Courses

BIOL 1000/1003 INTRODUCTION TO BIOLOGY (3) LEC. 3. Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1000 or P/C BIOL 1003. Laboratory course for BIOL 1000 or BIOL 1003.

BIOL 1010 A SURVEY OF LIFE (3) LEC. 3. Pr. BIOL 1000 or BIOL 1003 or BIOL 1020 or BIOL 1027 or (SCMH 1010 or SCMH 1013 or SCMH 1017) or (SCMH 1020 or SCMH 1023 or SCMH 1027). Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (1) LAB. 2. Pr. P/C BIOL 1010. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (3) LEC. 3. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1020 and BIOL 1000 or BIOL 1027.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1020. Laboratory Course for BIOL 1020.

BIOL 1027 HONORS BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1027 and BIOL 1000 or BIOL 1020.

BIOL 1030 ORGANISMAL BIOLOGY (3) LEC. 3. Pr. BIOL 1020 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1030 and BIOL 1010 or BIOL 1037.

BIOL 1031 ORGANISMAL BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. BIOL 1020 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1037 and BIOL 1010 or BIOL 1030.

BIOL 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Pr. BIOL 1030 or BIOL 1037. Introduction to career opportunities and student development options for majors in biological sciences. Students will investigate post-graduation academic and professional options, develop writing skills by creating resumes and ePortfolios, and explore course and research options with the department.

BIOL 2425 MARINE BIOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. (DISL).

BIOL 2500 HUMAN ANATOMY AND PHYSIOLOGY I (4) LEC. 4. Pr. BIOL 1000 or BIOL 1020 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2501 HUMAN ANATOMY AND PHYSIOLOGY I LABORATORY (1) LEC. 1. Pr. BIOL 1000 and (BIOL 1020 or BIOL 1027). Coreq. BIOL 2500. Lab course for study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.

BIOL 2510 HUMAN ANATOMY AND PHYSIOLOGY II (4) LEC. 4. Pr. BIOL 2500 and BIOL 2501. Study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500/2501, concentrating on cardiovascular, respiratory, digestive, urinary, reproductive, and endocrine systems.

BIOL 2511 HUMAN ANATOMY AND PHYSIOLOGY II LABORATORY (1) LEC. 1. Pr. BIOL 2500. Coreq. BIOL 2510. Lab course for study of the structure and function of the human body. Second half of two-part sequence with BIOL 2500, concentrating on the individual organ systems.

BIOL 3000/3003 GENETICS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027). An overview of theoretical principles of transmission, cytological, molecular, and population genetics. Problem solving will be emphasized. May count either BIOL 3000 or BIOL 3003.

BIOL 3001 GENERAL GENETICS LABORATORY (1) LAB. 2. Pr. BIOL 1020 or BIOL 1027 and (P/C BIOL 3000 or P/C BIOL 3003). Laboratory provides practical experience in the areas of transmission, cytological, molecular, and population genetics. Problem solving is emphasized through analysis of simulated and real genetics data sets.

BIOL 3010/3013 COMPARATIVE ANATOMY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Evolution and function of craniates and their organ systems.
BIOL 3011 COMPARATIVE ANATOMY LABORATORY (1) LAB. 1. Pr. BIOL 1030 or BIOL 1037 and (P/C BIOL 3010 or P/C BIOL 3013). Coreq. BIOL 3010 or BIOL 3013. Laboratory to accompany Comparative Anatomy Lecture. This lab course will explore the diverse morphologies of vertebrates.

BIOL 3020 GENOMIC BIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1020 or BIOL 1027. An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

BIOL 3030/3033 EVOLUTION AND SYSTEMATICS (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

BIOL 3040 BIOLOGY OF MARINE SYSTEMS (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL 1037). Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

BIOL 3060 ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037. Departmental approval. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. 8 hours of Biology.

BIOL 3075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 4. Pr. (MATH 1150 or MATH 1153) and (CHEM 1110 or CHEM 1117 or CHEM 1030 or CHEM 1033) and PHYS 1500. Departmental approval. The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab (DISL).

BIOL 3100 PLANT BIOLOGY (4) LEC. 4. LAB. 1. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1010 or CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Introduction to the morphology, anatomy, physiology and classification of plants with laboratory.

BIOL 3200 GENERAL MICROBIOLOGY (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

BIOL 3201 GENERAL MICROBIOLOGY LABORATORY (1) LAB. 2. Pr. BIOL 1020 or BIOL 1027 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and P/C BIOL 3200. Coreq. BIOL 3200. Fundamental laboratory techniques required to safely handle, enumerate, identify, and provide basic biochemical characterization of microorganisms.

BIOL 3500 PERSPECTIVES IN IMMUNOLOGY (3) LEC. 3. Pr. (P/C BIOL 3000 or P/C BIOL 3003 or P/C FISH 3000 or P/C AGRI 3000 or P/C BIOL 3020) and BIOL 3200. Introduction to the cells and components of the immune response with an emphasis on host response to infection and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 4000/4003 HISTOLOGY (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 1031. Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.

BIOL 4001 HISTOLOGY LABORATORY (1) LAB. 2.8. Pr. (BIOL 1030 or BIOL 1037) and (P/C BIOL 4000 or P/C BIOL 4003). Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4010 INVERTEBRATE BIODIVERSITY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.

BIOL 4015 BIOLOGY AND CONSERVATION OF MARINE TURTLES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. OR permission of Marine Biology coordinator. An introductory overview of the biology of marine turtles. Topics include: identification, distribution, nesting & migratory behavior, feeding, population biology, development, paleontology and conservation. Extensive laboratory and field studies of multiple species of turtles.


BIOL 4025 ECOLOGY OF THE FLORIDA EVERGLADES (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Examines the natural history, ecology and evolution, and human impact on the Everglades. Includes intensive lectures and a more than 1-week long campsit based field trip in the Everglades. Multiple short trips to various locales within the Everglades.
BIOL 4033 HISTOLOGY LABORATORY (1) DSL. 3. Pr. (BIOL 1030 or BIOL 1037) and (P/C BIOL 4000 or P/C BIOL 4003). Laboratory investigation of the morphology and classification of tissues using prepared digital slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

BIOL 4035 INTRODUCTION TO MARINE ANIMAL NEUROBIOLOGY (3) LEC. 15. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037. The neuroanatomy and neurophysiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses and neurotransmitters, muscle contraction, sensorimotor integration; neurophysiological bases of behavior; labs include computer simulation of cellular neurobiology.

BIOL 4045 MARINE MAMMAL BIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Introduction to the evolution, taxonomy and classification, anatomy, physiology, behavior, conservation and management issues of marine mammals, including cetaceans, pinnipeds, mustelids, sirenians and the polar bear. Lab and field research methods used to study marine mammals will be covered.

BIOL 4065 MARINE CONSERVATION BIOLOGY (4) LEC. 45. LAB. 30. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and (BIOL 3040 or BIOL 3060). Study of major threats to marine biodiversity as and potential solutions to the threats. Students discuss current topics in marine conservation biology and critically debate marine conservation literature. Field trips to impacted and pristine sites will demonstrate principles.

BIOL 4085 HURRICANES OF THE GULF OF MEXICO (2) LEC. 30. An introductory survey with emphasis on Gulf of Mexico hurricanes. Hurricane features. Basic principles of the atmosphere, review of Gulf, Atlantic and Caribbean hurricanes, El Nino, changes in the Atlantic circulation, hurricane formation, development, features, movement, steering and forecasting.

BIOL 4095 COASTAL BIRDS OF ALABAMA (2) LEC. 15. LAB. 30. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Behavior and ecology-oriented avian field biology. Identification, banding, record/broadcast, other survey methods. Emphasis on behavioral ecology. Extensive field effort along the Gulf Coast and in the Mobile/Alabama/Tombigbee/Tensaw River Delta, other riparian environments, and salt marshes.

BIOL 4100/4103 CELL BIOLOGY (3) LEC. 3. Pr. CHEM 2030 or (CHEM 2070 or CHEM 2077) and (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and (BIOL 1030 or BIOL 1037). Introduction to cellular structure and processes, including evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles as well as energy, transport, motility, cell division, signaling, transcription, and translation.

BIOL 4101 CELL BIOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 4100 or P/C BIOL 4103. Light/electron microscopy, cell structure, origins of life, centrifugation, protein/nucleic acid electrophoresis, and blotting, motility, DNA purification, chromatography, pH, fluorescence microscopy.

BIOL 4135 MARINE BEHAVIORAL ECOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Animal behavior in the context of the marine environment. Students study the ecological and evolutionary significance of behavior in a marine setting. Topics include principles of marine behavioral ecology, techniques for observing behavior, conducting behavior experiments, and data collection.

BIOL 4150 HUMAN GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000 and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approaches to study evolutionary changes in human gene pools.

BIOL 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3. LAB. 4. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIOL 4415 SHARK AND RAY BIOLOGY (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. An introduction to the biology of sharks and rays with special emphasis on regional shark fauna and field technique. Topics: chondrichthyan origin, systematics, sensory biology, trophic ecology, reproductive biology, life history, ecology, fisheries and conservation. Extensive lab and field work.

BIOL 4425 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Departmental approval. Fisheries management philosophy, objectives, problems, and principles involved in management decisions. Taught at Gulf Coast Research Laboratory.

BIOL 4435 SPECIAL TOPICS IN MARINE SCIENCE (1-6) LEC. Departmental approval. An opportunity for students to study in an area in which GCRL offers no formal course; not research oriented. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.
BIOL 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) AAB/LEC. Departmental approval. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.


BIOL 4465 PARASITES OF MARINE ANIMALS (6) LEC. 3. LAB. 6. Pr. BIOL 5110. Departmental approval. A study of the parasites of marine estuarine animals with emphasis on morphology, taxonomy, life histories, and host-parasite relationships. Taught at Gulf Coast Research Laboratory.

BIOL 4475 MARINE ICHTHYOOLOGY (6) LEC. 6. Departmental approval. Biology of the major piscine taxa in Mississippi Sound. Principles involved in classification and evolutionary relationships of these organisms. Taught at Gulf Coast Research Laboratory.

BIOL 4485 MARINE ECOLOGY (5) LEC. 5. Pr. BIOL 4010. The relationship of marine organisms to their environment and the effects of environment on abundance and distribution on marine organisms. Taught at Gulf Coast Research Laboratory, Departmental approval and 16 hours of Biological Science including BIOL 4010.

BIOL 4515 MARINE INVERTEBRATE ZOOLOGY (4) LEC. 4. Pr. At least 10 credits in BIOL 2000-8990. Departmental approval. The natural history, systematics, and morphology of marine invertebrates from the Gulf of Mexico; oriented toward a field and laboratory approach. Participation in extended field trips is part of the course. Taught at DISL.

BIOL 4525 DOLPHINS AND WHALES (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Classification, anatomy, and ecology of the cetaceans. Taught at DISL.

BIOL 4535 COASTAL ZONE MANAGEMENT (2) LEC. 2. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Management of shorelines and flood plains, and current legislation. Water quality and ecosystem quality management. Taught at DISL.

BIOL 4545 COASTAL ORNITHOLOGY (3) LEC. 3. Pr. BIOL 4020. Departmental approval. Coastal and pelagic birds with emphasis on ecology, taxonomy, and distribution. Taught at GCRL.

BIOL 4565 MARINE VERTEBRATE ZOOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Systematics, zoogeography and ecology of marine fishes, reptiles, and mammals. Taught at DISL. May not be substituted for BIOL 4020.

BIOL 4575 MARINE ECOLOGY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1027. Prerequisites: BIOL1020 or marine biology. Departmental approval. Experimental ecological theory and its application to interactions of marine organisms with each other and the environment. Includes laboratory, extensive field trip experience. Taught at DISL.

BIOL 4585 PLANKTON BIOLOGY (2) LEC. 15. LAB. 45. Pr. (BIOL 1020 and BIOL 1021 or BIOL 1027) and (BIOL 1030 and BIOL 1031 or BIOL 1037). Students will learn about the biology of all forms of plankton and the methods for their study including optical, chemical and molecular techniques. Students will understand the basic methods of study and be able to sight-identify major groups.

BIOL 4920 INTERNSHIP IN BIOLOGY (1-4) INT. SU. Application of biology concepts and skills in a professional experience. 12 credit hours in 3000-level or higher BIOL courses. Departmental approval. Student must be enrolled in a major offered by the Department of Biological Sciences. Course may be repeated for a maximum of 4 credit hours.

BIOL 4950 SENIOR SEMINAR (1) LEC. 1. Departmental approval. Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required for all majors. Course may be repeated for a maximum of 3 credit hours.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Departmental approval and membership in the Honor College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Departmental approval. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BIOL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.
BIOL 5020 DEVELOPMENTAL BIOLOGY (3) LEC. 3. Pr. BIOL 4100 and BIOL 4410. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 5110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 2500. Students must have Junior or Senior standing. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife. May count either BIOL 5110 or LABT 4050.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or BIOL 5130). Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 5150 COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Dynamics of ecological communities, including niches, species interactions, succession, island biogeography, biodiversity and food webs. May count BIOL 5150 or BIOL 6150.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Prereq. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. BIOL 3200 and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3200 and BIOL 3200 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or (CHEM 2030 or CHEM 2070 or CHEM 2077). General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Credit will not be given for both BIOL 5260 and BIOL 6260.
BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3200 and BIOL 3201 and (BIOL 5220 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and 6270.

BIOL 5280 GENETHICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3. LAB. 4. Pr. BIOL 3100. Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 3100. Departmental approval. Genetic expression of genetic elements in plants from the recent literature.

BIOL 5330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 5330 or BIOL 6330.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 5360 POPULATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060 and (MATH 1610 or MATH 1613 or MATH 1617). Departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 5380 GENERAL ICHTHYOTOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5425 MARINE BOTANY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1027. Departmental approval. Pr. BIOL 1020 or equiv. Survey of microscopic and macroscopic algae, salt marsh vegetation, sea grasses, mangroves and maritime forests with regard to identification, distribution, structure, ecology and physiology. Field trips and laboratory work. Taught at DISL.

BIOL 5465 MARINE MICROBIOLOGY (5) LEC. 3. LAB. 2. Pr. BIOL 3200 and BIOL 3201. Departmental approval. The role of microorganisms in marine environments.

BIOL 5500 IMMUNOLOGY (3) LEC. 3. Pr. P/C BIOL 3200 and (BIOL 3000 or BIOL 3003 or BIOL 3020). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 5551 IMMUNOLOGY LAB (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 5500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 5510 BIOGEOGRAPHY (3) LEC. 3. Patterns and processes associated with the distribution of living and fossil organisms.

BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or P/C BIOL 5260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Prereq. Vertebrate and Invertebrate Zoology. Taught at DISL.

BIOL 5535 MARINE CONSERVATION BIOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Major threats to marine biodiversity, current topics in marine conservation biology and critical examination of the literature. Pr. General or Marine Ecology course. Taught DISL.
**BIOL 5600 MAMMALIAN PHYSIOLOGY (BIOMEDICAL PHYSIOLOGY)** (5) LEC. 4.25. LAB. 2.75. Pr. (BIOL 1030 or BIOL 1037 or BIOL 2500) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation of the physiology of the major mammalian organ systems.

**BIOL 5650 ETHOLOGY** (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

**BIOL 5660 FOOD MICROBIOLOGY** (4) LEC. 3. LAB. 3. Pr. BIOL 3200 and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.


**BIOL 5750 ORNITHOLOGY** (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Taxonomy, evolution, ecology, and behavior of birds.

**BIOL 5760 MAMMALOGY** (4) LEC. 3. LAB. 3. Departmental approval. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

**BIOL 5800 INTRODUCTION TO COMPUTATIONAL BIOLOGY** (3) LEC. 2. LAB. 1. Pr. STAT 2510. Overview of computational approaches to biological data analysis. Additionally, students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

**BIOL 5850 FUNCTIONAL GENOMICS** (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. An active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

**BIOL 5860 BIOINFORMATICS AND GENOME ANALYSIS** (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging ‘omics fields. May count either BIOL 5860 or BIOL 6860.

**BIOL 6020 DEVELOPMENTAL BIOLOGY** (3) LEC. 3. Pr. BIOL 4100 and BIOL 4410. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

**BIOL 6090 CONSERVATION BIOLOGY** (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

**BIOL 6110 PARASITOLOGY** (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or BIOL 2500. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals, and wildlife.

**BIOL 6120 SYSTEMATIC BOTANY** (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

**BIOL 6130 ADVANCED PLANT PHYSIOLOGY** (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

**BIOL 6131 ADV PLANT PHYSIOLOGY LAB** (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or CHEM 2088). Laboratory exercises in plant physiology. Including water relations, metabolism, and growth and development.

**BIOL 6140 PLANT ECOLOGY** (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

**BIOL 6150 COMMUNITY ECOLOGY** (3) LEC. 3. Pr. BIOL 3060. Dynamics of ecological communities, including niches, species interactions, succession, island biogeography, biodiversity and food webs. May count BIOL 5150 or BIOL 6150.
BIOL 6160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Pr. At least 15 credits each with a minimum grade of C in BIOL 1000-8990. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours. Departmental approval and 15 hours of biology.

BIOL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220 and (CHEM 2080 or CHEM 2087). Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. BIOL 3200 and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasma, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 6210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3200 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 6220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or AGRI 3000) and BIOL 3200. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL 6230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or CHEM 2030 or CHEM 2070 or CHEM 2077. General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3200. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3200. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL 5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3200 and BIOL 3201 and (BIOL 5200 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.

BIOL 6280 GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 2. LAB. 4. Pr. BIOL 6130. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 6330 or BIOL 5330.

BIOL 6340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 6360 POPULATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.
BIOL 6370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3060 and BIOL 6800. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6425 MARINE BOTANY (4) LEC. 4. Departmental approval. Identification, distribution, structure, ecology and physiology of microscopic and macroscopic algae, sea grasses, salt marsh vegetation, mangroves and maritime forests. Experimental manipulation of these organisms. Taught at DISL.

BIOL 6465 MARINE MICROBIOLOGY (5) LEC. 3. LAB. 2. Pr. BIOL 3200 and BIOL 3201. Departmental approval. The role of microorganisms in marine environments.

BIOL 6500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003 or FISH 3000 or BIOL 3020) and P/C BIOL 6501. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

BIOL 6501 IMMUNOLOGY LABORATORY (2) LEC. 4. Pr. P/C BIOL 5500 or P/C BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 6510 BIOGEOGRAPHY (3) LEC. 3. Departmental approval. Patterns and processes associated with the distribution of living and fossil organisms.

BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or BIOL 6220 or BIOL 5260 or BIOL 6260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 6525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Vertebrate and Invertebrate Zoology required. Taught at DISL.

BIOL 6535 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Examination of conservation biology based on previous study of marine ecology. General or Marine Ecology course required. Taught at DISL.

BIOL 6600 MAMMALIAN PHYSIOLOGY (BIOMEDICAL PHYSIOLOGY) (5) LEC. 4.25. LAB. 2.75. Pr. (BIOL 1030 or BIOL 1037 or BIOL 2500) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation of the physiology of the major mammalian organ systems.

BIOL 6650 ETHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200 and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, FDSC 6600, or BIOL 6600.


BIOL 6750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Departmental approval. An intensive investigation of the current literature and relevant research dealing with birds.

BIOL 6760 MAMMALOGY (4) LEC. 3. LAB. 3. Departmental approval. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, fieldtrips, data analysis and report preparation.

BIOL 6800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510. Overview of computational approaches to the analysis of biological data. Students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.
BIOL 6850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. Active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 6860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 7000 ADVANCED PARASITOLOGY (3) LEC. 3. Pr. BIOL 6110 or BIOL 5110. Departmental approval. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. Eight hours of Biology.

BIOL 7010 FUNDAMENTALS OF TEACHING BIOLOGY (1) LEC. 1. SU. Course may be repeated for a maximum of 6 credit hours.

BIOL 7035 MARINE ANIMAL NEUROBIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 and BIOL 1021 and BIOL 1030 and BIOL 1031 and BIOL 4100. Biophysical neurobiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses, neurotransmitters, muscle contraction, sensorimotor integration, computer simulation and extensive technical methods: extra-, intracellular, patch recording, molecular neuroimmunology, confocal fluorescence microscopy. Evening/Saturday classes.

BIOL 7060 ADVANCED MAMMALOGY (4) LEC. 3. LAB. 3. Pr. BIOL 6760. Current literature in mammalogy, collections management, and professional aspects of mammalogy. Labs include preparing specimens, curating research collections, fieldtrips, library work, data analysis, and report preparation.

BIOL 7075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 30. LAB. 60. Pr. MATH 1150 or MATH 1153 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and PHYS 1500 and BIOL 3040. An in-depth examination of the physics, chemistry, geology and biology of the oceans. Lectures cover the interrelationships of these components to each other. Field and lab work will introduce students to research on oceanographic processes of the Gulf of Mexico.

BIOL 7170 POPULATION GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

BIOL 7180 SCRIPTING FOR BIOLOGISTS (3) LEC. 2. LAB. 1. Pr. BIOL 6800 and STAT 7000. or Instructor approval. A hands-on course to teach students concepts, applications, and best practices of using computer scripting languages in the life sciences.

BIOL 7200 EVOLUTIONARY BIOLOGY (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Topics of current interest in evolution. Readings and presentation required.

BIOL 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. or equivalent; or permission of the instructor. Data from the life sciences and advanced statistical techniques for data analyses and computation are brought together through a cross-fertilization of graduate student students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects. May count either BIOL 7250 or STAT 7250.

BIOL 7280 PLANT HORMONES (2) LEC. 2. Pr. BIOL 6130. Synthesis, physiology, and mode of action of the major plant hormones including abscisic acid, auxins, cytokinins, ethylene, and gibberellins.

BIOL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 6170. Departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7370 STREAM ECOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Physical, chemical, and biological aspects of stream ecosystems emphasizing effects of natural environmental factors and human influences on stream biota, and quantitative methods used to study stream ecology.

BIOL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7470 GENOME EVOLUTION (3) LEC. 3. Provides a broad evolutionary perspective on the origin, composition, and architecture of eukaryotic genomes. Students will participate in a literature-driven discussion format and will complete weekly writing assignments.
BIOL 7485 ADVANCED MARINE ECOLOGY (4) LEC. 2. LAB. 2. Pr. BIOL 1020 and BIOL 1021 and BIOL 1030 and BIOL 1031 and (BIOL 3060 or BIOL 3040). An advanced course open only to MS or PhD students. Interactions between marine organisms and the environment. In-depth discussion of ecological theory with emphasis on the latest research, using extensive reference to the literature. Lecture, lab and overnight field trips.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3) LEC. 3. Pr. BIOL 3060. A study of the physiological adaptations that allow animals to survive in unusual environments. A course in ecology required.

BIOL 7500 STRESS PHYSIOLOGY (2) LEC. 2. Pr. (BIOL 4100 or BIOL 5240 or BIOL 5600). This course is a discussion-based course focusing on physiological stress responses at various levels of organization and communication among them, from molecules, cells, organ, to whole organism.

BIOL 7510 NATURAL HISTORY MUSEUM PRACTICUM (1) LAB. 3. Practical methods in natural history museum curation. Students will assist in curating collections at the Auburn University Museum of Natural History. Course may be repeated for a maximum of 4 credit hours.

BIOL 7525 MARINE INVERTEBRATES (4) LEC. 2. LAB. 2. Morphology, natural history, physiology, evolution and ecology. Students examine modern literature and develop an advanced presentation on invertebrate biology involving problem solving in an area such as sensory biology, molecular evolution or management. Term paper, classroom presentation and lecture.

BIOL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Morphological and molecular approaches to modern systematics of plants.

BIOL 7540 PROFESSIONAL ASPECTS OF BIOLOGY (3) LEC. 3. Departmental approval. Instruction on practical aspects of a career in biological sciences.

BIOL 7550 PHYSIOLOGICAL ECOLOGY OF REPRODUCTION (3) LEC. 3. This course focuses on physiological ecology of reproduction by identifying key physiological mechanisms linking the environmental change, reproductive constraints, and reproductive performance and describing how variation in reproductive performance are impacted by ecological and evolutionary processes.

BIOL 7560 PLANT/ANIMAL INTERACTIONS (3) LEC. 3. Pr. BIOL 3100 and BIOL 3060. Departmental approval. Overview of ecological and evolutionary interrelationships between animals and plants, including pollination biology, dispersal ecology, carnivory, and plant-herbivore interactions.

BIOL 7620 MICROBIOLOGY OF EPIDEMICS (3) LEC. 3. Departmental approval. Epidemics of communicable disease outbreaks are analyzed according to the hosts, modes of transmission, environment, and pathogenesis of the agents.

BIOL 7705 TROPICAL BIOLOGY: ECOLOGICAL APPROACH (8) LEC. 4. LAB. 12. Pr. At least 15 credits each with a minimum grade of C in BIOL 6000-8990. An in-depth introduction to the principles of ecology in the tropics. Orientation and introductory lecture in San Jose, Costa Rica, followed by field work during an 8 week period. 15 hours of graduate level biological science.

BIOL 7720 PROKARYOTIC GENE REGULATION (3) LEC. 3. Pr. BIOL 6210 or CHEM 6180. Discussion of gene expression in bacteria using the current literature.

BIOL 7950 MASTERS THESIS SEMINAR (1) LEC. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

BIOL 7960 SPECIAL PROBLEMS (1-4) LEC. Pr. P/C BIOL 6220. Oral presentation and discussion of recent scientific publications from a selected area molecular biology. Credit will not be given for both BIOL 7960 and CMBL 7960. Course may be repeated for a maximum of 4 credit hours.

BIOL 7970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in botany, microbiology, molecular biology, or zoology. A different topic for advanced study will be selected each semester this course is offered. Course may be repeated for a maximum of 8 credit hours.

BIOL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BIOL 8950 DOCTORAL SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 3 credit hours.

BIOL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.
Cell and Molecular Biology Courses

CMBL 4150 HUMAN GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

CMBL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4220 and CHEM 2090. The study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches.

CMBL 5500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms and medical immunology.

CMBL 5501 IMMUNOLOGY LAB (2) LAB. 4. Coreq. BIOL 5500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

CMBL 56190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4050 and CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches. Credit will not be given for both CMBL 6190 and BIOL 6190.

CMBL 6220 INTRODUCTION TO MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4510. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both CMBL 6220 and BIOL 6230.

CMBL 6230 VIROLOGY (4) LEC. 4. Pr. (BIOL 3000 or BIOL 3003) and BIOL 3200 and BIOL 4520. Molecular mechanisms of virus biology including virus-cell replication, assembly and release pathogens. Credit will not be given for both CMBL 6230 and BIOL 6230.

CMBL 6320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL and CMBL 6320.

CMBL 6500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

CMBL 6501 TECHNIQUES IN IMMUNOLOGY (2) LAB. 4. Coreq. BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

CMBL 67270 PLANT BIOTECHNOLOGY (4) LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement.

CMBL 67280 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems and gene regulation.

CMBL 7270 ULTRASTRUCTURE OF PLANT CELLS AND MICROBES (5) LEC. 3. LAB. 4. Departmental approval. Theory and practice of transmission and scanning electron microscopy and their application to the biological sciences. Credit will not be given for both CMBL 7270 and BIOL 7290.

CMBL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 6170. Departmental approval. Examines two major topics: the role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both CMBL 7290 and BIOL 7290.

CMBL 7330 MOLECULAR BIOLOGY OF PLANT DEVELOPMENT (2) LEC. 2. Pr. BIOL 6130 and BIOL 7280. Departmental approval. Physiological, biochemical and molecular aspects of plant growth and development. Credit will not be given for both CMBL 7330 and BOIL 7330.

CMBL 7400 PLANT VIROLOGY (4) LEC. 3. LAB. 2. Pr. (PLPA 3000 or PLPA 3003 or PLPA 6000) and CHEM 6180. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

CMBL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both CMBL 7440 and BIOL 7440.
CMBL 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

CMBL 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concept underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.


CMBL 7510 MOLECULAR GENETICS I (5) LEC. 5. Pr. CHEM 7200. Bacterial, bacteriophage, and eukaryotic genetics, with a focus on gene structure, and molecular mechanisms regulation expression. Critical review of current literature will be emphasized.

CMBL 7520 MOLECULAR GENETICS II (5) LEC. 5. Pr. VBMS 7510. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

CMBL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Pr. BIOL 6120. Morphological and molecular approaches to modern systematics of plants.

CMBL 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7510 and VBMS 7520. Viral gene expression and evasion of host defense mechanisms.

CMBL 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Departmental approval. Principles and applications of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies. Credit will not be given for both CMBL 7660 and FISH 7660.

CMBL 7960 READINGS IN MOLECULAR BIOLOGY (1) RCT. 1. Pr. P/C BIOL 7220. Oral presentation and discussion of recent scientific publications from a selected area of molecular biology. Credit will not be given for both CMBL 7960 and BIOL 7960. Course may be repeated for a maximum of 4 credit hours.

CMBL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 4520 and BIOL 4530. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both CMBL 8160 and POUL 8160.

CMBL 8880 PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6000 and CHEM 6180 and BIOL 4230. Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions.

Curriculum in Marine Biology

**Freshman**

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**Sophomore**

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Total Hours: 122

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.
2. Students who complete a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3. If a LIT sequence is chosen, this course must be a CORE SOCIAL SCIENCE. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.
4. All courses taken at a Summer Marine Lab must receive departmental approval.

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**Curriculum in Organismal Biology-Integrative Biology Option**

**Freshman**

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### Senior

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Total Hours: 122

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4. Any BIOL course listed on the Organismal Biology electives list may be used as a Biology elective.

5. This course must be taken the semester of graduation.

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**Microbial, Cellular & Molecular Biology Cell & Molecular Biology Option**
### Freshman

#### Fall

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### Total Hours: 122

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## Microbial, Cellular & Molecular Biology Microbiology Option

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<td>BCHE 5181 Biochemistry I Laboratory</td>
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<td>BIOL 4100 Cell Biology</td>
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<td>BIOL 5200 Clinical Microbiology</td>
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<td>BCHE 5190 Biochemistry II</td>
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<td>BIOL 5250 Microbial Evolution and Diversity</td>
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<th>Senior</th>
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<tr>
<td><strong>Fall</strong></td>
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<td><strong>Spring</strong></td>
<td><strong>Hours</strong></td>
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<tr>
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<td>3</td>
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<td>BIOL 4950 Senior Seminar</td>
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<tr>
<td>BIOL 5521 Gene Expression and Recombinant DNA Laboratory</td>
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<td>BIOL 5210 Microbial Physiology</td>
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<td>BIOL 5260 Prokaryotic Molecular Genetics</td>
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<td>MMCB Electives</td>
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Total Hours: 122

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

### Organismal Biology - Ecology, Evolution, and Behavioral Option

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1030 Organismal Biology</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td>BIOL 1031 Organismal Biology Laboratory</td>
<td>1</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>MATH 1610 Calculus I</td>
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#### Sophomore

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<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Social Science(^2)</td>
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<td>Core History(^1)</td>
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<tr>
<td>PHYS 1000 Foundations of Physics</td>
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<td>Core Social Science(^2)</td>
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<td>Core Fine Arts</td>
<td>3</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>Core Literature</td>
<td>3</td>
<td>BIOL 3030 Evolution and Systematics</td>
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<td>BIOL 3000 Genetics</td>
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<td>BIOL 3060 Ecology</td>
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<td>BIOL 3001 Genetics Laboratory</td>
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<td>BIOL 2100 Prof Development</td>
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#### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology Elective</td>
<td>4</td>
<td>BIOL 5130 Advanced Plant Physiology, 5131 Advanced Plant Physiology Laboratory, 5210 Microbial Physiology, or 5240 Animal Physiology</td>
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<tr>
<td>Core Humanities</td>
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<td>Core Social Science or Humanities(^3)</td>
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<td>BIOL 3200/3201, BIOL 4010, BIOL 4020, or BIOL 3100(^4)</td>
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<td>Free Elective</td>
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<td>Core Literature or History(^1)</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<tr>
<td>BIOL 4100 Cell Biology</td>
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<td>BIOL 5370 Molecular Ecology</td>
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### Senior

<table>
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<tr>
<th>Course</th>
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<th>Total Hours</th>
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<tr>
<td>Cell/Mol/Micro Elective or Physiology Elective</td>
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<tr>
<td>Eco/Evo/Diversity Elective</td>
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<tr>
<td>Biology Elective</td>
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<tr>
<td>BIOL 5650 Ethology</td>
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<td>BIOL 4950 Senior Seminar</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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<td><strong>Total Hours:</strong></td>
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1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4. This elective in the junior year should be chosen with consideration of the electives courses to be taken in the senior year. Consult your advisor.

5. This course must be taken the semester of graduation.

---

### Organismal Biology-Conservation and Biodiversity Option

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
<th>Total Hours</th>
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<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>6</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>3</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>1</td>
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<td>ENGL 1100 English Composition I</td>
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<td>MATH 1610 Calculus I</td>
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<td>Core History</td>
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<td></td>
<td></td>
<td>Core Social Science</td>
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**Sophomore**

<table>
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<tbody>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Social Science or Humanities</td>
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<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core History or Literature</td>
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<tr>
<td>Core Humanities</td>
<td>3</td>
<td>BIOL 3060 Ecology</td>
<td>4</td>
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<tr>
<td>Core Literature</td>
<td>3</td>
<td>BIOL 3030 Evolution and Systematics</td>
<td>3</td>
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<td>BIOL 3000 Genetics</td>
<td>3</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>BIOL 3001 Genetics Laboratory</td>
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<td>BIOL 2100 Prof Development</td>
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<td><strong>Total Hours:</strong></td>
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**Junior**

<table>
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<tr>
<th>Course</th>
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<tr>
<td>BIOL 4020 Vertebrate Biodiversity</td>
<td>4</td>
<td>BIOL 5240 Animal Physiology</td>
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<tr>
<td><strong>Total Hours:</strong></td>
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</table>
WILD 3280 Wildlife Ecology, Conservation, and Management 3  Eco/Evo/Diversity Elective 3
BIOL 3100 Plant Biology 4  BIOL 4100 Cell Biology 3
ENTM 3040 General Entomology 4  PHYS 1000 Foundations of Physics 4

15 14

Senior
Fall  Hours  Spring  Hours
Biology Elective  4  BIOL 5120 Systematic Botany 4
BIOL 5090 Conservation Biology  3  Eco/Evo/Diversity Elective 4
BIOL 4010 Invertebrate Biodiversity  4  Biology Elective 3
Free Elective  2  BIOL 4950 Senior Seminar 1
  STAT 2510 Statistics for Biological and Health Sciences 3
  UNIV 4AA0 University Graduation 4

Total Hours: 122

1 Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.
2 Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.
4 This course must be taken the semester of graduation.

Chemistry & Biochemistry

BS curriculum in Chemistry and BS curriculum in Biochemistry

These curricula, approved by the American Chemical Society, prepare students for careers in pure and applied chemistry with a dual emphasis on classroom and laboratory experience. A flexible senior year allows student to tailor the program to individual professional goals. Graduates are prepared to enter the profession immediately or continue for advanced degree programs. The senior research program introduces students to modern advanced techniques and approaches to chemical research in an area of their interest by having them complete an individual research project in conjunction with a faculty adviser.

BA curriculum in Chemistry

The BA curriculum in Chemistry provides a strong background in chemistry while allowing students to specialize in areas of interest. It is especially well suited for students leaning towards medical sciences while allowing more flexibility than that allowed in the American Chemical Society approved biochemistry curriculum. The program allows for great versatility in the junior and senior years, allowing the curriculum to be tailored to individual goals. The curriculum prepares students for professional careers in chemistry or biochemistry and advanced degree programs in chemistry, biochemistry and medically related fields.

Clinical Laboratory Sciences

The Division of Clinical Laboratory Sciences has two curricula leading to the degree of bachelor of science in laboratory technology or bachelor of science in medical technology. These curricula prepare students for medical laboratory careers in fields such as public health, bacteriology, environmental testing, industrial quality control, research and forensic science. Graduates may choose to qualify as certified medical technologists, which is accomplished by successfully completing a 12-month training period (rotating hospital internship) in an accredited school of medical technology and passing a national certifying examination.
**Majors**

- BA Chemistry (p. 1154)
- BS Chemistry (p. 1155)
- Biochemistry (p. 1153)
- Laboratory Sciences (p. 1156)
- Medical Laboratory Sciences (p. 1157)

**Biochemistry Courses**

**BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3)** LEC. 3. Pr. CHEM 2030 or CHEM 2080 or CHEM 2087. Departmental approval. Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings. Credit will not be given for both BCHE 3180 and BCHE 3200.

**BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3)** LEC. 3. Pr. (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087). Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

**BCHE 3201 PRINCIPLES OF BIOCHEMISTRY LABORATORY (1) LAB. 2.** Coreq. BCHE 3200. Fundamental theory and techniques used in the isolation, characterization, and study of biomolecules.

**BCHE 5180 BIOCHEMISTRY I (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways. Bioenergetics.

**BCHE 5181 BIOCHEMISTRY I LABORATORY (1) LAB. 3.** Pr. P/C BCHE 5180 or P/C CHEM 5180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

**BCHE 5190 BIOCHEMISTRY II (3)** LEC. 3. Pr. P/C BCHE 5180 or P/C BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

**BCHE 5191 BIOCHEMISTRY II LABORATORY (1) LAB. 3.** Pr. P/C BCHE 5190 or P/C CHEM 5190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals and bacteria.

**BCHE 5250 PLANT METABOLIC PATHWAYS (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamental processes of metabolism specific to plants.

**BCHE 6180 BIOCHEMISTRY I (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics.

**BCHE 6181 BIOCHEMISTRY I LABORATORY (1) LAB. 3.** Pr. P/C BCHE 6180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

**BCHE 6190 BIOCHEMISTRY II (3)** LEC. 3. Pr. BCHE 6180. Departmental approval. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

**BCHE 6191 BIOCHEMISTRY II LABORATORY (1) LAB. 3.** Pr. P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

**BCHE 6250 PLANT METABOLISM (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamental processes of metabolism specific to plants.

**BCHE 7200 ADVANCED BIOCHEMISTRY I (3)** LEC. 3. Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

**BCHE 7210 ADVANCED BIOCHEMISTRY II (3)** LEC. 3. Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Or equivalent.

**BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMOLOGY (3)** LEC. 3. Pr. BCHE 6190 or CHEM 6190 or BCHE 7200. Departmental approval. The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes.

BCHE 7250 BIOCHEMISTRY OF LIPIDS AND LIPOPROTEINS (3) LEC. 3. Pr. BCHE 7200. Departmental approval. The regulation of lipid and lipoprotein metabolism, role of lipid mediators in signaling pathways and protein modification, assembly and dynamics of lipoproteins and biomembranes.

BCHE 7260 BIOINFORMATICS (3) LEC. 3. Pr. BCHE 7210. Departmental approval. Advanced study of main concepts and tools of genomics and proteomics.

BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3-6) LEC. Pr. BCHE 6190 or CHEM 6190. Departmental approval. Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours.

BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr. BCHE 7210. Directed studies in biochemistry. Departmental approval and BCHE 7210 or equivalent. Course may be repeated for a maximum of 3 credit hours.

Chemistry Courses

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1011 SURVEY OF CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1010. Science Core. Laboratory experiments emphasizing course material in CHEM 1010.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr. CHEM 1010. Science Core. Survey of important topics from organic and biochemistry. Aldehydes and ketones, carboxylic acids, carbohydrates, lipids, proteins, enzymes, extracellular fluids, metabolism, nucleic acids, radioactivity.

CHEM 1021 SURVEY OF CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1020 and CHEM 1011. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.

CHEM 1030/1033 FUNDAMENTALS CHEMISTRY I (3) LEC. 3. Science Core. Atomic and molecular theory, chemical equations, stoichiometry, gas laws, thermochemistry, bonding, electronic structure, molecular geometries, solids, liquids, properties of solutions, problem-solving techniques. Credit will not be given for both CHEM 1030 and CHEM 1110 or CHEM 1117.

CHEM 1031 FUNDAMENTAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1030 or P/C CHEM 1033. Science Core. Laboratory experiments emphasizing course material in CHEM 1030. Credit will not be given for both CHEM 1031 and CHEM 1111 or CHEM 1118.

CHEM 1040 FUNDAMENTAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Science Core. Chemical kinetics; chemical equilibrium; acids and bases; calculations of pH; equilibrium constants and thermodynamical properties; electrochemistry; descriptive chemistry. Credit will not be given for both CHEM 1040 and CHEM 1120 or CHEM 1127.

CHEM 1041 FUNDAMENTAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1040 and (CHEM 1031 or CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1040. Credit will not be given for both CHEM 1041 and CHEM 1121 or CHEM 1128.

CHEM 1110 GENERAL CHEMISTRY I (3) LEC. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Science Core. Chemical principles for chemistry and related majors. Atomic and molecular theory, periodicity, chemical reactions, Stoichiometry, gases, thermochemistry, bonding, molecular geometries, liquids, solids, and solutions. Credit will not be given for both CHEM 1110 and CHEM 1030 or CHEM 1117.

CHEM 1111 GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1110 or P/C CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1110. Credit will not be given for both CHEM 1111 and CHEM 1031 or CHEM 1118.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3) LEC. 3. Pr. Honors College. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth. Credit will not be given for both CHEM 1117 and CHEM 1030 or CHEM 1110.

CHEM 1118 HONORS GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. Honors College. CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117. Credit will not be given for both CHEM 1118 and CHEM 1031 or CHEM 1111.
CHEM 1120 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3) LEC. 3. Pr. CHEM 1110 or CHEM 1117. Science Core. Continuation of CHEM 1110. Chemical kinetics, chemical equilibrium, acids and bases, thermodynamics, electrochemistry, representative element and transition metal chemistry. Credit will not be given for both CHEM 1120 and CHEM 1040 or CHEM 1127.

CHEM 1121 GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1120 or P/C CHEM 1127) and CHEM 1111 or CHEM 1118. Science Core. Laboratory experiments emphasizing course material in CHEM 1120. Credit will not be given for both CHEM 1121 and CHEM 1041 or CHEM 1128.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3) LEC. 3. Pr. Honors College. CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth. Credit will not be given for both CHEM 1127 and CHEM 1040 or CHEM 1120.

CHEM 1128 HONORS GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. Honors College. Science Core. Laboratory experiments emphasizing course material in CHEM 1127. Credit will not be given for both CHEM 1128 and CHEM 1041 or CHEM 1121.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest. Credit will not be given for both CHEM 2030 and CHEM 2070.

CHEM 2070 ORGANIC CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. In-depth study of organic chemistry including structure, nomenclature, reactions, reaction mechanisms, stereochemistry, synthesis and spectroscopic structure determination organized by the functional group approach. Considers alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, and aromatic compounds. Credit will not be given for both CHEM 2070 and CHEM 2030.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. (P/C CHEM 2070 or P/C CHEM 2077) and (CHEM 1041 or CHEM 1128 or CHEM 1211). Laboratory for CHEM 2070.

CHEM 2077 HONORS ORGANIC CHEMISTRY I (3) LEC. 3. Pr. Honors College. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2070, but covered in more depth. Additional credit will not be given for CHEM 2070. Member of the Honors College or CHEM 1110 with grade of A or B or CHEM 1040 with grade of A.

CHEM 2078 HONORS ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 2070 or P/C CHEM 2077. Laboratory experiments emphasizing course material in CHEM 2077. Additional credit will not be given for CHEM 2071. Course may be repeated for a maximum of 3 credit hours.

CHEM 2080 ORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Continuation of CHEM 2070. Aldehydes, ketones, amines, carboxylic acids, esters, amides, anhydrides, polymers, carbohydrates and amino acids.

CHEM 2081 ORGANIC CHEMISTRY II LABORATORY (1) LAB. 1. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2071 or CHEM 2078) and (P/C CHEM 2080 or P/C CHEM 2087). Laboratory for CHEM 2080.

CHEM 2087 HONORS ORGANIC CHEMISTRY II (3) LEC. 3. Pr. Honors College or departmental approval. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2080, but covered in more depth. Additional credit will not be given for CHEM 2080. Member of the Honors College or CHEM 2077

CHEM 2088 HONORS ORGANIC CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 2080 or P/C CHEM 2087. Laboratory experiments emphasizing course material in CHEM 2087. Additional credit will not be given for CHEM 2081. May count either CHEM 2081 or CHEM 2088. Course may be repeated for a maximum of 3 credit hours.

CHEM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN CHEMISTRY (1-3) LAB. SU. Individual problems course. Students will work under the direction of a staff member on some problem of mutual interest. Departmental approval required. Only Freshman or Sophomore. Course may be repeated for a maximum of 6 credit hours.

CHEM 3000 CHEMICAL LITERATURE (1) LEC. 1. Pr. CHEM 2080 or CHEM 2087. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.

CHEM 3050 ANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Theory and application of volumetric, potentiometric and photometric chemical analysis.
CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127). The principles of physical chemistry.

CHEM 4070 PHYSICAL CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and MATH 2650 and (PHYS 1610 or PHYS 1617). Principles of chemical thermodynamics, principles of application to problems of chemical interest.

CHEM 4071 PHYSICAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 4070.

CHEM 4080 PHYSICAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and MATH 2650 and (PHYS 1610 or PHYS 1617). Principles of quantum mechanics and spectroscopy; application in molecular structure and in statistical thermodynamics.

CHEM 4081 PHYSICAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. CHEM 4080. Laboratory for CHEM 4080.

CHEM 4100 INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 4080 or CHEM 3160. Principles of inorganic chemistry emphasizing periodic properties, bonding, structure and symmetry, the solid state, acid-base theory and coordination chemistry.

CHEM 4101 INORGANIC CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 4100. Synthesis and characterization of a variety of inorganic compounds.

CHEM 4110 INORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 4100. Departmental approval. Survey of main group, transition metal and organometallic chemistry.

CHEM 4111 INORGANIC CHEMISTRY LABORATORY II (1) LAB. 3. Pr. CHEM 4101 and P/C CHEM 4110. Laboratory for CHEM 4110.

CHEM 4130 INSTRUMENTAL ANALYSIS (3) LEC. 3. Pr. P/C CHEM 3050. Fundamental concepts used in instrumental analytical chemistry emphasizing spectrophotometric, electroanalytical and chromatographic analysis.

CHEM 4131 INSTRUMENTAL ANALYSIS LABORATORY (1) LAB. 3. Pr. P/C CHEM 4130. Laboratory for CHEM 4130.

CHEM 4950 UNDERGRADUATE SEMINAR (1) LEC. 1. Oral presentation and discussion of research in the area of specialization.

CHEM 4980 UNDERGRADUATE RESEARCH IN CHEMISTRY (3) LAB. 9. Departmental approval. This is an individual problem course. Each student will work under the direction of a staff member on some problem of mutual interest. Course may be repeated for a maximum of 9 credit hours.

CHEM 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Departmental approval. Honors College Members Only; Course may be repeated for a maximum of 6 credit hours.

CHEM 5180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Molecular Structure: classification, structure and reactions of the major constituents of living matter. Also includes binding phenomena and bioenergetics. Credit will not be given for both CHEM 5180 and BCHE 5180.

CHEM 5181 BIOCHEMISTRY I LABORATORY (1) LEC. 3. Pr. P/C CHEM 5180 or P/C BCHE 5180. Identification and quantification of compounds from the important biochemical classes. Examples include amino acid chromatography, dipeptide sequencing, glucose concentration etc. Credit will not be given for both CHEM 5181 and BCHE 5181

CHEM 5190 BIOCHEMISTRY II (3) LEC. 3. Pr. CHEM 5180. Metabolism: survey of design and regulation of the major catabolic and biosynthetic (including photosynthesis) metabolic pathways. An overview of the flow of genetic information. Credit will not be given for both CHEM 5190 and BCHE 5190.

CHEM 5191 BIOCHEMISTRY II LABORATORY (1) LEC. 3. Pr. P/C CHEM 5190 or P/C BCHE 5190. Partial purification, Kinetic studies and characterization of enzymes and nucleotides from various plants, animals and bacteria. Credit will not be given for both CHEM 5191 and BCHE 5191.

CHEM 5280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.
CHEM 5310 LEARNING ASSISTANT PEDAGOGY (1) ST1. 1. Departmental approval. The Learning Assistant Pedagogy course is a special topics course reserved for students (undergraduate or graduate) serving as learning assistants in active learning classrooms. This seminar style class incorporates literature on student-centered learning with reflective writing and discussion.

CHEM 6180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Molecular Structure: classification, structure and reactions of the major constituents of living matter. Also includes binding phenomena and bioenergetics. Credit will not be given for both CHEM 6180 and BCHE 6180.

CHEM 6190 BIOCHEMISTRY II (3) LEC. 3. Pr. CHEM 6180. Departmental approval. Metabolism: survey of design and regulation of the major catabolic and biosynthetic (including photosynthesis) metabolic pathways. An overview of the flow of genetic information. Credit will not be given for both CHEM 6190 and BCHE 6190.

CHEM 6280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 7100 ADVANCED INORGANIC CHEMISTRY (3) LEC. 3. Departmental approval. Current concepts of inorganic chemistry with an emphasis on theory, structure, bonding and reactivity.

CHEM 7110 PHYSICAL METHODS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Or equivalent. Theory and application of techniques for obtaining information inorganic compounds including magnetism, multinuclear nmr, mass spectrometry, x-ray diffraction, vibrational and electronic spectroscopies.

CHEM 7120 ORGANOMETALLIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Main group and transition metal organometallic chemistry.

CHEM 7160 ADVANCED TOPICS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Currently active research areas in inorganic chemistry. Course may be repeated for a maximum of 12 credit hours.

CHEM 7200 PHYSICAL ORGANIC CHEMISTRY (3) LEC. 3. This course will combine the foundations of undergraduate organic chemistry reactions and add to this the physical properties of chemical reactions as affected by real laboratory applications.

CHEM 7210 STRUCTURE ELUCIDATION OF ORGANIC COMPOUNDS (3) LEC. 3. Pr. CHEM 7200 or CHEM 7220. The early stages of this course will focus on the identification of functional groups, saturated, unsaturated and cyclic compounds using IR and NMR spectroscopy, as well as mass spectrometry. Detailed analyses of 1H NMR spectra, i.e., chemical shift, multiplet shape, and coupling constants will demonstrate the power of these methods in ascertaining atom connectivity in simple organic molecules. More advanced two-dimensional NMR techniques such as COSY, HSQC and HMBC will be discussed and used for determining the structures of more complex organic molecules. The determination of absolute and relative stereochemistry using Mosher ester analyses and NOESY, respectively, in chiral molecules will also be covered. Most of the structures that will be discussed and analyzed will be stereochemically complex systems and polycyclic molecules that require a combination of multiple one-dimensional and two-dimensional NMR techniques.

CHEM 7220 ORGANIC REACTIONS (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2073 or CHEM 2077) and (CHEM 2080 or CHEM 2083 or CHEM 2087). Organic reactions are described in the context of oxidation; reduction; C-C, C-N, C-O bond forming; olefination; aldol (and related) condensations; pericyclic, fragmentation, ring-expansion and ring-contraction reactions; and, named organic reactions and their reaction mechanisms and their application to chemical synthesis. Concurrent enrollment with CHEM 7200 is highly recommended.

CHEM 7230 COMPLEX MOLECULE SYNTHESIS (3) LEC. 3. Pr. CHEM 7220. This class is focused on target-oriented chemical synthesis of complex organic molecules. The main objective is to teach students how to use retrosynthetic analysis, a method for disconnecting a complex molecule into simpler starting materials, as well classical and modern organic reactions to plan syntheses of organic compounds that are biologically relevant and important in the development of better pharmaceuticals. During the course of the semester, students will be introduced to important classes of natural products including terpenes, terpenoids, alkaloids, macrolides, polycyclic ethers, as well as designed molecules that are biologically relevant, but not natural products themselves. Identifying key structural components (i.e., retrons), stereogenic centers, and substructures that can be derived from the chiral pool will be emphasized in synthesis planning. All lecture content will come from the current literature, with only manuscripts published in the past 12 months being discussed in class. Students will be responsible for reading Classics in Total Synthesis on their own and tested on the content of this book as well as assigned current literature in class. Emphasis will be placed on identifying economical and streamlined synthetic protocols that can employ cascade or domino reaction sequences.

CHEM 7260 SPECIAL TOPICS IN ORGANIC CHEMISTRY (1-3) LEC. Pr. CHEM 7200. Advanced course in a research area in organic chemistry which is of mutual interest to graduate students and the instructor. Course may be repeated for a maximum of 6 credit hours.
CHEM 7270 SUPRAMOLECULAR CHEMISTRY: SYNTHESIS, STRUCTURES, AND APPLICATIONS (3) ST1. 3. Pr. CHEM 2080. Supramolecular Chemistry bridges organic, inorganic, surface science, and analytical chemistries. It is a topical area that explores synthesis, spatial organization, weak bonding interactions, hydrogen bonding or covalent bonding, and is interest for numerous industrial or pharmacy applications.

CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3) LEC. 3. Topics of general and current interest; may vary from year to year.

CHEM 7330 CHEMICAL KINETICS (3) LEC. 3. Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

CHEM 7350 QUANTUM AND STATISTICAL MECHANICS (3) LEC. 3. Pr. CHEM 7300. A quantum mechanical and statistical approach to molecular structure and chemistry.

CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3) LEC. 3. Pr. CHEM 7300. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

CHEM 7380 MOLECULAR SPECTROSCOPY (3) LEC. 3. Pr. CHEM 7300. Theory and application of optical and magnetic resonance spectroscopy.

CHEM 7410 A DBER APPROACH TO TEACHING AND LEARNING IN CHEMISTRY (3) LEC. 3. Pr. CHEM 1030 and CHEM 1040. Discipline-based education research (DBER) theory and trends, consuming and evaluating DBER research, active learning in advanced chemistry topics, action research, review of pedagogical tools, assessment. This course will be of use to chemistry graduate students aiming for careers in academia, masters education students looking to take a chemistry course for the fulfillment of their degree requirements, and other fields that want to know more about evaluating and critiquing current DBER literature and methods.

CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3) LEC. 3. Analytical principles, applications and methods, mathematical interpretations and current developments.

CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical applications of electrochemistry.

CHEM 7520 SURFACE CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Basic concepts in surface chemistry and surface analytical methods.

CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7500. Analytical Chemistry of microfluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1) LEC. 1. Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15) IND. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

CHEM 7950 SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CHEM 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CHEM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Laboratory Science Courses

LBSC 2010 BASICS IN LABORATORY SCIENCE (2) LEC. 1. LAB. 1. Basic laboratory skills, quality control and assurance, standard precautions for biohazard testing; requirements for careers in medical and laboratory science.


LBSC 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5) LEC. 3. LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and (BIOL 1020 or BIOL 1027). Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

LBSC 4250 CLINICAL BIOCHEM INSTRUMNT (4) LEC. 3. LAB. 3. Pr. BCHE 5180 or BCHE 3200. Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gas chromatograph-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.
## Curriculum in Biochemistry

### Freshman

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### Junior

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Total Hours: 120

1. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
2. May take more CHEM 4980 as additional elective hours.
3. CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.
4. This course must be taken the semester of graduation.

Curriculum in Chemistry, BA

This curriculum provides a strong background in chemistry while allowing students to specialize in areas of interest. It is especially well suited for students leaning towards medical sciences while allowing more flexibility than that allowed in the American Chemical Society approved biochemistry curriculum. The program allows for great versatility in the junior and senior years, allowing the curriculum to be tailored to individual goals. The curriculum prepares students for professional careers in chemistry or biochemistry and advanced degree programs in chemistry, biochemistry and medically related fields.

### Freshman

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### Sophomore

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### Senior

#### Fall

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#### Hours

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1. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

2. CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

3. CHEM Electives are defined as any CHEM course 3000-level and above. A maximum of 3 hours of CHEM 4980 may be counted as a CHEM elective. Additional hours may be used as general elective.

4. This course must be taken the semester of graduation.

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## Curriculum in Chemistry, BS

### Freshman

#### Fall

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<tr>
<td>CHEM 1110 General Chemistry I $^3$</td>
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#### Hours

| 14 | 14 |

### Sophomore

#### Fall

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<tr>
<th>Hours</th>
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<td>MATH 2630 Calculus III</td>
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<td>CHEM 2070 Organic Chemistry I</td>
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<td>MATH 2650 Linear Differential Equations</td>
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#### Hours

| 16 | 15 |

### Junior

#### Fall

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<tr>
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<td>BCHE 5180 Biochemistry I</td>
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<td>CHEM 4071 Physical Chemistry I Laboratory</td>
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**Senior**

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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Social Science¹</td>
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<td>Core Humanities</td>
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<td>Core Fine Arts</td>
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<td>CHEM 4950 Undergraduate Seminar</td>
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<td>CHEM 4980 Undergraduate Research in Chemistry²</td>
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<td>CHEM 4100 Inorganic Chemistry</td>
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<td>CHEM 4130 Instrumental Analysis</td>
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<td>UNIV 4AA0 University Graduation⁴</td>
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</table>

Total Hours: 120

¹ Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

² May take more CHEM 4980 as additional elective hours.

³ CHEM 1030/ CHEM 1031 and CHEM 1040/ CHEM 1041 sequence can substitute for CHEM 1110/ CHEM 1111 and CHEM 1120/ CHEM 1121. See advisor for details.

⁴ This course must be taken the semester of graduation.

Curriculum in Laboratory Sciences

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td>PHIL 1030 Ethics and the Health Sciences</td>
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<td>BIOL 1020 Principles of Biology</td>
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<tr>
<td>CHEM 1110 General Chemistry I</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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**Sophomore**

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<tr>
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<th>Spring</th>
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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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**Curriculum in Medical Laboratory Sciences**

### Freshman

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<tr>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<tr>
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<tr>
<td>PHIL 1030 Ethics and the Health Sciences</td>
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<td>BIOL 1020 Principles of Biology</td>
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<td>MATH 1610 Calculus I</td>
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<tr>
<td><strong>Total</strong></td>
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### Sophomore

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<tr>
<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Core Literature I</td>
<td>3</td>
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1. CHEM 1030/CHEM 1031 and CHEM 1040/CHEM 1041 sequence can substitute for CHEM 1110/CHEM 1111 and CHEM 1120/CHEM 1121. See advisor for details.

2. See advisor for approved list of Tech Electives.
The curriculum in geology provides a background in the geosciences and opportunity to specialize in an area of interest (i.e., environmental geology, paleontology) through elective major or related courses. It is designed for those interested in preparation for graduate studies or employment in the field of geology.

The curriculum in geography promotes geographic literacy as an indispensable element in any educational program. It focuses on spatial relationships and the view of the Earth as the home of humankind. Geography readies students for careers in public services, consulting companies, state or federal agencies, utilities and other professions, as well as for graduate studies in geography.
Majors

- Geography (p. 1167)
- Geology (p. 1168)
- Geology - Earth System Science Option (p. 1170)

Geography Courses

GEOG 1010/1013 GLOBAL GEOGRAPHY (3) LEC. 3. Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3. Pr. Honors College. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

GEOG 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOG 2010 HUMAN GEOGRAPHY (3) LEC. 3. Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3. Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.

GEOG 2800 GEOGRAPHIC METHODS AND TECHNIQUES (4) LEC. 3. LAB. 2. Pr. COMP 1000 or COMP 1003. Departmental approval. Key geographical concepts and production of basic geographical tools for portraying spatial data through laboratory exercises.

GEOG 2850 MAP READING AND ANALYSIS (3) LEC. 2. LAB. 2. Introduction to basic concepts and techniques used to interpret map symbols and to analyze geographic patterns.

GEOG 3000 SPORTS GEOGRAPHY (3) LEC. 3. Geographical basis of sports at different spatial scales, including locational strategies, sportive nationalism, and the urban political economy of sports.

GEOG 3110 UNITED STATES AND CANADA (3) LEC. 3. Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.

GEOG 3120 ALABAMA AND THE SOUTHEAST (3) LEC. 3. Study of the physical and cultural environments of the state.

GEOG 3130 LATIN AMERICA (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.

GEOG 3140 AFRICA (3) LEC. 3. Analysis of the relationships among diverse population groups and the physical environments of sub-Saharan Africa.

GEOG 3150 EUROPE (3) LEC. 3. Survey of physical and human landscape of the region including historical geography, natural resources, economic development, and problems and prospects affecting several of the major countries.

GEOG 3160 ASIA (3) LEC. 3. Survey of the physical and cultural landscape of Asia, including its development and spatial distribution of resources, with a focus on major countries.

GEOG 3300 INTERNATIONAL TRAVEL AND TOURISM (3) LEC. 3. Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.

GEOG 3810 CARTOGRAPHY AND GRAPHICS (4) LEC. 3. LAB. 2. Pr. GEOG 2800. Departmental approval. Techniques of map production including relevant computer graphics applications and related laboratory exercises.

GEOG 4740 SENIOR SEMINAR (2) SEM. 2. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count GEOG 4740 or GEOL 4740.

GEOG 4920 INTERNSHIP (3) LEC. 3. Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.
GEOG 4930 DIRECTED STUDIES (1-4) IND. Departmental approval. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours.

GEOG 5010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. Senior standing or Departmental approval. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 5210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth’s climate system (e.g. surface-atmosphere energy budget, the hydrologic cycle, and atmospheric motion) as well as climate change and sea level rise.

GEOG 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Study of the origin of landforms with emphasis on the eologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOG 5300 ADVANCED REGIONAL STUDIES IN GEOGRAPHY (3) LEC. 3. Departmental approval. Spatial patterns of socio-economic development of Latin America and the Caribbean.

GEOG 5310 GEOGRAPHY OF RURAL CHANGE (3) LEC. 3. Examination of the patterns and processes associated with population levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.

GEOG 5350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 5400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.


GEOG 5510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation of the inter-relationships between humans and their natural or physical environments.

GEOG 5550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 5600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 5700 QUANTITATIVE METHODS AND SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Pr., STAT 2510 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama’s environment via a mix of lectures, hands-on activities and field trips.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills, evaluates written materials in geography, reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.
GEOG 5830/5833 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 5850 GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. Introducing the concepts and implementations of the geographic information analysis and integrate GIS with real-world applications. This is a follow-up course of GEOG 5830/GEOG/6830.

GEOG 5860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOG 3810. Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 5870 ADVANCED REMOTE SENSING (3) LEC. 2. LAB. 2. Pr. GEOG 5820. Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 5880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 5830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 6010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 6210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g. surface-atmosphere energy balance, the hydrologic cycle, and atmospheric motion, as well as climate change and sea level rise.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6300 ADVANCED REGIONAL STUDIES IN GEOGRAPHY (3) LEC. 3. Departmental approval. Spatial patterns of socio-economic development of Latin America and the Caribbean.

GEOG 6310 GEOGRAPHY OF RURAL CHANGE (3) LEC. 3. Examination of the patterns and processes associated with population levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 6380 POLITICAL GEOGRAPHY (3) LEC. 3. Pr. GEOG 5800. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 6500 GEOGRAPHY OF ENVIRONMENTAL MANAGEMENT (3) LEC. 3. Departmental approval. Understanding and application of the theories and methods for the United States’ version of environmental impact assessment.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation the inter-relationships between humans and their natural or physical environments.

GEOG 6550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 6600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.
GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5700 and GEOG 6700.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 6830/6836 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Departmental approval. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 6850 GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. Introducing the concepts and implementations of the geographic information analysis and integrate GIS with real-world applications. This is a follow-up course of GEOG 5830/GEOG/6830.

GEOG 6860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOG 3810. Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 6870 ADVANCED REMOTE SENSING (3) LEC. 2. LAB. 2. Pr. GEOG 6820. Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 6830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Departmental approval. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 7930 DIRECTED STUDIES (1-3) IND/RES. Departmental approval. Individualized literature, field and/or laboratory research not available through regularly offered coursework. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOG 7980 CAPSTONE RESEARCH (1-3) RES. SU. Departmental approval. enrolled as GEOG MS non-thesis student. Literature, field and/or laboratory research directed toward the completion of capstone project for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOG 7990 M.S. RESEARCH AND THESIS (1-10) RES. Research and Thesis. Course may be repeated with change in topics.

Geology Courses

GEOL 1100/1103 DYNAMIC EARTH (4) LEC. 3. LAB. 2. Coreq. GEOL 1101. Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3150.

GEOL 1101 DYNAMIC EARTH LABORATORY (0) LAB. 2. Coreq. GEOL 1100. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and land forms study of geologic maps.

GEOL 1107 HONORS DYNAMIC EARTH (4) LEC. 3. LAB. 2. Pr. Honors College. Coreq. GEOL 1108. General physical geology for Honors students and for Geology majors. Topics similar to GEOL 1110 but covered in greater depth. Science Core.
GEOL 1108 HONORS DYNAMIC EARTH LABORATORY (0) LAB. 2. Pr. Honors College or Departmental approval. Coreq. GEOL 1107. General physical geology for Honors students and for Geology majors. Topics similar to those in GEOL 1101 but covered in more depth. Science Core.

GEOL 1110/1113 EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Coreq. GEOL 1111. Science Core. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans.

GEOL 1111 EARTH AND LIFE THROUGH TIME LABORATORY (0) LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Coreq. GEOL 1110. Examination of rock, fossil, and related data sets bearing on the geological development of the earth with emphasis on North America.

GEOL 1117 HONORS EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107 or Departmental approval. Coreq. GEOL 1118. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans. For Honors students and Geology majors. Science Core.

GEOL 1118 HONORS EARTH AND LIFE THROUGH TIME LABORATORY (0) LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107 or Departmental approval. Coreq. GEOL 1117. General historical geology for Honors students and Geology majors. Topics similar to those in GEOL 1111 but covered in greater depth. Science Core.

GEOL 1200 MARINE TECHNICAL METHODS (2) LAB. 8. Departmental approval. Introduction to procedures utilized aboard marine research vessels; physical, biological and geological measurements and sampling techniques. Taught only at Dauphin Island Sea Lab. Summer.

GEOL 1220 COASTAL CLIMATOLOGY (2) LEC. 7. Departmental approval. Controlling factors and features of world climates, with attention to coastal areas; application and interpretation of climate data. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOL 2010/2013 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4. LAB. 2. Departmental approval. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2020 MARINE GEOLOGY (4) LEC. 2. LAB. 4. Departmental approval. Geology of ocean basins; special emphasis on continental shelves, their sediments and the sedimentary process at work there. Taught only at Dauphin Island Sea Lab. Summer only.


GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.


GEOL 3100 TERRESTRIAL VEGETATION THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 2200 and (BIOL 1020 or BIOL 1027). Plants are primary producers and are the foundation upon which the global ecosystem is based. This course focuses on the development, evolution, and application of the plant fossil record to problems in earth history.

GEOL 3150 ENGINEERING GEOLOGY (3) LEC. 2. LAB. 2. Fundamental geologic principles, materials, and processes that affect engineering projects and programs. Emphasis on pre-construction geological analysis to recognize potential hazards and problems. Credit will not be given for both GEOL 3150 and GEOL 1100.

GEOL 3200 INTRODUCTION TO PALEOBIOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1110 or GEOL 1113 or GEOL 1117. The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.
GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs.


GEOL 3650 FIELD CAMP (6) LEC. 1. LAB. 10. Pr. GEOL 3400. Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformational analysis. Summer only.

GEOL 4010 SEDIMENTARY PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050. Detailed description and classification of sediments and sedimentary rocks with emphasis on interpretation of origins, transport histories, depositional environments and diagenetic histories.


GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3400. The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.

GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3. Pr. CHEM 1040 and GEOL 2050. Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3. Pr. GEOL 3400 and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 SENIOR SEMINAR (2) SEM. 2. Geology majors with upperclass standing. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count either GEOL 4740 or GEOG 4740.

GEOL 4920 INTERNSHIP (1-3) INT. SU. Geology majors with upper-class standing (juniors or seniors). An opportunity to apply classroom experience to a real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) AAB. Departmental approval. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours.

GEOL 4970 SPECIAL TOPICS IN GEOLOGY (1-4) ST1. Instruction and discussion of selected topics in geosciences. Course may be repeated for a maximum of 8 credit hours.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Departmental approval. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours.

GEOL 4997 HONORS THESIS (2-4) LEC. 3. Pr. Honors College. May incorporate library, field or laboratory research in any proportion. Written thesis and thesis defense required. Course may be repeated for a maximum of 4 credit hours.

GEOL 5060 INTRODUCTION TO MICROPALeONTOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3200 and (BIOL 1030 or BIOL 1037). A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 5100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of the origin of landforms with emphasis on the geologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOL 5240 COASTAL GEOMORPHOLOGY (2) LEC. 5. LAB. 4. Departmental approval. Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer only.
GEOL 5300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. P/C GEOL 4010. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 5440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction in the theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). The course provides an understanding of the EMPA as a research tool for evaluating the composition and structure of a wide range of materials.


GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 5720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Pr., Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOL 6060 INTRODUCTION TO MICROPALENTOLOGY (3) LEC. 3. LAB. 1. A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolarians, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 6220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Study of origin of landforms with emphasis on geologic processes and structures that generate landforms; includes the applications of landform analysis. May count either GEOL 6220 or GEOG 6220.

GEOL 6240 COASTAL GEOMORPHOLOGY (2) LEC. 5. LAB. 4. Departmental approval. Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 6440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction to theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). Provides an understanding of EMPA as a research tool for evaluating composition and structure of wide range of materials. GEOL 5440 or GEOL 6440.


GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3. Departmental approval. Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations.

GEOL 7200 TECTONICS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes.

GEOL 7220 GEOGRAPHIC INFORMATION SYSTEMS AND MARINE RESEARCH (3) LEC. 10. LAB. 15. Departmental approval. Introduction to geographical information system (GIS) techniques with a focus on application in the marine environment. Taught only at Dauphin Island Sea Lab. Summer only.


GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Departmental approval. Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of trace elements; groundwater pollution, remediation and geomic robiology.

GEOL 7286 CLIMATE CHANGE LITERACY AND COMMUNICATION (3) DSL. 3. Must be a graduate student, or obtain departmental consent after undergraduate student meets Auburn University criteria for taking a 7000-level course. Investigates the discipline-based geoscience education lenses of people's understanding (cognitive), emotional influences (affect), and actions (behavior) about climate change literacy. Critically analyzes misconceptions, mental models, cultural influences, risk perceptions and the best practices for addressing these barriers. May count either GEOL 7280 or GEOL 7286.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 4100 and GEOL 4260. Discussion of the fundamental processes controlling sedimentary cycles at different physical, biotic, and temporal scales.

GEOL 7310 ISSUES IN PALEONTOLOGY (3) LEC. 3. Pr. GEOL 3200. Advanced applications of paleontological data sets to topics that may include taphonomy, biogeochemistry, evolution, asystematic functional morphology, paleoecology, paleoclimatology and biostratigraphy.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 4210. Departmental approval. The practical and theoretical aspects of economic geology as applied to exploration and development of natural resources.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. The origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich strata, including hydrocarbon- source rocks and coals. Laboratory and field trips required.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Overview of geology and geographic distribution of mineral resources; economic aspects affecting their extraction; environmental impacts and cost of mineral resource extraction.

GEOL 7500 PALEOCLIMATOLOGY (3) LEC. 3. Explores how Earth's climate has evolved dynamically over time, varying within restricted boundaries that allowed life to exist and evolve. Explores interactions among Earth’s surface abiotic and biotic components, and includes plate tectonics, atmospheric chemistry and physics, and ocean productivity.

GEOL 7550 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2. LAB. 2. Pr. GEOL 6600. Departmental approval. Advanced treatment of geophysical methods, data interpretation and modeling. Applications to resource development and environmental assessments will be explored, with emphasis on seismic methods.

GEOL 7600 PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. The description, classification, formative processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 3400 and GEOL 3650. Quantitative analysis of a range of rock and mineral types and their modification by crustal movements and dynamo thermal metamorphism.
GEOL 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. Systematic analysis of modern and ancient deposition facies, and their interpretation in a sequence stratigraphic context. Laboratory and field trips required.

GEOL 7700 ANALYTICAL ISOPOTE GEOCHEMISTRY (3) LEC. 2. LAB. 1. Pr. CHEM 1040 or PHYS 1510 or MATH 1620. Biweekly lectures will teach the theory and principles of isotope geochemistry and mass spectrometry, leading to applications in geoscience research. Lab sessions and problem sets will support lectures and emphasize work with various mass spectrometers in the Department of Geosciences.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3. Departmental approval. Directed studies. May incorporate literature, field and/or laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. SU. Literature, field and/or laboratory research directed towards completion of capstone project required for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Departmental Approval. Course may be repeated with change in topics.

GEOL 8900 DIRECTED STUDY (3) IND. 3. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-system problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis.

Curriculum in Geography

Freshman

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<th>Fall</th>
<th>Hours</th>
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Sophomore

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<td>Core Social Science or Humanities&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>GEOG 1010 Global Geography</td>
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<td>Core Social Science</td>
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<tr>
<td>GEOG 2000 Professional Development</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences or 2010 Statistics for Social and Behavior Sciences</td>
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<td>GEOG 2010 Human Geography</td>
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<td>GEOG 2020 Physical Geography</td>
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Junior

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<tr>
<td>GEOG 3810 Cartography and Graphics</td>
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<td>GEOG 5830 Geographic Information Systems</td>
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<td>COMP 1000 Personal Computer Applications&lt;sup&gt;4&lt;/sup&gt;</td>
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Curriculum in Geology

### Core literature
3

### Senior

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<td>GEOG 5820 Aerial Photography and Remote Sensing</td>
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Total Hours: 120

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and Lit sequence options, see the Bulletin.

2. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

3. **CORE Science Sequences:**
   - BIOL 1020/BIOL 1021, BIOL 1030/BIOL 1031, CHEM 1030/CHEM 1031, CHEM 1040/CHEM 1041, CHEM 1110/CHEM 1111, CHEM 1120/CHEM 1121, GEOL 1100, PHYS 1500, PHYS 1510, PHYS 1600, PHYS 1610.

4. Elective hours may be substituted upon passing the COMP 1AA0 placement test. See the Computer Science and Engineering Dept. for details.

5. This course must be taken the semester of graduation.

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### Curriculum in Geology

#### Freshman

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<th>Fall</th>
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<th>Spring</th>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<td>ENGL 1120 English Composition II</td>
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<td>GEOL 1100 Dynamic Earth</td>
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<td>GEOL 1110 Earth and Life Through Time</td>
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14 | 14

#### Sophomore

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<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<td>MATH 1610 Calculus I</td>
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<td>Course</td>
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Courses in BOLD will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.
Curriculum in Geology - Earth System Science Option

**Geology Electives:** 12 hours required. Geology electives may be selected from the following groups of courses with NO MORE THAN 4 hours coming from group B.

**GEOL Group A Electives:**
- GEOL 4210 (3) Economic Geology
- GEOL 4260 (3) Geochemistry
- GEOL 5060 (4) Invertebrate Paleontology
- GEOL 5100 (3) Hydrogeology
- GEOL 5300 (3) Basin Analysis
- GEOL 5600 (4) Applied Geophysics
- GEOG 5220 (3) Geomorphology

**GEOL Group B Electives:**
- GEOL 3060 (3) Lunar and Planetary Geology
- GEOL 4930 Actualistic Paleontology
- GEOL 4930 Ichnology
- GEOL 4930 (1) Carbonate Depositional Systems
- GEOL 4930 Unspecified Directed Study (no more than 2 hours)
- GEOL 4980 Unspecified Research Methods (no more than 2 hours)

**Technical Electives:** The following courses are approved. Other courses may be permitted with prior approval of the GEOL advisor. Students must meet with their Geology advisor and have technical electives approved in advance. An approval form must be on file in the Dean's office in order to be cleared for graduation.

- AERO 3040, 5320
- AGRN 3040, 3100, 5000, 5080, 5150, 5300
- ANTH any 2000+ course
- BIOL 2425, 3030, 3060, 3075, 3200, 4010, 4020
- BIOL 2010, 3210, 3310, 3120, 4210, 4310, 5330, 5340
- CHEM 2070, 3050, 3200, any 3000-5000 course
- CHEM 1030 Fundamentals
- CHEM 1030 Fundamentals Chemistry I
- CHEM 1031 Fundamental Chemistry I Laboratory
- CHEM 1030 Fundamentals Chemistry II
- CHEM 1031 Fundamental Chemistry II Laboratory
- MATH any 2000-5000 course
- MECH any 3000-5000 course
- PHYS any 2000-5000 course
- STAT any 2000-5000 course

**GEOG 1010 Global Geography is suggested for majors.**

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**Curriculum in Geology - Earth System Science Option**

### Freshman

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
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<tr>
<td>GEOL 1100 Dynamic Earth</td>
<td>4</td>
<td>GEOL 1110 Earth and Life Through Time</td>
<td>4</td>
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<tr>
<td>CHEM 1030 Fundamentals</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
<td>1</td>
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<tr>
<td>CORE HISTORY I</td>
<td>3</td>
<td>CORE HISTORY II</td>
<td>3</td>
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</tbody>
</table>

Total: 14 hours 14
### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
<td>4</td>
<td>BIOL 1030 Organismal Biology &amp; BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td>GEOL 2010 Mineralogy and Optical Crystallography</td>
<td>5</td>
<td>BIOL 3030 Evolution and Systematics</td>
<td>3</td>
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<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>ESS Elective</td>
<td>4</td>
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<tr>
<td>CORE LITERATURE I</td>
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<td>ESS Elective</td>
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**Core**

- 16
- 15

### Junior

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<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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<tbody>
<tr>
<td>PHYS 1500 General Physics I</td>
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<td>PHYS 1510 General Physics II</td>
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<td>ESS Elective</td>
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<tr>
<td>GEOL 3060 Lunar and Planetary Geology</td>
<td>3</td>
<td>BIOL 3060 Ecology</td>
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<td>GEOL 3200 Introduction to Paleobiology</td>
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<td>GEOG 5210 Climatology</td>
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<td>GEOL 5220 Geomorphology</td>
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<td>CORE SOCIAL SCIENCE</td>
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<td>CORE FINE ARTS</td>
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</table>

**Core**

- 16
- 15

### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ESS Elective</td>
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<td>ESS Elective</td>
<td>3</td>
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<tr>
<td>ESS Elective</td>
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<td>ESS Elective</td>
<td>4</td>
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<tr>
<td>GEOG 5830 Geographic Information Systems</td>
<td>4</td>
<td>GEOL 4740 Senior Seminar</td>
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<tr>
<td>CORE HUMANITIES</td>
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<td>CORE SOCIAL SCIENCE II</td>
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<tr>
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<td>CORE LITERATURE II</td>
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</tbody>
</table>

**Core**

- 16
- 15

**Total Hours:** 121

*ESS Elective* (BIOL 3075 Introduction to Oceanography, offered at Dauphin Island Sea Lab in summer, is recommended)

1GEOG 1010 Global Geography is suggested for majors.

**EARTH SYSTEM SCIENCE ELECTIVES**

- GEOL 2050 Igneous and Metamorphic Petrology
- GEOG 2850 Map Reading and Analysis
- GEOL 3400 Structural Geology
- GEOG 5400 Geography of Natural Hazards
- GEOL 4010 Sedimentary Petrology
- GEOG 5500 Geography of Environmental Management
- GEOL 4260 Introduction to Geochemistry
GEOG 5510 Human-Environment Interaction
GEOL 4300 Geodynamics
GEOG 5550 Geography of Water Resources
GEOL 4930 Directed Studies in Undergraduate Research
GEOG 5600 Global Resources and the Environment
GEOL 5100 Hydrogeology
GEOG 5820 Aerial Photography and Remote Sensing
GEOL 5600 Applied Geophysics
BIOL 2500 Human Anatomy and Physiology I
BIOL 3040 Biology of Marine Systems
BIOL 3075 Introduction to Oceanography (Dauphin Island Sea Lab)
BIOL 3100 Plant Biology
BIOL 3200 General Microbiology & BIOL 3201 General Microbiology Laboratory
BIOL 4010 Invertebrate Biodiversity
BIOL 4020 Vertebrate Biodiversity
BIOL 5090 Conservation Biology
BIOL 5150 Community Ecology
CHEM 2030 Survey of Organic Chemistry
CHEM 2071 Organic Chemistry I Laboratory
CHEM 2080 Organic Chemistry II
CHEM 2081 Organic Chemistry II Laboratory
CHEM 3050 Analytical Chemistry
CHEM 3160 Survey of Physical Chemistry
PHYS 3500 Physics of the World Around Us
NATR 5050 Urban Ecology
NATR 5310 Environmental Ethics
CIVL 3220 Water and Waste Treatment

Mathematics & Statistics

The Department of Mathematics and Statistics offers degree curricula in mathematics and in applied mathematics (with its various options), as well as minors and a minor in statistics. Majors acquire a firm foundation in mathematics preparing them for further study, or for careers in mathematics or statistics and related fields. For a minor in MATH or STAT see the “Minors” heading earlier in this section.

This curriculum of Mathematics provides students with a general background in Mathematics preparing them for graduate studies in Mathematics, or careers that require mathematical knowledge and problem solving skills, and is well suited for students who wish to pursue career in teaching Mathematics in a university/college, or who desire more flexibility or emphasis in liberal arts.

The Department of Mathematics and Statistics offers three options in the field of Applied Mathematics. The option in Applied Mathematics is suitable for students who are preparing for graduate work in mathematics, or applied mathematics, as well as for those anticipating careers which are supported by significant applied mathematics such as engineering, physical sciences, or computer science, and the more recently mathematicized fields of biological, behavioral, or managerial sciences.
The option in Discrete Mathematics prepares students for graduate work in mathematics or theoretical computer science, and for careers in industry supported by discrete mathematics dealing with problems in graph theory, operations research, discrete optimization, computer science, communications and information sciences.

The option in Actuarial Science prepares students for a career in the insurance industry and in other businesses relying on the expertise of actuaries, but is at the same time flexible enough to allow its graduates to enter graduate programs in mathematics and related areas.

Starting with the Fall 2015 semester incoming students will be required to earn a "C" or better in certain prerequisites to take the follow-on course. The follow-on courses are: Pre-Calculus Algebra and Trigonometry, Calculus I, Calculus II, and Calculus III.

Students should consult the departmental advisor to determine appropriate technical electives for the emphasis of their choice.

**Majors**
- Actuarial Science (p. 1191)
- Applied Discrete Mathematics (p. 1192)
- Applied Mathematics (p. 1193)
- Mathematics (p. 1190)

**Minors**
- Mathematics (p. 1191)
- Statistics (p. 1194)

**Mathematics Courses**

**MATH 1000/1003 COLLEGE ALGEBRA (3)** LEC. 3. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

**MATH 1100 FINITE MATH AND APPLICATIONS (3)** LEC. 3. Pr. A02 score of 22 or S02 score of 520 or S12 score of 550 or MATH 1000 or MATH 1003 or MPME score of 052. Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

**MATH 1120/1123 PRE-CALCULUS ALGEBRA (3)** LEC. 3. Pr. A02 score of 22 or S02 score of 520 or S12 score of 550 or MATH 1000 or MATH 1003 or MPME score of 052. Mathematics Core. Preparatory course for calculus. Algebra of functions including polynomial, rational, exponential, and logarithmic functions. Students who have previous credit in any higher-numbered math course may not also receive credit for this course. Students may receive credit for only one of MATH 1120 or MATH 1123.

**MATH 1150/1153 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4)** LEC. 4. Pr. A02 score of 23 or S02 score of 540 or S12 score of 565 or MATH 1120 or MATH 1123 or MPME score of 060. Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, De Moivre's Theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not also receive credit for this course. Students may receive credit for only one of MATH 1150 or MATH 1153.

**MATH 1151 MATHEXCEL PRECALCULUS WORKSHOP (2)** LAB. 4. SU. Coreq. MATH 1150. Workshop for MATH 1150. Two 2-hour sessions per week.
MATH 1610/1613 CALCULUS I (4) LEC. 4. Pr. A02 score of 26 or S02 score of 600 or S12 score of 620 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1130 or MPME score of 076. "C" or better in MATH 1130, MATH 1133, MATH 1150 or MATH 1153. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610/1613/1617/1710.

MATH 1611 MATHEXCEL CALCULUS WORKSHOP I (2) LEC. SU. Coreq. MATH 1610. Workshop for Math 1610. Two 2-hour sessions per week.

MATH 1617 HONORS CALCULUS I (4) LEC. 4. Pr. Honors College. MATH 1130 or MATH 1150 or MATH 1133 or MATH 1153 or A02 minimum score of 26 or S02 minimum score of 600 or MPME minimum score of 76. C or better in MATH 1130, MATH 1133, MATH 1150 or MATH 1153. Mathematics Core. This course covers the same material as MATH 1610 but in a greater depth appropriate for honors students. Credit will not be given for both MATH 1617 and MATH 1680. Students may receive credit for only one of MATH 1610, MATH 1613, or MATH 1617.

MATH 1620/1623 CALCULUS II (4) LEC. 4. Pr. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610, MATH 1613, or MATH 1617. Techniques of integration, applications of the integral, parametric equations, polar coordinates. Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620, or MATH 1627.

MATH 1621 MATHEXCEL CALCULUS WORKSHOP II (2) LEC. 2. SU. Coreq. MATH 1620. Workshop for MATH 1620. Two 2-hour sessions per week.

MATH 1627 HONORS CALCULUS II (4) LEC. 4. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. The same material as MATH 1620, but in greater depth appropriate for honors students. Students may receive credit for only one of MATH 1620 or MATH 1627.

MATH 1680/1683 CALCULUS WITH BUSINESS APPLICATIONS I (4) LEC. 3, LEC. 2. Pr. A02 score of 25 or S02 score of 580 or S12 score of 600 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MPME score of 068. Students in College of Business. Mathematics Core. Differentiation and integration of exponential logarithmic algebraic functions, applications to business. Functions of several variables, partial derivatives, multiple integrals.

MATH 1681 MATHEXCEL BUSINESS CALCULUS WORKSHOP I (2) LEC. 2. SU. Coreq. MATH 1680. Workshop for MATH 1680. Two 2-hour sessions per week.

MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or Departmental approval. Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics.

MATH 1691 MATHEXCEL BUSINESS CALCULUS WORKSHOP II (2) LEC. 2. SU. Coreq. MATH 1690. Workshop for MATH 1690. Two 2-hours sessions per week.

MATH 2630/2633 CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2637 HONORS CALCULUS III (4) LEC. 4. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. The same material as MATH 2630, but in greater depth appropriate for honors students. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. P/C MATH 2630 or P/C MATH 2637 or P/C MATH 2730. First and second order linear differential equations including the solutions by infinite series, applications.

MATH 2660 TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Mathematical foundations of the theory of interest necessary as preparation for the Society of Actuaries examination on the theory of interest.
MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3. For Elementary Education major or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3. Pr. MATH 2850. For Elementary Education majors or departmental approval. Mathematical insights into measurement and geometry for elementary school teachers. Shapes in two and three dimensions. Similarities, congruences and transformations.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3. For Elementary Education majors or departmental approval. Mathematical insights into probability, data analysis and functions for elementary school teachers. Uncertainty, probability spaces and an introduction to statistics. Relationships, functions and change.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Departmental approval. The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and Math 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3. Pr. MATH 2660. Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3100.

MATH 4110 ADVANCED LOGIC (3) LEC. 3. Pr. MATH 2630 or MATH 2637 and MATH 2730. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either MATH 4110 or PHIL 4110.

MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3. Pr. MATH 2790. Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 examination.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3. Pr. STAT 3600. or equivalent. Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination.

MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. Departmental approval. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours.

MATH 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

MATH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours. Membership in Honors College.

MATH 5000 MATH MODELING CONTINUOUS (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term project. Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and MATH 2660. Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Pr. MATH 2650. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 5030. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.
MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Pr. MATH 2660. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 2650. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5120 INFORMATION THEORY (3) LEC. 3. Pr. MATH 2630 or MATH 2670 or MATH 2730. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650. Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.


MATH 5180 CRYPTOGRAPHY (3) LEC. 3. Pr. MATH 2660. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3. Pr. MATH 2650. Approximation of functions by polynomials, spline functions or trigonometric functions, expansions in series.

MATH 5200 ANALYSIS I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity. Emphasis on proofs.

MATH 5210 ANALYSIS II (3) LEC. 3. Pr. MATH 5200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.


MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Pr. MATH 2660. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 5310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 5310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 2660. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces, matrix representations, eigenvalues, eigenspaces.
MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 5380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 5460 PERTURBATION METHODS I (3) LEC. 3. Pr. MATH 2660. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods.

MATH 5470 DYNAMICAL SYSTEMS I (3) LEC. 3. Pr. MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii's Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

MATH 5480 DYNAMICAL SYSTEMS II (3) LEC. 3. Pr. MATH 5470. Higher dimensional and complex dynamics. Lorenz map, Henon map, toral automorphisms, stable and unstable manifolds, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Pr. MATH 3100. C or better in MATH 3100. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 5620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3. Pr. MATH 2650. A programming language, or departmental approval. An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.


MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Pr. MATH 2660. Programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 5670 or STAT 5670. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 5680 and STAT 5680.

MATH 5690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematica, supported by internet resources. Credit will not be given for both MATH 5690 and STAT 5690. Basic programming.


MATH 5730 ENUMERATION (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.

MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.


MATH 5810 ACTUARIAL MATHEMATICS II (3) LEC. 3. Pr. MATH 5800. A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and MATH 2650 and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 5970 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3) LEC. 3. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Programming ability.


MATH 6030/6036 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 6030 or MATH 6036. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6120 INFORMATION THEORY (3) LEC. 3. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 6130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650. Fundamental concepts of extrema functions and functionals; first and second generalizations; sufficient conditions; constrained functionals; the general Lagrange problem; optimal control.

MATH 6140 DATA COMPRESSION (3) LEC. 3. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).
MATH 6150/6156 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.


MATH 6180 CRYPTOGRAPHY (3) LEC. 3. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3. Pr. MATH 2650. Approximation of functions by polynomials, spline functions or trigonometric function, expansions in series.

MATH 6200 ANALYSIS I (3) LEC. 3. or equivalent course, subject to departmental approval. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity; intermediate value and extreme-value theorems. Emphasis on proofs.

MATH 6210 ANALYSIS II (3) LEC. 3. Pr. MATH 6200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; \( \mathbb{R}^n \) and abstract spaces, functions of several variables. Emphasis on proofs.


MATH 6280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 6300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 6310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, and Galois Theory.

MATH 6330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 6310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic robotics problems, and symbolic manipulation software.

MATH 6370 LINEAR ALGEBRA (3) LEC. 3. Introduction to the theoretical foundations of Linear Algebra Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces matrix representations, eigenvalues, eigenspaces.

MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 6380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, and advanced theorems on the circle.

MATH 6460/6466 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendentental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

MATH 6470 DYNAMICAL SYSTEMS I (3) LEC. 3. Pr. MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii's Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.
MATH 6480 DYNAMICAL SYSTEMS II (3) LEC. 3. Pr. MATH 6470. Higher dimensional and complex dynamics. Lorenz map, Henonmap, toral automorphisms, stable and unstable manifolds, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 6500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Departmental approval. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 6620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3. An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.


MATH 6640/6646 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms. Programming ability.

MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.

MATH 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.

MATH 6690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematica, supported by Internet resources. Credit will not be given for both MATH 6690 and STAT 6690.

MATH 6710 LINEAR OPTIMIZATION (3) LEC. 3. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6730 ENUMERATION (3) LEC. 3. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.


MATH 6770 COMBINATORIAL DESIGNS (3) LEC. 3. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.


MATH 6810 ACTUARIAL MATHEMATICS II (3) LEC. 3. Pr. MATH 6800. A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 6840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Divisibility, Diophantine equations, congruencies.

MATH 6850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 6860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.
MATH 6870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and MATH 2650 and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 6970/6976 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.


MATH 7010/7016 APPLIED MATHEMATICS II (3) LEC. 3. Pr. MATH 7000 or MATH 7006. Calculus of variations, asymptotic expansions, Spectral theory, Fourier transform, Partial differential equations, transform methods and eigenfunction expansions, vibrations, diffusion processes, equilibrium states, Green's functions, boundary layer problems.

MATH 7040/7046 APPROXIMATION THEORY I (3) LEC. 3. Departmental approval. Introduction and theory of some of the important methods of approximation. Includes uniform approximation, best approximation, best trigonometric approximation.

MATH 7050/7056 APPROXIMATION THEORY II (3) LEC. 3. Pr. MATH 7040 or MATH 7046. Least square approximation and rational approximation, and advanced topics of current interest.

MATH 7070 INTERPOLATION I (3) LEC. 3. Departmental approval. Techniques of approximation by interpolation, rates of convergence and methods of estimating error. Simultaneous approximation of functions and their derivatives; spline function interpolation; curve and surface fitting.


MATH 7100 SPECIAL FUNCTIONS (3) LEC. 3. Departmental approval. Special functions from classical complex analysis which play an important role in the mathematics of physics, chemistry, and engineering.


MATH 7130 TENSOR ANALYSIS (3) LEC. 3. Departmental approval. Manifolds, differential structure, vector and tensor fields, vector and tensor bundles, differential forms, chains. Elements of differential geometry, advanced topics.

MATH 7140 INTRODUCTION TO MODEL THEORY (3) LEC. 3. Departmental approval. First-order languages, Satisfaction. Consequences. The completeness and compactness theorems, models constructed from constants. Elementary substructures and embeddings, Lowenheim-Skolem-Tarskj theorems. Ultraproducts and ultrapowers.

MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3. Departmental approval. Introduction to modern set theory. The axioms of ZFC, ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin's Axiom.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3. Pr. MATH 7150. Introduction to forcing, independence results, iterated forcing, consistency of Martin's Axiom.

MATH 7170 ALGORITHMS DISCRETE OPTIMIZATION (3) LEC. 3. Pr. MATH 6750. Theory and practice of discrete algorithms: complexity class classes, reductions, approximate algorithms, greedy algorithms, search techniques, heuristics, randomized algorithms, and numeric algorithms.


MATH 7200 REAL ANALYSIS I (3) LEC. 3. Departmental approval. Sigma algebras, measures, measurable functions, integrability, properties of Lebesgue measure, density, Luzin's theorem, Egoroff's theorem, product measures, Fubini's theorem. Limit theorems involving pointwise convergence and integration.


MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE I (3) LEC. 3. Departmental approval. Complex numbers, analytic functions, derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles, Riemann surfaces.

MATH 7240 FUNCTIONS OF A COMPLEX VARIABLE II (3) LEC. 3. Pr. MATH 7230. Conformal mappings, families of analytic functions and harmonic analysis.

MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Existence and continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems, differential inequalities, Sturm theory.


MATH 7310 ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems.

MATH 7320 ALGEBRA II (3) LEC. 3. Pr. MATH 7310. Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PID are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.

MATH 7330 LINEAR REPRESENTATIONS OF FINITE GROUPS (3) LEC. 3. Pr. MATH 7320. Maschke's Theorem, characters, orthogonality relations, induced modules, Frobenius reciprocity, Clifford's Theorem, Mackey's Subgroup Theorem, Burnside's theorem on solvability.

MATH 7340 RING THEORY (3) LEC. 3. Pr. MATH 7320. Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ABELIAN GROUPS (3) LEC. 3. Pr. MATH 7320. Torsion groups: Decompositions, Ulm's theorem, uniqueness theorem for Abelian 3 groups, Torsion-free groups: Completely decomposable groups, Butler groups, p-local groups, Warfield groups, splitting criteria. Homological topics.

MATH 7360 LIE ALGEBRA (3) LEC. 3. General introduction of Lie algebras including their structures and classifications of semisimple Lie algebras.

MATH 7370 MATRICES I (3) LEC. 3. Departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, inertia; topics of current interest.

MATH 7380 MATRICES II (3) LEC. 3. Pr. MATH 7370. Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7390 MULTILINEAR ALGEBRA (3) LEC. 3. Pr. MATH 5370 or MATH 6370. Multilinear algebra, symmetry class of tensors, induced operators, generalized matrix functions, and current research topics.


MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 7400. C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.
MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristic domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7440. Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.


MATH 7470 NUMBERS AND OPERATIONS FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of the base ten place value system and the operations and algorithms used with this system.

MATH 7480 MEASUREMENT AND GEOMETRY FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of topics in measurement, 2-D and 3-D geometry needed for teaching elementary school students.

MATH 7500 TOPOLOGY I (3) LEC. 3. Departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

MATH 7510 TOPOLOGY II (3) LEC. 3. Pr. MATH 7500. Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.


MATH 7530 CONTINUUM THEORY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3) LEC. 3. Pr. MATH 7530. Topics in continuum theory such as confluent mappings, epsilon mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7550. Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7570 EUCLIDEAN TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. An introduction to concepts basic in algebraic and geometric topology through the study of simple objects such as polyhedra, manifolds, retracts, and the Brouwer fixed point theorem.

MATH 7580 EUCLIDEAN TOPOLOGY II (3) LEC. 3. Pr. MATH 7570. Further study of basic geometric topology. Retracts, absolute neighborhood retracts, maps into spheres, invariance of domain.

MATH 7600/7606 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3. Departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610/7616 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Pr. MATH 2650 and MATH 2660 and MATH 5630 or MATH 6630 and MATH 5640 or MATH 6640. Finite difference methods for ordinary and partial differential equations.
MATH 7620 OPTIMIZATION THEORY (3) LEC. 3. Unconstrained problems: basic descent, conjugate gradient and quasi-Newton methods. Constrained problems: gradient projection, penalty, cutting plane and Lagrange methods. Credit will not be given for both MATH 7620 and INSY 8420. An ability to program in high-level language.


MATH 7650 HARMONIC ANALYSIS I (3) LEC. 3. Departmental approval. Fourier series, Fourier transforms, maximal functions, singular integral theory, introduction to function spaces.

MATH 7660 HARMONIC ANALYSIS II (3) LEC. 3. Pr. MATH 7650. Function spaces and interpolation, Calderon's reproducing formulas, wavelets, frames, connections to function spaces applications.

MATH 7680/7686 ADVANCED TOPICS IN NUMERICAL ANALYSIS (3) LEC. 3. Departmental approval. Topics include: sparse systems of equations, parallel and vector algorithms, nonlinear and singular partial differential equations, calculation of eigenvalues and eigenvectors, pseudo-random numbers, filtering techniques.

MATH 7700 INTRODUCTION TO GRAPH THEORY FOR GRADUATE STUDENTS (3) LEC. 3. Pr. MATH 6750 or MATH 7700. Algorithmic, enumerative and theoretical aspects of graph theory: matchings and factors, colorings, Hamiltonicity, connectivity, trees, extremal graphs, planarity. May count either MATH 6750 or MATH 7700.

MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3. Departmental approval. Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3. Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed-Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3. Pr. MATH 7720. Departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.

MATH 7740 ADVANCED COMBINATORIAL DESIGNS (3) LEC. 3. Topics of current interest and research in combinatorial design theory. Areas included: latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.

MATH 7750 ADVANCED TOPICS IN GRAPH THEORY (3) LEC. 3. Pr. MATH 6750. Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

MATH 7760 INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Homology of chain complexes, the axioms of homology and their verification, computations of homology groups.

MATH 7770 INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7760. Homology with coefficients and universal coefficient theorem theorems, Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY I (3) LEC. 3. Departmental approval. Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7790 ADVANCED ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7780. Continuation of MATH 7780; advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7800 PROBABILITY I (3) LEC. 3. Pr., a full year of undergraduate mathematical analysis at a level commensurate with MATH 5200/5210. Measure-theoretic foundations, independence, conditioning, martingales, Markov property, stationarity, random walks, Markov chains, Poisson processes.

MATH 7810/7816 PROBABILITY II (3) LEC. 3. Pr. MATH 7800. Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both MATH 7810 and STAT 7810.
MATH 7820/7826 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.

MATH 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances).

MATH 7870 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I (3) LEC. 3. Pr. MATH 7210 or MATH 7500. Borel classification of sets, the Baire classification of real functions. Derivatives and approximately continuous functions. The Lebesque density topology.


MATH 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 6 credit hours.

MATH 7960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours.

MATH 7970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated with change in topics.

MATH 7980 RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10) RES. SU. Departmental approval. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours.

MATH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

MATH 8310 HOMOLOGICAL ALGEBRA I (3) LEC. 3. Pr. MATH 7320. Departmental approval. Homology and cohomology. Hom and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules, the classification of certain rings using homological tools.

MATH 8320 HOMOLOGICAL ALGEBRA II (3) LEC. 3. Pr. MATH 8310. Localizations of modules, nonsingular rings and modules, the Goldie dimension, homological classification of modules; Whitehead modules, reflexive modules, R-modules as modules over their rings of endomorphisms.

MATH 8330 INTRODUCTION TO LIE GROUPS (3) LEC. 3. Pr. MATH 7310 or MATH 7370. Introduce Lie groups via matrix groups. Topics include exponential map, Lie algebras, classical groups, structures and classifications, manifolds, representations.

MATH 8400 ADVANCED FUNCTIONAL ANALYSIS I (3) LEC. 3. Pr. MATH 7210 and MATH 7400. Topics concerning bounded and unbounded linear operators in Banach and Hilbert spaces; theory of distributions and topological vector spaces with applications, current research.

MATH 8410 ADVANCED FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 8400. Topics from the theory of bounded and unbounded linear opera operators in Banach and Hilbert spaces; elements of nonlinear functional analysis, topics of current research interest.

MATH 8600 ADVANCED PROBABILITY I (3) LEC. 3. Processes, distributions, independence, Random sequences, series, averages, characteristic functions. Classical limits theorems, conditioning. Some experience with graduate level mathematics, preferably in the areas of analysis and topology.

MATH 8610 ADVANCED PROBABILITY II (3) LEC. 3. Pr. MATH 8600. Martingales, Markov chains, random walks, renewal theory, Poisson processes and ergodic theory.

MATH 8630 ADVANCED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 8610. Gaussian processes, Brownian motion, invariance principles, convergence of random processes, measures and sets, stochastic integrals and quadratic variation.

MATH 8640 ADVANCED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 8630. Continuous martingales and Brownian motion, stochastic differential equations and martingale problems, local time, excursions, one-dimensional SDE's and diffusions.

MATH 8700 FINITE GEOMETRY I (3) LEC. 3. Pr. MATH 5370. Projective and affine spaces over finite fields. Inversive planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.
MATH 8710 FINITE GEOMETRY II (3) LEC. 3. Pr. MATH 8700. Projective and affine spaces over finite fields. Inversive planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Statistics Courses

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4) LEC. 3. LAB. 2. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.


STAT 2510/2513 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or P/C COMP 1000 or COMP 1003. Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results. Minimum 2.0 overall cumulative undergraduate GPA.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3. Pr. MATH 1690. Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1. Pr. (P/C STAT 2010 or P/C STAT 2017) and (P/C STAT 2510 or STAT 2513) and P/C STAT 2610 and P/C STAT 3010. Introduction to basic statistical computing programs and methods.

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710. Introduction to statistical methods and analysis used in engineering and science.

STAT 3600/3603 PROBABILITY AND STATISTICS I (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3. Pr. STAT 3600. Departmental approval. Continuation of STAT 3600.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2. Departmental approval. Coreq. STAT 3610. The application of statistical techniques from STAT 3610.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 3610 or STAT 3010. Least squares estimation, hypothesis testing and confidence interval estimation in regression; simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.

STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3. Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3. ARIMA models: the autoregressive process, the moving average process, and the ARMA process; forecasting, errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.
STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 6 credit hours.

STAT 5000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT3610 or STAT3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time dependent data with a focus on Data Science.

STAT 5110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/6336.

STAT 5600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010 or MATH 1620. Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, maximum likelihood estimation, Bayesian statistics, hypothesis testing, prediction, sampling and resampling methods, multivariate statistics.

STAT 5630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling, systematic sampling ratio estimations.

STAT 5650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 5000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5670 and MATH 5670.

STAT 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 5670 or MATH 5670. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 5680 and MATH 5680.

STAT 5690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5690 and MATH 5690.

STAT 6000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time-dependent data.

STAT 6110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610 or P/C STAT 7000. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/6336.

STAT 6600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010 and MATH 1620. Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, Maximum Likelihood Estimation, Bayesian statistics, hypothesis testing, prediction, Sampling and Resampling methods, multivariate statistics.

STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling systematic sampling ratio estimations.
STAT 6650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 6000. or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 6690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 6690 and MATH 6690.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4. Departmental approval. Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3. Pr. STAT 7000. Advanced topics in experimental design: writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3. Pr. STAT 3600 or MATH 3600 or STAT 7000. Departmental approval. Methods for analysis or categorical response data. Topics include Chi-square tests, Likelihood Ratio tests, Logistic Regression, and Loglinear Modeling.

STAT 7040 BIOSTATISTICS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Epidemiology, biometry, methods of survival analysis.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017. Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100.

STAT 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. Data from the life sciences and advanced statistical techniques for data analyses and computations are brought together through a cross-fertilization of graduate students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Pr. STAT 7000 and STAT 7020. Introduction to the analysis of data collected under differential experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Pr. STAT 3610. Departmental approval. Advanced concepts of experimental design including blocking, regression approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300.

STAT 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. STAT 7300 or STAT 7306 or INSY 7300 or INSY 7306. Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both STAT 7310 and INSY 7310.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3. Pr. STAT 3600. Departmental approval. Random variables, probability theory, random variables, probability distributions, sampling distributions, convergence.
STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3. Pr. STAT 7600. Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.


STAT 7650 COMPUTATIONAL STATISTICS (3) LEC. 3. Pr. STAT 7020 and STAT 7610. This course covers the theory and practice of common algorithms used for simulation, computing, and optimization in Statistics.

STAT 7670 APPLIED LONGITUDINAL DATA ANALYSIS (3) LEC. 3. To introduce students to statistical models and methods for the analysis of longitudinal data, i.e. data collected repeatedly on individuals (humans, animals, etc) over time (or other conditions).

STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3. Pr. STAT 7600. Departmental approval. Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, count data, estimating equations.


STAT 7800 LINEAR MODELS (3) LEC. 3. Pr. STAT 7610 and MATH 2660. Departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810/7816 MODERN STOCHASTIC PROCESSES I (3) LEC. 3. Pr. (MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676) and MATH 6210. Classical and Modern Topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820/7826 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 7810 or MATH 7816 or STAT 7810 or STAT 7816. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion.) Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 7810 or STAT 7816.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3. Pr. STAT 7610. Departmental approval. Bayesian methods, Markov Chain Monte Carlo methods, resampling techniques.

STAT 7860 APPLIED TIME SERIES ANALYSIS (3) LEC. 3. Pr. STAT 3610. Departmental approval. Autoregressive and moving average models, differencing, estimation and forecasting, spectral theory.

STAT 7940 CAPSTONE PROJECT (3) LEC. 3. Discuss various topics while working on an industry-level project. Students will complete a semester-long project under the supervision of instructors.

STAT 7960 SPECIAL PROBLEMS IN STATISTICS (1-10) RES. Credit will not be given for both MATH 7960 and STAT 7960. Course may be repeated for a maximum of 10 credit hours.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit hours.


STAT 7990 RESEARCH AND THESIS (1-10) DSR. Research for Master's thesis in Statistics. Course may be repeated with change in topic.

STAT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3. Pr. STAT 7000. or approved equivalent. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models.
STAT 8410 ADVANCED QUANTITATIVE METHODS MANAGEMENT II (3) LEC. 3. or approved equivalent. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVE, Discriminate Analysis & Polytomous Logistic Regression.

STAT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7100 and STAT 8400 and STAT 8410. or approved equivalent. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

Curriculum in Mathematics

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<tr>
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<th>Fall</th>
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<th>Spring</th>
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**Total Hours: 120**
Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

FOREIGN LANGUAGE: 1010-1020 series in French, Greek, German, Italian, Latin, Japanese, Russian, or Spanish.

CORE SCIENCE: PHYS 1600- PHYS 1610, BIOL 1020- BIOL 1030, CHEM 1030- CHEM 1040 with labs, or GEOL 1100- GEOL 1110.

Math Requisite: Courses designated MATH or STAT at the level of 3000 or higher, no more than one 3000-level course. Subject to advisor’s approval.

Applied Math Requisite: MATH 5630, MATH 5640, MATH 5670, or MATH 5000.

**Mathematics Minor**

Fifteen semester hours of courses labeled MATH or STAT at the level of 3000 or higher; at least three courses must be designated MATH. A minimum grade of C in each of these courses is required.

**Option in Actuarial Science**

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<th>Freshman</th>
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<td>ENGL 1100 English Composition I</td>
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<td>ECON 2020 Principles of Microeconomics</td>
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<td>ACCT 2810 Fundamentals Of Accounting</td>
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<td>MATH 4820 Actuarial Seminar in Probability</td>
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### Option in Applied Discrete Mathematics

#### Senior

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<td>FINC 3630 Advanced Business Finance</td>
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**Total Hours: 120**

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the *Bulletin*.
2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.
4. Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOL 1100/GEOL 1110.
5. MATH or STAT courses at the 3000 level or higher; no more than one 3000-level course. Subject to advisor’s approval.
6. Any course that will serve as the statistics prerequisite for FINC 3630. See advisor for approved courses, currently STAT 2610 or STAT 3610.

#### Option in Applied Discrete Mathematics

#### Freshman

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<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
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**Total Hours: 17**

#### Sophomore

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<td>Core Social Science(^2)</td>
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<td>COMP 3000 Object-Oriented Programming for Engineers and Scientists</td>
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<td>COMP 2000 Network Programming with HTML and Java</td>
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<td>MATH 3710 Discrete Mathematics</td>
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<td>MATH 2660 Topics in Linear Algebra</td>
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<td>MATH 2650 Linear Differential Equations</td>
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<td>MATH 2630 Calculus III</td>
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<td>STAT 3600 Probability and Statistics I</td>
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**Total Hours: 16**

#### Junior

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### Option in Applied Discrete Mathematics

#### Freshman

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<td>Core Science(^4)</td>
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<td>Core Science(^4)</td>
</tr>
<tr>
<td>Core History</td>
<td>3</td>
<td>Core History or Literature(^1)</td>
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<tr>
<td>Core Humanities</td>
<td>3</td>
<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
</tr>
<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>MATH 1620 Calculus II</td>
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</table>

**Total Hours: 17**

#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
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<tbody>
<tr>
<td>Core Literature</td>
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<td>Core Social Science or Humanities(^3)</td>
</tr>
<tr>
<td>Core Social Science(^2)</td>
<td>3</td>
<td>COMP 3000 Object-Oriented Programming for Engineers and Scientists</td>
</tr>
<tr>
<td>COMP 2000 Network Programming with HTML and Java</td>
<td>3</td>
<td>MATH 3710 Discrete Mathematics</td>
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<tr>
<td>MATH 2660 Topics in Linear Algebra</td>
<td>3</td>
<td>MATH 2650 Linear Differential Equations</td>
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<tr>
<td>MATH 2630 Calculus III</td>
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<td>STAT 3600 Probability and Statistics I</td>
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**Total Hours: 16**

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>Core Social Science(^2)</td>
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<td>Core Fine Arts</td>
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### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tr>
<td>Algebra/Linear Algebra Elective&lt;sup&gt;5&lt;/sup&gt;</td>
<td>3</td>
<td>Discrete Math Elective&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>Discrete Math Electives&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>Math Elective&lt;sup&gt;5&lt;/sup&gt;</td>
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<tr>
<td>Interdisciplinary Elective&lt;sup&gt;5&lt;/sup&gt;</td>
<td>3</td>
<td>Elective</td>
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<td></td>
<td>UNIV 4AA0 University Graduation&lt;sup&gt;6&lt;/sup&gt;</td>
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<tr>
<td></td>
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</table>

Total Hours: 120

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.
2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.
4. Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOL 1100/GEOL 1110.
5. Guidelines for Discrete Math electives, Math Electives, Applied Analysis Elective, Algebra/Linear Algebra Elective and Interdisciplinary Electives can be found online at http://www.auburn.edu/academic/cosam/departments/student-services/registration-and-planning/documents/12%20AMTH%20DISC.pdf
6. This course must be taken the semester of graduation.

### Option in Applied Mathematics

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>Core Humanities</td>
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<td>Core Science&lt;sup&gt;4&lt;/sup&gt;</td>
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<tr>
<td>Core Science&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>COMP 1200 Introduction to Computing for Engineers and Scientists</td>
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#### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td>Core Literature</td>
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<td>Core Social Science or Humanities&lt;sup&gt;3&lt;/sup&gt;</td>
<td>3</td>
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<tr>
<td>Core Social Science&lt;sup&gt;2&lt;/sup&gt;</td>
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<td>MATH 2650 Linear Differential Equations</td>
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<tr>
<td>MATH 2630 Calculus III</td>
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<td>MATH 3100 Introduction to Advanced Mathematics</td>
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<tr>
<td>MATH 2660 Topics in Linear Algebra</td>
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<td>STAT 3600 Probability and Statistics I</td>
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### Interdisciplinary Electives

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<tr>
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<td>Fall</td>
<td>Hours</td>
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<tr>
<td>Core Social Science</td>
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<td>Core Fine Arts</td>
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<td>MATH 5200 Analysis I</td>
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<td>MATH 5210 Analysis II</td>
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<tr>
<td>MATH 5630 Introduction to Numerical Analysis I</td>
<td>3</td>
<td>MATH 5640 Introduction to Numerical Analysis II</td>
<td>3</td>
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<td>Interdisciplinary Elective</td>
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<td><strong>Total Hours</strong></td>
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1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4. Core Science: One of the sequences PHYS 1600/PHYS 1610, BIOL 1020/BIOL 1030, CHEM 1030/CHEM 1040 with labs, or GEOL 1100/GEOL 1110.


6. This course must be taken the semester of graduation.

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### Statistics Minor

Select 15 hours of courses labeled STAT or MATH at the level of 3000 or higher; at least four courses must be designated STAT.

**Total Hours**

15

A minimum grade of C in each of these courses is required.

### Physics

Physics majors acquire a firm foundation for careers in physics and related fields and excellent preparation for further study. Through the judicious use of electives, this curriculum provides not only a thorough understanding of physics, but also the ability to solve problems in other fields of interest to the student.
Major

- Physics (p. 1198)

Minor

- Physics (p. 1199)

Courses

PHYS 1000/1003 FOUNDATIONS OF PHYSICS (4) LEC. 3. LAB. 2. Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1001 FOUNDATIONS OF PHYSICS LABORATORY (1) LAB. 2. Coreq. PHYS 1003. Core-curriculum laboratory course in physics focusing on practical applications and hands-on experience. Topics include: Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics.

PHYS 1150 ASTRONOMY (4) LEC. 3. LAB. 3. Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1500 or PHYS 1600 or PHYS 1607. Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected.

PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3. LAB. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3. LAB. 3. Pr. Honors College. Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1600 or PHYS 1607 and (P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627). Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is expected at least concurrently.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3. LAB. 3. Pr. Honors College. MATH 1620 and PHYS 1600 or PHYS 1607. Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1620 or higher is expected, at least concurrently. Physics at the level of PHYS 1600 or higher is expected.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and (P/C MATH 2630 or P/C MATH 2637). Principles and applications of Newtonian mechanics, noninertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3. Pr. PHYS 1617 or PHYS 1610. Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (2) LAB. 6. Pr. PHYS 1617 or PHYS 1610. The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.

PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3. Pr. (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2637 or MATH 2730). Electrostatics, Magnetostatics, Laplace's equation, boundary-value problems, multipole expansions, dielectric and magnetic materials. Faraday's law, AC circuits, and Maxwell's equations.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>PHYS 3200</td>
<td>STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.</td>
<td></td>
<td></td>
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<tr>
<td>PHYS 3500</td>
<td>PHYSICS OF THE WORLD AROUND US (3) LEC. 3. Interdisciplinary topic e.g. Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 3501</td>
<td>PHYSICS OF THE WORLD AROUND US LABORATORY (1) LAB. 3. Laboratory course required for certain topics for PHYS 3500. One 3 hour session per week.</td>
<td></td>
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<tr>
<td>PHYS 4100</td>
<td>FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 2200 and MATH 2650. Schrodinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 4200</td>
<td>FUNDAMENTAL EXPERIMENTS IN PHYSICS (2) LAB. 6. Pr. PHYS 2300. Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.</td>
<td></td>
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</tr>
<tr>
<td>PHYS 4900</td>
<td>DIRECTED STUDIES (1-5) IND. SU. Departmental approval. Student will investigate a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.</td>
<td></td>
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<tr>
<td>PHYS 4930</td>
<td>DIRECTED STUDIES IN PHYSICS (1-5) IND. Departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.</td>
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<tr>
<td>PHYS 4967</td>
<td>HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>PHYS 4980</td>
<td>UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours.</td>
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<td>PHYS 4997</td>
<td>HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>PHYS 5100</td>
<td>APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 4100. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.</td>
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<tr>
<td>PHYS 5500</td>
<td>FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.</td>
<td></td>
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<tr>
<td>PHYS 5600</td>
<td>FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.</td>
<td></td>
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<tr>
<td>PHYS 5610</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.</td>
<td></td>
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<tr>
<td>PHYS 5620</td>
<td>SURVEY OF PLASMA PHYSICS (3) LEC. 3. Pr. PHYS 3100. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.</td>
<td></td>
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</tr>
<tr>
<td>PHYS 6100</td>
<td>APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 6500</td>
<td>FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.</td>
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<tr>
<td>PHYS 6600</td>
<td>FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.</td>
<td></td>
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</tr>
<tr>
<td>PHYS 6610</td>
<td>INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.</td>
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<tr>
<td>PHYS 6620</td>
<td>SURVEY OF PLASMA PHYSICS (3) LEC. 3. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.</td>
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</tbody>
</table>
PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3. Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3. Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3. Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3. Time-dependent approximation methods, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7520 NONLINEAR DYNAMICS (3) LEC. 3. Dynamical systems, maps, flows, fixed points and neighborhoods, chaos, fractals and fractal dimensions. Lyapunov exponents, strange attractors, dissipative and Hamiltonian systems, controlling chaos.

PHYS 7540 NON-EQUILIBRIUM STATISTICAL MECHANICS (3) LEC. 3. Introduces the fundamental concepts of non-equilibrium statistical mechanics, develops basic transport theories, and simulates statistic properties with Monte-Carlo and molecular dynamic methods.

PHYS 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate. Course may be repeated with change in topics.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PHYS 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PHYS 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PHYS 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electrical, optical and transport properties.

PHYS 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours.

PHYS 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate. Course may be repeated with change in topics.
Physics

Curriculum in Physics (PHYS)

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
<td></td>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
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<td>MATH 1610 Calculus I or 1710 Calculus for Engineering and Science I</td>
<td>4</td>
<td>MATH 1620 Calculus II or 1720 Calculus for Engineering and Science II</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYS 1607 Honors Physics I or 1600 Engineering Physics I</td>
<td>4</td>
<td>PHYS 1617 Honors Physics II or 1610 Engineering Physics II</td>
<td>4</td>
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<tr>
<td></td>
<td>Core Fine Arts</td>
<td>3</td>
<td>Core Humanities or SOC SCI</td>
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<thead>
<tr>
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<th>Hours</th>
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<td>Core History II OR LITERATURE</td>
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<td>COMM 1000 Public Speaking</td>
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<td>MATH 2650 Linear Differential Equations</td>
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<td>Core History I</td>
<td>3</td>
<td>PHYS 2300 Physics Laboratory Skills</td>
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<td>MATH 2630/2730 Calculus III</td>
<td>4</td>
<td>PHYS 2100 Intermediate Mechanics</td>
<td>3</td>
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<tr>
<td></td>
<td>PHYS 2200 Introductory Quantum Physics and Relativity</td>
<td>3</td>
<td>Electives</td>
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<tr>
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<tr>
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<td>PHYS 3100 Intermediate Electricity and Magnetism</td>
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<td>Professional Elective&lt;sup&gt;3&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>PHYS 4100 Fundamentals of Quantum Mechanics</td>
<td>3</td>
<td>PHYS 3200 Statistical Thermodynamics</td>
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<td>Science Electives&lt;sup&gt;2&lt;/sup&gt;</td>
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<table>
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<tr>
<td></td>
<td>PHYS 4200 Fundamental Experiments in Physics</td>
<td>2</td>
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<td></td>
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<td>16</td>
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</table>

Total Hours: 120

<sup>1</sup> Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

<sup>2</sup> Science Electives consist of a sequence of GEOL 1100-GEOL 1110 or CHEM 1030/CHEM 1031 – CHEM 1040/CHEM 1041 or BIOL 1020/BIOL 1021- BIOL 1030/BIOL 1031
Auburn University

3 PHYS and Professional Electives must be at the 3000 level or higher. A Plan of Study indicating choices and physics advisor approval for Physics and Professional electives must be on file in the Dean’s Office before scheduling those courses.

4 This course must be taken the semester of graduation.

Physics Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHYS 2200</td>
<td>Introductory Quantum Physics and Relativity</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 2100</td>
<td>Intermediate Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 3100</td>
<td>Intermediate Electricity and Magnetism</td>
<td>3</td>
</tr>
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<td>PHYS 3200</td>
<td>Statistical Thermodynamics</td>
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</tr>
<tr>
<td>PHYS 4100</td>
<td>Fundamentals of Quantum Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours</td>
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</table>

Pre-Health Professional Curricula

Pre-health professional curricula are offered in pre-dentistry, pre-medicine, pre-optometry, pre-physical therapy, pre-physician assistant, pre-pharmacy and pre-veterinary medicine. Advisors are available to guide the students concerning admissions requirements to the professional schools. The department in which students major will advise them where applicable. Completion of these curricula does not assure admission to a professional school. Competition for admission to professional schools is keen; the number of qualified applicants exceeds the number of places available.

Pre-Dentistry and Pre-Medicine

These programs are designed to prepare students for dental and medical schools and lead to a bachelor of science in one of several majors offered through the college. The requirements are very exacting and demand high scholastic competence and performance.

Most American dental and medical schools recommend that applicants have at least two semesters of freshman biology, general chemistry, organic chemistry, and physics with labs; (2) breadth in the educational experience; and (3) in-depth experience in a single discipline. Auburn University students complete these recommendations by enrolling in a core of courses shown in the curriculum model. Each student also declares a major. Students should confer with the COSAM pre-health advisors for specific course requirements since these can vary from school to school. Students may choose to major in a curriculum in another college or school, but they should meet with the COSAM Director of Pre-Health Programs as freshmen for assistance in becoming competitive applicants.

In the junior year, students should attend the mandatory meetings concerning the application process that are conducted by the COSAM Chairman of the Pre-Health Professions Advisory Committee (PPAC) in January. Also, students in pre-dentistry or pre-medicine should take the Dental Admission Test or the Medical College Admission Test at least a year before the date of entry to professional school and submit applications to the professional schools of their choice at that time.

Pre-Optometry

This program leads to a bachelor of science and prepares students for the rigorous demands of American optometry schools.

Students must select a major and should confer with the COSAM pre-health advisors for specific course requirements since these can vary from school to school. Students may also choose to major in a curriculum in another college or school, but they should work with the COSAM Director of Pre-Health Programs as freshmen for assistance in becoming competitive applicants.

Pre-optometry students should review the websites of the optometry schools of their choice during the freshman year to determine any special admission requirements of those schools. The prerequisite courses for most U.S. optometry schools are listed in the curriculum model, either as required courses or as electives. In the junior year, students should attend the mandatory meetings concerning the application process that are conducted by the COSAM Chairman of the Pre-Health Professions Advisory Committee (PPAC) in January. Students should take the Optometry Admission Test and complete an official application for admission to the schools of their choice about a year in advance of the expected date of enrollment.

Pre-Physical Therapy

This program prepares students applying to schools of physical therapy and leads to a bachelor’s degree in one of the majors offered in the College of Sciences and Mathematics. Students should confer with their academic advisors for specific course requirements since these can vary from school to school. Students may also choose to major in a curriculum in another college or school, but they should meet with the COSAM Director of Pre-Health Programs as freshmen for information about becoming competitive applicants. Students
should review the websites of the schools of their choice during the freshman year to determine any special admission requirements of those schools. Students should take the Graduate Record Examination and complete an official application for admission to the schools of their choice about a year in advance of the expected date of enrollment.

**Pre-Pharmacy**

This program meets the requirements for admission to the Auburn University Harrison School of Pharmacy, which is fully accredited by the American Council on Pharmaceutical Education. Complete information about the professional curriculum in pharmacy may be found in the Harrison School of Pharmacy section of this *Bulletin*.

To be considered for admission, the applicant must complete the course requirements listed in the curriculum model and meet other admissions criteria set by the Harrison School of Pharmacy.

Although not required, students may want to complete an undergraduate degree before entering pharmacy school since the majority of students admitted have a degree. Any major may be acceptable as long as the pre-pharmacy requirements are completed. The College of Sciences and Mathematics offers a major in biomedical sciences that is an excellent choice for students interested in this option. Students should confer with the COSAM pre-health advisors for specific course requirements.

**Pre-Physician Assistant**

This program is designed to prepare students for enrollment in physician assistant programs and leads to a bachelor of science in one of several majors offered through the college. The academic requirements are very demanding and high scholastic competence and performance are expected. Auburn University students complete these recommendations by enrolling in a core of courses shown in the curriculum model. Each student also declares a major. Students should confer with the COSAM pre-health advisors for specific course requirements since these can vary from school to school. Students may choose to major in a curriculum in another college or school, but they should meet with the COSAM Director of Pre-Health Programs as freshmen for assistance in becoming competitive applicants and applying.

Students in the pre-physician assistant program should take the Graduate Record Examination at least a year before the date of entry to professional school and submit an application to the schools of their choice at that time.

**Pre-Veterinary Medicine**

Students in the Pre-Veterinary Medicine (PVET) curriculum must select a major by the end of their sophomore year. Students in Sciences and Mathematics typically select microbiology (MCMB, PVET) or organismal biology (IBIO, PVET) as majors. Pre-Veterinary options in the College of Agriculture include animal sciences (ANDS, PVET) and poultry science (POUL, PVET). A pre-vet option in wildlife (WILD, PVET) sciences also exists in the School of Forestry and Wildlife Sciences. The minimum requirements for admission to the College of Veterinary Medicine at Auburn University are incorporated into the curriculum models for all of these majors.

It is possible to gain admission to the College of Veterinary Medicine by completing only the minimum requirements listed. However, it is preferable to select a major and earn a baccalaureate degree. If a student is admitted to the College of Veterinary Medicine prior to completion of the full four years, he or she may obtain a BS degree by successfully completing the first three years of some of the Pre-Veterinary curricula and the first year of veterinary school. Students should consult their advisors regarding which curricula offer this option. Application for admission to the College of Veterinary Medicine must be submitted to the dean of that college. A minimum grade-point average of 2.5 is required for application; D grades in required courses are unacceptable. All minimum requirements, including courses repeated due to time limitations, must be completed by the end of the spring term preceding the date of admission, and all advanced required courses in physical and biological sciences (organic chemistry and physics) must have been completed within six calendar years prior to the anticipated entrance date. Competition for admission to the professional schools is keen with the number of qualified applicants exceeding the number of places available. For additional information, see College of Veterinary Medicine section and the Pre-Veterinary Medicine curricula in the College of Agriculture, COSAM, and the School of Forestry and Wildlife Sciences.

**Programs**

- Biomedical Sciences (p. 1201)
- Microbiology/Pre-Veterinary Medicine Option (p. 1203)
- Pre-Dentistry and Pre-Medicine (p. 1204)
- Pre-Optometry (p. 1207)
- Pre-Pharmacy (p. 1208)
- Pre-Physical Therapy (p. 1209)
Courses

SCMH 1010/1013 CONCEPTS OF SCIENCE (4) LEC. 3, AAB/LEC. 3. Coreq. SCMH 1011. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1011 CONCEPTS OF SCIENCE LABORATORY (0) LAB. 2, AAB/LAB. 2. Coreq. SCMH 1010. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. If a student takes SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science core. May count SCMH 1011 or SCMH 1018.

SCMH 1017 HONORS CONCEPTS OF SCIENCE (4) LEC. 3, AAB/LLB. 3. Pr. Honors College. Coreq. SCMH 1018. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1018 CONCEPTS OF SCIENCE LABORATORY (0) LAB. 2. Coreq. SCMH 1017. Interdisciplinary course for Honors students which presents major scientific concepts in physical and biological sciences. If a student takes SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150.Science core. May count either SCMH 1011 or SCMH 1018.

SCMH 1890 PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Orientation and guidance for freshmen and transfer students planning to seek admission to health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 2150 OPS: MANAGEMENT OF BUSINESS PROCESSES (2) LEC. 2. Fundamental concepts, techniques and tools of business processes.

SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2. SU. Departmental approval. Direct observation of physical therapists at an approved facility in the Auburn-Opelika area.

SCMH 3890 PRE-MEDICAL PRECEPTORSHIP (1) LAB. 25. SU. Departmental approval. Direct observation and interaction with physicians at East Medical Center and in individual medical offices.

SCMH 4920 SCIENCES AND MATHEMATICS INTERNSHIP (3) LEC. 3. SU. Practical on-the-job training in some area related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2, CLN/LEC. 1. Pr. SCMH 5010. A continuation of SCMH 5010.

SCMH 5940 GLOBAL STUDY/TRAVEL IN SCIENCES AND MATHEMATICS (1-12) AAB. and departmental approval. Application required. Students international study travel on topics relevant to Sciences and Mathematics. Course may be repeated for a maximum of 12 credit hours.

Curriculum in Biomedical Sciences

Freshman

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<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>Core History I</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
</tr>
<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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</table>
### BIOL 1020 Principles of Biology 3
### BIOL 1030 Organismal Biology 3
### BIOL 1021 Principles of Biology Laboratory 1
### BIOL 1031 Organismal Biology Laboratory 1
### SCMH 1890 Pre-Health Professions Orientation 1

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<td>PHYS 1500 General Physics I 4</td>
<td>PHYS 1510 General Physics II 4</td>
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<tr>
<td>CHEM 2070 Organic Chemistry I 3</td>
<td>CHEM 2080 Organic Chemistry II 3</td>
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<td>CHEM 2071 Organic Chemistry I Laboratory 1</td>
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<td>Core Literature 3</td>
<td>BIOL 3000 Genetics 3</td>
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<td>Core History II 3</td>
<td>BIOL 3001 General Genetics Laboratory 1</td>
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### Junior

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<tr>
<td>PSYC 2010 Introduction to Psychology 3</td>
<td>Core Social Science 3</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences 3</td>
<td>BIOL 4100 Cell Biology 3</td>
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<td>BIOL 3200 General Microbiology 3</td>
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<td>BIOL 3201 General Microbiology Laboratory 1</td>
<td>BCHE 5190 Biochemistry II 3</td>
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<td>BCHE 5180 Biochemistry I 3</td>
<td>PHIL 1030 Ethics and the Health Sciences 3</td>
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<td>Core Fine Arts 3</td>
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### Senior

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<td>BIOL 5500 Immunology 3</td>
<td>UNIV 4AA0 University Graduation 4</td>
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<tr>
<td>BMSC Elective 5</td>
<td>BIOL 5600 Mammalian Physiology (Biomedical Physiology) 5</td>
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<td>Professional Elective 4</td>
<td>BMSC Elective 3</td>
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<td>Undergraduate Research 2</td>
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Total Hours: 120

Options for courses labeled CORE are in the Auburn University Bulletin, under Core Curriculum.

1. The General Chemistry CHEM 1110/CHEM 1111- CHEM 1120/CHEM 1121 sequence or the General Chemistry Honors Sequence can substitute for CHEM 1030/CHEM 1031- CHEM 1040/CHEM 1041. See advisor.
2. *Professional Electives*: Foreign Language, BIOL 2500, or any BIOL, CHEM, PHYS course 3000+
3. BMSC Electives: BIOL 3010/BIOI 3013 and BIOL 3011 (Comparative Anatomy); BIOL 4000/BIOI 4003 and BIOI 4001/BIOI 4033 (Histology). BIOI 5110 (Parasitology); BIOI 5200 (Clinical Micro); BIOI 5280 (Genetics); BIOI 5230 (Virology); BIOI 5330 (Developmental Genetics); BIOI 5521 (Gene Express. Lab); CHEM 3160 (Physical Chem); CHEM 3050 (Analytical Chem); Undergraduate Research (no more than 2 additional hours); SCMH 3810 or SCMH 3890 (Preceptorships)
4. Students may only register for UNIV 4AA0 during the semester they plan to graduate.
### Curriculum in Microbiology/Pre-Veterinary Medicine Option (MCMB, PVET)

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<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>MATH 1610 Calculus I</td>
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<tr>
<td>Core Literature</td>
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<td>CHEM 2080 Organic Chemistry II</td>
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<td>CHEM 2071 Organic Chemistry I Laboratory</td>
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<td>Core History or Literature</td>
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<td>BIOL 2100 Professional Development</td>
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<td>BIOL 3200 General Microbiology</td>
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<td>BIOL 3000 Genetics</td>
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<table>
<thead>
<tr>
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<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core Humanities</td>
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<td>Core Social Science or Humanities</td>
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<td>Core Fine Arts</td>
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<td>BIOL 4950 Senior Seminar</td>
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<td>BIOL 5200 Clinical Microbiology</td>
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<td>BIOL 4100 Cell Biology</td>
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<td>BCHE 5180 Biochemistry I</td>
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<td>ANSC 3400 Animal Nutrition</td>
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<td>BCHE 5181 Biochemistry I Laboratory</td>
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<td>Students who complete the above 6 semesters and successfully complete the first year of veterinary school may be awarded a BS in microbiology. In the event the first year veterinary college alternative is not followed, the indicated senior year courses must be successfully completed to receive the BS in microbiology.</td>
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<th>Senior</th>
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<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>BIOL 5220 Introductory Molecular Genetics or 5260 Prokaryotic Molecular Genetics</td>
<td>3</td>
<td>BIOL 5210 Microbial Physiology</td>
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<td>BIOL 5250 Microbial Evolution and Diversity</td>
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<td>BIOL 5501 Immunology Lab</td>
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## Curriculum in Pre-Dentistry and Pre-Medicine

### Freshman

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<th>Fall</th>
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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology</td>
<td>3</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>HIST 1010 World History I</td>
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<tr>
<td>SCMH 1890 Pre-Health Professions Orientation</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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**Total Hours:** 16

### Sophomore

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<th>Fall</th>
<th>Hours</th>
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<tbody>
<tr>
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<td>COMM 1000 Public Speaking</td>
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<td>Core History II</td>
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<td>CHEM 2080 Organic Chemistry II</td>
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**Total Hours:** 14

### Junior

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<td>PSYC 2010 Introduction to Psychology</td>
<td>3</td>
<td>PHIL 1030 Ethics and the Health Sciences</td>
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**Total Hours:** 14
BCHE 5180 Biochemistry I  

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Total Hours: 89

The student should declare a major when they have completed 60 hours.

1 The Chemistry CHEM 1110/CHEM 1111 - CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-
CHEM 1040/CHEM 1041. See advisor for details.

2 Students who complete a HIST sequence other than HIST 1010 and HIST 1020 should see an advisor for CORE SOC SCI choices.

**Curriculum in Pre-Veterinary Medicine (PVET)**

**Freshman**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry</td>
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**Spring**

<table>
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<tbody>
<tr>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>MATH 1150 Pre-Calculus Algebra and Trigonometry</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
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**Sophomore**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<tr>
<td>CORE Social Science</td>
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<tr>
<td>Core Literature</td>
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<tr>
<td>Core History or Literature</td>
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**Spring**

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>CHEM 2080 Organic Chemistry II</td>
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<tr>
<td>Core Humanities</td>
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<td>Core Social Science or Hum²</td>
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<tr>
<td>BIOL 3000 Genetics</td>
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<td>CHEM 2081 Organic Chemistry II Laboratory</td>
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**Junior**

**Fall**

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<tr>
<td>PHYS 1500 General Physics I</td>
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<td>BCHE 3200 Principles of Biochemistry</td>
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<td>Core Fine Arts</td>
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<td>Elective</td>
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**Spring**

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<td>PHYS 1510 General Physics II</td>
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<tr>
<td>Core Social Science</td>
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<tr>
<td>BIOL 3200 General Microbiology</td>
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<td>BIOL 3201 General Microbiology Laboratory</td>
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<tr>
<td>ANSC 3400 Animal Nutrition</td>
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</table>

Total Hours: 84

1 Students must also take MATH 1610 Calculus I to receive a degree from the College of Sciences and Mathematics.

2 If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE Humanities.
Organismal Biology-Pre-Veterinary Medicine Option

**Freshman**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1030 Organismal Biology</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>ENGL 1120 English Composition II</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
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<td>CHEM 1040 Fundamental Chemistry II</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>Core History</td>
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<td><strong>Total</strong></td>
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<td><strong>14</strong></td>
<td><strong>Total</strong></td>
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**Sophomore**

<table>
<thead>
<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>Core Literature</td>
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<td>Core History or Literature</td>
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<tr>
<td>Core Social Science</td>
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<td>CHEM 2080 Organic Chemistry II</td>
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<td>CHEM 2070 Organic Chemistry I</td>
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<td>CHEM 2071 Organic Chemistry I Laboratory</td>
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<td>BIOL 3030 Evolution and Systematics</td>
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<td>BIOL 3060 Ecology</td>
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<td>BIOL 2100 Prof Development</td>
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<td>BIOL 3061 Cell Biology</td>
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<td>BIOL 3000 Genetics Laboratory</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
<td><strong>15</strong></td>
<td><strong>Total</strong></td>
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**Junior**

<table>
<thead>
<tr>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>Select 4 Credit hours of the following:</td>
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<tr>
<td>BIOL 3100 Plant Biology</td>
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<td>BIOL 4100 Cell Biology</td>
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<td>BIOL 3200 General Microbiology &amp; BIOL 3201 General Microbiology Laboratory</td>
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<td>PHYS 1510 General Physics II</td>
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<td>BIOL 4010 Invertebrate Biodiversity</td>
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<td>ANSC 3400 Animal Nutrition</td>
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<td>BIOL 4020 Vertebrate Biodiversity</td>
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<td>Core Social Science</td>
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<td>BIOL 4950 Senior Seminar</td>
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<td>Core Social Science or Humanities</td>
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<tr>
<td>Core Fine Arts</td>
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<tr>
<td>PHYS 1500 General Physics I</td>
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</tr>
<tr>
<td>BCHE 5180 Biochemistry I</td>
<td>3</td>
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<tr>
<td>Students who complete the above 6 semesters and successfully complete the first year of veterinary school may be awarded a BS in Organismal Biology. In the event the first year Veterinary College alternative is not followed, the indicated senior year courses must be successfully completed to receive the BS in Organismal Biology.</td>
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Senior

<table>
<thead>
<tr>
<th>Fall</th>
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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biology Elective</td>
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<td>Biology Elective</td>
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<td>Eco/Evo/Diversity Electives</td>
<td>5</td>
<td>Cell/Mol/Micro Elective</td>
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<td>Cell/Mol/Micro/ Electives</td>
<td>4</td>
<td>Physiology Elective</td>
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</table>

1. Students must complete a two-course sequence in either HIST or LIT (for example, World History 1 and 2 or American Lit 1 and 2). For complete HIST and LIT sequence options, see the Bulletin.

2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.

3. If a LIT sequence is chosen, this course must be a CORE SOC SCI. If a HIST sequence is chosen, this course must be a CORE HUMANITIES.

4. This course must be taken the semester of graduation.

Pre-Optometry

Curriculum in Pre-Optometry (POPT)

Freshman

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<th>Spring</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology</td>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>SCMH 1890 Pre-Health Professions Orientation</td>
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<td>ENGL 1120 English Composition II</td>
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<td>Core History I</td>
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Sophomore

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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHYS 1500 General Physics I</td>
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Junior

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<tr>
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Pre-Pharmacy

Curriculum in Pre-Pharmacy (PPHR)

Freshman

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<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<td>Core Fine Arts</td>
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<td>MATH 1610 Calculus I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>SCMH 1890 Pre-Health Professions Orientation</td>
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<td>CHEM 1040 Fundamental Chemistry II</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>BIOL 1020 Principles of Biology</td>
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<tr>
<td>Core History I(^2)</td>
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Total Hours: 15

Sophomore

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<tr>
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<td>CHEM 2080 Organic Chemistry II</td>
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<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<td>BCHE 3200 Principles of Biochemistry</td>
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Total Hours: 14

Notes:
1. The Chemistry CHEM 1110/CHEM 1111- CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-CHEM 1040/CHEM 1041. See advisor for details.
2. Students who complete a HIST sequence other than HIST 1010 and HIST 1020 should see an advisor for CORE SOC SCI choices.
Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tbody>
<tr>
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<td>Core Social Science</td>
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<td>PHYS 1500 General Physics I</td>
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<td>BIOL 3500 Perspectives in Immunology</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<tr>
<td>BIOL 3020 Genomic Biology</td>
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Total Hours: 89

Student should declare a major when they have completed 60 hours.

1. Students who plan to finish the Biomedical Sciences degree must choose COMM 1000.
2. Students who choose a HIST sequence other than HIST 1010 and HIST 1020 should talk to an advisor about CORE SOC SCI choices.
3. Students may choose to take BCHE 5180 and BCHE 5190 to complete the Biochemistry requirement for HSOP. BCHE 5180/5190 may replace these courses, if student choose the 5180/5190 option over BCHE 3200.

Pre-Physical Therapy and Pre-Physician Assistant

Curriculum in Pre-Physical Therapy (PPHS) and Pre-Physician Assistant

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
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<tr>
<td>MATH 1610 Calculus I</td>
<td></td>
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</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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</tr>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SCMH 1890 Pre-Health Professions Orientation</td>
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Freshman Total Hours: 16

Sophomore

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<tr>
<th>Course</th>
<th>Fall Hours</th>
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<tr>
<td>PHYS 1500 General Physics I</td>
<td>4</td>
<td>3</td>
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<tr>
<td>CHEM 2070 Organic Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 2071 Organic Chemistry I Laboratory</td>
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<tr>
<td>Core History II</td>
<td>3</td>
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<tr>
<td>Core Literature</td>
<td>3</td>
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<tr>
<td>COMM 1000 Public Speaking</td>
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Sophomore Total Hours: 17

Junior

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<tr>
<th>Course</th>
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<tr>
<td>BIOL 2500 Human Anatomy and Physiology I</td>
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<tr>
<td>BIOL 2510 Human Anatomy and Physiology II</td>
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Junior Total Hours: 14
Core Fine Arts 3  PHIL 1030 Ethics and the Health Sciences 3
STAT 2510 Statistics for Biological and Health Sciences 3  Psychology Elective 3
PSYC 3120 Developmental Psychology 3
PHYS 1510 General Physics II (if PPHS) 4

Total Hours: 88

Students should declare a major when they have completed 60 hours.

1 The Chemistry CHEM 1110/CHEM 1111- CHEM 1120/CHEM 1121 sequence can substitute for CHEM 1030/CHEM 1031-
CHEM 1040/CHEM 1041. See advisor for details.
2 Students who complete a HIST sequence other than HIST 1010 and HIST 1020 should see an advisor for CORE SOC SCI
choices.

Majors

Minors

College of Veterinary Medicine

THE COLLEGE OF VETERINARY MEDICINE offers a fully accredited program of training leading to the degree of doctor of veterinary medicine. The degree requires four years in the professional curriculum after completion of a pre-professional curriculum which may take four years or more for the average applicant.

Admission

Each year 120 students are admitted to the four-year program for the doctorate in veterinary medicine. Admitted students are residents of Alabama or residents of Kentucky admitted by contract through the Southern Regional Education Board (SREB); or at-large residents (non-Alabama and non-contract students). Alabama and SREB students must have a minimum GPA of 2.5 on a 4.0 system on all course work attempted. A grade of D on any required course will not be accepted. At-large (non-Alabama and non-SREB) students must have a minimum GPA of 3.0 on a 4.0 scale. At-large applicants must be citizens of the United States and will be required to pay non-resident university fees. As part of the admissions process, the Committee on Admissions and Standards of the College of Veterinary Medicine requires a personal interview. The College of Agriculture, the College of Sciences and Mathematics and the School of Forestry and Wildlife Sciences offer Pre-Veterinary curricula and are responsible for pre-veterinary counseling. In addition to academic requirements, candidates are expected to have animal experience and to have worked with a veterinarian for a minimum of 400-500 hours.

All applicants must apply through the Veterinary Medical College Application Service (VMCAS). Additional information, including an electronic application, is available from the Association of American Veterinary Medical Colleges at http://www.aavmc.org/. Kentucky students must provide proof of residency from their college/university or from their state council on post-secondary education.

Minimum Requirements for Pre-Veterinary Medicine

A bachelor’s degree or completion of the Core Curriculum as stated in the General Information section in this Bulletin.

Specific Course Requirements

Minimum pre-veterinary requirements for Alabama residents are those listed for the pre-veterinary curriculum in either the College of Agriculture, College of Sciences and Mathematics or the School of Forestry and Wildlife Sciences. Non-Alabama and SREB applicants must have acceptable equivalents which have been approved by the College of Veterinary Medicine.

All transfer courses must be equivalent in hours and content. Courses will not be waived on the basis of degrees or “practical experience.” Pass-Fail or Satisfactory- Unsatisfactory grades are not acceptable in required courses. Consideration will not be extended to anyone with an overall GPA of less than 2.5 or anyone who is not a bona fide resident of Alabama or Kentucky at the time of application (Non-resident/non-contract students must have a GPA of 3.0 or better).
Standardized Examination
Applicants must complete the Graduate Record Examination (verbal and quantitative) within five calendar years prior to the anticipated date of enrollment. Results of the GRE must be officially reported to the Office of Academic Affairs, College of Veterinary Medicine by September 15th.

Application Procedure
Admission to the College of Veterinary Medicine must be gained through formal application made by the VMCAS deadline preceding the fall semester in which admission is desired. All applicants must be citizens of the United States.

The electronic application is available from the Association of American Veterinary Medical Colleges (www.aavmc.org). An Auburn University College of Veterinary Medicine processing fee of $100 is required of all applicants. An additional $50 is required upon acceptance of all who have not previously attended Auburn University.

The final selection of students is made by the Committee on Admissions and Standards of the College of Veterinary Medicine, Auburn University. The right is reserved to accept or reject any applicant.

Under the Regional Plan for Veterinary Training, the College of Veterinary Medicine currently serves Alabama and Kentucky. The land-grant institution in each state participating under the SREB plan maintains counseling and guidance service for students desiring admission to the College of Veterinary Medicine. Students attending other institutions should contact the pre-health profession advisor in their state for information concerning admission requirements.

Scholastic Requirements
All applicants and students in the professional program are subject to the academic and disciplinary regulations of the College of Veterinary Medicine in addition to those of Auburn University.

Any student who earns less than a 2.25 GPA for any term will be placed on academic probation. A student who fails to earn a 2.25 GPA in each of the succeeding two terms of enrollment will be dropped from the rolls of the College of Veterinary Medicine for scholastic deficiency. In addition, a student who does not have a veterinary college cumulative average of 2.25 at the end of any academic year may be required to withdraw from the College of Veterinary Medicine.

Any student who receives a D in any course will be placed on academic probation. If the student receives a second D in the same calendar year or academic year, they will be required to withdraw from the College of Veterinary Medicine.

A student will be removed from academic probation after two terms, assuming they have met the terms of probation. A student who makes a grade of F on any course will be required to withdraw from the College of Veterinary Medicine. If a student who is dismissed for academic reasons is readmitted, they may be required to repeat additional courses as deemed necessary by the Admissions and Standards Committee.

Clinical courses are unique in that the art and skills to be developed in them can be acquired only through full participation in the laboratories. Attendance in these courses is required except in case of illness or other extenuating circumstances as may be judged by the involved instructor. Grading in these clinical laboratory courses is primarily by subjective evaluation. When a course involves student rotation through several disciplines, the student must receive a passing grade in each area before a passing grade can be assigned for the course.

Any student who earns a D or F in any clinical rotation will be placed on academic probation. If the student receives a second or third D or F during clinical rotations, (i.e. D-D-F or D-D-D) that student will be required to withdraw from the College of Veterinary Medicine. If the college admissions and standards committee allows readmission, the student may be required to repeat all experiences to meet the requirements for the clinical year.

The responsibility for counseling is shared by the faculty of this College and the Department of Clinical Psychology.

Non-Scholastic Requirements
Health Insurance: Students enrolled in the professional curriculum are required to provide evidence of health insurance coverage.

Required Withdrawal
The faculty of the College of Veterinary Medicine reserves the right to require the withdrawal at any time of any student who in the judgment of the admissions and standards committee is not profiting from the instruction offered, who is neglectful, irregular, dishonest.
or indifferent in the performance of required duties and studies or whose character or conduct is inconsistent with good order of the veterinary college or with the standard of the veterinary profession.

Requirements for Graduation

To be eligible for the DVM degree, candidates must complete all of the required courses in the order listed in the curriculum in veterinary medicine along with at least four hours of elective credit, with a minimum overall GPA of 2.25. In addition, each senior must participate in a clinicopathologic conference (CPC) to fulfill their oral communication requirement. Following completion of all academic work, each student is required to serve a preceptorship of eight weeks with an approved veterinarian. A certificate of satisfactory completion of a preceptorship is required for graduation.

A graduation fee must be paid at the beginning of the term of graduation and all indebtedness due the institution must be paid prior to graduation.

Major

• Veterinary Medicine

Minor

• Public Health (p. 1224)

Program

• Anatomy, Physiology and Pharmacology (p. 1340)
• Veterinary Clinical Sciences (p. 1536)

VM-Biomedical Sciences Courses

VBMS 2100 INTRODUCTION TO PUBLIC HEALTH (3) LEC. 3. Lecture and discussion of historic advances in public health leading to discussion of diseases affecting the health of people in Alabama today.

VBMS 3010 INTRODUCTION TO EPIDEMIOLOGY (3) LEC. 3. Principles of epidemiology, with emphasis on approaches for prevention/control of diseases of humans and animals. Broad applications of studies of populations will be stressed.

VBMS 3050 VETERINARY MEDICINE STUDY ABROAD (2) AAB/FLD. 30. This 2 week course is intended to introduce students to the challenges of maintaining health in domestic, wild and commercial land and marine animals through exposure to diverse ecological environments of Australia's land and marine parks.

VBMS 3903 REPRODUCTIVE SCIENCE AND HEALTH (3) LEC. 3. P/C, One basic organismal biology, physiology or similar life science course. Sophomore level or higher. Foundational physiologic concepts in reproductive science linked to important animal and human reproductive health issues. May count either ANSC 3600 or VBMS 3600.

VBMS 4830 GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3) LEC. 3. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

VBMS 4910 OBSERVING NEEDS IN PUBLIC HEALTH (3) LEC. 3. Through volunteer service to public health agency students will develop an understanding of the importance for volunteers to support community public health needs.

VBMS 4980 UNDERGRADUATE RESEARCH (1-3) RES. Directed, supervised undergraduate research in veterinary biomedical sciences (VBMS). Course may be repeated for a maximum of 9 credit hours.

VBMS 4987 HONORS RESEARCH (1-3) RES. Pr. Honors College. Supervised undergraduate research in veterinary biomedical science. May count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Undergraduate honors thesis development in veterinary biomedical science. May Count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 6111 VETERINARY ANATOMY I (4) LAB. 12. Departmental approval. Gross anatomy of the dog and cat including skeletal and muscular systems, neck, thorax, limbs, abdomen, pelvis, head, and nervous system. Credit will not be given for VMED 5111 and VBMS 6111.
VBMS 6121 VETERINARY ANATOMY II (3) LAB. 9. Pr. VBMS 6111. In-depth study of the gross anatomy of the ox, horse, and minor species (chicken) with inclusion of clinical relevance. In-dept presentation of a specific anatomy topics related to course material. May count either VMED 5121 or VBMS 6120.

VBMS 7000 NEUROANATOMY (5) LEC. 3. LAB. 4. Departmental approval. Functional morphology of nervous system from input/output through the long systems; limbic relations to endocrine and autonomic nervous system. Comparative among mammals.

VBMS 7010 PATHWAYS TO SUCCESSFUL RESEARCH (1) LEC. 1. An introduction to topics pertinent to performance of a successful graduate program and in the conduction of responsible research.

VBMS 7020 MICROSCOPIC ANATOMY I (3) LEC. 1. LAB. 4. Departmental approval. A detailed study of and preparation of the basic tissues. Light microscopy and electron micrograph preparations are used to describe and interpret morphology.

VBMS 7030 MICROSCOPIC ANATOMY II (3) LEC. 1. LAB. 4. Departmental approval. Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoietic, digestive, urinary and respiratory systems of domestic animals.

VBMS 7040 ADVANCED PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240 or VBMS 7150. Departmental approval. Developmental, physiological, endocrinological, cellular and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

VBMS 7050 DEVELOPMENTAL NEUROBIOLOGY (3) LEC. 3. Departmental approval. Overview of the development of the nervous system. Emphasis will be directed towards understanding sensory systems, development, plasticity and function.


VBMS 7070 ENDOCRINOLOGY (4) LEC. 4. Pr. BCHE 7200 and BCHE 7260 and BIOL 6600 or departmental approval. Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion, and action in mammalian species. Emphasis will be placed on metabolic regulatory hormones.

VBMS 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems, and gene regulation.

VBMS 7090 CLINICAL PHARMACOLOGY (3) LEC. 3. Departmental approval. The actions and effects of drugs on human beings. Acceptable courses in biochemistry and physiology;

VBMS 7100 ADVANCED CARDIOLOGY I (2) LEC. 2. Graduate students in Biomedical Sciences, College of Veterinary Medicine and must have a DVM or equivalent. Topics about advanced diagnostics and therapeutics in cardiovascular disease will be discussed.


VBMS 7120 MEMBRANE PHYSIOLOGY (3) LEC. 2. LAB. 3. Departmental approval. The classic and modern aspects of biological membranes. Labs include patch clamp, reconstruction of ion channels in bilayers, Langmuir-Blodgett techniques, and other methods.

VBMS 7130 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3) LEC. 3. Pr. (VMED 9120 or VMED 9121 or VMED 5120) and VMED 5121. The principles and practice of veterinary medical diagnostic ultrasonography as they are utilized in evaluating normal and abnormal anatomy. All animals are used in this course. Veterinary anatomy and/or DVM degree.

VBMS 7140 PHYSIOLOGY I (5) LEC. 5. Departmental approval. Cellular, Cardiovascular, Renal and Respiratory Physiology.

VBMS 7150 PHYSIOLOGY II (4) LEC. 4. Pr. VBMS 7140. Departmental approval. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VBMS 7160 NEUROSCIENCE (3) LEC. 3. Departmental approval. An overview of neuroscience on the subcellular, cellular and system levels.

VBMS 7170 ANATOMY, PHYSIOLOGY, PHARMACOLOGY SEMINAR (1) SEM. 1. Required of all graduate students in Anatomy, Physiology, and Pharmacology.

VBMS 7180 RECEPTOROLOGY (4) LEC. 4. Pr. VBMS 7070.
VBMS 7190 VETERINARY MEDICAL COMMUNICATIONS TRAINING (1) LEC. 10. LAB. 6. SU. No P or C required. Restricted to only Biomedical Science Masters students, both degree and non-degree seeking, in the College of Veterinary Medicine. Introduce communication skills necessary to build veterinary-client relationships and trust.

VBMS 7210 RADIATION BIOLOGY (4) LEC. 4. Exploration of biological, physical, and chemical basis of radiotherapy with emphasis on the biological effects of ionizing radiation at the cellular and molecular level. Effects of irradiation on the tumor, normal tissues, and the patient will be addressed. DVM degree; Residency in Radiation Oncology or Radiology or Small Animal Oncology and registered in the Graduate School.

VBMS 7220 STRUCTURE AND FUNCTION OF COMPANION ANIMAL SKIN (3) LEC. 3. The course will cover the comparative aspects of the structure and function of the skin of companion animals in healthy and diseases states.

VBMS 7230 CUTANEOUS DISORDERS OF LARGE AND EXOTIC ANIMALS (3) LEC. 3, IND/LEC. 9-12. In depth review of the common and uncommon dermatologic conditions affecting large animal and exotic animal species, including emphasis on those conditions considered zoonotic.

VBMS 7240 ADVANCED SCIENCE OF CANINE AND EQUINE LOCOMOTION (3) LEC. 3. Attendees will learn about the science of biomechanics, muscle physiology and how they apply to locomotion or theathletics and working dog and horse.

VBMS 7250 NORMAL RADIOLOGICAL ANATOMY (3) LEC. 3. A detailed study of the normal structure, size and position of the various organs of the cat, dog, horse, cow, and other veterinary species as they appear on plain and contrast radiographs. DVM Degree, acceptance in an established residency program.

VBMS 7260 ADVANCED RADIOLOGY (3-5) LEC. Detailed study of concepts and techniques of all imaging procedures. For graduate students and residents in DCS program or DVM or equivalent. Course may be repeated for a maximum of 5 credit hours.

VBMS 7270 RADIOLOGICAL INTERPRETATIONS (1-3) LEC. The interpretation of various diagnostic imaging modalities used in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine. DVM Degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7280 PHYSICS OF DIAGNOSTIC IMAGING (3) LEC. 3. Principles of physics related to the imaging modalities of diagnostic radiology, ultrasonography, magnetic resonance imaging, scintigraphy, computed tomography, and radiation therapy. Students will study physics at the atomic level but must also develop an understanding of construction, function, and hazards of modern imaging equipment. DVM Degree.

VBMS 7290 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. A mandatory graded seminar presentation, held in conjunction with the VBMS seminar series, presenting the resident student's individual Master of Science degree research topic including pertinent review, hypothesis, materials, results, and discussion of findings.

VBMS 7300 AVIAN DIAGNOSTIC PATHOLOGY (1-3) LAB. SU. Residents enrolled in the Veterinary Biomedical Sciences Avian Pathology specialty program will interpret lesions for the diagnosis of avian diseases using necropsy procedures. Focus will be placed on an integrated comparative understanding of the pathophysiology of disease in commercial poultry. Course may be repeated for a maximum of 3 credit hours.

VBMS 7310 ADVANCED VETERINARY ANESTHESIOLOGY (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver a lecture on a topic related to the overarching subject for that semester course. The lecture will be delivered at an in-depth level utilizing currently scientific literature, text books, and other reference materials resulting in delivery of state of the art information. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7320 EVALUATION OF CURRENT AND EMERGING LITERATURE IN VETERINARY ANESTHESIA (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver an in-depth evaluation and summary of two media journal manuscripts related to veterinary anesthesia. The presenter will be required to discuss the manuscript format, study design, data analysis, results, and conclusions including discussion on the pros and cons of the study. Manuscript selection for each class will be at the discretion of the presenter and copies of the manuscripts will be made available electronically to all faculty and students of the course one week prior to the class. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.
Auburn University

VBMS 7330 EVIDENCE BASED EQUINE SURGERY (3) LEC. 3. DVM and enrollment in the College of Veterinary Medicine’s Equine Medicine or Surgery Residency. Provides an introduction to evidence based medicine and meta-analysis with application to topics in equine surgery.

VBMS 7340 LARGE ANIMAL SURGERY AND MEDICINE SEMINAR (1) SEM. 1. Departmental approval. Seminar required of all graduate students in large animal surgery and medicine. Meets at scheduled intervals each year.


VBMS 7370 ADVANCED LARGE ANIMAL ORTHOPEDIC SURGERY (5) LEC. 3. LAB. 2. Research and advanced techniques for orthopedic surgical procedures in large domestic animals.

VBMS 7380 ADVANCED FOOD ANIMAL MEDICINE (3) LEC. 3. In-depth study of food animal medical diseases of all body systems with emphasis on pathophysiologic mechanisms. Departmental approval; DVM degree.

VBMS 7390 ADVANCED EQUINE MEDICINE (3) LEC. 3. Departmental approval. Detailed etiology, symptoms, pathogenesis, treatment, and prevention of the medical diseases affecting the various systems and organs of the equine, bovine, ovine, and porcine species.

VBMS 7400 GYNECOLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Diseases and problems of the reproductive system in the female domestic animals. Normal and abnormal conditions of various species are covered. Departmental approval; DVM degree.

VBMS 7410 ANDROLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Diseases and problems of the reproductive system in male domestic animals. Departmental approval; DVM degree.

VBMS 7420 ADVANCED VETERINARY ANESTHESIOLOGY (4) LEC. 4.

VBMS 7430 HEALTH MAINTENANCE OF FOOD ANIMALS (3) LEC. 5. Departmental approval. Research in production medicine. Principles of production medicine to enhance animal health and productivity.


VBMS 7450 SELECTED TOPICS IN GRADUATE EDUCATION RESEARCH (1) LEC. 1. SU. Departmental approval. Overview of research funding strategies, grant preparation, transfer of research technology and patents, research ethics, etc.

VBMS 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

VBMS 7470 ADVANCED EPIDEMIOLOGY (3) LEC. 3. Departmental approval. Advanced epidemiological techniques and their application to disease research, clinical retrospective and prospective studies, and disease outbreak investigation. Introductory statistics course.

VBMS 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.

VBMS 7490 DIAGNOSTIC TECHNIQUES IN VETERINARY MICROBIOLOGY (4) LEC. 1. LAB. 9. Departmental approval. Techniques used in modern diagnostic microbiology laboratories.

VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (3) LEC. Pr. BIOL 6500. Departmental approval. Current literature in immunobiology, emphasis on cellular/biochemical/genetic basis of immune response.

VBMS 7510 QUALITY SYSTEMS IN HEALTH SCIENCES (3) LEC. 3. Overview of regulations, standards, and foundational principles for quality systems and processes illuminating the application to health sciences.

VBMS 7520 EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.
VBMS 7530 EXPERIMENTAL TECHNIQUES IN MOLECULAR AND CELL BIOLOGY (3) LEC. 2. LAB. 6. Nucleic acid detection/amplification/sequencing, protein/antibody chemistry, flow cytometry, photo/electron microscopy fluorochromes, radioisotopes, centrifugation, cell/embryo culture.

VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7520 and BIOL 6260. Departmental approval. Viral gene expression and evasion of host defense mechanisms.

VBMS 7550 PATHOLOGY (1-3) LEC. SU. Departmental approval. Diagnostic interpretation of lesions and test results. Special topics or current issues in pathology to meet the particular needs of students. DVM degree or equivalent; Course may be repeated for a maximum of 3 credit hours.

VBMS 7560 GENERAL PATHOLOGY (4) LEC. 3. LAB. 3. Fundamental alterations of disease. Departmental approval; Satisfactory courses in histology and physiology.

VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3) LEC. SU. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester of all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7580 SURGICAL PATHOLOGY (1-3) LEC. SU. Histopathologic diagnosis of surgical biopsy specimens. Required every semester for all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7590 AVIAN PATHOLOGY (4) LEC. 4. Departmental approval. Comparative avian pathology emphasizing cause, pathogenesis and lesions associated with diseases; differential diagnosis and diagnostic procedures to confirm a diagnosis.

VBMS 7600 ADVANCED CLINICAL PATHOLOGY I (3) LEC. 3. Pr. VMED 5230 or VMED 9230. Departmental approval. The lymphohematopoietic system. Normal components and evaluation of disease states.

VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3) LEC. 3. Pr. VBMS 5230. Departmental approval. Laboratory evaluation of organ function; disease pattern recognition.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3) LEC. 3. Pr. VMED 5220 or VMED 9220. Departmental approval. Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques.

VBMS 7630 BASIC AND CLINICAL ONCOLOGY (3) LEC. 3. Comparative aspects of the etiology, pathophysiology, diagnosis and treatment of cancer.

VBMS 7640 MECHANISMS OF DISEASE (3) LEC. 3. Pr. VMED 5220 or VMED 9220. Departmental approval. VMED 5220 or equivalent.

VBMS 7650 VETERINARYPROTOZOOLOGY AND ENTOZOOLOGY (3) LEC. 3. Departmental approval. Current topics in immunology, physiology, molecular biology, pathogenicity, etc. of selected protozoal and arthropod parasites.

VBMS 7660 VETERINARY HELMINTHOLOGY (3) LEC. 3. Departmental approval. Current topics in immunology, physiology, biochemistry, molecular biology, epidemiology, and pathogenicity of selected helminth parasites.

VBMS 7670 PATHOLOGY PARASITIC DISEASES (3) LEC. 2. LAB. 2. Pr. VBMS 7560. Departmental approval. Gross and microscopic pathology of parasitic diseases of veterinary importance.

VBMS 7680 PATHOLOGY SEMINAR (1) LEC. 1. Pr. VMED 5220 or VMED 9220. Departmental approval. Weekly conference to discuss gross and histologic pathology in animal tissues.

VBMS 7690 READINGS IN IMMUNOLOGY AND INFECTIOUS DISEASE (1) LEC. 1. SU. Pr. BIOL 6500 or VBMS 7500. To familiarize students with current scientific literature in immunology and the methods employed. Or equivalent.

VBMS 7700 COMBINATORIAL BIOCHEMISTRY AND PHAGE DISPLAY (4) LEC. 1. LAB. 6. In-depth study of combinatorial biochemistry and phage display as a tool for development of new drugs, vaccines and diagnostics for veterinary medicine.

VBMS 7720 DEVELOPMENTAL MOLECULAR BIOLOGY (3) LEC. 3. Pr. VBMS 7520. Genetic mechanisms by which eukaryotes differentiate from single cells to complex multicellular organisms will be covered. Important examples of biomedical dysfunction will be used to illustrate developmental pathways. Current literature will be used extensively.

VBMS 7730 APPLIED CYTOLOGY (2) LEC. 2. Systematic review of normal and abnormal cytologic findings in veterinary species. Participation in a residency training program at the Auburn University College of Veterinary Medicine.

VBMS 7740 CLINICAL VETERINARY MICROBIOLOGY (1) LEC. 1. SU. Directed discussion group reviewing the current, clinical scientific literature in veterinary microbiology and veterinary infectious disease research. Course may be repeated for a maximum of 5 credit hours.

VBMS 7750 GRADUATE COLLOQUIUM IN VETERINARY CLINICAL SCIENCE (1) CLN. 1. Departmental approval. Forum to present topics relevant to the students clinical and research interests. This a mandatory seminar for graduate students in the Department of Clinical Science. DVM degree Course may be repeated for a maximum of 5 credit hours.

VBMS 7760 ADVANCED VETERINARY NEUROSURGERY (5) LEC. 3. LAB. 2. Enrolled in the CVM’s MS or PHD program. Veterinary neurosurgery. All aspects of veterinary neurosurgery will be covered. Content delivery is via didactic lecture, small group discussion, and skills laboratories.

VBMS 7770 ADVANCED SMALL ANIMAL GENERAL SURGERY (3) LEC. 2. LAB. 3. Application of critical thinking skills to perioperative plans and tasks. DVM or VMD degree, or equivalent.

VBMS 7780 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (4) LEC. 2. LAB. 2. Techniques in veterinary wound management and reconstructive surgery in large and small animals. DVM degree or equivalent.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (5) LEC. 5. Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery. DVM degree or equivalent.

VBMS 7800 ADVANCED SMALL ANIMAL NEUROLOGY (3) LEC. 3. Advanced study of neurodiagnostics and non-surgical therapy of neurological disorders in small domestic animals.

VBMS 7810 ADVANCED SMALL ANIMAL MEDICINE I (3-5) LEC. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7820 ADVANCED SMALL ANIMAL MEDICINE II (3-5) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical gastrointestinal diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7830 ADVANCED SMALL ANIMAL MEDICINE III (3-5) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical cardiovascular and respiratory diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7840 ADVANCED SMALL ANIMAL MEDICINE IV (3-5) LEC. Departmental approval. Molecular biology lectures and techniques related to diagnostic and research application to clinical problems in small animal veterinary medicine. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7850 ADVANCED VETERINARY MEDICAL SPECIALTY TRAINING (1-4) LEC. 1. LAB. 2. SU. Course may be repeated for a maximum of 6 credit hours.

VBMS 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 1. LAB. 6. Pr. VBMS 7870. Advanced ophthalmology with emphasis on ophthalmic surgery.

VBMS 7890 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7910 ADVANCED EQUINE CRITICAL CARE I (2) LEC. 2. Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.
VBMS 7920 ADVANCED EQUINE CRITICAL CARE II (2) LEC. 2. Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

VBMS 7946 EPIDEMIOLOGY AND ONE HEALTH (3) LEC. 3. This course will review the principles of epidemiology as they apply to the One Health Initiative. Emphasis will be placed on the rich history of the discipline and how it applies to the one health concept.

VBMS 7950 GRADUATE SEMINARS IN VETERINARY CLINICAL SCIENCES (1) SEM. 1. SU. Departmental approval. Presentation of thesis research. DVM degree

VBMS 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES (1-5) RES. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences. Faculty approval. Course may be repeated for a maximum of 15 credit hours.

VBMS 7980 NON-THESIS PROJECT (1-3) LEC. SU. Departmental approval. Non-thesis project, to be determined by faculty advisor and student's graduate advisory committee. DVM degree

VBMS 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES (1-10) MST. Credit to be arranged. Course may be repeated with change in topics.

VBMS 8360 ADVANCED EQUINE MEDICINE I: GI DISEASE (2) LEC. 2. Advanced topics in equine gastrointestinal disease are discussed. Topics include pathophysiology, pharmacology, and specific therapy of GI disease in horses. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have DVM or equivalent.

VBMS 8370 ADVANCED EQUINE MEDICINE II: RENAL/ENDOCRINE (2) LEC. 2. Advanced topics in equine renal and endocrine disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8380 ADVANCED EQUINE MEDICINE III: NEUROMUSCULAR (2) LEC. 2. Advanced topics in equine neuromuscular disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8390 ADVANCED EQUINE MEDICINE IV: CARDIORESPIRATORY (2) LEC. 2. Advanced topics in equine cardiorespiratory disease are discussed. Topics include pathophysiology, pharmacology and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8950 BIOMEDICAL SCIENCES SEMINAR (1) SEM. 1. SU. Recent advances in biochemistry, cell biology and molecular biology will be critically presented and discussed by graduate faculty and students.

VBMS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Veterinary Medicine Courses

VMED 7230 CUTANEOUS DISORDERS OF LARGE AND EXOTIC ANIMALS (3) LEC. 3, IND/LEC. 9-12. In depth review of the common and uncommon dermatologic conditions affecting large animal and exotic animal species, including emphasis on those conditions considered zoonotic.

VMED 7860 ADVANCED TECHNIQUES IN POPULATION MEDICINE (1) LEC. 1. SU. Techniques for investigation of disease problems in populations with emphasis on computer software specialized for outbreak investigation and disease mapping.

VMED 7946 EPIDEMIOLOGY AND ONE HEALTH (3) LEC. 3. This course will review the principles of epidemiology as they apply to the One Health Initiative. Emphasis will be placed on the rich history of the discipline and how it applies to the one health concept.

VMED 9000 ORIENTATION TO VETERINARY MEDICINE (0) SEM. 1. SU. Overview of organized veterinary medicine, history of the profession, professional responsibilities and privileges, and career opportunities within the profession.

VMED 9010 VETERINARY MEDICAL ETHICS & LAW (1) LEC. 15. Provide a foundation in veterinary medical ethics and legal issues associated with veterinary medicine. Course may be repeated for a maximum of 6 credit hours.

VMED 9020 VETERINARY MEDICINE AND THE LAW (1) LEC. 13. Laws relating to the veterinary profession, public policies, and government regulations.
VMED 9030 VETERINARY EPIDEMIOLOGY & ZOONOSES (2) LEC. 30. Basic principles of epidemiology including mechanisms of transmission, disease prevention, diagnosis, and assessment of human health risks. Course may be repeated for a maximum of 6 credit hours.

VMED 9040 VETERINARY FOOD SAFETY (2) LEC. 30. Provide a basic awareness of the most common foodborne diseases and methods to protect consumers from foodborne disease. Course may be repeated for a maximum of 6 credit hours.

VMED 9050 PROFESSIONAL DEVELOPMENT AND BUSINESS FUNDAMENTALS (1) LEC. 15. Auburn University CVM Professional Development and Business Fundamentals course is a 1 credit-hour course encompassing the study, understanding and application of pertinent business disciplines guiding the decision-making responsibilities of practice owners, veterinarians, veterinary students, veterinary technicians and practice managers that seek to improve profitability and efficiency allowing for a competitive advantage and long term success in their personal and professional careers.

VMED 9062 CLINICOPATHOLOGY CONFERENCE CRITICAL THINKING (1) LEC. 14. SU. Review and assessment of material presented in a case-based format by faculty and house officers to develop and refine clinical thinking and critical thinking skills. Course may be repeated with change in topics.

VMED 9110 PHYSIOLOGY I (5) LEC. 72. LAB. 3. Cellular, Cardiovascular, Renal, and Respiratory Physiology.

VMED 9111 VETERINARY ANATOMY I (SMALL ANIMAL) (4) LEC. 44. LAB. 94. Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Credit will not be given for both VMED 5111 and VBMS 6111.

VMED 9120 PHYSIOLOGY II (4) LEC. 57. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VMED 9121 VETERINARY ANATOMY II (3) LEC. 38. LAB. 57. In-depth study of the gross anatomy of the ox, horse, and minor species with inclusion of clinical relevance.

VMED 9130 GENETIC AND CELLULAR BASIS OF ANIMAL DISEASE (1) LEC. 15. One credit course focused on the relationship between genetics and animal diseases.

VMED 9131 BASIC MICROANATOMY/DOMESTICS ANIMALS (3) LEC. 15. LAB. 54. Functional comparative microstructure of cells, basic tissues, cardiovascular system, urinary system, skeleton and osteogenesis, respiratory system, and blood of domestic animals.

VMED 9141 ORGANOLOGY OF DOMESTIC ANIMALS (2) LEC. 5. LAB. 56. Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary system, reproductive system, and placentation of domestic animals.

VMED 9150 DIAGNOSTIC IMAGING (2) LEC. 27. LAB. 12. Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

VMED 9151 VETERINARY NEUROSCIENCES (4) LEC. 44. LAB. 24. Gross and microscopic morphology and physiology of the peripheral and central nervous systems. Course may be repeated for a maximum of 12 credit hours.

VMED 9180 VETERINARY ETHOLOGY (2) LEC. 28. Basic concepts of ethology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases. Course may be repeated for a maximum of 6 credit hours.

VMED 9190 INTRODUCTION TO VETERINARY PHARMACOLOGY (1) LEC. 16. An organized foundation of information to develop clinical thinking skills in veterinary pharmacology. Course may be repeated for a maximum of 16 credit hours.

VMED 9200 VETERINARY PARASITOLOGY I (3) LEC. 37. LAB. 13.5. Platyhelminthes, trematodes, and nematodes of domestic animals.

VMED 9210 VETERINARY PARASITOLOGY II (2) LEC. 17. LAB. 10. Arthropods, protozoa, helminths, and acanthocephalans of domestic animals. Parasitcides.

VMED 9220 PRINCIPLES OF VETERINARY PATHOLOGY (3) LEC. 35. LAB. 20. General principles of pathology and mechanisms of disease processes affecting animals.

VMED 9230 VETERINARY CLINICAL PATHOLOGY (3) LEC. 47. LAB. 8. Laboratory test principles and results interpretations in evaluation of hematopoietic, coagulation, hepatic, renal, gastrointestinal, acid/base and fluid status of animals.

VMED 9240 PRINCIPLES OF VETERINARY IMMUNOLOGY (3) LEC. 41. LAB. 6. Principles underlying the immune system's ability to protect animals from disease and mechanisms by which immune responses contribute to disease.
VMED 9250 VIROLOGY & PRIONS (2) LEC. 23. LAB. 6. Principles of infectious agents and their pathogenic attributes, infectious diseases of animals, and mechanisms of antimicrobial agents. Course may be repeated for a maximum of 6 credit hours.

VMED 9260 VETERINARY PHARMACOLOGY (3) LEC. 45. LAB. 8. Overview of drugs relevant to veterinary practice; pharmacodynamics, pharmacokinetics, clinical application.

VMED 9262 CLINICAL PHARMACOLOGY AND THERAPEUTICS (1) LAB. 20. Use of group based discussion to create therapeutic plan for specific patients with a target disease. Satisfactory advancement into the second of the professional (DVM) program.

VMED 9270 INTRODUCTION TO CYTOLOGY (1) LEC. 3. LAB. 10. The principles and practice of evaluation of blood films, cytologic preparations, and urine sediments from various veterinary species.

VMED 9280 BACTERIOLOGY & MYCOLOGY (3) LEC. 34. LAB. 20. Veterinary bacterial and fungal pathogens, diseases caused by each, prevention, treatment and presumptive laboratory diagnoses. Course may be repeated for a maximum of 9 credit hours.

VMED 9301 PHYSICAL DIAGNOSES OF LARGE AND SMALL ANIMALS (2) LEC. 18. LAB. 30. Basic approach to physical examination of large and small animals.

VMED 9310 INTRODUCTION TO SURGERY (2) LEC. 18. LAB. 19.5. Current standing in the DVM professional curriculum and completion of the first 3 semesters of the professional program. Introduction to the fundamental principles and techniques of veterinary surgery.

VMED 9311 SURGICAL PRACTICUM (1) LEC. 1. LAB. 16. Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/tissue handling, wound closure, postoperative patient management.

VMED 9320 LARGE ANIMAL NUTRITION (2) LEC. 28. LAB. 4. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 5320 or VMED 5420. Course may be repeated for a maximum of 6 credit hours.

VMED 9330 EXOTIC COMPANION ANIMAL MEDICINE (2) LEC. 30. Care, diagnosis, and treatment of exotic companion animals. May count either VMED 5330 or VMED 5430. Course may be repeated for a maximum of 6 credit hours.

VMED 9340 EMERGENCY MEDICINE AND CRITICAL CARE (2) LEC. 28. Emergency presentations, critical care management.

VMED 9350 VETERINARY TOXICOLOGY (2) LEC. 30. LAB. 15. Poisons and poisonous plants affecting large and small animals, chemical properties, signs, lesions, diagnosis, treatment.

VMED 9360 PRODUCTION PREVENTATIVE MEDICINE (3) LEC. 57. Principles of disease prevention and maximization of production application of food safety principles.

VMED 9370 ONCOLOGY (1) LEC. 17. Diagnostic and therapeutic measures used to manage animals with oncologic diseases.

VMED 9380 PHYSICAL DIAGNOSIS II (1) LEC. 4. LAB. 14. Continued experience in the performance of routine physical examination in small and large animal species. Satisfactory advancement into the second year of the professional (DVM) program.

VMED 9410 APPLIED CLINICAL IMAGING (2) LEC. 2. Define and describe abnormalities of various systems detected through imaging. Course may be repeated for a maximum of 6 credit hours.

VMED 9420 SMALL ANIMAL NUTRITION (2) LEC. 28. LAB. 4. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 9320 or VMED 9420. Course may be repeated for a maximum of 6 credit hours.

VMED 9430 POULTRY MEDICINE (2) LEC. 30. The care, diagnosis, and treatment of poultry. May count either VMED 9330 or VMED 9430. Course may be repeated for a maximum of 6 credit hours.

VMED 9480 VETERINARY SERVICE LEARNING AND OUTREACH (2) LEC. 2. SU. This course is designed to introduce the future veterinarian to the challenges and rewards associated with provision of veterinary health care to underserved communities. It will consist of didactic lectures intended to stimulate dialogue with key partners and with service experiences that will help the student progressively build the confidence, skills and knowledge necessary to provide veterinary services to underserved communities.

VMED 9500 SPECIALIZED TOPICS IN VETERINARY MEDICINE (2) LEC. 30. Focused instruction on topics of interest in veterinary medicine. Course may be repeated for a maximum of 8 credit hours.
VMED 9502 CURRENT TOPICS IN VETERINARY MEDICINE (1) LEC. 1. SU. Emerging topics in veterinary medicine, current literature. Course may be repeated for a maximum of 15 credit hours.

VMED 9510 HEMOLYMPH/INTEGUMENTARY SYSTEM (1) LEC. 15. LAB. 6. Diagnosis, treatment and prevention of diseases affecting the integumentary and hemolymphatic systems. Course may be repeated for a maximum of 3 credit hours.

VMED 9520 CARDIOVASCULAR SYSTEM (2) LEC. 25. LAB. 13. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.

VMED 9530 RESPIRATORY SYSTEM (3) LEC. 41. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system.

VMED 9540 SMALL ANIMAL ALIMENTARY SYSTEM (2) LEC. 34. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9550 URINARY SYSTEM (2) LEC. 29. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of disease affecting the urinary system.

VMED 9560 ENDOCRINE SYSTEM (2) LEC. 25. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine system.

VMED 9570 REPRODUCTIVE SYSTEM (4) LEC. 66. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system. Course may be repeated for a maximum of 12 credit hours.

VMED 9580 NERVOUS SYSTEM (2) LEC. 36. LAB. 6. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

VMED 9590 MUSCULOSKELETAL SYSTEM (3) LEC. 42. LAB. 4. Pathophysiology; pathologic, radiographic and ultrasonographic lesions; diagnosis; treatment; and prevention of diseases affecting the musculoskeletal system.

VMED 9601 VETERINARY CLINICAL ROTATIONS (3) LEC. 3. Clinical experiences through various specialty service in the Veterinary Medical Teaching Hospital. Course may be repeated with change in topics.

VMED 9602 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCE (1-10) RES. SU. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates.

VMED 9611 VETERINARY CLINICAL ROTATIONS-ELECTIVES (3) LEC. 3. SU. Clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Course may be repeated for a maximum of 9 credit hours.

VMED 9621 CLINICAL ROTATIONS IN VETERINARY MEDICINE (2) CLN. 80. Clinical practicum experiences in large and small animal teaching hospitals on the veterinary medical campus. Course may be repeated with change in topics.

VMED 9631 ALTERNATIVE ROTATIONS IN VETERINARY MEDICINE (2) CLN. 80. SU. Clinical practicum experiences in alternative large and small animal experiences as documented in college procedures. Course may be repeated with change in topics.

VMED 9640 LARGE ANIMAL ALIMENTARY SYSTEM (2) LEC. 36. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases affecting the large animal alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9650 CANINE SPORTS MEDICINE AND REHABILITATION (1) LEC. 1. SU. Activities, requirements, and disorders encountered in canine athletes; role of veterinarian in care and rehabilitation; current research.

VMED 9670 SPECIAL SENSES SYSTEMS (1) LEC. 19. LAB. 4. Common procedures for evaluation, diagnosis and treatment of eye disorders in domestic species are covered to provide basic veterinary ophthalmology knowledge to veterinary students.

VMED 9690 REPTILE AND AMPHIBIAN MEDICINE (1) LEC. 1. SU. Diseases, treatment, husbandry, handling, restraint, examination, sample collection in reptiles and amphibians.

VMED 9700 INTRODUCTION TO ANESTHESIA (3) LEC. 33. LAB. 16. Principles and practices of veterinary anesthesia in large and small animals.
VMED 9710 PRACTICE MANAGEMENT (1) LEC. 1. SU. Fundamental principles of effective client, personnel, practice and business management for the veterinarian.

VMED 9720 DISASTER MEDICINE FOR VETERINARIANS (2) LEC. 1. SU. Pr. (VMED 9111 or VMED 5111). Role of the veterinarian in responding to natural and man made disasters.

VMED 9721 APPLIED ANATOMY I (1) LAB. 3. Pr. VMED 5111 or VMED 9111. Detailed anatomical basis for small animal surgical approaches.

VMED 9731 APPLIED ANATOMY II (1) LAB. 3. Pr. (VMED 9111 or VMED 5111). Detailed anatomical basis for small animal diagnostics and therapeutics.

VMED 9740 APPLIED COMPANION ANIMAL BEHAVIOR (2) LEC. 2. Pr. VMED 9300 or VMED 9180 or VMED 5300 or VMED 5180. Diagnosis, treatment and client education on selected behavior problems in companion animals.

VMED 9741 EQUINE LIMB JOINTS AND FOOT (1) LAB. 3. SU. Pr. VMED 9121 or VMED 5121. A study of the functional anatomy of the joints and foot of the horse fore and hind limbs.

VMED 9750 DIAGNOSTIC VETERINARY ULTRASONOGRAPHY (2) LEC. 2. LAB. 1. Pr. (VMED 9121 or VMED 5121) or (VMED 9150 or VMED 5150). Basic physics, instrumentation, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

VMED 9770 ADVANCED VETERINARY DERMATOLOGY (1) LEC. 1. SU. Pr. VMED 9510 or VMED 5510. Clinical dermatology in a case-based format.

VMED 9790 SMALL ANIMAL WOUND MANAGEMENT AND SURGERY (1) LEC. 1. SU. Pr. (VMED 9510 or VMED 5510) and (VMED 9310 or VMED 5310). Wound management, reconstructive/salvage surgery.

VMED 9800 APPLIED SMALL ANIMAL NEUROLOGY (1) LEC. 1. SU. Clinical management of commonly occurring neurologic diseases of small domestic animals.

VMED 9801 PRECEPTORSHIP (3) LAB. 320. SU. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs. Approval of Preceptorship Committee.

VMED 9810 INTEGUMENTARY SYSTEM (2) LEC. 29. LAB. 6. Diagnosis, treatment and prevention of diseases affecting the integumentary system.

VMED 9820 ADVANCED REPRODUCTIVE TECHNIQUES (2) LEC. 2. Pr. VMED 9120. Techniques associated with embryo transfer, fetal sexing, in-vitro fertilization, applied and experimental techniques in cattle emphasized.

VMED 9830 VETERINARY MEDICINE AND THE PUBLIC (1) LEC. 1. SU. News events related to veterinary medicine and the role of the veterinarian in public education and public policy.

VMED 9840 WILDLIFE DISEASES (1) LEC. 1. SU. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

VMED 9860 ADVANCED TECHNIQUES IN POPULATION MEDICINE (1) LEC. 1. SU. Techniques for investigation of disease problems in populations with emphasis on computer software specialized for outbreak investigation and disease mapping.

VMED 9880 EQUINE REPRODUCTION (1) LEC. 1. Reproductive physiology, endocrinology, breeding soundness evaluation, breeding management and advanced technologies.

VMED 9950 CLINICOPATHOLOGIC CONFERENCE (1) SEM. 15. SU. Oral presentation of veterinary clinical case or case material.

VMED 9960 SPECIAL PROBLEMS (1) LEC. 1. SU. Introduction to veterinary literature, evaluation of recent articles, references, reports on veterinary medicine.

VMED 9995 VETERINARY CLINICAL ROTATIONS - EXTERNSHIPS (0) CLN. SU. Successful completion of didactic veterinary curriculum. Students will participate in clinical rotations including specialty rotations.

Curriculum in Veterinary Medicine
### Fall
- VMED 9000 Orientation to Veterinary Medicine
- VMED 9200 Veterinary Parasitology I
- VMED 9010 Veterinary Medical Ethics & Law
- VMED 9062 Clinicopathology Conference Critical Thinking
- VMED 9111 Veterinary Anatomy I (Small Animal)
- VMED 9130 Genetic and Cellular Basis of Animal Disease
- VMED 9110 Physiology I
- VMED 9131 Basic Microanatomy/Domestics Animals
- VMED 9180 Veterinary Ethology
- VMED 9050 (Course proposal submitted. Title: Professional Development and Business Fundamentals.)

### P2

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<tr>
<th>Fall</th>
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<tr>
<td>VMED 9270 Introduction to Cytology</td>
<td>0 VMED 9121 Veterinary Anatomy II</td>
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<tr>
<td>VMED 9260 Veterinary Pharmacology</td>
<td>3 VMED 9141 Organology of Domestic Animals</td>
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<tr>
<td>VMED 9250 Virology &amp; Prions</td>
<td>2 VMED 9150 Diagnostic Imaging</td>
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<tr>
<td>VMED 9280 Bacteriology &amp; Mycology</td>
<td>4 VMED 9210 Veterinary Parasitology II</td>
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<tr>
<td>VMED 9230 Veterinary Clinical Pathology</td>
<td>1 VMED 9301 Physical Diagnoses of Large and Small Animals</td>
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<tr>
<td>VMED 9220 Principles of Veterinary Pathology</td>
<td>5 Electives</td>
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<tr>
<td>Electives</td>
<td>3 VMED 9120 Physiology II</td>
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<td>VMED 9580 Nervous System</td>
<td>2 VMED 9062 Clinicopathology Conference Critical Thinking</td>
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<td>VMED 9380 Physical Diagnosis II</td>
<td>3 VMED 9030 Veterinary Epidemiology &amp; Zoonoses</td>
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<td>VMED 9062 Clinicopathology Conference Critical Thinking</td>
<td>3 VMED 9020 Veterinary Medicine and the Law</td>
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<td>VMED 9240 Principles of Veterinary Immunology</td>
<td>3 Electives</td>
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### P3

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<tr>
<td>VMED 9410 Applied Clinical Imaging</td>
<td>2 VMED 9350 Veterinary Toxicology</td>
<td>2</td>
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<tr>
<td>VMED 9311 Surgical Practicum</td>
<td>1 VMED 9360 Production Preventative Medicine</td>
<td>3</td>
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<tr>
<td>VMED 9550 Urinary System</td>
<td>2 VMED 9370 Oncology</td>
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<tr>
<td>VMED 9560 Endocrine System</td>
<td>2 VMED 9621 Clinical Rotations in Veterinary Medicine</td>
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VMED 9570 Reproductive System  
VMED 9580 Nervous System  
VMED 9330 Exotic Companion Animal Medicine  
VMED 9062 Clinicopathology Conference Critical Thinking  
VMED 9590 Musculoskeletal System  
VMED 9262 Clinical Pharmacology and Therapeutics  
Electives  
VMED 9310 Introduction to Surgery

**SUMMER**

VMED 9621 Clinical Rotations in Veterinary Medicine (total of 12 hours of VMED 9621)

**P4**

VMED 9621 Clinical Rotations in Veterinary Medicine (total 19 hours of VMED 9621)

**TOTAL HOURS - 173**

Rotations will be set up in blocks of two 2-week rotations.

There are 24 2-week rotations that each student must complete, 15 are required rotations and 9 are elective rotations that the student must select from an approved list.

**Minors**

**Minor**

- Public Health (p. 1224)

**Veterinary Medicine Minors**

**Public Health**

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<tr>
<td>VBMS 2100</td>
<td>Introduction to Public Health</td>
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<tr>
<td>VBMS 3010</td>
<td>Introduction to Epidemiology</td>
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<tr>
<td>VBMS 4980</td>
<td>Undergraduate Research</td>
<td>3</td>
</tr>
<tr>
<td>HADM 4830</td>
<td>Comparative Health Care Systems</td>
<td>3</td>
</tr>
<tr>
<td>Elective (approved by Advisor)</td>
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Total Hours 15
Interdepartmental Undergraduate Programs

Bioprocess Engineering (BPEN)
The curriculum in bioprocess engineering is coordinated by the Samuel Ginn College of Engineering and prepares students to seamlessly combine engineering and natural sciences to design and develop systems, processes and equipment that convert biological and agricultural materials to value-added products such as food, nutraceuticals, polymers and pharmaceuticals. See Department of Biosystems Engineering (p. 588) in the Samuel Ginn College of Engineering for further information.

Biosystems Engineering (BSEN)
The curriculum in Biosystems Engineering is coordinated by the Samuel Ginn College of Engineering and prepares students for productive careers in the biosystems industries and related natural resource and environmental systems sectors. See the Department of Biosystems Engineering (p. 588) in the Samuel Ginn College of Engineering for further information.

Ecological Engineering (ECEN)
The curriculum in ecological engineering is coordinated by the Samuel Ginn College of Engineering and prepares students to solve environmental problems by applying engineering knowledge to natural ecological and biological systems. See Department of Biosystems Engineering (p. 588) in the Samuel Ginn College of Engineering for further information.

Environmental Science (ENVI)
The curriculum in environmental science is an interdepartmental program based on the strengths of Auburn University in the engineering, biological and physical sciences. See the Department of Crop, Soil and Environmental Sciences (p. 184) in the College of Agriculture for further information.

Forest Engineering (FOEN)
The curriculum in Forest Engineering is coordinated by the Samuel Ginn College of Engineering and the School of Forestry and prepares students for professional careers in forest products industry and related natural resource and environmental systems sectors. See the Department of Biosystems Engineering (p. 588) in the Samuel Ginn College of Engineering for further information.

Materials Engineering (MATL)
The curriculum in materials engineering is an interdisciplinary curriculum conducted cooperatively by departments in the Samuel Ginn College of Engineering and the College of Sciences and Mathematics. See the Department of Mechanical Engineering (p. 657) in the Samuel Ginn College of Engineering for further information.

Reserve Officers' Training Corps

Departments

- Department of Air Force Aerospace Studies (p. 1228)
- Department of Military Science (p. 1230)
- Department of Naval Science (p. 1232)

Aerospace Studies (AFROTC) Courses


AIRF 1011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 1010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


AIRF 1021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 1020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 2011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 2010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


AIRF 2021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 2020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 3010 AIR FORCE LEADERSHIP STUDIES (3) LEC. 3. Pr. AIRF 2020. Departmental approval. Coreq. AIRF 3011. Advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and supervision concepts.

AIRF 3011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 3010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 3020 AIR FORCE LEADERSHIP STUDIES (3) LEC. 3. Pr. AIRF 3010. Departmental approval. Coreq. AIRF 3021. Advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and supervision concepts.

AIRF 3021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 3020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 4010 NATIONAL SECURITY AFFAIRS AND PREPARATION FOR ACTIVE DUTY (3) LEC. 3. Pr. AIRF 3020. Departmental approval. Coreq. AIRF 4011. For AFROTC senior cadets. The role of military officers in American society.

AIRF 4011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 4010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


AIRF 4021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 4020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

Military Science (AROTC) Courses

MILS 1010 INTRODUCTION TO ARMY ROTC I (1) LEC. 1. Coreq. MILS 1011. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1011 INTRODUCTION TO ARMY ROTC I LABORATORY (1) LAB. 3. Coreq. MILS 1010. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1020 INTRODUCTION TO ARMY ROTC II (1) LEC. 1. Coreq. MILS 1021. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1021 INTRODUCTION TO ARMY ROTC II LABORATORY (1) LAB. 3. Coreq. MILS 1020. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 2010 SELF TEAM DEVELOPMENT (1) LEC. 1. Coreq. MILS 2011. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2011 SELF/TEAM DEVELOPMENT LABORATORY (1) LAB. 2. Coreq. MILS 2010. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2020 INDIVIDUAL/TEAM MILITARY TACTICS (1) LEC. 1. Coreq. MILS 2021. Introduction to individual and team aspects of military training in small unit operations.

MILS 2021 INDIVIDUAL/TEAM MILITARY TACTICS LABORATORY (1) LAB. 2. Coreq. MILS 2020. Introduction to individual and team aspects of military training in small unit operations.

MILS 3010 LEADING SMALL ORGANIZATIONS I (2) LEC. 2. Coreq. MILS 3011. Introduction to squad level planning and operations. Admittance into the Advanced Course of Army ROTC.
MILS 3011 LEADING SMALL ORGANIZATIONS I LABORATORY (1) LAB. 4. Coreq. MILS 3010. Practical application of the foundational skills of small unit leadership. Admittance into Advanced Course Army ROTC.

MILS 3020 LEADING SMALL ORGANIZATIONS II (2) LEC. 2. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3021. Introduction to platoon-level planning and operations and the U.S. Army Training Management System.

MILS 3021 LEADING SMALL ORGANIZATIONS II LABORATORY (1) LAB. 4. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3020. Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

MILS 3030 HISTORY OF THE UNITED STATES ARMY (3) LEC. 3. Survey of the history of the United States Army from the colonial era to present.

MILS 4010 LEADERSHIP CHALLENGES AND GOAL-SETTING (2) LEC. 2. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4011. Plan, conduct and evaluate training and organizational cohesion.

MILS 4011 LEADERSHIP CHALLENGES AND GOAL-SETTING LABORATORY (1) LAB. 4. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4010. Plan, conduct and evaluate training and activities of the ROTC cadet organization.

MILS 4020 TRANSITION TO LIEUTENANT I (2) LEC. 2. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4021. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques.

MILS 4021 TRANSITION TO LIEUTENANT I LABORATORY (1) LAB. 4. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4020. Practical application of the principles taught in MILS 4020.

MILS 4040 THE ARMY PROFESSION (0) LEC. 1. SU. U.S. Army current trends and affairs. Army policies and programs. Completion of Army ROTC Advanced Course or Early Commissioning Program.

Naval Science (NROTC) Courses

NAVS 1010 INTRODUCTION TO NAVAL SCIENCE (3) LEC. 3. Basic areas of Naval Science including uniforms and insignia, military courtesy, discipline, warfare components, organizational structure, and supporting elements of the U.S. Navy and U.S. Marine Corps.

NAVS 1011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military instruction.

NAVS 1020 SEAPower AND MARITIME AFFAIRS (3) LEC. 3. Introduction to broad principles, concepts and elements of naval history, seapower, and maritime affairs from past to present.

NAVS 1021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction. Course may be repeated with change in topics.

NAVS 2010 LEADERSHIP AND MANAGEMENT (3) LEC. 3. Fundamentals of leadership and management theory vital to the effectiveness of Navy/Marine Corps officers.

NAVS 2011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 2021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 2060 NAVIGATION (3) LEC. 3. Theory and principles of piloting involving the use of visual and electronic aids.

NAVS 3011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 3021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 3030 EVOLUTION OF WARFARE (3) LEC. 3. Pr. P/C NAVS 3011 or P/C NAVS 3021. Forms of warfare practices to identify historical continuity and change in the evolution of warfare. Explores the impact of historical precedent, economic factors and technological change on politico-military thought and action.
NAVS 3050 NAVAL SHIP SYSTEMS I (ENGINEERING) (3) LEC. 3. Principles of ship design, construction, and stability. Introduction to thermodynamics and the steam cycle as applied to naval propulsion systems.

NAVS 3060 NAVAL SHIP SYSTEMS II WEAPONS (3) LEC. 3. Theory and employment of systems through a study of fundamental principles of sensor, tracking, computational, and weapons delivery subsystems.

NAVS 4011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 4020 LEADERSHIP AND ETHICS (3) LEC. 3. Pr. NAVS 2010. Departmental approval. Integrates an intellectual exploration of Western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics.

NAVS 4021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction. Course may be repeated with change in topics.


NAVS 4050 NAVAL OPERATION AND SEAMANSHP (3) LEC. 3. Inland and International law governing maritime operations, communication procedures, and other naval/maritime operational procedures.

Air Force Aerospace Studies

LIEUTENANT COLONEL JEFFREY H. WELBORN
Commander, AFROTC Det 005
Professor of Aerospace Studies
Auburn University (334) 844-4355

Four-Year Program

The Air Force Reserve Officer Training Corps (ROTC) is an educational program designed to give men and women the opportunity to become an Air Force officer while completing an undergraduate degree. The Air Force ROTC program is designed to teach the necessary skills needed to accept the challenging opportunities encountered in the Air Force. Air Force ROTC offers a pathway from college to many exciting career possibilities as an Air Force officer: flying, engineering, intelligence, computer systems, aircraft maintenance, management, etc. Interested students should contact the Air Force ROTC department (www.auburn.edu/afrotc); det005@maxwell.af.mil; 243 Nichols Center; 334-844-4355).

General Military Course (GMC)

The GMC is the first half of the program and is taken during the freshman and sophomore years. This program allows the student to “try out” Air Force ROTC without obligation (students on an Air Force ROTC scholarship incur an obligation upon the start of their second GMC year). During the first two years, the student will learn basics about the Air Force and the historical development of airpower. GMC students may be eligible to compete for an Air Force ROTC scholarship that pays tuition and fees, and provides both an allowance for books and a non-taxable monthly stipend while school is in session. The classes are one semester hour each. During the spring semester of the sophomore year, the student will compete for the opportunity to attend a four-week Field Training encampment (see Field Training section below for additional information). Successful completion of field training is mandatory for entrance into the Professional Officer Course (POC), the junior and senior years of the program. Qualified students may enroll in both freshman and sophomore classes at the same time and spend only one year in the GMC if they are already in college and need only three more years to graduate.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRF 1010/1020</td>
<td>The Foundations of US Air Force</td>
<td>1</td>
</tr>
<tr>
<td>AIRF 2010/2020</td>
<td>Evolution of US Air and Space Power</td>
<td>1</td>
</tr>
</tbody>
</table>

Professional Officer Course (POC)

The POC is the second half of the program, taken during the junior and senior years. These classes are three semester hours each. POC students take on leadership roles, planning and running most cadet activities. This gives them valuable experience that prepares them to become an officer. Students in selected degree programs (e.g. engineering) may spend a third year in the POC to complete their degree. All POC members receive a monthly stipend, and those with an Air Force ROTC scholarship continue with their benefits
(tuition, fees, books allowance). As a junior, the student will learn about various leadership roles and management techniques needed
to become an effective Air Force officer. During the senior year, students will learn about foreign policy and national security while
preparing them for entrance into active duty.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>AIRF 3010/3020</td>
<td>Air Force Leadership Studies</td>
<td>3</td>
</tr>
<tr>
<td>AIRF 4010/4020</td>
<td>National Security Affairs and Preparation for Active Duty</td>
<td>3</td>
</tr>
</tbody>
</table>

**Leadership Laboratory (LLAB)**

Each Air Force ROTC student pursuing a commission in the Air Force is required to attend Leadership Laboratory; students not qualified for or not pursuing a commission may not enroll. Leadership Laboratory consists of a two-hour class, two one-hour periods of Physical training (PT) and up to two additional hours of practical military training each week. Although no academic credit is awarded by the university, LLAB is an essential part of officer training. It is a cadet-centered program where the student will learn such things as military customs and courtesies, drill and ceremonies, and proper wear of uniform, as well as develop their physical fitness. On occasion, the student will have the opportunity to hear guest speakers discuss a variety of interesting and stimulating topics or participate in fun team-building activities such as bowling and paintball.

**Curriculum for Leadership Laboratory**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AIRF 1011/1021</td>
<td>AFROTC Leadership Laboratory</td>
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</tr>
<tr>
<td>AIRF 2011/2021</td>
<td>AFROTC Leadership Laboratory</td>
<td>0</td>
</tr>
<tr>
<td>AIRF 3011/3021</td>
<td>AFROTC Leadership Laboratory</td>
<td>0</td>
</tr>
<tr>
<td>AIRF 4011/4021</td>
<td>AFROTC Leadership Laboratory</td>
<td>0</td>
</tr>
</tbody>
</table>

**Field Training (FT)**

Cadets completing the General Military Course attend four weeks of FT during the summer at Maxwell Air Force Base, Alabama, and Camp Shelby, Mississippi. This rigorous program of leadership training, physical conditioning and academics assesses the cadet’s potential to be an Air Force officer. Additionally, cadets also receive survival and firearms training, career information and one or more military aircraft orientation flights. Cadets receive travel pay and a daily allowance for attending FT.

**Air Force ROTC Scholarships**

Air Force ROTC offers scholarships on a competitive basis to high school seniors and college students. These scholarships are offered to highly qualified students, primarily in scientific/technical majors or nursing. Please visit www.afrotc.com (http://www.afrotc.com) for the latest information about scholarships.

**Aerospace Studies Minor**

The Department of Aerospace Studies offers a minor under the following conditions. Fifteen semester hours are required, nine of which must be upper-level. A maximum of six credit hours must be utilized from AIRF 3010, AIRF 3020, AIRF 4010, or AIRF 4020. The remaining nine hours will come from electives determined by the department. See Core Curriculum (http://bulletin.auburn.edu/undergraduate/academicpolicies/thecorecurriculum) for limitation.

**General Military Course**

**Curriculum in the General Military Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRF 1010/1020</td>
<td>The Foundations of US Air Force</td>
<td>1</td>
</tr>
<tr>
<td>AIRF 2010/2020</td>
<td>Evolution of US Air and Space Power</td>
<td>1</td>
</tr>
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</table>

**Total Hours**

2

**Professional Officer Course**

**Curriculum in the Professional Officer Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRF 3010/3020</td>
<td>Air Force Leadership Studies</td>
<td>3</td>
</tr>
<tr>
<td>AIRF 4010/4020</td>
<td>National Security Affairs and Preparation for Active Duty</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours**

6
Military Science

LIEUTENANT COLONEL ROSHUN A. STEELE
Commander and Professor of Military Science

The purpose of the Army ROTC program is to select, train, and motivate the future leadership of the active Army, Army National Guard and Army Reserve. The curriculum is available to both men and women and prepares students to become effective leaders and managers in a variety of challenging fields.

The Army ROTC curriculum is divided into two courses: a General Military Course open to all students and an Officer Development Course for qualified juniors, seniors and graduate students. The General Course serves to acquaint Auburn students with the Army and its role in our society; The Officer Development course prepares students for service as commissioned officers. Successful completion of both courses and award of a bachelor’s degree constitute the normal progression to earning a commission as a Second Lieutenant. Students undecided about pursuit of a commission may participate in the General Military Course. This affords freshman and sophomore students the opportunity to make an informed decision on the advantages of an officer’s commission while incurring no military obligation.

General Military Course (The Basic Course)

The Basic Course consists of a four-semester block of instruction normally taken during the freshman and sophomore years. Successful completion of MILS 1010, MILS 1020, MILS 2010 and MILS 2020 together with the associated labs (MILS 1011, MILS 1021, MILS 2011 and MILS 2021) satisfies the academic requirements for progression to the Officer Development Course. Two credit hours per semester are earned for the lecture and lab. Subject to departmental approval, students may complete all four courses in one academic year.

Curriculum in the General Military Course

The basic military science courses provide unique classroom and hands-on instruction in orienteering, small unit tactics, first aid, physical fitness, and leadership skills. They introduce the student to the Army as a profession, lay the foundation of value-based, ethical decision-making, illuminate the Army’s place in society and lay the foundation for the Officer Development Course that follows. The Professor of Military Science may admit the student to the Advanced Program upon completion of these courses. Contracted students currently receive a tax-free subsistence allowance of $300 (freshmen) and $350 (sophomore) while enrolled.

Courses are offered in the fall and spring semesters and credits earned may be applied as elective credits toward degree requirements in all schools of the university.

Optional Leadership Training Course

Otherwise qualified students who are unable to complete the Basic Course during their freshman and sophomore years may qualify for admission to the Advanced Course by successfully completing the Leadership Training Course at Fort Knox, Kentucky.

The Leadership Training Course consists of approximately four weeks of training conducted during the summer months. Students desiring to exercise this option are required to submit a formal application and pass a general physical. Students who participate in the Basic Camp Training Course will receive approximately $900 in addition to travel expenses to and from Fort Knox. Uniforms, housing, medical care and meals are furnished by the government during training.

Interested students are strongly encouraged to enroll in a military science course and laboratory during the spring semester. Deadline for applications is March 15, all applicants must contact the Military Science Department no later than March 1.

Officer Development Course (The Advanced Course)

Successful completion of the General Military Course or approved alternative training, a minimum 2.0 grade-point average, and medical qualifications are pre-requisites for enrollment in the Officer Development Course. Service veterans, transfer students from junior or military colleges, members of the National Guard or Army Reserve, and former military academy cadets may qualify for direct entry into the Officer Development Course two academic years before their projected graduation.

The Advanced Course is designed to develop a candidate’s leadership and management potential, physical stamina, and poise, as well as the character traits desired of an Army Officer. The program’s objective is to produce the highest caliber junior officer, fully capable of accepting command in the modern Army, exercising management responsibilities and serving the broader community.
The Advanced Course consists of a four-semester block of instruction taken during the junior and senior years (MILS 3010, MILS 3020, MILS 4010 and MILS 4020). Successful completion of the courses, together with a leadership laboratory (MILS 3011, MILS 3021, MILS 4011 and MILS 4021) each semester fulfills military science academic requirements for award of an officer’s commission. Three credit hours per semester are earned for the lecture and laboratory. Students currently receive a tax-free subsistence allowance of $450 (juniors) and $500 (seniors) while enrolled.

Students enrolled in the Officer Development Course are required to successfully complete approximately four weeks of leadership training at Fort Knox, Kentucky, during the summer to become eligible for commissioning. Attendance at Advance Camp normally occurs in the summer following the junior year. The purpose of the course is to provide each candidate hands-on experience in leadership development as well as extensive training in military tactics, techniques and related subjects vital to success as a junior officer. Students attending the Leadership Development Assessment Course receive approximately $900 in addition to travel expenses to and from Fort Knox. Uniforms, housing, medical care and meals are furnished by the government during the training.

Additional voluntary training at one or more of a variety of active Army service schools is available to select students each summer. Students may apply for attendance at Airborne School, Air Assault School, The Northern Warfare Training Center and Cadet Troop Leadership Training. Students who successfully complete the appropriate course are authorized to wear the Parachutist, Air Assault or other applicable skill badge.

Students who successfully complete the Army ROTC curriculum, and earn a bachelor’s degree, serve on active duty or with the Army National Guard or Army Reserve. Active duty is for a period of three or four years with the opportunity for qualified officers to apply for extended service. Current salary and allowances for a single Second Lieutenant exceed $45,000. Medical and other benefits are also provided at no cost.

Professional Military Education Requirements

All Army ROTC cadets seeking a commission are required to pass a Written Communication Skills course (currently fulfilled by the University Core Curriculum) and History of the US Army (MILS 3030). An alternate military history course may be substituted with the approval of the Professor of Military Science.

Simultaneous Membership Program

Second, third- and fourth-year students are eligible to participate in the Simultaneous Membership Program with the Army National Guard or Army Reserve. Students participating in this program affiliate with an Army unit as a student officer, thus affording them the opportunity for enhanced leadership development. Students in this program receive a salary, additional tax-free benefits and GI Bill educational benefits (if otherwise qualified).

Military Science Minor

The Department of Military Science offers a minor under the following conditions. Seventeen semester hours in Military Science [MILS] are required, including 12 at the 3000/4000-level, and a three-hour 3000-level Military History course and a two-hour PHED 1263, Military Fitness for everyone.

Scholarship Programs

Each year the Army offers a limited number of four-year, three-year and two-year scholarships to those young men and women who have demonstrated outstanding scholastic, athletic and leadership potential. Scholarships are available on a campus competitive basis and pay most or all of the cost of tuition, textbooks, supplies and fees for both resident and non-resident students. Additionally, scholarship students receive a $300 to $500 month tax-free allowance.

Army Nurse Corps Option

Students enrolled in the School of Nursing curriculum leading to the degree of bachelor of science in nursing may simultaneously pursue commissions as Second Lieutenants in the Army Nurse Corps.

Nursing students qualify for entry into the Officer Development Course by the same methods as other candidates and participate in the same summer Leadership Development Assessment Course as well. Nursing students may also receive practical and leadership experience during an additional nursing training program in a clinical setting at an Army hospital. The focus is to provide nursing cadets an experience that integrates clinical, interpersonal, and leadership knowledge and skills. Emphasis is on practical experience under the direct supervision of an Army Nurse Corps Officer who acts as the cadet’s preceptor throughout the training period.

Nursing students compete for scholarships only against other nursing students and are eligible to compete for fully funded advanced schooling after serving an initial tour (three to four years) of active duty. Nurse Corps officers selected for advanced degree programs...
draw their regular salary and benefits while pursuing a specialized degree at Army expense. Participants in this program incur an additional active duty service obligation.

**Naval Science**

**CAPTAIN WILLIE D. BILLINGSLEA**  
*Commanding Officer and Professor of Naval Science*

The mission of the Naval Reserve Officer Training Corps is to develop NROTC students mentally, morally, and physically and to imbue them with the highest ideals of duty, honor, and loyalty; to commission college graduates as naval officers who possess a basic professional background, are motivated toward careers in the naval service, and have a potential for future development in mind and character so as to assume the highest responsibilities of command, citizenship, and government. All NROTC programs are open to qualified applicants. All Naval Science courses of one or more credits are open to all Auburn students regardless of affiliation with the NROTC Program.

To be eligible for enrollment as a midshipman, an applicant must be a United States citizen; have no moral obligations or personal convictions that will prevent bearing of arms, and supporting and defending the Constitution of the United States against all enemies, foreign and domestic; meet age requirements of at least 17 years on or before 1 September of the year of enrollment and less than 27 years on 30 June of the year an applicant expects to graduate; meet physical requirements for the NROTC Program; and be accepted for admission as a full-time student at Auburn University. Applicants with prior or current active duty in the U.S. Armed Forces may be granted age waivers equal to the number of months served, not to exceed 36 months. Those granted the maximum age waiver must be less than 30 years of age on 30 June of the year they expect to graduate.

**NROTC Programs**

**Four-Year NROTC Navy-Marine Corps Scholarship**

Entrance into the Navy-Marine Corps Scholarship Program is via nationwide competition. Applicants typically apply during their senior year of high school, but anyone who meets eligibility requirements and has completed less than 30 semester hours of college credit may apply. Qualifications for enrollment, applications, and information bulletins are available at [https://www.nrotc.navy.mil](https://www.nrotc.navy.mil), high schools, colleges, recruiting stations, and the Auburn NROTC Unit, located on the second floor of W. F. Nichols Center. The Department of the Navy pays tuition, fees, $375 per semester for textbooks, and provides a monthly stipend. Freshmen on scholarship receive $250, sophomores $300, juniors $350, and seniors $400 per month. Active duty pay for summer training is approximately $560 per month with living quarters and meals provided. The NROTC program divides degrees into three Tiers with Tier I containing engineering majors, Tier II remaining technical majors and Tier III liberal arts (for a complete list, see the Auburn NROTC home page. Tiers do not apply to Marine Options). Although the program emphasizes engineering and science majors, students may enroll in any Auburn University major leading to a baccalaureate degree. In addition to the requirements of their major, scholarship students must complete 24 semester hours (21 for Marine Options) of Naval Science courses, calculus I and II (Navy option only), calculus-based physics I and II (Navy option only), a military history/national security policy course and a world cultures course. Summer activities include two at-sea training cruises and one summer period of career orientation lasting approximately four weeks. Marine Option students participate in a six-week office candidates school, in Quantico, VA in lieu of the second at-sea training cruise. Successful completion of the ROTC program leads to a commission as an Ensign, U.S. Navy, or Second Lieutenant, U.S. Marine Corps.

**College Program**

The College Program is a non-scholarship option that offers a two, three, or four year program. There is no calculus or physics requirement and no preference for technical majors. Interested students should apply directly to the Auburn NROTC Unit during their senior year of high school for the four year program. Those already at Auburn should apply the spring of their freshman year for the three-year program or the spring of their sophomore year for the two-year program (two year not available for Marine options). The program pays for uniforms and instructional fees for Naval Science courses. College Program students selected for advanced standing prior to their junior year receive a stipend for a maximum of 20 months. Advance standing is only available starting the junior year of college. Stipend per academic month is $350 junior year and $400 senior year. College Program students will complete Naval Science and other university courses, a few specific university courses, and attend one summer training session at sea for Navy Option midshipmen or Quantico, VA, for Marine Option midshipmen. Upon graduation, College Program midshipmen may be commissioned Ensigns, U.S. Navy, or Second Lieutenants, U.S. Marine Corps.
Uniforms, Naval Science textbooks, and equipment necessary for the NROTC Program are furnished in all programs.

**Active Duty Service Requirements upon Graduation**

Active duty service requirements for scholarship midshipmen vary depending on the warfare area they enter. The basic requirement is eight years, five of which must be on active duty. The remaining three years may be completed on active duty or in the reserves. Specific requirements per warfare community are as follows:

- Surface and Submarine Warfare - 8 years total, at least 5 on active duty
- Naval Aviator (Navy and Marine pilot) - 8 years active duty after qualification as a Naval Aviator
- Naval Flight Officer (Navy and Marine non-pilot aviators) - 6 years active duty after qualification as a Naval Flight Officer
- Marines and Nurse Corps - 8 years total, at least 4 on active duty

**Curriculum**

The Naval Science curriculum consists of one 3-credit class per semester for eight semesters. In addition, all NROTC students attend two 0-credit Naval Science laboratory class periods and two one-hour physical training sessions per week. Naval Science subjects are listed in this Bulletin. Naval Science course hours are considered part of the normal load, which is defined as 15 to 18 credits per semester. Six hours of Naval Science may be used as electives in any major.

**Naval Science Minor**

The Department of Naval Science offers a minor to any student, regardless of NROTC affiliation, who completes 15 semester hours of Naval Science, nine semester hours must be courses numbered 3000 or above. The following courses qualify:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAVS 1010</td>
<td>Introduction to Naval Science</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 1020</td>
<td>Seapower and Maritime Affairs</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 2010</td>
<td>Leadership and Management</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 2060</td>
<td>Navigation</td>
<td>3</td>
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<tr>
<td>NAVS 3030</td>
<td>Evolution of Warfare</td>
<td>3</td>
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<tr>
<td>NAVS 3050</td>
<td>Naval Ship Systems I (Engineering)</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 3060</td>
<td>Naval Ship Systems II Weapons</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 4020</td>
<td>Leadership and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 4030</td>
<td>Amphibious Warfare</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 4050</td>
<td>Naval Operation and Seamanship</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours** 30

**Undergraduate Faculty**

The following is a list of full-time teaching faculty at Auburn University. The asterisk (*) before the name indicates the individual is a member of the Graduate Faculty. The date indicates the year of first appointment to any position in the institution.

**A**

ABDEL-HADI, ALI, Visiting Assistant Professor, 2015 (MECH)

*ABEBE-GEOREKLIDAN, ASHEBER, Professor, 2007, PhD Western Michigan, BS Addis Ababa (MATH)

*ABERNETHY, AVERY, Professor, 1988, PhD South Carolina, BSBA North Carolina (MKTG)

ADAMCZYK, ANDREW J., Assistant Professor (CHEN)

*ADAMS, JENNIFER W., Director and Associate Professor, 2005, PhD, MA, South Carolina, BS, Ball State (CMJN)

*ADAMS, GARRY, Associate Professor, 2003, PhD Florida State, MBA BS Southern Illinois (MNGT)

*ADAMS, MARK L., Assistant Professor, 2014, PhD MS California Institute of Technology, BEE Auburn University (ELEC)

*ADANUR, SABIT, Professor, 1992, PhD MS North Carolina State, BS Istanbul Tech (PFEN)
ADANUR, SABIT, Professor (MECH)

*ADHIKARI, SUSHIL, Alumni Professor and Director, CBB, 2008, BS Tribhuvan, MS Asian Institute of Tech Thailand PhD Mississippi State (BSEN)

*ADLER-BAEDER, FRANCESCA, Professor, 2001, PhD MS North Carolina-Greensboro BA Pembroke (HDFS)

*AGNE, ROBERT, Associate Professor and Graduate Program Officer, 2004, PhD University of Colorado Boulder (CMJN)

AGRAWAL, VINAMRA, Assistant Professor (AERO)

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AHYI, AYAYI CLAUDE, Associate Research Professor, 2007, PhD BS Universite des Sciences et Technologies de Lille France (PHYS)

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AKANDE, KATRINA, Assistant Professor and Extension Specialist, 2016, BS MA Eastern Kentucky, PhD Kentucky (HDFS)

*AKINGBEMI, BENSON T., Professor, 2007, DVM PhD Ibadan University Nigeria (VMAP)

ALABI, JAENA, Librarian II, 2011, MLIS, MA, BA, Alabama

*ALAVAALAPATI, JANAKI, Dean, 2015 (FOWS)

*ALBRECHT, ULRICH F., Professor, 1994, PhD New Mexico St., PhD Duisburg, MS B.S Essen. (MATH)

*ALDERMAN, CHARLES W., Dean and Professor Emeritus, 1977, DBA Tennessee, MBA BS Auburn (ACCT)

*ALLEN, BRENDA M., Assistant Professor, 1978, PhD Auburn, MS BS Tuskegee (FOWS)

*ALLEY, KELLY D., Alumni Professor, 1991, PhD MA Wisconsin, BS Cornell (SOCY)

ALMOND, GREGORY T., Assistant Clinical Professor, 2007, DVM Tennessee (VBMS)

*ALTINDAG, DUHA, Associate Professor, 2011, PhD MS Louisiana State, BA Bogazici (ECON)

*AMIN, RAJESH H., Associate Professor, 2009, PhD MS BS Wayne State (DRDD)

AMOAH, EMMANUEL, Instructor (CHEM)

AN, MYOUNG, Associate Research Professor (COMP)

*ANDERSON, J. BRIAN, Professor, 2010, PhD MS Univ Florida, BS North Carolina State University PhD ME Florida, BSCE North Carolina State (CIVL)

*ANDERSON, CHRIS, Associate Professor, 2008, PhD, Ohio State Univ; MS, Univ South Florida; BS, Virginia Tech (FOWS)

*ANDRUS, MIRANDA R., Clinical Professor, 2000, Pharm.D Samford (PYPP)

*ANDRZEJEWSKI, CAREY E., Associate Professor, 2008, PhD MA Ohio State, MA Texas Woman’s, BS Berry (EFLT)

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*ANGELO, ADRIENNE, Associate Professor, 2009, PhD Emory, BA Groucher (FLNG)

APPEL, ART, Professor (ENPL)

APPLING, BRANDEE, Assistant Professor (SERC)

*ARIAS, COVADONGA R., Professor, 2002, PhD BS Valencia Spain (FISH)

*ARMBRUSTER, JONATHAN W., Professor, 1998, PhD BS Illinois (BIOL)
*ARMSTRONG, JAMES B., Professor, 1990, PhD Virginia Tech, MS Abilene Christian, BS Freed-Hardeman (FOWS)

*ARNOLD, CHRISTOPHER, Associate Professor, 2003, MCP Auburn, BInd Auburn (INDD)

*ARNOLD, ROBERT D., Professor, 2012, PhD Buffalo-SUNY, BS Plattsburgh State-SUNY (DRDD)

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*AYDAROVA, ELENA, Assistant Professor, 2015, PhD Michigan State, MA University of South Carolina, BA Odessa (EFLT)

*AYOUN, BAKER M., Associate Professor, 2007, PhD Oklahoma State, MBA Yarmouk Jordan, BBA Mu'tah Jordan (NDHM)

AZHAR, SALMAN, Professor, 2006, JD Alabama, PhD Texas A M, MBC Florida, BS Auburn (BSCI)

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BAKER, HENRY J., Visiting Professor (VMED)

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BALLARD, DANIEL M., Visiting Assistant Professor (ARCH)

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BARDEEN, JOSEPH, Assistant Professor, 2014 (PSYC)

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*BARNES, ROBERT W., Associate Professor, 2000, PhD MSE Texas, BCE Georgia Tech (CIVL)

*BARNETT, ROD, Professor, 2006, MS PhD Auckland, BS Waikato (ARDC)

*BARNETT, MARK O., Associate Department Chair, 2000, PhD University of North Carolina, MS BS University of Tennessee (CIVL)

*BARRY, NANCY H., Professor, 2007, PhD MME Florida State, BM Middle Tennessee State (CTCH)

*BARRY, MARY S., Associate Professor, 1993, PhD Purdue, MA Northeast Missouri State, BSEd Southeast Missouri State (CTCH)

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BARTHEL, ELENA, Assistant Professor, 2010, PhD Florence (Italy), Diploma Laureate Arch Florence (Italy) (ARDC)
*BARTLETT, RANDALL N., Professor, 1990, MPA Columbus State, Blnd Auburn (INDD)
*BARTOL, FRANK F., Assoc. Dean Research Grad Studies, 1983, PhD MS Florida, BS Virginia Tech (VMAP)
BASHIR, ADIL, Associate Professor (ELEC)
*BASKIYAR, SANJEEV, Professor, 1999, PhD MSEE Minnesota, BE Indian Inst. of Science (COMP)
BATCHELOR, WILLIAM D., Dean and Professor, 2010, PhD Florida, MS BS Georgia (AGRI)
BATCHELOR, WILLIAM, Professor, 2015 (BSEN)
BAXTER, ANGELA, Affiliate Faculty (CHEM)
BAYNE, JENNA E., Clinical Lecturer, 2014, DVM Canada (VBMS)
*BEALE, DAVID G., Professor, 1989, BS Michigan Tech, PhD MSE Michigan (MECH)
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BEARD, PHILLIP, Lecturer (ENGL)
*BEASLEY, JOHN P., Professor and Head, 2014 (AGRN)
BECKINGHAM, BRYAN S., Assistant Professor (CHEN)
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BECKMANN, JOHN, Assistant Professor (ENPL)
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BEIDAGHI, MAJID, Assistant Professor (MECH)
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BELLAH, JAMIE R., Professor and Department Head, 2003, DVM Colorado State (VBMS)
*BENEFIELD, JUSTIN, Associate Professor, 2012, PhD MA BS University of Alabama (FINC)
BENSON, ELIZABETH, Assistant Professor, 2014, DMA Graduate Center, City University of New York, MM New England Conservatory of Music, BA Occidental College (THEA)
*BERGEN, WERNER G., Professor, 1995, MS BS PhD Ohio State (ANSC)
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*BERTOLET, ANNA RIEHL, Associate Professor, 2007, PhD MA BA Illinois (ENGL)
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*BETANZOS, LOURDES, Professor and Chair, 2001, PhD MA Tennessee, BA Rutgers (FLNG)
*BEVLY, DAVID M., McNair Professor, 2001, PhD MS MIT Stanford, BS Texas A&M (MECH)
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BHUIYAN, NADIA, Assistant Clinical Professor (PSYC)
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BIANCARDI, VINICIA C., Assistant Professor (VMAP)
BIASE, FERNANDO, Assistant Professor (ANSC)

*BIAZ, SAAD, Professor, 2001, PhD Texas AM, PhD MS BS Université Henri Poincaré (COMP)

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BIRDSONG, JAMES, Lecturer, 2014 (PROV)

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BOBROWSKI, PAULA E., Associate Dean and Professor, 2006, PhD Syracuse, MBA BS Oregon (LBAR)

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*BOLTON, JONATHAN W., Hollifield Professor, 1996, PhD Maryland, MA CUNY-Brooklyn, BA Miami (ENGL)

BONAU-BARKER, MARIA E., Visiting Assistant Professor (ARCH)

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BONDY, BARBARA, Professor, 2003, MFA Southern Illinois Carbondale, BFA University of Windsor, ON (ARTS)

BOONE, LINDSEY H., Assistant Professor (VBMS)

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BOOTHE, HARRY W., Professor, 2003, MS Texas A&M, DVM Michigan State (VBMS)

BORNIER, EVELYNE, Associate Professor, 2012, PhD Louisiana State University, MA Universite de Franche-Comte (FLNG)

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*BOURDEAU, BRIAN, Associate Professor, 2005, PhD MS BSBA Florida State (MKTG)

BOVELAND, SHANNON D., Associate Clinical Professor (VBMS)

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BOWLING, SCOTT, Lab Coordinator, 2003, PhD Duke, MS Auburn, BS Tennessee (BIOL)

*BOWLING, CYNTHIA J., Professor and Chair, 1998, PhD MA North Carolina, BA Tennessee (POLI)

*BOYD, ROBERT S., Alumni Professor, 1988, PhD California-Davis, MS BS Cal State Poly Technic (BIOL)

*BRADEN, TIMOTHY D., Associate Professor, 1994, PhD Colorado State, BS Oklahoma State (VMAP)

*BRANDEBOURG, TERRY, Associate Professor, 2008, BS Purdue, PhD Oregon State (ANSC)

*BRANDON, DUANE M., Charles M. Taylor Professor, 2003, PhD MAcc Virginia Tech, BS Christopher Newport University (ACCT)

BRANDRIET, ALLIE, Lecturer (CHEN)
*BRANTLEY, EVE F., Extension Specialist and Associate Professor, 2009, PhD Auburn, MS Clemson, BS Berry College (AGRN)

*BRATCHER, CHRISTY, Associate Professor, 2008, BS MS Florida, PhD Missouri (ANSC)

*BRAUND, KATHRYN, Holifield Professor, 2001, PhD Florida State, MA BS Auburn (HIST)

*BRAXTON-LLOYD, KIMBERLY, Associate Professor and Assistant Dean, 1998, PharmD BSPharm Auburn (PYPP)

BREWER, KATHERINE, Lecturer (ENGL)

BRINGARDNER, CHARLES, Associate Professor and Chair, 2009, PhD University of Texas, BA Davidson (THEA)

*BRITNELL, RICHARD E., Professor, 1991, MID BSED BFA Auburn (INDD)

*BROCK, SHERI J., Associate Professor, 2002, PhD Alabama, MS BS Troy State (KINE)

BROERING, ELLEN P., Lecturer (CHEM)

*BROOKS, JENNIFER E., Associate Professor, 2006, PhD Tennessee, BA Massachusetts-Boston (HIST)

*BROWN, M. MITCHELL, Professor, 2006, PhD MA Maryland, MA George Washington, BA Meredith (POLI)

*BROWN, STEVEN P., Professor, 1998, PhD MA Virginia, BA Brigham Young (POLI)

BROWN, ONIKIA, Assistant Professor and Extension Specialist, 2012, PhD Iowa State, RD Utah State, S North Carolina AT State, BS Fort Valley State (NDHM)

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BROWN, CORDELIA, Senior Lecturer, Director of Alabama Power Academic Excellence Program (ELEC)

*BROWN, MICHAEL, Professor, 1995, PhD Maryland, MS BA California State - Longbeach (KINE)

BRUECKNER, STEFANIE, Lecturer (GEOL)

BRUMBAUGH, BARBARA, Lecturer (ENGL)

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BRUNSON, BRANDON L., Senior Lecturer, 2012, DVM PhD Auburn University (VMAP)

BRYANT, KELLY V., Professor, 2002, BFA MA Syracuse (INDD)

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BRYSC, CARMEN, Lecturer (GEOL)

BUBB, ROBERT, Lecturer, 2011, MS BS Brigham Young (HDFS)

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BUCHANAN, ROBERT A., Librarian III, 2003, MLS Buffalo-SUNY, PhD BS PhD Wisconsin ()

*BUCKHALT, JOSEPH A., Wayne T. Smith Distinguished Professor, 1979, PhD Vanderbilt, MS BA Auburn (SERC)

BUGG, ALAN, Assistant Professor (BSCI)

*BULLARD, STEPHEN A., Associate Professor, 2008, PhD MS University of Southern Mississippi BS University of South Carolina (FISH)

*BULLOCK, MARILYN J., Assistant Clinical Professor, 2009, PharmD Rutgers (PYPP)

Burch, THOMAS E., Lecturer, 1992, PhD Louisiana State, MS BS Auburn (MECH)

BURDY, HENRY B., Professor Emeritus, 2016 ()

BURNETT, DONNA O., Asst. Prof Director of Clinical Graduate Programs for Dietetics (NDHM)
*BURNS, EMILY, Assistant Professor, 2013, PhD Washington University (ARTS)
BURQUE, ANGELA D., Associate Clinical Professor, 1992, MS Florida State, BSSW Alabama (SOCY)
BURRUS, EMBRY A., Associate Clinical Professor, 2002, MCD Auburn (CMDS)
*BURT, RICHARD, Professor and School Head, 2000, PhD Texas A&M, MS Texas A&M (BSCI)
*BURTON, MEGAN E., Associate Professor, 2012, PhD Alabama, MEd Kennesaw State, BS Auburn (CTCH)
BURTON, CHRISTOPHER G., Assistant Professor (GEOL)
*BUTLER, DANIEL, Associate Professor, 1989, PhD South Carolina, MBA BSBA Central Florida (MKTG)
BUTLER, AMANDA, Instructor, 2015 (HDFS)
BUTTS, IAN, Assistant Professor (FISH)
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CALDowell, FRED J., Associate Professor, 2005, DVM Auburn, MS BS Kentucky (VBMS)
CALHOUN, CATE, Librarian II, 2012, MALS Missouri; MA, North Carolina State; BA, Wake Forest
CALLIHAN, MICHAEL, Assistant Clinical Professor and EAGLES Center Coordinator, 2017 (NURS)
CAMARA, TRACY, Affiliate Faculty (CHEM)
*CAMMARATA, VINCENZO, Associate Professor, 1991, PhD Massachusetts Institute of Technology; BS California Institute of Technology (CHEM)
CAMPBELL, ANNIE, Assistant Professor, 2016, MFA Indiana University, BFA Virginia Commonwealth University (ARTS)
*CAO, YANZHAO, Professor, 2008, PhD Virginia Tech, MS BS Julin (MATH)
CAO, GUANQUN, Associate Professor, 2012, PhD Michigan State University, MS University of Science and Technology of China, BS Anhua University, China (MATH)
CAPONETTO, ROSETTA, Associate Professor, 2009, Connecticut, MA Bari, BA Bologna (FLNG)
*CARDULLO, VICTORIA, Associate Professor, 2013, Ed.D., M.Ed., B.S. University of Central Florida (CTCH)
*CARNEY, JAMIE S., Humana-Germany-Sherman Distinguished Professor, Department Head, 1992, PhD Ohio, MS Youngstown State (SERC)
*CARPENTER, LU ANN, Director, Student Program Assessment and Administration, 2003, PhD, Auburn University; MS BSIE Georgia Tech (INSY)
*CARPENTER, DAVID M., Professor, 2010, PhD Louisiana-Lafayette, MS BS South Alabama (MATH)
CARR, TESSA, Assistant Professor, 2013, PhD University of Texas Austin, MA Lousiana State University, BA Lees-McRae College (THEA)
CARRERO M., CARLOS A., Assistant Professor (CHEN)
*CARROLL, ALICIA J., Associate Professor, 1998, PhD CUNY, MA Columbia, BS Skidmore (ENGL)
*CARROLL, DANA G., Associate Clinical Professor, 2006, PharmD BSPharm Auburn (PYPP)
*CARTER, DAVID C., Associate Professor, 2000, PhD Duke, BA North Carolina (HIST)
CARTER, TONI M., Librarian II, 2009, MLIS, MA, Alabama; BS, North Alabama
CARTER, WILLIAM MATTHEW, Lecturer (ENGL)
CARTER, LES, Senior Lecturer (BSCI)
*CARVALHO, JOHN P., Associate Professor, 2003, PhD North Carolina, MA Cal State Fullerton, BA Auburn (CMJN)
CATALANO, MATTHEW, Assistant Professor, 2012, PhD University of Florida, BS Miami University (FISH)
CATTLEY, RUSSELL C., Professor and Department Head, 2011, VMD PhD North Carolina State University (VMED)
CAUDLE, DANA M., Librarian III, 1992, MLIS Texas, BA Rice
*CEBOLLERO, PEDRO, Associate Professor, 2006, PhD Boston, MA Rhode Island, BS Puerto Rico (FLNG)
*CEGIELSKI, CASIMER G, Professor, 2000, PhD Mississippi, MAc BA Alabama (AVSC)
CELESTINE, ASHA-DEE, Assistant Professor (AERO)
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CHAMBERS, ROBERT P., Visiting Professor, 1976, PhD California-Berkeley, MS BS California Tech (CHEN)
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CHANDLER, SARAH, Assistant Profess, 2016 (THEA)
*CHANON, PHILLIP L., Associate Professor, 1998, PhD Louisiana State, MA BS Arkansas (GEOL)
*CHANG, KAI-HSIUNG, Professor, 1986, PhD MS Cincinnati, dipl Taipei Institute of Technology (COMP)
*CHAPMAN, RICHARD O., Associate Professor, 1993, PhD MS Cornell, BA Oxford (COMP)
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*CHAPPELL, JESSE A., Associate Professor and Extension Specialist, 2002, PhD Auburn, MS BS Clemson (FISH)
CHARLES, JULIA S., Assistant Professor (ENGL)
*CHATTARAMAN, VEENA, Human Sciences Professor, 2006, PhD Ohio State, Master of Design Cincinnati, BBA Madras (CADS)
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CHEN, CHARLES, Associate Professor, 2012, PhD The University of Illinois at Urbana-Champaign, MS The Graduate School of Chinese Academy of Agricultural Sciences, BS Beijing Agricultural University (AGRN)
*CHEN, PETER Y., Professor, 2014 (PSYC)
*CHENG, ZHONG YANG, Professor, 2002, PhD MS BA Xian Jiaotong (MECH)
CHENG, DOMINIC, Assistant Professor (PSYC)
CHENG, XU, Assistant Professor, 2017 (ACCT)
CHIAFELE, ANNA, Assistant Professor, 2012, PhD University of Toronto, MA University of Virginia (FLNG)
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*CHIN, BRYAN A., Breeden Professor, and Director MREC, 1981, PhD MS Stanford, BS Auburn (MECH)
CHOE, SONG YUL, Professor, 1991, PhD Tech. Univ.-Berlin, BS Hanyang (MECH)

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CHRISTOPHERSON, PETER W., Associate Professor, 2008, PhD Auburn, DVM BS Wisconsin (VMED)

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CLARK-PRICE, STUART C., Associate Professor (VBMS)

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CRAIG, KATE, Assistant Professor, 2015 (HIST)

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CREMASCHI, LORENZO, Associate Professor (MECH)

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CROWELL, KENNETH, Instructor (ENGL)

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Admissions Requirements

Departments make admissions decisions based on the compatibility of the applicant’s goals with departmental resources, the availability of spaces for new students, and a holistic evaluation of the applicant’s potential for success in the program. Other considerations might typically include standardized test scores, grades and/or GPAs, letters of recommendation, writing samples, research or applied experience, and interviews.

To be considered for admission, the applicant must satisfy the following requirements:

1. The applicant must hold a bachelor’s degree from an accredited U.S. institution or provide proof of equivalent training from a recognized academic institution outside the United States. Equivalency is determined by international evaluators in the Graduate School.

2. The applicant must be in good standing at the institution last attended.

3. The applicant must submit standardized examination scores (GRE, GMAT, TOEFL, and/or IELTS) if required for application to the degree program. Applicants with an earned doctorate (Professional, EdD, PhD) from an accredited institution whose instruction is in English may be exempted from this requirement.

4. The successful applicant normally will meet one of the following: a) a GPA of at least 2.75 on all undergraduate course work at an accredited United States institution in fulfillment of the requirements for a baccalaureate degree; b) a GPA of at least 3.0 on all graduate course work at an accredited United States institution in fulfillment of the requirements for a graduate degree; or c) an acceptable GRE or GMAT score as determined by the program to which the applicant applies.

5. Applicants whose native language is not English must submit: 1) TOEFL scores of at least 550 on the written test (213 on the computer-based test); 2) 79 on the Internet Based Test with at least 16 in each section; 3) IELTS overall band score of at least 6.5; or 4) demonstrate English proficiency during an oral examination (interview) satisfactory to the examining committee and approved by the graduate dean.

6. The applicant must be recommended for admission by the graduate faculty in the applicant’s area of study. Departments may (and frequently do) establish higher standards than those described here, and may require that applicants submit additional materials. Applicants should contact the department to which they seek admission for information about additional requirements.

7. The applicant must disclose all institutions beyond secondary school, including Auburn University, which the applicant has previously attended; similarly, all course work and/or degrees must be disclosed. Withholding information requested on the
application for admission, including attendance at any other institution, or giving false information, may make the applicant ineligible for admission to the university or subject to dismissal.

Final evaluation of application files will not occur until all of the above requirements have been met. Applicants will be notified by the dean of the Graduate School when an admissions decision has been made. Some departments, operating with a limited number of spaces for students each year, make final decisions for the fall semester in early spring.

**Policies and Procedures for Admissions**

Auburn University is an equal-opportunity educational institution, and as a matter of policy, does not discriminate in its admissions policy on the basis of race, color, sex, religion, disability, sexual orientation, age, or national origin. Applications for resident and non-resident students are accepted for all curricula; however, the number of students and academic credentials of the applicants accepted for admission are determined by the availability of facilities and faculty.

**Admission of Transfer Students**

Transfer applicants must provide official transcripts (not duplicated or faxed copies) from each college attended, including any at which the applicant enrolled while in high school. A minimum 3.00 cumulative GPA on a 4.0 scale on all college work attempted and eligibility to re-enter the institution last attended are required to be considered for transfer admission.

**Application for Admission**

To apply for graduate study, submit to the Office of Graduate Admissions:

1. A formal application. Applications for admission are submitted online at www.grad.auburn.edu. Domestic applications must be accompanied by a fee of $60; international applications must be accompanied by a fee of $70. These fees may be paid online via credit cards or by checks or money orders (made payable to Auburn University).

2. One official transcript of all undergraduate- and graduate-level study from each school previously attended. An applicant who, because of current enrollment, cannot provide final transcripts at the time of application, must submit transcripts of all completed study, as well as incomplete transcripts from the current institution. Applicants do not need to provide transcripts for credits earned at Auburn University.

3. Standardized Graduate Record Examinations (GRE) general test scores are required for admission in all departments except the following: Clinical Mental Health Counseling; Industrial Design; Integrated Design and Construction; Landscape Architecture; Nursing; School Counseling; and Real Estate Development. The Physicians MBA program and the Executive MBA program do not require any standardized test for admission. The following programs require the Graduate Management Admissions Test (GMAT): Accountancy; Aviation and Supply Chain Management; Finance; and MBA. The following programs require the GRE or the GMAT: Hospitality Management and Management (GMAT preferred). The master of business administration program will allow the substitution of the GRE for the GMAT under some circumstances. International applicants must also submit Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) scores. Applications and dates for these tests may be obtained at many colleges and universities; by writing the Educational Testing Service, P.O. Box 6000, Princeton, NJ 08541-6000; by telephoning (609) 771-7670 for the GRE, (609) 771-7330 for the GMAT, or (609) 771-7100 for the TOEFL; or by accessing the Educational Testing Service website at www.ets.org.

4. Additional Materials. Academic programs typically require additional materials to evaluate an applicant's potential for graduate study. Prospective students must also contact the department in which they wish to study to obtain information regarding additional admission requirements, such as writing samples and letters of recommendation. With the exception of the application, official transcripts, and standardized test scores, which should be sent to the Graduate School, materials requested by programs should be sent directly to the academic department.

Admission to any graduate degree program is granted by the dean of the Graduate School upon the recommendation of the department of proposed study. Applications and all other relevant material must be received by the Graduate School at least 45 days before the first day of class of the semester in which the student wishes to begin graduate study. International applicants should submit all required materials at least 90 days before the first day of class of the semester in which the student wishes to begin graduate study. Deadlines set by the Graduate School are listed in the front of this Bulletin. However, most academic units make admission decisions several months in advance. Thus, applicants should check with the department to which they seek admission to determine when materials should be submitted. Approval is valid for a maximum of 12 months beyond the beyond the entrance date given on the application, with the approval of the program admitting the student. If the student does not register during this period, a new request for approval must be submitted. Application materials become the property of Auburn University and may not be returned to the applicant or forwarded to other institutions.
Admission of Transient Graduate Students

A graduate student in good standing in an accredited college or university may be admitted as a transient when faculty and facilities are available. To be eligible, the student must submit a special Graduate Transient Form prior to the beginning of the semester for which transient status is requested. The form, available from the Graduate School or on the Web at www.grad.auburn.edu, must bear the signature of the student’s department head and graduate dean or his/her designee. Transient status is granted for one semester only and does not constitute admission or matriculation as a degree candidate.

Conditional Admission

First-time applicants to Auburn University’s Graduate School who hold the bachelor’s degree from an accredited U.S. institution (or who provide proof of equivalent training from a recognized academic institution outside the United States) and who are otherwise academically qualified but who do not meet certain other requirements for admission may be admitted on a conditional basis.

These other requirements include but are not limited to the following: 1) scores above the minimum required on standardized tests of English language proficiency, 2) scores above the minimum required on the GRE or GMAT, or 3) the submission of official documentation (e.g., transcripts).

Departments may set higher standards or may not consider students for conditional admission.

International students whose English language proficiency is marginally below the Graduate School’s required levels are required to enroll in Auburn University’s Intensive English Program and satisfy proficiency requirements before enrolling in graduate-level course work.

Other students who are admitted on a conditional basis are given an opportunity to demonstrate that they can perform graduate-level work and can be expected to make reasonable progress toward earning a graduate degree. They may also be required to remedy deficiencies in undergraduate preparation by taking upper-division courses.

Conditionally admitted students must demonstrate their ability to perform at the graduate level by obtaining a “B” grade point average (3.0 on a 4.0 scale) in their first 12 semester hours of graduate-level work. These 12 semester hours must be completed within the first three consecutive semesters following admission.

Students admitted on a conditional basis will be fully admitted to the Graduate School only when all conditions for admission have been met, including the completion of at least 12 semester hours of approved graduate-level courses at Auburn University with a grade point average of at least 3.0.

Students admitted conditionally who fail to satisfy all conditions for admission within the allotted time period will be dismissed from the Graduate School.

McNair Scholars

The Graduate School recognizes the achievement of students who have successfully completed a Ronald E. McNair Postbaccalaureate Achievement Program by waiving the Graduate School application fee. A letter confirming participation in the program is required.

Active Military Personnel

The Graduate School recognizes the contributions of students actively serving in the United States military by waiving the Graduate School application fee. A letter confirming active duty status is required.

Correspondence Work Unacceptable

Study by correspondence shall not be counted toward a graduate degree.

Student Classifications

For administrative purposes, Auburn University students are assigned to a class level. Those that apply to graduate students are:

- MST - Students who hold full admission to Master’s programs.
- EDS - Students who hold full admission to Specialist in Education programs.
- PHD - Students who hold full admission to Doctor of Philosophy programs.
- GCRT – Students admitted to an approved Graduate Certificate program.
• GND – Students who hold a Bachelor’s degree (or post-baccalaureate degree) may apply for admission to the Graduate School as a non-degree student for personal development, to obtain or renew certification, or to take a limited number of courses preliminary to enrolling in a graduate degree program. No more than 12 hours of credit earned while enrolled as a non-degree student may later be counted toward a graduate degree; however, students officially enrolled in an approved graduate certificate program may count up to the maximum number of credit hours allowed by the certificate program toward a graduate degree. Non-degree students who later decide to pursue a graduate degree must re-apply for admission to the Graduate School and the graduate degree program.

• GPR – Students who meet requirements for provisional admission except that they have not taken the GRE or GMAT (if required by the admitting program) or have not submitted all transcripts. This classification is for one semester only, and satisfactory scores and/or all transcripts must be submitted by the end of that semester. This classification cannot be used by international students, who must submit official transcripts and satisfactory scores on all required examinations before they are admitted.

### Master's Accelerator Program

The Master’s Accelerator Program (MAP) eases the transition from a bachelor’s degree in your home country to graduate school in the U.S. It provides three simple routes to enter your graduate program at Auburn. MAP combines credit-bearing courses from your master’s degree with additional support, teaching, and cultural experiences, helping to ensure your future success. All MAP students complete a comprehensive series of English language, research, and professional development modules (the Professional Development Suite), and a series of credit-bearing graduate courses (the Academic Suite) prior to transferring into their intended degree program.

Auburn Global offers four ways for international students to enter their graduate program. The entry path that is best for you will depend on your qualifications and personal preferences. Choose from the Integrated Master’s Accelerator, the Master’s Accelerator (one term) or Master’s Accelerator (two or three terms). For more details on these options see: [http://www.auburglobal.org/about-map](http://www.auburglobal.org/about-map). Students in the Master’s Accelerator Program are enrolled in a minimum of 14 clock hours in Fall and Spring semesters, and 9 clock hours in summer.

Auburn offers 23 graduate programs through the Master’s Accelerator Program, in engineering, education, mathematics, and public administration, and community planning.

MAP students take a core curriculum* and credit bearing courses from their chosen master’s degree.

<table>
<thead>
<tr>
<th>Courses</th>
<th>Map 3</th>
<th>MAP 2- Sem 1/MAP 3-Sem 2</th>
<th>MAP 1- Sem 1/MAP 2 - SEM 2/MAP 3 - Sem 3</th>
<th>IMAP-semester 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support</td>
<td></td>
<td>Professional Development I (Optional CAP Program)</td>
<td>Professional Development Optional Sequence II (Optional CAP Program)</td>
<td>Optional, Custom-tailored</td>
</tr>
<tr>
<td>English</td>
<td>Graduate Academic English</td>
<td>English for Professional Purposes (EPP), English for Specific Purposes (ESP), &amp; The Art of Presenting—Advanced Oral Communications</td>
<td>Making the Case: Structure, Argument, and Composition in Research Contexts</td>
<td></td>
</tr>
<tr>
<td>Analysis</td>
<td>Special Topics (MATLAB)</td>
<td>The Active Research Colloquium I &amp; Data Management: Gathering, Analyzing, and Interpreting Data</td>
<td>The Active Research Colloquium II Tools of the Trade:</td>
<td>Optional</td>
</tr>
<tr>
<td>General Education</td>
<td>Special Topics (Engineering, Mathematics or Programming Language)</td>
<td>Graduate Course A</td>
<td>Graduate Courses A &amp; B (for those joining this term) Or Graduate Courses B &amp; C</td>
<td>Graduate Courses A+B+C</td>
</tr>
<tr>
<td>Credits</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>9</td>
</tr>
</tbody>
</table>

*This is a sample curriculum and may be subject to change.
Registration

- Leave of Absence (p. 1299)
- Withdrawing from Courses (p. 1299)
- Continuous Enrollment Policy (p. 1299)
- Exceptions to the Continuous Enrollment Policy (p. 1299)
- Inactive Status (p. 1299)
- Non-Graduate Students and Graduate Work (p. 1300)
- Non-Graduate Students Enrolled in Accelerated Bachelor’s/Master’s Degree Plans or in the Honors College (p. 1300)
- Registration and Graduation Requirements (p. 1300)
- Transfer of Credit from Other Institutions (p. 1301)
- Transfer to a Different Degree Program (p. 1301)
- Undergraduate Courses, S/U Option and Auditing Courses (p. 1301)

Leave of Absence

A student may be granted a leave of absence for medical reasons, family necessity or dependent care, military service, or other approved personal reasons. Students planning to discontinue enrollment for a semester or more must request approval for a leave of absence. Students may petition the Graduate School for a leave of absence for a maximum of two semesters during the entire program; however, the Graduate School may approve extensions to the maximum two semester leave of absence (e.g., for military service obligations extending beyond two semesters).

A petition for a leave of absence (or extension), signed by the Graduate Program Officer or head of the academic unit, must be approved by the dean of the Graduate School. The Graduate School may request appropriate documentation. The request must be filed and approved before the anticipated absence. An approved leave of absence will enable students to re-enter their program without applying for re-activation or owing retroactive tuition and enrollment fees.

A student on leave is not required to pay fees, but in turn may not use Auburn University faculty, facilities, resources, or services intended only for enrolled students; receive a graduate assistantship, fellowship or financial aid from the University or take any Auburn courses related to the plan of study.

Withdrawing from Courses

Courses may be dropped without academic penalty on or before mid-semester using the Schedule Adjustment form. A course may be dropped after mid-semester only under unusual conditions. When the Graduate dean approves dropping the course under such circumstances, a W will be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise a grade of WF (Withdrawn Failing) is assigned. A student dropping the only course or all courses for which the student is registered after the first class day must resign for the semester on a separate form obtained from the Graduate School.

Continuous Enrollment Policy

All full- and part-time degree-seeking graduate students must be continuously enrolled. Continuous enrollment is defined as registration for a minimum of one credit hour in at least two semesters in a given academic year (fall, spring, summer) until the degree is awarded or status as a degree-seeking student is terminated through an official university withdrawal. Students must register for the term in which they take their examinations, defend their dissertations, and complete degree requirements (including summer term). Although the Graduate School and individual graduate programs will monitor the enrollment status of graduate students, it is ultimately the responsibility of graduate students to ensure that they are meeting the enrollment provisions of this policy.

* Students who enroll for the first time during spring or summer semesters will not be declared inactive if they register in at least two semesters during their first full and subsequent academic years.

Exceptions to the Continuous Enrollment Policy

The Graduate School, if circumstances warrant, may grant exceptions to the Continuous Enrollment Policy. Appeals should be made directly to the dean of the Graduate School.

Inactive Status

Students who fail to register for at least two semesters in a given academic year will be declared inactive. To be re-activated, students must apply for re-activation to the program in which they were enrolled and the Graduate School. Students must also complete the re-
admission form. Re-activation is not guaranteed. In order to fulfill the continuous registration requirement, students who are re-activated must register retroactively for a minimum of one credit hour and pay the associated tuition and fees for all semesters that have elapsed since they were last enrolled --- up to a maximum of two semesters per academic year and a total of four semesters.

Non-Graduate Students and Graduate Work

An Auburn University undergraduate student may register for graduate courses provided that the following conditions are met: the student has at least a 3.0 GPA, is within 30 semester hours of graduating, has the written consent of the instructor of each graduate course, and obtains approval in advance from the Graduate School. A maximum of 12 semester hours of graduate course work taken in this option later may be applied toward a graduate degree at Auburn University with the approval of the student’s advisory committee provided that appropriate arrangements are made in advance with the Graduate School and a grade of B or higher is achieved on all courses used for graduate credit. The total course load taken at the time the undergraduate student is in a graduate course may not exceed 16 semester hours per semester. The same guidelines apply to undergraduate students taking graduate courses for undergraduate credit. A student may not use the same graduate course for both undergraduate and graduate credit. An exception is made for non-graduate students officially enrolled in the Honors College or an approved Accelerated Bachelor’s/Master’s Degree Plan (see Non-Graduate Students Enrolled in Accelerated Bachelor’s/Master’s Degree Plans below).

Any post-baccalaureate, non-degree student desiring enrollment in a graduate course must receive written consent of the instructor and approval of the Graduate dean in order to register for such a class.

Non-Graduate Students Enrolled in Accelerated Bachelor’s/Master’s Degree Plans or in the Honors College

An Auburn University undergraduate student officially admitted and enrolled in an approved Accelerated Bachelor’s/Master’s degree plan (ABM) may register for graduate courses that are listed as required or elective courses in the student’s ABM plan. Similarly, students officially admitted and enrolled in the Honors College may enroll in a limited number of graduate courses. A maximum of nine hours (in a 30-hour master’s program) or 12 hours (in a 36-hour or more master’s program) may be counted towards both degrees, provided that a grade of B or higher is achieved on all courses used for graduate credit. No courses may be counted for both undergraduate and graduate credit in a program in which the double counting of courses is prohibited by an accrediting agency. The total course load taken at the time the undergraduate student is in a graduate course may not exceed 16 semester hours per semester.

Registration and Graduation Requirements

Thesis and dissertation students needing thesis or dissertation final approval and submission and the final examination, or non-thesis graduate students needing to complete projects, would register for 7990 Research and Thesis, 8990 Research and Dissertation, or 7980 Project, as applicable. Non-thesis graduate students requiring only a final examination would register for GRAD 7000. Students may not register for GRAD 7000 for more than one semester.

No student will be permitted to graduate who fails to submit a graduation check request to the Graduate School prior to the semester of expected graduation. Graduation day is the official last day of each semester and, therefore, is the deadline for approved plans of study and graduation checks for graduation the following semester. It is the responsibility of graduate students to check records for compliance with graduation requirements. Students who have completed a graduation check for a previous term must notify the Graduate School of pending graduation before the 15th class day of each subsequent semester. Graduate degrees are awarded at the end of each semester. Candidates wishing to graduate in absentia must inform the Registrar’s Office.

A graduate student may carry a maximum course load of 16 hours per semester (14 in the summer term) including undergraduate courses. Graduate students must carry nine hours per semester or enroll in (GRAD 7AA0/GRAD 8AA0) with concurrent enrollment for a minimum of one hour of 7990/8990 to be classified as full-time students. Enrollment in (GRAD 7AA0/GRAD 8AA0) requires the completion of the form available at the Graduate School or at www.grad.auburn.edu.

Transfer of Credit from Other Institutions

Graduate credit taken in residence at an international institution or at a regionally accredited U.S. institution may be transferred when recommended by the student’s major professor, advisory committee, graduate coordinator, and when also approved by the dean of the Graduate School. Such transfer credit must fall within the time limits of the degree. Students seeking transfer credit must provide documentary evidence showing that the course is comparable to similar graduate courses at Auburn University and relevant to the student’s plan of study. Students must also provide an official transcript showing credit earned for the course. No prior commitment is made concerning whether transfer credit will be accepted. A student must earn at least 24 semester hours, or half of the total hours required for a master’s degree, whichever is greater, at Auburn University. A program that requires 30 hours of credit will be limited to 6 semester hours of transfer credit. The total number of credit hours that may be transferred from another accredited institution towards
Auburn University

A degree varies by program but must be less than 50% of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. In the case of graduate degree programs offered through joint, cooperative, or consortial agreements, the student must earn a majority of credits from the participating institutions. No transfer credit will be approved without an official transcript. No course on which a grade lower than B was earned may be transferred. Additionally, credit will not be allowed if the combined GPA on graduate work taken at other schools is less than 3.0 on a 4.0 scale, nor may transfer credit be used to improve the GPA on courses taken at Auburn University.

Students who are admitted to a graduate certificate program may use a limited amount of course work taken at another accredited university to meet certificate requirements, with the approval of the program faculty and the Graduate School.* The total number of credits transferred shall not exceed 40% of the total required for the Certificate. Total credits allowed to transfer may be less as determined by the Certificate Program. Such transfer credit must fall with the time limits of the certificate program. Students must provide an official transcript showing credit earned for the course and documentary evidence that the course is comparable to similar graduate courses in the certificate program at Auburn University. No course on which a grade lower than B was earned may be transferred.

*A student may not use the same graduate course for both undergraduate and graduate credit.

**Transfer to a Different Degree Program**

For a student to transfer from one department to another requires that the student be in good academic standing, a new application for admission and the usual application fee. Changes in application status (master’s to doctoral, doctoral to master’s) or enrollment status (master’s to doctoral or doctoral to master’s) must be requested by the applicant/student involved and endorsed by the department head or chair, major professor, and advisory committee for enrolled students and approved by the dean of the Graduate School. Current international students must recertify full financial sponsorship for the issuance of a new I-20 form.

**Undergraduate Courses, S/U Option and Auditing Courses**

A graduate student may register for undergraduate courses (1000-4000-level). For students enrolled in Graduate School, grades earned in undergraduate courses will not be used in calculation of the GPA for either retention or graduation, but will appear on the graduate transcript. This policy took effect with the posting of grades fall 1998. For courses taken before fall 1998, grades earned in undergraduate courses may be used in calculation of the GPA for retention, but not for graduation. A graduate student may elect any course to be graded under the Satisfactory (S)-Unsatisfactory (U) option, if the major professor so recommends. Students are not allowed to select this option after the 15th class day. Courses listed on the Plan of Study must be graded A, B, C, D or F except for those designated as S/U. Similarly a graduate student may elect to audit any course not on the Plan of Study. The student may not change from audit to credit after classes begin, but may change from credit to audit before the 15th class day. All uses of the S/U and audit option require approval of the Graduate School.

**Academic Progress**

- Incomplete Grades (p. 1301)
- Grades (p. 1302)
- Academic Standing (p. 1302)
- Advisors (p. 1302)
- Academic and Professional Progress (p. 1302)
- Academic Requirements for Students in the Professional Program of Veterinary Medicine (p. 1303)
- Student Athletes (p. 1303)
- Student Financial Aid Recipients (p. 1303)
- Veterans (p. 1303)

**Incomplete Grades**

A grade of “incomplete” must be removed within the following six months or it will be recorded permanently as an F and the course will have to be repeated. This applies regardless of the student’s enrollment status. A student not enrolled during the following six months is not exempt from this rule. No student may graduate until “incomplete” and “no record” grades are removed, and the removal must be completed at least three weeks before the date of graduation, regardless of whether the course is included on the Plan of Study.
Grades
To receive a graduate degree at Auburn University, a student must earn a cumulative GPA of 3.0 on a 4.0 scale on all courses carrying graduate credit. No more than nine hours beyond the student’s Plan of Study is allowed in obtaining the cumulative graduate GPA (CGGPA). No grade below C (including unsatisfactory grades for courses taken under the S/U option) is acceptable for credit toward a graduate degree. Each graduate course in which a grade below C is received must be repeated at Auburn University whether or not it is listed on the student’s Plan of Study. Both the original grade and the grade for the repeated course will be counted in calculating the CGGPA. Course credits transferred from another institution may not be used to satisfy this requirement. Courses retaken will not count against the nine-hour limit beyond the student’s Plan of Study in obtaining the minimum CGGPA.

Academic Standing
Only grades in Auburn University courses approved for graduate credit will be used in determining the overall GPA for continuation in the Graduate School. If at the end of any semester the cumulative graduate GPA (CGGPA) falls below 3.0, the student will be placed on academic probation. If the CGGPA remains below 3.0 after the next eleven credit hours of graduate enrollment (both graded and ungraded) or two consecutive terms (whichever comes first), the student will be placed on academic suspension.* Students on academic suspension may not hold a graduate assistantship. The student may be readmitted only after completion of a remediation plan recommended by the academic unit and approved by the Dean of the Graduate School. Course work taken as part of the remediation plan must be completed within two consecutive terms and may count toward both the student’s degree and CGGPA with the recommendation of the department head and the approval of the graduate dean.* Upon completion of the remediation plan, the student must have addressed academic deficiencies and have a CGGPA of 3.0 or above. Once approved by the graduate dean, remediation plans may not be amended or extended beyond the original deadline. If a student fails to complete the remediation plan as approved or if the student earns a grade of C or below while completing the remediation plan, the student will be dismissed from the Graduate School and the designation ACADEMIC DISMISSAL will be placed on the student’s official record.

*The summer term is counted as one of the consecutive semesters only if a student is enrolled during the summer term.

Advisors
The dean of the Graduate School is the general counselor to all graduate students. A faculty advisor or major professor will be designated for each student in accordance with departmental policy. There also will be an advisory committee for each student. The major professor generally serves as the chair of the advisory committee. In the case of co-chairs, at least one must be a member of the graduate faculty at the appropriate level at Auburn University. Some required forms and reports regarding the student’s program must be approved by the major professor, advisory committee, department head or chair and the dean of the Graduate School. Students should ascertain which signatures must be obtained.

Academic and Professional Progress
Monitoring the academic progress of graduate students and graduate teaching assistants on a regular basis is important to their success and to the success of Auburn’s graduate programs. The Graduate School requires that each department conduct — at least on an annual basis — an evaluation of the progress of each graduate student enrolled in a doctoral program and each Graduate Teaching Assistant (GTA). Departments are also encouraged to monitor the progress of all other degree-seeking students. Annually, each department will report to the Graduate School, confirming that the evaluation of all doctoral students and GTAs has been completed.

The student’s advisory committee monitors each graduate student’s progress toward a degree, and issues of professional and personal development may be considered. While failure to maintain academic standards is reason for dismissal, a student also may be dismissed from the Graduate School if progress is unsatisfactory in other areas.

In such cases, the advisory committee will prepare a statement of grievance and discuss it in a meeting with the student. The statement must have the unanimous support of all members of the committee. The student will be warned that corrective measures must be taken within a specified time to avoid action that might result in dismissal. The committee determines the period allowed for correction. Copies of the statement of grievance and summary of the meeting will be provided to the student, the department head/chair, and the academic dean.

If the deficiency is not corrected within the time allowed by the committee, a statement reiterating the grievance and recommending dismissal should be sent to the graduate dean with copies to the student, the department head/chair, and the academic dean.

The graduate dean will give the student an opportunity to respond and will make a final determination. The student and the advisory committee will be notified.
The action taken will not appear on the student’s official transcript, and release of information is restricted under the University’s policy on the confidentiality of student records.

**Academic Requirements for Students in the Professional Program of Veterinary Medicine**

All applicants and students in the professional program are subject to the academic and disciplinary regulations of the College of Veterinary Medicine in addition to those of Auburn University.

Any student who earns less than a 2.25 GPA for any term will be placed on academic probation (academic warning). A student who fails to earn a 2.25 GPA in each of the succeeding two terms of enrollment will be dropped from the rolls of the College of Veterinary Medicine for scholastic deficiency. In addition, a student who does not have a veterinary college cumulative average of 2.25 at the end of any academic year will be required to withdraw from the College of Veterinary Medicine.

Any student who receives a D in any course will be placed on academic probation. If the student receives a second D in the same calendar year or academic year, they will be required to withdraw from the College of Veterinary Medicine.

A student will be removed from academic probation after two terms, assuming they have met the terms of probation.

A student who makes a grade of F in any course will be required to withdraw from the College of Veterinary Medicine. If a student who is dismissed for academic reasons is re-admitted, they may be required to repeat additional courses as deemed necessary by the Admissions and Standards Committee.

Clinical courses are unique in that the art and skills to be developed in them can be acquired only through full participation in the laboratories. Attendance in these courses is required except in case of illness or other extenuating circumstances as may be judged by the involved instructor. Grading in these clinical laboratory courses is primarily by subjective evaluation. When a course involves student rotation through several disciplines or sections, the student must receive a passing grade in each area before a passing grade can be given for the course.

Any student who earns a D or F in any clinical rotation will be placed on academic probation. If the student receives a second F during clinical rotations, that student will be required to withdraw from the College of Veterinary Medicine. If the student receives a second and third D or F during clinical rotations, that student will be required to withdraw from the College of Veterinary Medicine. If the college admissions and standards committee permits re-admission, the student may be required to repeat all clinical experiences to meet the requirements for the clinical year.

**Student Athletes**

In addition to meeting the general academic requirements of the university, student athletes must meet all academic requirements, including those relating to satisfactory progress toward a degree, set forth in the legislation of the Southeastern Conference (SEC) and of the National Collegiate Athletic Association (NCAA).

**Student Financial Aid Recipients**

In addition to meeting the general academic requirements of the university, applicants for student financial aid funds must maintain Satisfactory Academic Progress to receive, or to continue to receive, assistance through federal, state, and institutional student aid programs. Descriptions of these Satisfactory Academic Progress requirements for distinct classifications of Auburn students are available from the Office of Student Financial Services.

**Veterans**

**Veterans’ Assistance**

Veteran students and/or their dependents may qualify for Federal VA Education benefits. To determine eligibility, contact the VA Education Center at 1-888-442-4551.

**Application Procedures:**


**Enrollment Certification for Federal VA Education Benefits**
1. Auburn University Veterans Resource Center (VRC) must have all appropriate documents stating student’s eligibility for Federal VA Education benefits. List of required forms is available on the VRC website: veterans.auburn.edu

2. Only courses required for student’s declared major at Auburn University will be certified to the VA.

3. Repeat courses to obtain a better passing grade will not be certified to the VA.

4. Additional electives not required for student’s declared degree plan will be certified to the VA.

5. Minors not required as part of my program of study will not be certified to the VA.

6. Students must attend all classes in which he/she is enrolled. Any change in enrollment (add/drop classes, major changes) will be reported to the VA.

7. Class beginning and ending dates, as well as the number of credit hours registered, have a direct impact on the student’s monthly housing allowance (BAH).

8. If a student wishes to not be certified for a particular semester, students will notify the VRC via email before beginning of term at veterans@auburn.edu

Federal VA Education Benefits:

- Application Procedures:
  - For veterans or dependents of disabled veterans, apply online at www.vets.gov (https://www.vets.gov) or ebenefits.va.gov (https://www.ebenefits.va.gov/ebenefits/homepage)

- GI Bill® Programs
  - Chapter 30: Montgomery GI Bill® (MGIB-AD)
    - This program of education benefits is generally for individuals who enter active duty for the first time after June 30, 1985, and have contributed to the College Fund
  - Chapter 31: Vocational Rehabilitation & Employment (VR&E)
    - Disabled veterans may be eligible for VR&E. Please contact a counselor for further information at (334) 396-1986
  - Chapter 33: Post 9/11
    - This program is for individuals who have served on active duty on or after September 10, 2001. This benefit is transferable to eligible dependents
  - Chapter 35: Dependents Education Assistance (DEA)
    - Children or spouses of disabled veterans may be eligible for education assistance if the veteran died while in service, dies as a result of a service-connct disability, or became permanently and totally disabled as a result of a service-connected disability.
  - Chapter 1606: Montgomery GI Bill®-Select Reserve (MGIB-SR)
    - Members of the Select Reserves and National Guard who enlisted, re-enlisted, or exhausted his/her enlistment period of six years after 1 July 1985 may be eligible for this program

Priority Registration:

Priority Registration is given to groups of students who fall under certain categories, including veterans. The priority status must be recognized by the Registrar’s Office when the time tickets are set in order for the student’s special registration status to be activated.

International Opportunities

- International Academic Opportunities (p. 1304)
- International Internships, Academic/Curricular Practical Training (p. 1305)
- English as a Second Language (ESL) Program (p. 1305)
- Office of International Programs (p. 1305)
- OIP International Student and Scholar Services (p. 1305)
- OIP Auburn Abroad Experience (p. 1305)

International Academic Opportunities

Access to international opportunities is provided throughout many colleges, schools, departments and other student support units. However there are several units on campus that provide specialized services for English language study, study abroad and international students attending Auburn University.
**International Internships, Academic/Curricular Practical Training**

Academic internship experience both within the US and abroad are highly encouraged for all disciplines and all AU students. Students interested in participating in such experiences should check with their academic units for specific requirements. For international students, practical training is available: UNIV 4920 Curricula Practical Training depending on US immigration status as Curricular Practical Training (F) or Academic Training (J). Students may also do academic internships abroad under Auburn Abroad. For further details on Auburn Abroad or CPT/AT students should check with the Office of International Programs.

**English as a Second Language (ESL) Program**

The ESL Program operates under the Assistant Provost for International Programs and offers English language instruction to international students and visiting scholars. It provides courses in oral and written proficiency to support international students enrolled in undergraduate and graduate degree programs, a course in classroom communication skills for international graduate teaching assistants, and an intensive English program involving 25 hours of instruction per week in listening, speaking, reading, writing, grammar, pronunciation, and TOEFL skills. It also operates an International Student English Center that develops international students’ and scholars’ English skills through tutoring and workshops at no charge. For additional information, contact: 316 Foy Hall, (334) 844-2122; email: raffadc@auburn.edu; or visit www.auburn.edu/esl.

**Office of International Programs**

The Office of International Programs (OIP) is a unit of the AU Division of Academic Affairs. Its mission is to provide leadership and relevant administrative support to academic units, faculty, students, and staff for the effective promotion and efficient adoption of Auburn University’s internationalization goals. The International Students and Scholar Service component of the OIP assists foreign national students, visiting scholars, and university employees in achieving their academic objectives. The Auburn Abroad unit of the OIP promotes and facilitates student and faculty participation in an international education experience through programs outside of the United States. For additional information, contact: Office of International Program, 228 Foy Hall; 334-844-5001; intledu@auburn.edu; or www.auburn.edu/international.

**OIP International Student and Scholar Services**

The ISSS unit of the OIP provides assistance and guidance to foreign national students, visiting scholars, and University employees regarding US immigration requirements and Auburn policies for studying and/or working at Auburn University. Documentation of eligibility for study in the United States, work authorizations, and other government documents required by international students, scholars, and employees are issued and monitored by the ISSS. Joint orientation programs are conducted in cooperation with the Office of International Student Life and other units of the University to assist students, visitors, and employees adapt to the AU community. Currently, the university has more than 1200 international students, visiting scholars, and employees from over 90 nations. Go to the section on International Student Services for additional information.

**OIP Auburn Abroad Experience**

The Office of International Programs (OIP) Auburn Abroad unit seeks to develop, expand and facilitate credit bearing study, internship and exchange opportunities outside of the United States. Each year more than 1000 Auburn University students participate in the Auburn Abroad experience. More than 90 percent of these students go on faculty led programs and Exchange Programs with the rest going on other university or provider programs. With some planning, credit earned through the Auburn Abroad experience can be integrated with Auburn University degrees and applied to core, major, minor, and elective courses. Students on Auburn University faculty-led programs and Exchange Programs will earn AU credit and will receive grades on their transcript. Students going on other university programs will earn transient/transfer credit for their courses abroad. If a student chooses to go on other university programs, they will need to be enrolled in an Auburn Abroad placeholder course to be able to use their financial aid.

Auburn Abroad experiences vary considerably in length and are available for all semesters including summer. Each college and school within Auburn University has programs abroad tailored to their students’ needs. The Auburn Abroad staff conducts Fall and Spring Study Abroad and Passport Fairs, and over 100 other information sessions each year to inform students about international opportunities. Both undergraduate and graduate students can participate in the Auburn Abroad Experience. Requirements for acceptance into the Auburn Abroad Experience include the following: (1) a minimum institutional cumulative GPA of 2.25 for undergraduates and 3.0 for graduate students, (2) the student must attain the age of 19 prior to the start date of program, (3) the student’s record must show no pending Auburn University judicial actions and the student must be in good academic standing in their college or school. Faculty directors for programs abroad may also have additional requirements. Although some programs require prior knowledge of a foreign language, there are many that do not.

Students considering any type of credit bearing experience abroad should start their Auburn Abroad Experience by attending either (1) a weekly, thirty minute general orientation session conducted by the Auburn Abroad Staff or (2) by attending a faculty led program...
orientation session. The Auburn Abroad Experience sessions are held every semester. Sessions are conducted on Thursdays at 3pm and repeated on Fridays at 11am in the Auburn Abroad conference room, 242 Foy Hall. These sessions include an introduction to the on-line Auburn Abroad application process, hints on searching for faculty led and other types of programs abroad, the credit approval process, transcript information, information on a variety of funding resources, and paperwork needed for scholarship, PACT and other benefit programs. Students interested in faculty led programs must contact the faculty director(s) for the dates of their orientation sessions. After students attend a study abroad orientation session, they are ready to start their on-line study abroad application, found at www.auburn.edu/studyabroad on the Program Search link. They need to complete this on-line application, submit a completed Course Approval Form, and respond to any Auburn Abroad Unit emails requesting additional information. The Course Approval Form requires special attention and students must obtain all required signatures including department chair and dean. The on-line application and requested materials must be completed and submitted by the deadline dates listed on www.auburn.edu/studyabroad to be considered. Current deadline dates are: Summer Programs: March 15; Fall Programs - April 30 and Spring Programs: October 15.

The OIP staff monitors students’ on-line applications and will enroll individual students in one of the following Auburn Abroad Full Time Placeholder courses: (UNIV 2940 / UNIV 2945 , UNIV 4940 / UNIV 4945 , UNIV 5940 /UNIV 5945 or UNIV 7940 / UNIV 7945 ). These placeholder courses will be listed on the students’ transcripts while they are abroad. Once students complete their course work abroad and the Auburn Abroad staff receives and processes their transcript through the registrar, then the actual, approved courses listed on their Course Approval Form will be listed on the students’ transcripts as Auburn University Credit. These processes and dates are subject to change and it is the individual student's responsibility to attend orientation sessions and check the website to insure that they are in compliance. In addition to receiving credit for an abroad experience, students enrolled in Auburn Abroad are provided opportunities to attend pre-departure sessions and will be enrolled in the Auburn University International Travel Assistance plan. Students will receive a FrontierMEDEX enrollment card and material to read concerning the assistance plan, health and safety issues. The Auburn Abroad staff, along with the Department of Safety and Security routinely monitor global situations and will provide assistance to students in distress abroad. Returning students are encouraged to become Global Tiger Peer Advisors when they return, share their “Global Tiger Tale” on the Auburn Abroad website and submit photos from their experience abroad for the annual student photo contest. For additional information please visit the OIP Auburn Abroad Experience Website at www.auburn.edu/studyabroad and/or send an email to: auab@auburn.edu.

Graduate Assistantships & Fellowships

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Tuition Waiver

Non-Alabama resident graduate assistants may receive a waiver of the out-of-state portion of their tuition if they are on at least a 25 percent graduate assistantship (new appointments beginning in Fall 2013 must be at 33 percent) and are paid a minimum monthly stipend set each year by the provost. Such graduate assistants who have been on assistantship for consecutive fall and spring semesters are eligible to have the out-of-state portion of their tuition waived for the summer semester whether or not they are on assistantship that semester. Students will need to contact the Graduate School to have this waiver applied.

Graduate Assistantships

Graduate assistant appointments are temporary. Continuation depends upon availability of funds, level of enrollment, research needs, and satisfactory performance. Salaries are paid in accordance with the budget policies and payroll procedures of the university. The Board of Trustees is obligated to pay certain fixed charges against the institution and thereafter pay salaries in full insofar as funds are available. If for any reason beyond the control of the Board of Trustees funds are not available, salaries will be prorated.

Each graduate assistant must be in a degree-seeking program and registered in the classification of MST, EDS, PHD, or GPR. The student also must be registered for at least one course (during each academic term of the assistantship), must satisfy the minimum course load specifications of the individual departments and must be making satisfactory progress toward the degree.
Workloads for graduate assistants are defined on the basis of a normal teaching load or the equivalent time in other duties as determined by each department head and the dean of the school or college in which the assistant is employed. For example, a one-third workload is one-third of a normal teaching load. Graduate students may hold multiple assistantships and the assistantships may come from different units on campus, but together they cannot add up to more than a 0.50 FTE (20 hours per week) appointment. Maximum course loads for graduate assistants are determined by individual departments. It is recommended that graduate students working more than half-time not carry a full academic load.

Requirements that graduate students register for hours not included in the plan of study as a condition of employment or to enhance credit hour production for administrative purposes are inappropriate. Similarly, requiring hours on the plan of study beyond the degree requirements established by the Graduate Faculty for such administrative purposes is also inappropriate unless the additional requirements are required by university policy.

International graduate students on F1 visas cannot hold a greater than 50 percent work appointment. International graduate students on F2 visas cannot hold a work appointment. Multiple assistantships for international graduate students cannot add up to more than a 50 percent work appointment.

International graduate teaching assistants who are assigned to scheduled lecture or laboratory sections must first be certified in spoken English proficiency. Certification may be attained through a minimum score of 50 on the Test of Spoken English (TSE) or a 23 on the speaking section of the Internet Based TOEFL offered by the Educational Testing Service or approval by the director of the English as a Second Language Program (ESL). Applicants who hold a baccalaureate degree from an accredited institution whose instruction is in English may be exempted from this requirement.

Types of Graduate Assistantships

Graduate Teaching Assistants (GTAs)
A Graduate Teaching Assistant must meet eligibility requirements and be supervised by an appropriate graduate faculty member. The GTA’s primary responsibility is to support the instructional mission of the University. For a student to be classified as a GTA, at least 50% of the student’s responsibility as a teaching assistant must be devoted to the direct instruction of students, typically in a classroom or laboratory setting.* The GTA’s responsibilities may also include, for example: advising or mentoring of students; proctoring exams; grading papers, homework, and/or projects; preparing instructional materials; or providing other general assistance in the instructional process. GTAs may not be given duties to support faculty research or duties primarily clerical in nature. Whatever their instructional responsibilities, GTAs must be supervised by a faculty member who is responsible for monitoring and evaluating their performance at least on an annual basis. GTAs who have no prior teaching experience must be given some form of training before being allowed to teach. Any GTA with primary responsibility for a course must have a minimum of 18 semester hours of graduate course credit in that field of instruction.

*GTAs are not permitted to serve as instructor of record for courses numbered 6000 or above, although they may assist with laboratories for such courses. Additionally, they may not teach or assist with a course in which they are enrolled.

Graduate Research Assistants (GRAs)
A Graduate Research Assistant (GRA) must meet eligibility requirements and be supervised by an appropriate graduate faculty member. The GRA’s primary duty is to engage in original, professional-level research under a faculty member’s supervision in the course of obtaining a graduate degree. The faculty supervisor determines the students’ specific duties and is responsible for monitoring and evaluating the GRA’s performance at least on an annual basis.

Graduate Extension Assistants (GEAs)
A Graduate Extension Assistant must meet eligibility requirements and be supervised by an appropriate graduate faculty member or extension agent. GEAs are responsible for various kinds of extension work and interaction with the public. The various branches of the Extension Service award these assistantships. A faculty member or extension agent should be responsible for monitoring and evaluating the performance of GEAs at least on an annual basis.

Graduate Assistants (GAs)
Graduate Assistants must meet eligibility requirements and be supervised by a faculty member, administrator, or other appropriate university employee. GAs are responsible for duties other than teaching, research, or extension. These responsibilities can be varied and could include performing administrative duties not related to the GA’s field of study or the instructional or research missions of the university. Whatever their responsibilities, GAs should be supervised by a faculty member, administrator, or other appropriate university employee who is responsible for monitoring and evaluating their performance at least on an annual basis.
Tuition waivers for graduate assistants not engaged in teaching, research, or extension are subject to taxation and income tax withholding.

Policy on Paid Leave for Graduate Assistants (GAs)
Graduate Assistants are non-exempt employees and are generally paid for hours worked. However, it is Auburn University policy that hourly-paid Graduate Assistants be paid during official university holidays and breaks, including Fall Break, Spring Break, and/or official University closures.

Annual Evaluation of Graduate Teaching Assistants and Doctoral Students
Policy: Effective beginning Fall 2014, the Graduate School will require that each department conduct -- at least on an annual basis -- an evaluation of the progress of each Graduate Teaching Assistant (GTA) and each graduate student enrolled in a doctoral program. Continuation is contingent upon satisfactory performance.

Reporting: Annually, each department will report to the Graduate School, confirming that the evaluation of all GTAs and doctoral students has been completed. In addition, the department will provide the Graduate School with a summary report of all instances in which a GTA or doctoral student has received an unsatisfactory review.

Expectations: Each department will be responsible for developing procedures (if not already in place) for the annual evaluation of the progress of GTAs and doctoral students. Following guidelines for best practices, the review should include at least the following:

• A student self-report and assessment of academic progress; teaching (if applicable); and research (if applicable) [prepared in advance of the review conference];
• A report prepared by the student’s advisor (and preferably at least one other faculty member, e.g., a member of the student’s advisory committee) that assesses the student’s academic progress; teaching (if applicable); and research (if applicable) that identifies strengths and weaknesses, and establishes expectations for the next year. The report may be augmented by reports from teaching supervisors or other members of the student’s advisory committee.
• An opportunity for the student to discuss the report in person.
• A signed copy of the written assessment should be placed in the student’s file and a copy given to the student.

Background Check Policy
The Graduate School requires that all graduate student employees (including hourly paid) have an approved consumer report and/or investigative consumer report (background check) as a condition for appointment. The information contained in these reports may be used to deny an individual employment or continued employment with Auburn University. The background report and its contents are deemed private and confidential and shall be disclosed only for the purposes described in “Procedures for Securing Background Reports for Graduate Students Before Hiring” to those University employees who have a need to know, or as otherwise required or permitted by law. This policy is effective for all graduate student employees whose new appointments begin on or after January 1, 2014.

Graduate Fellowships
Auburn University provides in-state tuition fellowships to most of its students holding graduate assistantships. Though administered through the Graduate School, applicants should contact the specific academic departments concerning eligibility and availability.

Graduate Assistantship Workload Policy
Graduate students may not normally hold an appointment of more than 50 percent, whether the appointment is from a single unit or multiple units. This policy also applies to internship appointments (whether called an internship or externship). Graduate students may hold multiple assistantships (assistantships and/or hourly employment) from one or more units on campus, but the cumulative appointments cannot add up to more than a 0.50 FTE (20 hours per week) appointment. This allows the students the time needed to devote to their academic programs. An exception is automatically allowed in the special case of a graduate assistant assigned to teach one four credit course and one three/four credit course. In such cases, appointments will be made at 0.58/0.67 FTE, respectively. Other exceptions may be requested, with compelling academic justification, in writing to the Provost by the dean. For multiple assistantships from different units, coordinating approval memos from the home unit and the hiring units are required. Please note that federal regulations limit the cumulative appointment for international graduate students to no more than a 0.50 FTE (20 hours per week) appointment.
Graduate Assistant Performance Improvement and Administrative Action Policy

FAILURE TO SATISFY PERFORMANCE STANDARDS

Performance Improvement Meetings – In addition to regularly scheduled performance reviews, when a supervisor determines that a graduate assistant is failing to meet satisfactory performance standards, the supervisor will meet with the assistant. Together, they will review the duties and responsibilities expected of the graduate assistant, and the supervisor will identify those areas in which the performance of those duties and responsibilities is judged to be unsatisfactory. The supervisor will then advise the graduate assistant that if his or her performance does not improve to a satisfactory level within a time period specified by the supervisor, the assistantship will be terminated. The time period established by the supervisor should provide a sufficient and reasonable time for the graduate assistant to demonstrate a satisfactory level of performance. In some instances, the graduate assistant’s failure to meet satisfactory standards of performance may be disruptive of the educational process (e.g., failure to appear for a teaching assignment, or failure to grade examinations in a timely fashion). In such instances, the graduate student should be advised that any subsequent failure to meet satisfactory performance standards may result in termination of the assistantship. As soon as possible following this meeting (generally within three working days) the supervisor will provide the assistant with a written summary of the meeting, including notice of areas of unsatisfactory performance and the time period specified for improvement to a satisfactory level. A copy will be sent to the department chair for review/approval and to the dean of the Graduate School.

Termination of an Assistantship — If a graduate assistant fails to meet acceptable standards of performance as prescribed in the performance improvement meeting, the supervisor will notify the department chair. The department chair will schedule a meeting with the supervisor and graduate assistant as soon as possible, generally within three working days. At that meeting, the graduate assistant’s performance will again be reviewed. If it is concluded that the graduate assistant has failed to meet acceptable performance standards, the department chair may terminate the graduate assistantship appointment. The department chair will provide a written notice summarizing the meeting and the action taken to the supervisor, graduate assistant, the dean of the college, and the dean of the Graduate School within five working days of the meeting.

ACTS OF MISCOURDCUT AND UNPROFESSIONALISM – Acts of misconduct or unprofessionalism may require prompt action. Such acts may include, but are not limited to

1. Refusing to obey reasonable and necessary instructions or job assignments, insubordination, or using abusive or unprofessional language in the workplace.
2. Indulging in offensive or obscene manner.
3. Drinking intoxicants on University property, with exception of events acting in accordance with the University Campus Alcohol Policy.
4. Using illegal drugs on University property.
5. Stealing or misappropriating University property or property belonging to students or university employees.
6. Scientific misconduct

Appropriate actions include termination of an assistantship, suspension of an assistantship for a specified period, and reduction of the FTE and/or benefits associated with that assistantship. If a supervisor believes a graduate assistant has engaged in such an act of misconduct or unprofessionalism, the following steps are to be taken.

For incident(s) of unprofessional acts or behavior which violate accepted norms of professional conduct, the supervisor will provide notice of the proposed administrative action to the graduate assistant and document the situation in a written report. In such cases, the graduate assistant may be placed on immediate administrative leave with pay from the assistantship duties, at the discretion of the supervisor. The report will be provided to the department chair to whom the supervisor reports, who will schedule a meeting with the supervisor and graduate assistant as soon as possible, generally within three working days. At that meeting, the incident(s) will be reviewed and the proposed administrative action may be affirmed, amended, or overturned by the department chair. The department chair will provide a written notice summarizing the meeting and his/her decision regarding administrative action to the supervisor, graduate assistant, the dean of the college, and the dean of the Graduate School within five working days of the meeting.

Additionally, for misconduct covered by the Student Code of Conduct or the Sexual Misconduct Policy, the case will also be referred to the Office of Student Conduct. Acts of misconduct may include, but are not limited to, theft, fraud, physical alteration, and sexual harassment, as defined in the Student Code of Conduct and the Sexual Misconduct Policy.

Supervisors and students should be aware that termination or reduction of the FTE of an assistantship, will have large financial impacts, which can be particularly problematic for a student if termination or FTE reduction occurs before the last class day of a semester. A description of the rules regarding graduate assistant benefits, including tuition fellowships http://graduate.auburn.edu/current-students/
Appealing Action Regarding an Assistantship — If a graduate assistant wishes to appeal a decision of administrative action regarding an assistantship, including termination, he/she may file a written appeal within five working days of receipt of the department chair’s written notice with the dean of that college. The graduate assistant will be notified in writing of the result of the appeal within five working days of the submission of the written appeal. The decision resulting from this process is final and not subject to further appeal.

Sexual and Gender Based Misconduct Policy Training for Auburn University Graduate Assistants

The Graduate School requires that all Graduate Assistants (including Graduate Teaching Assistants, Graduate Research Assistants, and Graduate Extension Assistants) have approved AU Sexual and Gender Based Misconduct policy training as a condition for continued appointment. The specific form of the required training will be determined in consultation by the Graduate School and the Office of Affirmative Action/Equal Employment Opportunity. The policy is effective beginning August 1, 2016.

Doctoral Degrees

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- Summary of Procedures for Doctoral Degree Programs (p. )
- Advisory Committee and Plan of Study (p. )
- Course Requirements (p. )
- Time Limit (p. )
- Dissertation (p. 1312)
- Annual Evaluation of Graduate Teaching Assistants and Doctoral Students (p. )
- The Doctor of Philosophy Degree (p. )
- Final Examination (p. )
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The doctor of philosophy is offered in administration of elementary and secondary education, administration of higher education, administration of supervision and curriculum, adult education, aerospace engineering, animal sciences, biological sciences (botany, microbiology and zoology), career and technical education, chemical engineering, chemistry, civil engineering, computer science and software engineering, counselor education, counseling psychology, discrete and statistical sciences, early childhood education, educational psychology, electrical and computer engineering, elementary education, English, English language arts education, fisheries and allied aquacultures, forestry and wildlife sciences, history, horticulture, human development and family studies, industrial and systems engineering, kinesiology, management, materials engineering, mathematics, mathematics education, mechanical engineering, music education (instrumental and vocal), nutrition and food science, physics, plant sciences (agronomy and soils, plant pathology, and entomology), poultry science, psychology, public administration and public policy, reading education, rehabilitation and special education, science education (biology, chemistry, general science and physics), and social science education (general social science and history), plus interdepartmental programs in biomedical sciences (anatomy, physiology, and pharmacology; large animal surgery and medicine; pathobiology; radiology; and small animal surgery and medicine), economics (agricultural economics and forestry), integrated textile and apparel science (consumer affairs and polymer and fiber engineering), and pharmaceutical sciences.

Admission

Prospective candidates for the degree of doctor of philosophy are admitted under the same procedures and requirements outlined in the general regulations elsewhere in this Bulletin. A student must be admitted to a specific doctoral program, but admission does not mean admission to candidacy for the degree, which occurs only after satisfactory completion of the general oral examination.

Summary of Procedures for Doctoral Degree Programs

The student should:

1. Obtain application forms from the Graduate School and apply by submitting all required materials to the Graduate School by the deadlines published in this Bulletin. The Graduate School forwards the application to the appropriate departmental screening committee. The department head or chair then makes a recommendation to the dean of the Graduate School, who sends a letter notifying the applicant of the decision.

2. Apply for an assistantship, if applicable, through the department involved.
3. Become familiar with the requirements for the doctoral degree as published in this Bulletin.
4. Consult with the departmental advisor and become familiar with departmental procedures.
5. Plan a schedule of study for the first semester with advisor.
6. Acquire necessary forms at the Graduate School or on the Web at www.grad.auburn.edu.
7. Establish an advisory committee through the major professor and department head or chair. Official appointment of the advisory committee occurs when the Plan of Study is approved by the Graduate School.
8. Prepare a Plan of Study approved by the advisory committee and department head or chair and submit to the Graduate School.
9. Complete course work, including language requirements, if any, as detailed in the Plan of Study.
10. Arrange for the general written and oral examinations through the advisory committee. After the written examination, schedule the general oral examination at least two weeks in advance using a form obtained from the Graduate School. The Advisory Committee and the Plan of Study must be approved and on file with the Graduate School prior to scheduling the General Oral Exam.
12. Request graduation application through AU Access no later than mid-term of the semester prior to the semester of graduation.
13. Register for at least one course the semester of graduation.
14. Prepare dissertation and submit a committee-approved first draft to the Graduate School for review and approval by the University Reader, who serves as the representative of the graduate faculty.
15. Study recommendations of the University Reader and make appropriate changes in the dissertation.
16. On approval of the dissertation by the dean of the Graduate School, arrange for final oral examination.

Advisory Committee and Plan of Study

After the student has enrolled in the doctoral program, an advisory committee should be selected by the student, major professor and department/program head or chair. The advisory committee is responsible for developing the student’s Plan of Study and conducting the doctoral general and final examinations. It should consist of at least four members of the Auburn University Graduate Faculty. Additional voting members may be appointed to the committee (including no more than one non-Auburn University faculty member, who must hold the terminal degree in the field). Three of the Auburn University affiliated committee members, including the major professor, must be members of the Graduate faculty at Level 2. The major professor must also be a graduate faculty member in the department/program granting the degree. The formal appointment of the advisory committee occurs when the Plan of Study is approved by the Graduate School.

The Plan of Study should be prepared by the student and the advisory committee and filed with the Graduate School at least one term prior to the term in which the student plans to graduate. The Graduate School recognizes that changes may be warranted, and a form is available for amendments as required by student needs, research interests and course availability.

Course Requirements

The minimum number of hours in a doctoral program is 60 semester hours earned through instruction beyond the bachelor’s degree, including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990 and must include at least 10 hours of 8990. Some departments require more than 60 semester hours, and requirements may vary according to a student’s background and interest.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master’s program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.
The dean of the Graduate School is authorized to approve alternatives to these course work requirements in exceptional cases and on an individual basis.

**Time Limit**

Programs and departments should conduct annual reviews of doctoral candidates to assess progress toward the completion of the degree. Students are expected to achieve candidacy within six years and to complete all requirements for the degree within ten years. Upon admission to candidacy, the student has four calendar years to complete all remaining requirements for the doctoral degree. The student’s time to completion begins with the earliest completed course approved for inclusion in the plan of study. If unable for any reason to complete the requirements on time, the student may petition, with the approval of the advisory committee, the dean of the Graduate School for a one year extension. Students failing to complete the degree in the allotted time revert to the status of an applicant and must petition, with the approval of the advisory committee, the dean of the Graduate School to retake the oral examination.

**Dissertation**

A dissertation is required of all candidates for the degree of doctor of philosophy. It shall constitute an original contribution to knowledge. The student conducts the research and prepares the dissertation under the direction of the major professor. Only dissertations prepared according to *Electronic Thesis and Dissertation Guide*, available on the Web at www.grad.auburn.edu/etd_guide.html, are accepted by the Graduate School. Submission of a dissertation is defined as the time at which the first complete draft of such is submitted to the major professor for review. All dissertations must be published by ProQuest/UMI. The student is required to pay for this service. Auburn University reserves the right to make copies of the dissertation, but the student retains all publication rights. Effective summer 2005, all dissertations must be published electronically through AUETD.

**Annual Evaluation of Graduate Teaching Assistants and Doctoral Students**

**Policy:** Effective beginning Fall 2014, the Graduate School will require that each department conduct -- at least on an annual basis -- an evaluation of the progress of each Graduate Teaching Assistant (GTA) and each graduate student enrolled in a doctoral program.

**Reporting:** Annually, each department will report to the Graduate School, confirming that the evaluation of all GTAs and doctoral students has been completed. In addition, the department will provide the Graduate School with a summary report of all instances in which a GTA or doctoral student has received an unsatisfactory review.

**Expectations:** Each department will be responsible for developing procedures (if not already in place) for the annual evaluation of the progress of GTAs and doctoral students. Following guidelines for best practices, the review should include at least the following:

- A student self-report and assessment of academic progress; teaching (if applicable); and research (if applicable) [prepared in advance of the review conference];
- A report prepared by the student’s advisor (and preferably at least one other faculty member, e.g., a member of the student’s advisory committee) that assesses the student’s academic progress; teaching (if applicable); and research (if applicable) that identifies strengths and weaknesses, and establishes expectations for the next year. The report may be augmented by reports from teaching supervisors or other members of the student’s advisory committee.
- An opportunity for the student to discuss the report in person.
- A signed copy of the written assessment should be placed in the student’s file and a copy given to the student.

**The Doctor of Philosophy Degree**

The doctor of philosophy is conferred in recognition of the mastery of a special field of learning as shown by the satisfactory completion of a prescribed course of study and investigation, the successful passing of general examinations covering the major and minor fields, the preparation of an acceptable dissertation reflecting high achievement in scholarship and independent original investigation, and the passing of a final examination on the dissertation and related subjects. The degree is a research degree. It is not conferred merely upon fulfillment of technical requirements, but awarded in recognition of the ability to think and work independently, originally, and creatively in a chosen field. Some departments have special requirements for the degree, and the student will be governed by those, including the ones listed in departmental statements under Courses of Instruction elsewhere in this publication.

**General Doctoral Examination**

A general examination, often called the “preliminary examination,” is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing by the student’s advisory committee (or by an examination committee designated by the student’s academic program) in the student’s major and minor. The written portion of the examination does not require approval in advance by the Graduate School. The oral portion, however, does require such approval. Arrangements for the oral examination must be made by
application to the Graduate School at least two weeks in advance of the examination. The primary purpose of the general examination is to assess the student’s understanding of the broad body of knowledge in a field of study. The examination also affords the advisory committee an opportunity to review the student’s proposed research and understanding of research methods and literature in the chosen field. If the general examination reveals deficiencies in any of these areas, the advisory committee may recommend remedial work, re-examination, or discontinuation of doctoral study.

The general oral examination should be conducted immediately after the successful completion of the written examination and well before the final examination. At least one complete semester (preferably more than one) must intervene between the general oral and final examinations. The two examinations thus cannot be taken either in the same semester or in consecutive semesters. Some departments have specific requirements for conducting these examinations, and the student should become familiar with these. Successful completion of the oral examination requires unanimous support of the student’s advisory committee. If the general oral examination is failed, a re-examination may be given on recommendation of the committee and approval by the dean of the Graduate School. Further examinations require exceptional circumstances and approval by the Graduate Council.

The student becomes a candidate for the degree on successful completion of the general examination.

Final Examination
After the dissertation has been completed (except for minor revisions) and has been approved by the student’s advisory committee, it is submitted to the Graduate School. A University Reader (a member of the graduate faculty [Level 1 or 2] who serves to represent the university’s graduate faculty and the Graduate School) will be appointed to review the dissertation. However, the student’s advisor may request appointment of the University Reader at any time rather than waiting until after the dissertation is drafted. When the Graduate School has received an approved evaluation from the University Reader, the student may apply for the final examination on a form sent by the graduate School. The application must be filed with the graduate School at least one week in advance of the final examination. The examination is administered by the student’s advisory committee. The University Reader also attends and participates. The examination, which generally is oral but may be both oral and written, includes the major and minor fields and a defense of the dissertation. Successful completion requires unanimous support of all members of the committee, including the University Reader. Any member of the Graduate Faculty may attend.

Language Requirement
Language requirements for graduate degrees vary with departments. The Department of Foreign Languages offers proficiency courses in a number of languages. The department also offers reading proficiency examinations for those students who wish to demonstrate proficiency without taking a course. Such students must apply to the Graduate School for these examinations by the deadline listed in the Graduate School calendar at the beginning of this Bulletin.

The Master’s Degree Program

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The minimum requirements for most master’s degrees can be satisfied in one academic year of two semesters or nine months. In practice, however, many students need three semesters or longer. Certain departments have special requirements as outlined in this Bulletin. In addition, those students who hold assistantships or fellowships, those who engage in time-consuming work off-campus, or those with scholastic deficiencies of any sort cannot meet all requirements in the minimum time. Also, research is unpredictable and
frequently requires more time than anticipated. Certain departments offer a master’s degree under two plans, referred to as the Thesis Option and the Non-Thesis Option.

**Summary of Procedures for Master’s Degree Program**

The student should:

1. Obtain application forms from the Graduate School and apply for admission by submitting completed forms and other required materials as outlined in this *Bulletin*.
2. Apply for an assistantship, if pertinent, with the department involved.
3. Become familiar with requirements for the desired degree as outlined in this *Bulletin*.
4. Consult with departmental advisor and become oriented to departmental procedures.
5. Plan schedule of study for the first semester with advisor.
6. Establish an advisory committee through the department head or chair and departmental advisor; usually done during the first semester of course work.
7. Prepare a proposed Plan of Study in consultation with the advisory committee. Submit a plan approved by the committee and department head to the Graduate School no later than mid-term of the semester prior to the semester of graduation.
8. Consult with the advisor on approval for the thesis plan, if pertinent, and become familiar with the *Electronic Thesis and Dissertation Guide*, on the Web (www.grad.auburn.edu/etd_guide.html).
9. Fulfill language requirements, if any.
10. Request graduation application through AU Access no later than mid-term of the semester prior to the semester of graduation.
11. Register for at least one course the semester of graduation.
12. Prepare thesis manuscript, if pertinent.
13. Arrange for final oral examination with advisory committee.

**Advisory Committee**

The student works under the direction of an advisory committee composed of three members recommended by the appropriate department/program head or chair. Two must be members of the Auburn University graduate faculty. Note, however, that for Master’s Non-Thesis, course-only degree options, only a major professor is required. The committee chair (or one of the co-chairs) must be a graduate faculty member in the department/program granting the degree. This committee will approve the student’s program of study, conduct required examinations and direct the required field project or thesis. Students in a teaching field (e.g., music education, science education, foreign language education) work under a committee composed of at least two members from the College of Education and one member from a related academic field. The names of the committee members are submitted to the Graduate School using the Plan of Study.

**Plan of Study**

Early in the graduate program, each student should confer with the appropriate departmental advisor or major professor to select courses and discuss research interests. Then a Plan of Study should be prepared and submitted to the Graduate School. The Plan of Study form is available on the Web at www.grad.auburn.edu. The Plan of Study must be submitted at least one term prior to the term in which the student plans to graduate. No student will be permitted to graduate who fails to submit a Plan of Study. Notification of all changes must be provided before the beginning of the final semester. One to three changes may be made by using the simplified “Change in Existing Plan of Study Form” available at the Graduate School or on the Web. Four or more changes require a new Plan of Study. The student is responsible for carrying out the planned program and for asking the major professor to make necessary changes.

**Time Limit**

All graduate work toward a master’s degree must be completed within a period of six calendar years. The student’s time to completion begins with the earliest completed course approved for inclusion in the Plan of Study.

**Language Requirement**

Some departments require a reading knowledge of one foreign language. These requirements are outlined in the departmental statements later in this section. Arrangements to take the foreign language examination should be made with the student’s major professor and the head or chair of the department. The student must apply at the Graduate School by the deadline for each semester listed in the calendar.
Master’s Degree Options

The following general regulations are minimum requirements. The professor or committee in charge of a student’s work may require more than the specified minimum in order to achieve a well-rounded program. All programs require a minimum of 30 semester hours of graduate courses, 6000-level or above.

The Thesis Option

The master of arts, master of science and master of industrial design are offered under the thesis option. Thesis students register for 7990 Research and Thesis in semesters when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations.

Major and Minor Subjects

A student under the thesis option must earn a minimum of 30 semester hours, of which at least 21 semester hours must be in a major area of concentration. Depending on departmental requirements or the wishes of the student’s advisory committee, the remainder of the course work may be taken within the major field or in a separate but closely related area. Specific requirements are set forth in this Bulletin.

If a student has not met all undergraduate pre-requisites in any field chosen for major or minor work, these should be scheduled as soon as possible, preferably before graduate work begins. The major professor will indicate these on the student’s Plan of Study.

The topic selected for the thesis must be approved by the student’s major professor and advisory committee. The student conducts the research and prepares the thesis under the direction of the major professor. The course, Research and Thesis, is number 7990 in all departments. The student must register for a minimum of four credit hours of this course but may register for as many hours as desired. No more than six hours may be counted toward meeting degree requirements. The student may register for one or more hours at a time. No grade is assigned for this course.

The Electronic Thesis and Dissertation Guide, which contains information about requirements for the thesis, is available on the Web at www.grad.auburn.edu/etd_guide.html. Submission of a thesis is defined as the time at which the first complete draft of such is submitted to the major professor for review. The Graduate School accepts only theses prepared according to the Guide. Refer to the Approval Process section in the Guide to have a final format check done. The Graduate School Calendar lists the deadline for acceptance of final approved theses by the Graduate School each semester. If the electronic thesis needs corrections, the student’s graduation may be delayed at least one semester. Auburn University reserves the right to make copies of the thesis, but the student retains all publication rights. Effective Summer 2005, all theses must be published electronically through AUETD.

At the discretion of the program, students may be required to pass a comprehensive examination independent of the required thesis defense. If a program requires a comprehensive examination, the program will publish and submit to the Graduate School a description of the scope and form of the assessment (e.g., comprehensive oral or written examination) and the process for appeal or re-examination should the student fail the examination.

The major professor will schedule the thesis defense not later than the deadline indicated in the Graduate School calendar. The thesis defense should be open to members of the Graduate Faculty as visitors. Successful completion of the thesis defense requires the unanimous support of all members of the advisory committee. If a student fails the thesis defense, one re-examination may be given on recommendation of the advisory committee and approval by the dean of the Graduate School. Further examinations will be allowed only under exceptional circumstances and with approval of the Graduate Council.

The Non-Thesis Option

At the discretion of the program, students may be required to pass a comprehensive examination. If a program requires a comprehensive examination, the program will publish and submit to the Graduate School a description of the scope and form of the assessment (e.g., comprehensive oral or written examination) and the process for appeal or re-examination should the student fail the examination.

Non-thesis graduate students who complete a special project must register for 7980 in semesters when working on the project. Non-thesis students requiring only a final examination register for GRAD 7000 in the semester when the exam is taken. Credit hours for 7990 Research and Thesis cannot be counted toward graduation requirements for non-thesis degree programs.

The Master of Arts

The master of arts is offered in communication (thesis and non-thesis option), English (thesis and non-thesis option), history (thesis and non-thesis option), sociology (thesis and non-thesis option) and Spanish.
The Master of Science


Second Master's Degree

For a second master's degree, the student fulfills all requirements applicable to any other master's degree, including the thesis, if appropriate. The student may, on recommendation of the advisory committee, transfer a limited number of credit hours from the previous master's degree. At least 24 semester hours, or 50% of the total hours required for the degree (whichever is greater) must be unique to each degree and be taken at Auburn University.

Special or Professional Master’s Degrees

These special or professional degrees are offered: master of accountancy, master of aerospace engineering, master of agriculture (agricultural economics, agronomy and soils, animal sciences, entomology, horticulture, plant pathology, and poultry science), master of applied mathematics, master of aquaculture, master of building construction, master of business administration, master of chemical engineering, master of civil engineering, master of communication disorders, master of community planning, master of design build, master of software engineering, master of education (curriculum and teaching, educational foundations leadership and technology, health and human performance, and special education, rehabilitation, and counseling school psychology), master of electrical engineering, master of forestry, master of Hispanic studies, master of industrial design (thesis and non-thesis option), master of industrial and systems engineering, master of landscape architecture, master of management information systems, master of materials engineering, master of mechanical engineering, master of probability and statistics, master of public administration, master of technical and professional communication, and master of biological studies.

The Specialist in Education Degree

- Admission (p. 1316)
- Advisory Committee (p. 1316)
- Requirements for Degree (p. 1317)
- Time Limit (p. 1317)

This degree is designed for professionals in education and human services areas who want increased competence in a field of specialization. Areas of specialization are offered in the various departments in the College of Education.

Admission

Scholarship, interpersonal orientation and potential for leadership are considered in the screening procedure. Appropriate experience in teaching or a leadership position in education or a human services area is requisite. All work beyond the baccalaureate must have been of high quality with a GPA of at least 3.0 on a 4.0 scale.

Advisory Committee

The specialist student works under the direction of an advisory committee composed of three members recommended by the appropriate department/program head or chair. All must be members of the Auburn University Graduate Faculty. The committee chair (or one of the co-chairs) must be a graduate faculty member in the department/program granting the degree. This committee will approve the student’s program of study, conduct required examinations and direct the required field project. Students in a teaching field (e.g., music education, science education, foreign language education) work under a committee composed of two members from the College of Education and one member from a related academic field.
Requirements for Degree

A minimum of 30 semester hours beyond the master’s degree must be taken in a program approved by the student’s advisory committee. The Plan of Study should be submitted to the Graduate School at least one term before the term in which the student plans to graduate. Professional educators pursuing sixth-year certification are responsible for adapting their Plans of Study to requirements in the states in which they will need advanced certification. A relevant field project, approved in advance by the student’s committee, must be completed under the supervision of the major professor. A final written report on the field project will be submitted to the advisory committee by the student. The advisory committee will conduct a final examination on the area of specialization and the field project.

No student will be permitted to graduate who fails to submit a Plan of Study and graduation check to the Graduate School prior to the semester of expected graduation. Graduation day is the official last day of each semester and, therefore, is the deadline for submitting Plans of Study for graduation the following semester.

Time Limit

All graduate work toward an Education Specialist degree must be completed within a period of six calendar years. The student’s time to completion begins with the earliest completed course approved for inclusion in the plan of study.

Graduate School General Policies

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Points of Contact

GEORGE T. FLOWERS, Dean
MARIA WITTE, Associate Dean

The Graduate School is open 7:45-11:45 a.m. and 12:45-4:45 p.m., Monday through Friday.
Calendar
The university operates on the semester system. The Graduate School calendar at the beginning of this Bulletin is also available at the Graduate School and contains the dates of various important deadlines. It should be followed carefully.

Graduate Study and University Employees
An Auburn University faculty member or employee may pursue a graduate degree with the approval of the head or chair of the employing department and the dean of the employing school or college. Inquiries should be made to the dean of the Graduate School.

Academic Programs and Curricula
An academic program is an organized plan of study which, when successfully completed, is recognized by the awarding of a degree. It includes all courses and related activities required by the university and those required by a school, college, department or interdisciplinary program. At Auburn University, the minimum number of hours in a doctoral program is 60 semester hours earned through instruction beyond the bachelor’s degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses 7990 and 8990 and must include at least 10 hours of 8990. Some departments require more than 60 semester hours and requirements may vary according to a student’s background and interest. The minimum number of hours in a master’s degree program is 30 semester hours of courses, 6000-level and above.

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

A graduate minor is an organized sequence or cluster of courses offered by a department or interdepartmental program. Not all departments or interdepartmental programs offer a minor. At Auburn University, the term graduate minor designates those sequences or clusters of courses that have been formally proposed as minors by departments or interdepartmental programs and approved by the Graduate Council. The minimum number of semester hours in a minor is nine, all of which must be in courses at the 6000-level or above and must be completed at Auburn University.

Accelerated Bachelor’s/Master’s Degree Plan
The Accelerated Bachelor’s/Master’s Degree Plan allows Auburn students in some academic programs to count up to nine approved hours (in a 30-35-hour master’s program) or 12 approved hours (in a 36-hour or greater master’s program) toward both a bachelor’s and a master’s degrees. These hours must be at the graduate level.

To be considered for admission, students must have completed at least 45 credit hours and no more than 96 credit hours, including advanced placement credits. Transfer students must have completed at least 24 credit hours at Auburn University. All students must have a cumulative GPA of 3.0/4.0 or higher on course work completed at Auburn. Individual graduate programs may set higher standards or require additional criteria for admission to the accelerated degree program.

Students must complete an “Application for Admission to the Accelerated Bachelor’s/Master’s Degree Plan,” and work with a graduate advisor in the degree-granting department to complete an approved Plan of Study, including: a) a list of the courses that count toward both the undergraduate and graduate degree; and b) the projected dates for the completion of the bachelor’s and master’s degrees. Students in the Honors College remain eligible to graduate with Honors while participating, and should consult with an Honors advisor.

Students must maintain a cumulative GPA (CGPA) of 3.0/4.0 or higher on Auburn University coursework; if the student completes the bachelor’s degree requirements with a cumulative GPA of less than 3.0/4.0 at Auburn, the student cannot double-count credit hours and is terminated from the program.
Students must apply for admission to the Graduate School by the prescribed deadline. Admission to the Accelerated Degree Plan does not guarantee admission to the Graduate School. Students cannot opt to bypass the bachelor's degree.

Students may withdraw voluntarily from the Accelerated Plan at any time. Students must notify, in writing, the graduate program officer and the coordinator/director of undergraduate studies in their respective departments. Students who withdraw from the program voluntarily or because they do not meet program requirements will not be awarded graduate credit for double-counted courses. Students may contact their major program to see if it participates or visit the Graduate School's website for a listing of current ABM plans: http://grad.auburn.edu/abm.html.

Graduate Study and University Employees

An Auburn University faculty member or employee may pursue a graduate degree with the approval of the head or chair of the employing department and the dean of the employing school or college. Inquiries should be made to the dean of the Graduate School.

Class Attendance

Students are expected to attend all their scheduled classes. College work requires regular class attendance as well as careful preparation. Specific policies regarding class attendance are the prerogative of individual faculty members. Faculty shall inform each class in writing at the beginning of the course regarding the effect of absences on the determination of grades.

The student is expected to carry out all assigned work and to take examinations at the class period designated by the instructor. Failure to carry out these assignments or to take examinations at the designated times may result in an appropriate reduction in grade, except as provided below.

Instructors shall determine the policy regarding grading which they feel is best for the course. This policy shall be presented to the class, in writing, at the beginning of the term and will govern the actions of the instructor in the course.

Arrangement to make up missed major examinations (e.g. hour exams, midterm exams) due to properly authorized excused absences (as defined by the Student Policy eHandbook) shall be initiated by the student within one week from the end of the period of the excused absence. Normally, a make-up exam shall occur within two weeks from the time that the student initiates arrangements for it. Instructors are encouraged to refrain from giving make-up examinations during the last three days prior to the first day of final examinations. The format of make-up exams and opportunities for students to make up work other than major examinations are at the discretion of the instructor whose make-up policies should be stated in writing at the beginning of the term. Instructors are expected to excuse absences for:

1. Illness of the student or serious illness of a member of the student's immediate family. The instructor may request appropriate verification.
2. The death of a member of the student's immediate family. The instructor may request appropriate verification.
3. Trips for members of the student organizations sponsored by an academic unit, trips for university classes, and trips for participation in intercollegiate athletic events. When feasible, the student must notify the instructor prior to such absences, but in no case more than one week after the absence. Instructors may request formal notification from appropriate university personnel to document the student's participation in such trips.
4. Religious holidays. Students are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays.
5. Subpoena for court appearance.
6. Any other reason the instructor deems appropriate.

If the instructor does not appear within 20 minutes after the designated class hour, it may be assumed the class is canceled.

It is university policy that all classes will meet as scheduled on the last day before and the first day after holiday periods designated by the university.

Unresolved problems regarding class attendance or procedures should be referred to the University Student Academic Grievance Committee.

Examinations

Examinations are classified as (1) final examinations at the end of each term; (2) special examinations; and (3) other course examinations as determined by the instructor.
Announced tests in graduate courses will be administered at a regularly scheduled meeting of the course. Exceptions to this regulation may arise in specialized courses requiring performance or oral tests, and in multiple-sectioned laboratory classes requiring practical laboratory tests. Faculty having sound reasons for scheduling tests at times other than regularly scheduled meeting times are to obtain approval from the department head prior to the beginning of the term, and are to present a written schedule of these changes to the class during the first few days of the term. Rescheduled tests are not to interfere with other scheduled academic endeavors of the students involved, and an appropriate reduction in regularly scheduled class time is to be given to compensate for the rescheduled test period.

Student Academic Grievance Policy

The Student Academic Grievance policy, which appears in full in the Student Policy eHandbook, is designed to resolve academic grievances of students which result from actions of faculty or administrators.

Grades

Grade Definitions

Final passing grades are A, superior; B, good; C, acceptable; D, passing; and S, satisfactory. Final failing grades are F, failure; FA, failure for excessive absences; U, unsatisfactory; NR, no grade reported; and WF, officially dropped with permission of the student’s dean but failing at time of withdrawal and is calculated into the GPA. (For the definition of W, see the following section on Grade Assignment for Class Withdrawal.)

A TD, thesis and dissertation research credit, is assigned to courses 7990 Research and Thesis and 8990 Research and Dissertation.

A grade of IP (In Progress) is used by professional programs, specifically Pharmacy and Veterinary Medicine, for those courses that extend beyond the end of the regular term. Students who are making progress toward completion of their work but have not completed all course requirements may receive the IP grade. The IP grade is not calculated in the GPA until the grade is cleared.

Grades of SA and SN may be assigned in certain specialized classes in which progress to the next level of a program depends on performance in the class. In such cases, a grade of SA in a particular course may be required for advancement. A grade of SN will give the student appropriate earned credit, but will not allow the student to advance in that program.

An NR is assigned systematically when the instructor does not assign a letter grade.

Faculty Policy on Assigning Grades of Incomplete (excludes Distance Education courses)

Effective Fall 2007, student (or appropriate representative) must contact the instructor in writing prior to the submission of final course grades to request a grade of Incomplete due to documented reason (illness/death in family/etc.).

If a student does not request an IN, the instructor should grade the student based upon the percentage of course work completed to date and using a 0 for any exams/assignments not completed.

To be eligible for a grade of IN, the student must have completed (and have passed) more than half of all class assignments for the semester or summer term.

The instructor must fill out the Incomplete Grade - Memorandum of Understanding form, indicating:

• reason for the IN,
• percent of course work currently completed at the time of submission and the grade average on that work,
• detailed information about the additional work needed to complete the course,
• timeline to complete the work (6 months maximum; preferably sooner), and
• grade the student should be assigned if the additional work is NOT completed by the deadline set for the completion of the work; the missing work is calculated as a 0.

Grades of Incomplete automatically become the grade identified by the instructor, if not cleared within 6 months.

If the instructor assigning a grade of IN leaves Auburn University, the Department Head should make a reasonable attempt to contact the former instructor and then assign a grade based upon the work presented by the student and the information provided on the Incomplete Grade - Memorandum of Understanding form.

Once an IN has been changed to another grade it may not be changed, in the future, to a different grade without approval of the provost.
Documentation of class work must be maintained by the student; the Incomplete Grade-Memorandum of Understanding form must be maintained by the student, faculty and the Office of the Registrar. For instructors who submit the IN Grade forms to the Office of the Registrar prior to course grades being rolled to academic history, the IN will be reflected on the electronic grade roster; faculty will be unable to change that grade on the electronic grade roster.

Instructors should NOT enter a grade on the electronic course roster for those students who are to be assigned the IN grade but leave the grade blank. The system will automatically convert blanks to NR. Once the IN Grade form is received by the Office of the Registrar, that office will convert the NR to the IN grade.

It is the responsibility of the instructor to send a copy of the Incomplete Grade - Memorandum of Understanding form to the Office of the Registrar.

When the student has completed the outstanding work, it is the responsibility of the instructor to initiate the change of grade form and send it to the appropriate department/dean's office for additional signatures and transmittal to the Office of the Registrar.

These policies apply to all students in undergraduate and graduate courses.

**Faculty Policy on Grade Changes (includes NR; Excludes IN)**

Grades should be accurate when posted.

- Any change of letter grades (A, B, C, D, F, S, U, FA, and NR) should be made only in extraordinary situations.
- Any grade changes must be completed within 6 months of completion of the course.
- Any grade changes outside of this timeframe must also be approved by the provost.
- A final grade may be changed only by the written request of the instructor, with approval of the department head and dean, submitted to the registrar.
- A grade of F and additional penalties may be assigned for academic dishonesty. See the Student Academic Honesty Code section in the Tiger Cub for further information.

**Grade Assignment For Class Withdrawals**

A student who withdraws from a course prior to the 15th class day during a semester (or the fifth class day of summer term) will have no grade assignment; however, from the 15th class day during a semester (or the fifth class day of summer term) through mid-semester (mid-term) a W (Withdrawn Passing) grade will be recorded for the course. A course may be dropped with a W after mid-semester only under unusual conditions and only with permission from the student's dean. When approval for dropping the course under such circumstances is granted, a W may be assigned only when the instructor indicates that the student is clearly passing the course. Otherwise, a grade of WF (Withdrawn Failing) is assigned. All failing grades are calculated into GPA as grades of F.

**Grade Average and Quality Point Computation**

A 4.0 grade scale is used. An A equals 4.0; B, 3.0; C, 2.0; D, 1.0; and F equals 0.0. Only course work attempted at Auburn University is used in determining the grade report average and continuation-in-residence requirements. S and U grades do not enter into grade-point computations.

**S-U Grading**

Grades of S (Satisfactory) and U (Unsatisfactory) may be assigned only to courses approved to be graded S-U, and courses elected under the S-U option.

A graduate student may enroll in undergraduate courses, except for 6000-level courses taken for graduate credit, under the S-U option on the major professor's recommendation.

Students are not permitted to change from S-U grading to conventional grading or vice versa after the fifteenth class day of the fall and spring terms or the fifth class day of any summer term.

**Grade Reports**

Grade information may be obtained via tigeri at the Auburn University homepage, www.auburn.edu.

**Credit for Directed Studies**

The university policy on directed studies was approved effective August 2006. Auburn University offers directed readings courses, also referred to as special problems courses or independent studies, in accordance with established policy.
Directed readings courses allow in-depth study of a particular subject by a student who is well into her or his major and, in extraordinary circumstances, accommodate scheduling issues when no other remedy is available.

Directed readings courses should not normally be used as replacements for required courses or as a solution to routine scheduling problems.

Approval to Teach Course - A standard Approval for Independent Study/Directed Readings Form, available through the Office of the Provost website, will specify the necessary approvals and serve as the vehicle for obtaining them.

Classified or Proprietary Research

No thesis or dissertation should be based exclusively on a proprietary or classified research project, nor should a thesis or dissertation include proprietary or classified information. Any graduate student and advisor engaged in such research should identify an alternative topic for the thesis or dissertation. Should a thesis or dissertation include such information, the document must be rewritten with offending material excised.

Research Involving Humans

Auburn University established the Institutional Review Board for the Use of Human Subjects in Research (IRB) to evaluate research for compliance with the guidelines and policies of the U.S. Department of Health and Human Services, the Public Health Service, the Food and Drug Administration and other federal, state and local regulations. All research using human subjects – whether it is conducted by faculty, staff or students – must be approved in advance by the IRB, regardless of the source of funding, lack of funding or any other consideration. Research involving human subjects not approved in advance may be disallowed and may incur severe penalties for non-compliance with institutional policy. Information and review forms may be obtained from the Administrator for Special Programs, 307D Samford Hall, (334) 844-5966.

Activities Involving Animals

Auburn University’s Animal Resources Program requires compliance with the Animal Welfare Assurance negotiated with the Office of Protection from Research Risks/National Institutes of Health (OPRR/NIH). A major part of that Assurance involves the Institutional Animal Care and Use Committee (IACUC) that ensures compliance with the Assurance, the policies of the U.S. Department of Health and Human Services, the U.S. Department of Agriculture and all other federal, state and local regulations concerning care, treatment and use of animals. All activities, whether teaching, research, production or display of animals, and whether or not the activity is funded, must be approved in advance by the committee. The use of animals for any purpose that is not approved in advance by the IACUC may involve severe penalties for non-compliance with institutional policy and could jeopardize the university’s Animal Welfare Assurance filed with the OPRR and the NIH. Information may be obtained from the Director of Animal Resources, (334) 844-5667.

Academic Engagement

Any graduate student enrolled in a degree program culminating in a thesis or dissertation will directly engage in research and/or creative scholarship with the major professor, will have access to the tools needed for the research/scholarly activity, will be immersed in the culture of graduate education, will engage in the professional activities of the discipline, and will complete the research/scholarly activity in a reasonable period of time.

Academic Integrity and Student Conduct

Graduate students at Auburn University are expected to adhere to established standards of academic integrity, personal conduct, and professional conduct. The primary code of conduct is detailed in the Auburn University Code of Student Discipline.

Academic units may also define and publish standards appropriate to their disciplines as well as describing the processes for resolving disputes and appealing decisions. Students found in violation of policies defining academic integrity, personal conduct, and professional conduct may be subject to dismissal from the Graduate School.

AUETD Publication and Access Policy

AUETD is an online database of electronic theses and dissertations (ETDs) submitted by Auburn University students in partial fulfillment of the university’s graduate degree requirements. Its purpose is to make Auburn University’s ETDs widely available to the public and easy to find online. The ETDs in the AUETD database are indexed by Google and other internet search engines and may appear in search results for those search engines. Graduate students who want to limit access temporarily to the full text of their ETD must choose one of the limited access options during the ETD submission process (see options below). Students who choose to limit access to their ETD should be aware that basic bibliographical information about their ETD (including the abstract) will appear in the AUETD database and that the full text of their ETD will become publicly available immediately upon the expiration of the time limit.
Limited Access Options

1. **Unlimited access:** Publication in AUETD with unlimited access is immediate and irreversible. Once a thesis/dissertation is published in AUETD, access via the world-wide-web may not be denied or reversed.

2. **Limited access:** Upon request, students may limit access to their thesis/dissertation only to users with a valid AU userid and password for a limited time period. Upon request, limited access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.

3. **Withheld access:** Upon request, students may withhold access to their thesis/dissertation to all users for a limited time period. This means that all users, including the students and their advisory committees are denied access to the thesis/dissertation in AUETD. Upon request, withheld access is granted for a period of time not to exceed: i) six months; ii) one year; iii) two years; or iv) five years. Unless the student petitions to extend the period of limited access, the thesis/dissertation will be published with unlimited access immediately upon the expiration of the time period.

4. **Copyright.** If students plan to copyright some or all of their thesis/dissertation, these plans should be discussed in advance with the major professor, especially if the thesis/dissertation includes shared data.

Online Offerings of Thesis and Dissertation Course Work

Recognizing the importance of global research and professional opportunities, international travel, and the wide-spread availability of technologies that bring remote research and scholarly partners together, the Graduate School allows thesis and dissertation coursework to be completed by means of online education in approved courses: Research and Thesis (7996) and Research and Dissertation (8996). Graduate students engaged in on-campus study must not be enrolled in Research and Thesis (7996) or Research and Dissertation (8996). At the time of enrollment, the major professor certifies compliance with this requirement.

General Regulations

Regulations listed here represent the minimums of the Graduate School. However, individual departments may impose more stringent requirements and students will be governed by them.

Exceptions to Graduate School Policies

Exceptions may be made to policies of the Graduate School under special circumstances. A person wishing to request an exception should write a letter to the dean of the Graduate School stating the nature of the request and the reasons for it. If a student is making the request, the letter should be submitted first to the major professor, who will write a letter of recommendation. Both letters go to the department head. If a member of the faculty is making the request, the letter goes to the department head, who will write a letter of recommendation. All letters go to the associated College/School dean for approval. Letters and comments then are forwarded to the dean of the Graduate School. A request for an extension of time to meet degree requirements must be justified. It must be accompanied by a proposed schedule for completion and assurance that the student is current in subjects included in the plan of study.

Graduate Certificate Definition

**Graduate certificate programs** constitute an integrated curriculum, but not necessarily one aligned with a specific academic program. They may exist within programs, bridge programs or offer content widely useable across programs. Graduate certificate programs consist of a minimum of 9 and maximum of 21 hours of graduate-level course work. The course work may be graded or non-graded. A minimum GPA of 3.0 must be maintained on all graded course work in the certificate program.

Graduate certificate programs pertain to graduate students, whether degree seeking or non-degree seeking. A graduate certificate is distinguished from graduate minors in two primary ways. First, graduate minors are intended exclusively for degree seeking graduate students. Graduate certificates may be directed to both degree seeking and non-degree seeking students. Second, there are limits to the number of course credits taken in pursuit of graduate minors that may be applied to a graduate degree (e.g., masters degrees require 21/30 hours to be in the major discipline). The limiting factor in the application of certificate course credits to graduate degrees is departmental policy or advisory committee recommendations. As an example, if a department developed a certificate program intended only for non-degree seeking students, that department could prevent those certificate courses from applying to a degree. However, in the absence of departmental policy, and with the approval of a student’s advisory committee, both degree seeking and non-degree seeking students (if they later change status to degree seeking) may include all certificate-related courses toward degree requirements.
When new graduate certificates are proposed, they undergo the full process of curriculum review. This same process applies regardless of delivery method (i.e., on campus and distance). Special requirements for applicants may be negotiated between the certificate proposing program and the graduate school at the time the program is proposed. Consistent with Graduate School policy related to the Masters and Specialist degrees, all requirements for a graduate certificate must be accomplished within 6 years unless departmental criteria for the certificate necessitate a longer time. Certificate Programs that require an exception to this 6-year time limit must be approved by the Graduate Council. Not only must the content of the proposed certificate be appropriate, but the availability of a viable group of graduate faculty to teach the courses in the certificate must be documented. Proposals for graduate certificate programs must identify a specific person who will serve as coordinator. Certificates that bridge departments must have a home department to which all certificate applicants apply. But each affiliated department must also designate a coordinator. Students who fulfill all requirements for a graduate certificate will have the certificate noted on their transcript when the Graduate School receives a memo signed by the certificate coordinator documenting the successful completion of all certificate requirements.

Graduate certificates are to be differentiated from professional development certificates. No comprehensive definition of the latter is offered here, however, in brief, completion of a professional development certificate does not require admission to the Graduate School and is awarded based on participation in non-credit work. The definition of graduate certificate does not limit the ability of departments or other units from defining, implementing, or awarding professional development certificates. Professional development certificates are not subject to the Auburn University curriculum process, nor are their achievement noted on Auburn University transcripts.

Graduate Curriculum Model Change

When a graduate curriculum model is changed, the changes apply only to students who matriculate after the approval of the changes and to currently enrolled students who voluntarily choose to complete the requirements of the new curriculum model. In no case, for students who are continuously enrolled, will the changed curriculum compel them to accumulate additional hours and grade points to graduate. Curriculum model changes are to be implemented at the beginning of the semester in which the largest number of new students typically enroll (fall semester for most programs). Graduate students who have not been enrolled at Auburn University for two or more semesters and who are returning to the same curriculum may be subject to different university, college, school or departmental requirements than those which existed when continuous enrollment ceased.

Institutions with Special Affiliations

By special arrangement with Florida A & M University, the Graduate School application fee is waived for students applying from this institution.

Oak Ridge Associated Universities

Auburn University has been a sponsoring institution of the Oak Ridge Associated Universities (ORAU) since 1946. ORAU is a private, not-for-profit consortium of 82 colleges and universities and a management and operating contractor for the U.S. Department of Energy (DOE) with principal offices located in Oak Ridge, Tennessee. Founded in 1946, ORAU provides and develops capabilities critical to the nation’s technology infrastructure, particularly in energy, education, health and the environment. ORAU works with and for its member institutions to help faculty and students gain access to federal research facilities; to keep members informed about opportunities for fellowship, scholarship and research appointments; and to organize research alliances among our members in areas where their collective strengths can be focused on issues of national importance.

ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for DOE. ORISE is responsible for national and international programs in science and engineering education, training and management systems, energy and environment systems and medical sciences. ORISE’s competitive programs bring students at all levels, K-12 through postgraduate, and university faculty members into federal and private laboratories. Other ORAU activities include the sponsorship of conferences and workshops, the Visiting Scholars program and the Junior Faculty Enhancement Awards. Contact Dr. Bryan A. Chin, (334) 844-4784, for more information about ORAU programs.

Graduate Program Option Definition

A graduate program option is a formally approved variation of an academic program by the offering department which meets objectives that may be more specifically focused. These additional objectives are integrated with the basic program. A formal graduate program option must preserve the integrity of the academic program of which it is a variant. Specifically, the formal program option must 1) be in a recognized sub-field of the discipline; and 2) share at least half of the total credits of the degree program. Only formally approved graduate program options are designated on the transcript. Other less formal variants, which may carry the name of “track,” “concentration,” “emphasis,” or similar terms, are not designated on the transcript; however, all academic programs and designated
variations (whether called “options,” “tracks,” “concentrations,” “emphases” or some similar term) must be approved by the Alabama Commission on Higher Education (ACHE).

Two-Campus Studies
A student seeking a graduate degree at Auburn University, Auburn University at Montgomery, the University of Alabama, the University of Alabama at Birmingham, or the University of Alabama at Huntsville may take up to half the course work at another of these institutions. The courses taken must be approved in advance by the student’s Advisory Committee and the respective graduate deans. All credit must be earned at the two institutions in which the student is working, and none may be transferred from another institution. Students engaged in two-campus studies are required to meet the requirements of continuous enrollment at Auburn University.

Policy on Teaching Graduate Courses
The Auburn University Handbook states, "Lecturers and senior lecturers are not eligible for graduate faculty status." However, Lecturers and senior lecturers who otherwise meet graduate faculty criteria (level 1) for the department may be granted permission to teach graduate-level courses and/or serve on graduate student committees on an exceptions basis under the following conditions:

1. A Lecturer/Senior Lecturer desiring to teach a graduate course or serve on a graduate student committee should make a written request to the department chair.
2. If this request is acceptable to the majority of the department's tenure and tenure track graduate faculty and chair, a memo requesting such authorization will be submitted to the Graduate Dean for review and approval.
3. Authorization may be requested for teaching only, committee service only, or both.
4. No more than one Lecturer/Senior Lecturer may serve on a graduate student committee.
5. Authorization must be requested for each semester a graduate course is to be taught by a given Lecturer/Senior Lecturer.
6. Authorization must be provided each time that a Lecturer/Senior Lecturer serves on a graduate student committee.
7. The department will provide the faculty member with resources appropriate to the graduate service being provided. What constitutes appropriate support would vary by department, but the following points would generally apply:
   a. Service on a graduate committee should not simply be added on top of current service if the Lecturer is already performing at least 5% service and has an appointment that is supposed to be 95% teaching and 5% service. If a Lecturer serves on a graduate committee, other forms of service should be reduced, or the Lecturer should receive a higher percent of his or her appointment for service.
   b. In most cases, teaching a graduate course requires being completely up-to-date with the most recent research in the field. Appropriate support might include a course release for a Lecturer teaching the course for the first time.
   c. A lecturer should not teach a graduate course as an overload class.

Student Records
Confidentiality of Student Records
The university recognizes that the maintenance of student information and educational records is necessary and vital to assist the student’s education and development and to provide opportunities for university research and policy formulation. The university recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained.

The university will furnish annual notification to students of their right to inspect and review their educational records; the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the university decline to amend such records. This annual notice will be published in the Auburn University Bulletin and an electronic notification is sent to each active Auburn student.

The following guidelines have been developed to ensure the privacy rights of students. For the purposes of this policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the university. Classification as a student in one component unit of the university (e.g., an undergraduate program) does not imply that the person has been accorded the rights outlined below in other component units (i.e., graduate school, professional schools, branch campus).
Student Access to Records

Auburn University’s permanent student education record consists of one or more of the following: the official transcript of grades, competency evaluations, and any narrative evaluations. This is in accordance with guidelines established by the American Association of Collegiate Registrars and Admissions Officers and the State of Alabama policies on Retention of Records.

Students have the right to be provided a list of the type of educational records maintained by the university which are directly related to the student; the right to inspect and review the contents of these records; the right to obtain copies of these records; the right to a response from the university to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to Jan. 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition.

Students do not have access to instructional, supervisory or administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; employment records except when such employment requires that the person be a student; and the Alumni Office records.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. A physician or appropriate professional of the student’s choice may review these records.

Procedures for Access

The Office of the Registrar has a complete list of educational records maintained by the university which students may obtain. Students should contact the appropriate office to inspect and review their records. An office may require that a university official be present when a student inspects and reviews his or her educational records. Any questions concerning a student’s access to records should be directed to the registrar.

Amending Educational Records

Students may request that any information contained in their educational records which they consider to be inaccurate, misleading, or in violation of their privacy or other rights be amended or deleted from the records. (A grade or other academic scores may not be amended, except that the accuracy of recording the information may be challenged.)

Students who request that information in their records be amended should first direct their request to the official with primary responsibility for the information on the record. If the matter is not resolved to their satisfaction, students should direct their requests to the official’s dean or division head. If the matter is not resolved to their satisfaction, they may request a formal hearing.

Right to a Formal Hearing and Procedures for Decision

Students may request formal hearings to challenge information contained in their educational records. The hearing will be held in a reasonable time (not to exceed 45 days) and in a reasonable place. Students may be assisted or represented by persons of their choice, including an attorney, at the expense of the student, and shall be afforded a full and fair opportunity to present evidence relevant to the issue(s).

Students or their representative should request the hearing in writing and should specifically identify the information they seek to have amended. The request should be directed to the Office of the Provost/Vice President for Academic Affairs.

The Office of the Provost/Vice President for Academic Affairs will conduct the hearing and render a decision within a reasonable period of time after the conclusion of the hearing and the decision shall be based solely upon the evidence presented at the hearing. The student shall be notified in writing of the reason(s) for the decision and given a summary of the evidence.

If the decision is that the information in the student’s educational records is inaccurate, misleading or in violation of his rights and privacy, the statement(s) will be corrected or expunged from the student’s records.
If the decision is that the information is not inaccurate, misleading, or in violation of the privacy or other rights of the student and that the information or parts thereof are to remain in the student’s educational records, the student shall be notified and given the right to enter a statement in the records setting forth any reason for disagreeing with the decision of the Office of the Provost/Vice President for Academic Affairs. This statement shall be maintained in the records as long as the record or contested portion thereof is maintained, and if the contested educational record or contested portion thereof is disclosed by Auburn University to any party, the student’s explanation shall also be disclosed to that party.

The Secretary of Education has established a review board to receive complaints regarding violation of student’s rights. Students wishing to file a complaint directly to the review board should write to the Family Policy and Regulations Office, Department of Education, Washington, D.C. 20202. Detailed procedures for this complaint procedure are listed under section 99.63 of the regulations issued by the Secretary and will be furnished upon request by the registrar, Auburn University.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act, (34 CFR Part 99), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

**Release of Directory Information**

The university may release directory information without the student’s written consent. Directory information consists of student’s complete name; local address and associated telephone number; place of birth; parent/spouse name, address and associated telephone number; mailing address and associated telephone number; E-mail address; photographs, video or other electronic image; participation in recognized activities and sports; weight and height of members of athletic teams; dates of attendance; enrollment time status (full or part time); degrees and awards received; and most recent previous educational agency or institution attended.

A student may deny the release of directory information by completing an Address Change/Information restriction request form available in the Office of the Registrar, Langdon Hall. Students may also restrict directory information on tiger.i.

To deny the release of information regarding participation in recognized activities the student must notify the vice president for Student Affairs and the student’s academic dean in writing. To deny the release of athletic information, the student must notify the director of Athletics in writing. A former student, one who is not in attendance, must contact the appropriate offices to deny the release of information.

**Release of Educational Records**

The university will release a student’s educational record(s) upon the student’s written request. The student must:

1. Specify the records to be disclosed.
2. Include the purpose or purposes of the disclosure.
3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is university policy to furnish single copies of a student’s record at no charge.

The university may release student’s educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Auburn University, and other agents acting on behalf of the university. If university officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest. Auburn University has designated the National Student Clearinghouse as a university official.
2. Officials of another school in which the student intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities, and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to Nov. 19, 1974.
4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.
5. Organizations conducting studies for, or on behalf of, the university or its agencies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.
Policy on Withdrawals and Resignation

Withdrawal refers to the situation where a student drops a class or classes, but remains enrolled in at least one class (at least one credit hour) at the university that term. Resignation refers to the student dropping all classes (0 credit hours) and no longer being enrolled that term.

Withdrawal from a Course. Students may withdraw from a course via the web up through the last business day prior to the opening of registration for the following term in spring and fall semester and the posted date in the summer. Students who withdraw from a course before the posted term census date (15th class day in spring and fall and 5th class day in summer) will have no grade assignment and no record of having attempted the course on the transcript. Students who withdraw after census and on or before the withdrawal deadline will have a grade of W for the course recorded on the transcript. Grades of W are not used in calculating the term or cumulative GPA at Auburn University.

A course may be dropped after the withdrawal deadline only under unusual conditions and with special permission. Requests for medical withdrawals (serious physical and/or psychological illness of the student) must be verified and approved by the Office of Accessibility. A medical withdrawal is appropriate when, by recommendation of a licensed health care provider, a student cannot continue enrollment in one or more of his/her courses because of a serious physical and/or psychological condition. Because serious health conditions usually impact all courses, most requests for a medical withdrawal result in a medical resignation (see Resignation from all courses.) All other requests for withdrawals after the withdrawal deadline, based on extraordinary personal circumstances, must be approved by the student’s associate dean and subsequently by the designated representative from the Office of the Provost. When approval for dropping the course under such circumstances is granted by the Office of Accessibility or the Office of the Provost, a W may be assigned only when the instructor indicates that the student was clearly passing the course on the date of withdrawal. Otherwise, a grade of WF (Withdrawn Failing) is assigned. Grades of WF are used in calculating the term and cumulative GPA and have the same impact as a grade of F. In extraordinary situations, where it can be clearly demonstrated that a failing grade in the class at the time of withdrawal is directly related to the medical or personal situation leading to the withdrawal, a student may request a withdrawal without grade penalty. The request for withdrawal without grade penalty must be approved by the Office of Accessibility in the case of a medical withdrawal or the student’s associate dean in the case of a personal withdrawal, and finally by the designated representative from the Office of the Provost. The Office of Accessibility or the student’s Associate Dean will notify the student’s professors and ask for any additional information about the student’s progress in the class/ classes—and to determine the student’s grade.

Accommodation Policy for Students with Disabilities

Auburn University is committed to providing its students with an accessible campus and equitable learning environment. If you have a disability that requires academic accommodations, access to assistive technology training, or support services, contact the Office of Accessibility for additional information, 1228 Haley Center; 334-844-2096 (Voice/TT) or visit the Office of Accessibility website.
Resignation from all courses. Students are encouraged to contact their advisors and their academic deans before resigning. Resignations can impact financial aid, veteran’s benefits, international student standing, eligibility for varsity athletics, and on-campus housing.

Students may resign without grade penalty if they resign no later than mid-semester (mid-term in the summer). As with course withdrawal, a student may resign after mid-semester (mid-term in the summer) only under unusual circumstances, such as serious illness of the student, serious illness or death of a member of the student’s immediate family, or being called to active military service. A medical resignation is appropriate when, by recommendation of a licensed health care provider, a student cannot continue enrollment in his/her courses because of a serious physical and/or psychological illness. All requests for medical resignations (serious physical or psychological illness of the student) must be verified and approved by the Office of Accessibility. All other requests for resignations after mid-term, based on extraordinary personal circumstances, must be approved by the student’s associate dean and subsequently by the designated representative from the Office of the Provost. The Office of Accessibility or associate dean will obtain from the student’s instructors the records of the student’s scholastic standing at the time of resignation. In the case of personal resignations after mid-semester, the associate deans will send the information to the designee from the Office of the Provost who will review the request and decide on final approval.

If on the effective date of the resignation after mid-semester (or mid-term in the summer) the student is failing in over half of the total course hours (where total course hours exclude any grades of W previously recorded for the term), the number of hours reported as failing will be assigned grades of WF and will be used in calculation of the student’s term and cumulative GPA. The hours reported as passing will be assigned grades of W and will not be counted in the term or cumulative GPA at Auburn University. If the student is passing half or more of the total course hours (excluding any grades of W previously recorded for the term), the student will receive grades of W on all course hours and these grades will not enter into the calculation of the student’s Auburn GPA.

When a student is forced to resign after mid-semester, either for medical reasons or for compelling personal reasons, and when the medical condition or extraordinary personal situation can be determined to be the main factor causing scholastic deficiencies, discretionary power in waiving the scholastic penalty will rest with the Office of Accessibility in the case of medical resignations or with the Office of the Provost in the case of personal resignations. All such decisions must include input from the student’s instructors.

Enrollment in Terms Following a Medical Resignation. Students who plan to enroll in subsequent semesters or summer terms following a medical resignation will be required to submit medical documentation from a licensed health care provider which indicates readiness to return to an academic environment. Additionally, academic units reserve the right to request further documentation and/or other requirements specific to the student’s individual program of study. All documentation will be submitted to the Office of Accessibility and is kept confidential. A hold will be placed on the student’s registration until this documentation is submitted. If the student has already registered for the following semester, the schedule will be dropped if documentation is not submitted by a specified date and/or the student has not contacted the Office of Accessibility.

Retroactive Dating of Withdrawals and Resignations. Retroactive dating refers to establishing an effective date for withdrawal or resignation before the date that one is filling out the form, often, prior to midterm. For retroactive dating to be allowed, there must be a compelling reason that the forms were unable to be filed at the requested effective date.

Retroactive withdrawals/resignations are most frequently initiated when a student has documentation from a health professional (doctor/psychologist, etc.) verifying a medical condition, which is confirmed by the Office of Accessibility, and the medical condition prevented the student from withdrawing or resigning on the effective date.

When a student initiates any retroactive withdrawal/resignation, the student’s associate dean must determine if the retroactive withdrawal/resignation is based on a medical or non-medical justification/explanation. If the retroactive withdrawal/resignation is based upon a medical justification/explanation, the associate dean will direct the student to the Office of Accessibility. The medical documentation must identify why the student was so impaired that he/she was unable to withdraw/resign in a timely manner.

If the retroactive withdrawal/resignation is based upon a non-medical justification/explanation, the associate dean follows the procedures for all other (non-medical) withdrawals/resignations, gathering information from the instructors and submitting the documentation to the designee from the Office of the Provost. The Provost’s designee will determine why the student was unable to resign in a timely manner and if an earlier effective date is warranted.
If one or more of the student’s instructors has left Auburn University, the instructor(s) should be contacted by email, by the individual recommending the retroactive withdrawal/ resignation, for information. If the faculty member does not respond, the department head/chair should respond on behalf of the faculty member.

Retroactive withdrawals/ resignations should not be undertaken if more than two calendar years have passed since the course(s) was/were taken, without the direct review and approval of the Provost.

**Graduate Programs**

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- Agricultural Economics - MS, MAg (p. 1333)
- Agronomy and Soils - MS, MAg, PhD (p. 1336)
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Aerospace Engineering - MAE., MS, PhD

Program Degrees:

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- Aerospace Engineering (PhD) (p. 1333)

Graduate study in aerospace engineering leads to the degrees of master of science, master of aerospace engineering and the doctor of philosophy. The graduate program prepares students for careers in the aerospace industry, in government laboratories and in academia. Studies for the PhD also are designed to produce research scholars.

Applicants should have a bachelor’s degree in aerospace engineering or its equivalent from an institution of recognized standing, plus satisfactory GRE scores. Degrees in mathematics, physics and certain other engineering disciplines may also be appropriate for entrance into the graduate program. Applications must be approved by the department’s committee on graduate study.

For the master of science, the student must complete an approved program of at least 30 credit hours in aerospace engineering or closely related supporting subjects at the 6000-level or above. The master of science degree requirements include the completion of a thesis under the supervision of a major professor and an advisory committee.

For the master of aerospace engineering, the student must complete an approved program of at least 33 hours of course work at the 6000-level or above. A suitable project in aerospace engineering, culminating in a final written report approved by the student’s advisory committee, may be substituted for three credit hours of course work. An oral presentation is also required for the MAE degree.

For both the MS and MAE degrees, at least half of the required credit hours must be completed in aerospace engineering courses.

For the doctor of philosophy degree, the student must complete a minimum of 60 credit hours beyond the bachelor’s degree. A plan of study will be arranged on an individual basis and students may elect to specialize in the general areas of aerodynamics, computational fluid dynamics, control theory, flight dynamics, orbital mechanics, propulsion, structures or structural dynamics. A written qualifying examination and a general doctoral examination, with both written and oral parts, are required of all doctoral candidates. An oral defense of the doctoral dissertation is also required of each student.

There is no language requirement for the master’s or PhD degrees.

### Aerospace Engineering - MAE

**Aerospace Engineering - (MAE)**

Select 18 Credits in AERO Electives 6000-8999  
Select 15 Credits in Graduate Level Courses  
Total Hours

### Aerospace Engineering (Distance) - MAE

### Aerospace Engineering - MS

Graduate studies in aerospace engineering lead to the degrees of master of science and doctor of philosophy. The graduate program prepares students for careers in the aerospace industry, in government laboratories and in academia. Doctoral studies are also designed to produce research scholars.

Applicants should have a bachelor’s degree in aerospace or mechanical engineering or its equivalent from an institution of recognized standing, plus satisfactory GRE scores. Degrees in mathematics, physics and other related engineering disciplines may also be appropriate for entrance into the graduate program. Applications will be evaluated on an individual basis by the department’s graduate committee.

The master of science may be earned under either thesis or non-thesis options. For both options, a total of 30 semester graduate credits of 6000-7000 level courses are necessary and at least 21 credits must be in aerospace engineering or the AERO category. Substitution of up to six (of the 21) credit hours from other engineering and science disciplines is permitted with prior approval by the
Auburn University

graduate programs committee when appropriate courses are unavailable in aerospace engineering. The remaining nine graduate credits can be earned through technical courses in engineering, science or mathematics.

Students pursuing a master of science degree under the thesis option should include six hours of AERO 7990 (or 7996 for online students): Research and Thesis as part of their 30 hours. After the completion of thesis research supervised by a major professor, the student must submit a written thesis to a committee of at least three faculty members and pass a final oral examination that includes defending the thesis.

Students pursuing a master of science degree under the non-thesis option will have a plan of study supervised by their graduate committee. The non-thesis master of science degree option does not have a residency, research or final oral examination requirement. The non-thesis degree can be earned entirely through the Engineering Online Graduate Program or through on-campus instruction.

There is no language requirement for the master of science degree.

**Aerospace Engineering - PhD**

Aerospace Engineering (PhD)

AERO 8990
Research And Dissertation
10

Select 30 Credits in Committee Approved Graded Graduate Coursework (6000-8999)
30

Select 20 Credits in Committee Approved Graduate Level Courses or Dissertation Hours (6000 – 8999)
20

Total Hours
60

**Agricultural Economics and Rural Sociology - MS, MAg, Applied Economics-PhD**

**Programs Degrees:**

- Agricultural Economics - MS (p. 1335)
- Agricultural Economics - MAg (p. 1335)
- Applied Economics (Agriculture) - PhD (p. 1336)

Graduate degrees in the Department of Agricultural Economics and Rural Sociology (DAERS) include the master of science (MS) in agricultural economics or rural sociology, the master of agriculture (MAg) in agricultural economics, as well as the PhD in applied economics. Admission to the masters program in agricultural economics requires a bachelors degree from an accredited institution with 15 semester hours in related courses including economics, sociology, statistics, or related subjects accepted by the Graduate Committee. Applicants are required to have a bachelors degree from an accredited institution and generally are required to have a minimum score of 290 (150 V and 140 Q) and a GPA of 3.0 on all completed coursework. Admission into the MS programs requires a minimum GRE score of 900 (450 V and 450 Q). Admission into the PhD program requires and minimum GRE score of 1000 (400 V and 600 Q). Admission into the Master of Agriculture program requires a minimum GRE score of 800 (400 V and 400 Q). International applicants from non-English speaking countries must have a minimum TOEFL score of 550 (213 computer). Applicants with GRE scores below 400 will be required to complete specified English courses. Applicants to all graduate programs are generally required to have a minimum GRA of 3.0 on the last 60 semester hours of completed coursework.

The master's program in rural sociology is part of an Interdepartmental Graduate Program in Sociology. Admission to the program is administered by co-directors representing the Department of Sociology, Anthropology & Social Work and the Department of Agricultural Economics & Rural Sociology. Applicants are required to have a bachelor's degree from an accredited institution and generally are required to have a minimum GRE score of 290 (150 V and 140 Q) and a GPA of 3.0 on all completed coursework. The applicant's resume and letters of recommendation also are considered in making a decision on admission. Further details on the master's degree in rural sociology can be found in the AU Bulletin (p. 1524) and the Interdepartmental Graduate Program in Sociology guide (http://www.cla.auburn.edu/sociology/sociology-program/graduates/program-guide).

The MS in agricultural economics (thesis option) requires a minimum of 30 semester hours of graduate credit with 6 hours of thesis research. Required of all MS students:

- **ECON 6020** Advanced Microeconomics 3
- **ECON 7130** Mathematical Economics 3
- **AGEC 7590** Introduction to Agricultural Econometrics 3
Course substitution for will be allowed for ECON 6020 upon approval of the Graduate Program Officer. A total of 12 hours of core course is required in a program of 24 course hours. The remaining 12 hours can be filled with any graduate-level courses approved by the major professor and thesis committee. At least one-half of all credit hours toward the minimum degree requirement must be earned in courses at the 7000-level or above. All MS candidates must pass a comprehensive examination covering the major field, as well as research and thesis. This usually is a two-hour oral examination upon completion of coursework and the thesis, but the student's advisory committee also may require a written examination.

There is a non-thesis MS option that requires 36 hours of coursework. Twelve of these hours must be in core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 6020</td>
<td>Advanced Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7130</td>
<td>Mathematical Economics</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7590</td>
<td>Introduction to Agricultural Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7700</td>
<td>Research Methods in Agricultural Economics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Hours</td>
<td>12</td>
</tr>
</tbody>
</table>

The remaining 24 hours can be filled with any graduate-level courses approved by the major professor and graduate committee. At least one-half of all credit hours toward the minimum degree requirement must be earned in courses at the 7000-level or above. The non-thesis option requires a “Plan B” paper that serves as the basis for the student's final oral exam.

Graduate study in rural sociology (MS thesis or MS nonthesis) (p. 1524) is available through the Interdepartmental Graduate Program in Sociology (http://www.cla.auburn.edu/sociology/sociology-program/graduates/program-guide), which includes rural sociologists from DAERS as well as sociologists and anthropologists from the Department of Sociology, Anthropology, and Social Work.

The master of agriculture (MAg) in agricultural economics requires 32 graduate credit hours, 18 in the major, as approved by the advisory committee. A final oral examination is given by the advisory committee.

A PhD in Economics is offered through the interdepartmental program in economics, which is administered jointly by the Department of Agricultural Economics and Rural Sociology, the Department of Economics, and the School of Forestry and Wildlife Sciences. For students enrolled in the College of Agriculture, the PhD in Applied Economics requires a minimum of 42 credit hours beyond a masters degree or 60 hours beyond a bachelors degree, plus at least 10 hours of dissertation research. All students must take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 7110</td>
<td>Microeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7120</td>
<td>Microeconomics II</td>
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</tr>
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<td>ECON 7130</td>
<td>Mathematical Economics</td>
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<td>ECON 7210</td>
<td>Macroeconomics I</td>
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<td>or ECON 7220</td>
<td>Macroeconomics II</td>
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<tr>
<td>ECON 7310</td>
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<tr>
<td>or ECON 7320</td>
<td>Econometrics II</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7080</td>
<td>Production Economics I</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7090</td>
<td>Resource Economics II</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7110</td>
<td>Agricultural Economic Development</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7590</td>
<td>Introduction to Agricultural Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7690</td>
<td>Microeconometrics in Agricultural Economics I</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7700</td>
<td>Research Methods in Agricultural Economics</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 7960</td>
<td>Special Problems in Agricultural Economics</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 8060</td>
<td>Theory of Agricultural Markets</td>
<td>3</td>
</tr>
<tr>
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<td>Production Economics II</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 8090</td>
<td>Food and Agricultural Policy</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 8690</td>
<td>Microeconometrics in Agricultural Economics II</td>
<td>3</td>
</tr>
<tr>
<td>AGEC 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>
Select 2 Credits in @ 6000-8999
Total Hours 60

This is a total of 48 hours of coursework in a program of 60 (42) course hours beyond the bachelors (masters) degree. The remaining hours can be filled with any courses at the 6000-level or above approved by the major professor and thesis committee.

The PhD written preliminary examination requirement is satisfied by a research paper due July or October after the first year of coursework. In addition, PhD students with a GPA below 3.5 in their first-year core courses must pass a written examination that integrates material from the core courses. There is an oral examination on the field and proposed dissertation research (referred to as the PhD prelim oral exam), and a final oral defense of the dissertation. For details on exam requirements, see the DAERS Graduate Handbook posted on the department’s web site. After satisfactory completion of the PhD prelim oral exam the student advances to candidacy. PhD students are encouraged to consider a graduate minor in statistics, which requires 12 hours of coursework in statistics (see Statistics Department web site for details).

A Graduate Minor in Agricultural Economics (GMAE) is offered for non-majors wishing to obtain training in the application of economic principles to problems affecting rural communities and households. The GMAE requires 12 credit hours of graduate-level coursework in agricultural economics (6 hours must be at the 7000 level or above). The student’s graduate committee must include a faculty member from the agricultural economics department, and the student must demonstrate competence in the application of economic principles to problems in research. The latter requirement is typically met via a chapter or section in the student’s thesis or dissertation.

### Agricultural Economics and Rural Sociology - MAg

**MAg Agricultural Business & Economics**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AGEC 7960</td>
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<tr>
<td>Select at least 13 credits in major @ 6000-8999</td>
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<tr>
<td>Select at least 16 credits (out of total 32) @ 7000-8999</td>
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### Agricultural Economics and Rural Sociology - MS

**MS Agricultural Business & Economics-Non-Thesis**

<table>
<thead>
<tr>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 6020</td>
<td>Advanced Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 7110</td>
<td>Microeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7310</td>
<td>Econometrics I</td>
<td>3</td>
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<tr>
<td>or AGEC 7590</td>
<td>Introduction to Agricultural Econometrics</td>
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<tr>
<td>ECON 7130</td>
<td>Mathematical Economics</td>
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<tr>
<td>or AGEC 7100</td>
<td>Operations Research Methods in Agricultural Economics</td>
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<td>Research Methods in Agricultural Economics</td>
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**MS Agricultural Business & Economics-Thesis**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>ECON 6020</td>
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<td>or AGEC 7590</td>
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</tr>
<tr>
<td>ECON 7130</td>
<td>Mathematical Economics</td>
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<td>or AGEC 7100</td>
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<tr>
<td>AGEC 7990</td>
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**Applied Economics (Agriculture) - PhD**

**PhD in Applied Economics Agriculture**

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<th>Course Title</th>
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<tr>
<td>ECON 7110</td>
<td>Microeconomics I</td>
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</tr>
<tr>
<td>ECON 7120</td>
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<td>ECON 7130</td>
<td>Mathematical Economics</td>
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</tr>
<tr>
<td>ECON 7210</td>
<td>Macroeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 7220</td>
<td>Macroeconomics II</td>
<td></td>
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<tr>
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<td>Econometrics II</td>
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<tr>
<td>AGEC 7080</td>
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<td>Microeconometrics in Agricultural Economics II</td>
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</tr>
<tr>
<td>AGEC 8990</td>
<td>Research and Dissertation</td>
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</tbody>
</table>

Select 2 Credits in @ 6000-8999

**Total Hours**

60

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**Crop, Soil and Environmental Sciences - MS, MAg, PhD**

**Program Degrees:**

- Crop, Soil and Environmental Sciences - MS (p. 1337)
- Crop, Soil and Environmental Sciences - MAg (p. 1337)
- Crop, Soil and Environmental Sciences - PhD (p. 1337)
- Soil, Water, and Environmental Science - MS (p. 1338)
- Soil, Water, and Environmental Science - MAg (p. 1338)
- Turfgrass Management - MTM (p. 1339)

Graduate training in this department enables outstanding students to achieve a high level of scholarly attainment in the soil, crop and environmental sciences. Within these broad areas, research training and experience may be gained in the specialized fields of soil fertility and plant nutrition; soil chemistry; soil genesis, morphology and classification; soil mineralogy; soil physics; soil microbiology; plant breeding and genetics; weed science; forage, fiber, bioenergy and grain crop production; crop ecology; environmental quality; and turfgrass management.

All graduate students are required to have core undergraduate courses in math, chemistry, physics, botany, plant physiology, genetics, and statistics. The Graduate Studies Committee evaluates each applicant’s record and determines prerequisite deficiencies. Qualified students lacking prerequisite subjects can be admitted, but will be required to complete course work to satisfy undergraduate course deficiencies. Students are encouraged to visit the department’s web site and view the graduate student handbook for specifics. Admission is based primarily on a combination of required grade point average (GPA) and graduate record examination (GRE) scores and TOEFL tests for international students.

Three degrees are offered:

1. **Master of Science** (MS), earned only under the thesis option where importance is placed on both classroom and research training. The MS requires a minimum of 30 semester hours at or above the 6000 level of which 6 hours of thesis research and 2 hours of
Auburn University

The student’s advisory committee along with the student determines the course of study. In addition, the student must complete research, a written thesis and an oral defense examination of the thesis research.

2. **Master of Agriculture** (MAg) earned under the non-thesis option places more emphasis on classroom training over a broader range of subject matters. The MAg degree requires at least two additional graded courses that replace thesis research hours. An oral defense of course subject matter is required and students must register for GRAD 7000 during the semester the exam is taken. MAg students must write a professional paper as part of a special problems course (CSES 6960/CSES 6966) and present an exit seminar (CSES 7950/CSES 7956) on this paper.

3. **Doctor of Philosophy** (PhD) requires a minimum 60 semester hours of course work beyond the Bachelor of Science. Of the 60 semester hours, 30 must be graded courses 6000 level and above, 20 of which must be completed under the 9 classification at Auburn University while registered in the PhD program. There is no language requirement for this degree. Upon completion of the course work, a PhD student must satisfy a general written examination administered by each member of the graduate advisory committee. A student must pass all parts of the written examination before scheduling the preliminary oral examination. After satisfactory completion of the preliminary examination, the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation through the guidance and direction of the advisory committee. Upon completion of the dissertation, the student must pass a final oral examination defending the dissertation.

Graduate students in a program requiring a thesis or a dissertation must register for at least one hour of CSES 7990 or CSES 8990 per semester. Research Associates and similar classifications that also are graduate students are exempt from this requirement but must complete 10 hours of 7990 in the master’s program or 20 hours of 8990 if in a PhD program.

**Crop, Soil and Environmental Sciences - MAg**

**Agronomy and Soils - MAg**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CSES 6960</td>
<td>Special Problems</td>
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</tr>
<tr>
<td>CSES 7950/7956</td>
<td>Seminar</td>
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<td>Select 26 Credits in @ 6000-8999</td>
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</table>

**Total Hours** 30

Please contact the Department of Crop, Soil and Environmental Sciences regarding the online MAg program.

**Crop, Soil and Environmental Sciences - MS**

**Agronomy and Soils - MS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSES 7950/7956</td>
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<tr>
<td>CSES 7950/7956</td>
<td>Seminar (II)</td>
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<tr>
<td>CSES 7990/7996</td>
<td>Research and Thesis</td>
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**Total Hours** 30

Please contact the Department of Crop, Soil and Environmental Sciences regarding the online MS program.

**Crop, Soil and Environmental Sciences - PhD**

<table>
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<tr>
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<th>Title</th>
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<tr>
<td>CSES 7950</td>
<td>Seminar (II)</td>
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<tr>
<td>CSES 8990</td>
<td>Research and Dissertation</td>
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</tr>
<tr>
<td>Select 48 Credits in @ 6000-9999</td>
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<td>48</td>
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</table>

**Total Hours** 60

Within the total 60 hours beyond the B.S. degree, at least 18 hours must be completed at Auburn University, 30 hours must be at or above the 6000, and 6 hours must be at or above the 7000 level in the major area of study.
### Soil, Water, and Environmental Science - MAg

**Core Courses (12-15 Hours Required for 4 or 5 core areas: soil biology, soil chemistry, soil physics, pedology, hydrology)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSES 6066</td>
<td>Soil Microbiology Lecture</td>
</tr>
<tr>
<td>CSES 6306</td>
<td>Soil Chemistry</td>
</tr>
<tr>
<td>CSES 7136</td>
<td>Soil Morphology, Genesis, Classification</td>
</tr>
<tr>
<td>CSES 7276</td>
<td>Soil Microbiology</td>
</tr>
<tr>
<td>CSES 7316</td>
<td>Environmental Soil Chemistry</td>
</tr>
<tr>
<td>CSES 7956</td>
<td>Seminar</td>
</tr>
<tr>
<td>BSEN 7516</td>
<td>Introduction to Land and Water Engineering</td>
</tr>
<tr>
<td>BSEN 7526</td>
<td>Introduction to Fluvial Geomorphology</td>
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**Elective Courses (14-17 Hours Required)**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
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<td>Nutrient Management</td>
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<tr>
<td>CSES 6086</td>
<td>Soil Resources and Conservation</td>
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<tr>
<td>CSES 6406</td>
<td>Bioenergy and the Environment</td>
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<td>CSES 7016</td>
<td>Environmental Soil Science</td>
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<td>CSES 7076</td>
<td>Soil Erosion and Conservation</td>
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<td>CSES 7086</td>
<td>Experimental Methods</td>
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<tr>
<td>CSES 7286</td>
<td>Applied Geostatistics</td>
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<tr>
<td>CSES 7326</td>
<td>Wetlands Soils</td>
</tr>
<tr>
<td>BSEN 7016</td>
<td>Quantitative Agricultural Remote Sensing</td>
</tr>
<tr>
<td>BSEN 7136</td>
<td>GIS Applications in Precision Agriculture</td>
</tr>
<tr>
<td>BSEN 7216</td>
<td>Biomass to Renewable Energy Processes</td>
</tr>
<tr>
<td>BSEN 7366</td>
<td>Integrating AutoCAD Civil3D &amp; GIS</td>
</tr>
<tr>
<td>BSEN 7376</td>
<td>Watershed Monitoring &amp; Assess</td>
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<tr>
<td>BSEN 7616</td>
<td>Agricultural Waste Management</td>
</tr>
<tr>
<td>BSEN 7626</td>
<td>Stormwater BMP Design</td>
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<tr>
<td>BSEN 7636</td>
<td>Stream Restoration Structure Risk and Failure Assess</td>
</tr>
<tr>
<td>BSEN 7646</td>
<td>Open Channel Hydraulics</td>
</tr>
<tr>
<td>BSEN 7666</td>
<td>Wetlands Design and Restoration</td>
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**Additional Requirements:**

- CSES 6016: Analy Plant, Soil & Ani Data
- CSES 6936: Advanced Directed Studies
- CSES 7956: Seminar

**Total Hours**: 36

Note: Seminar is not part core courses.

CSES = Crop, Soil, & Environmental Sciences  
BSEN = Biosystems Engineering

### Soil, Water, and Environmental Science - MS

Our Master of Science and Master of Agriculture degrees in soil, water and environmental sciences are multi-institutional, multi-disciplinary programs offered through the AG*IDEA consortium. The institutions collaborating for these degree programs include Auburn University, the University of Georgia, North Carolina State University and Texas Tech University. Both degree programs require 36 graduate credit hours, including a thesis (for the Master of Science) or special project (for the Master of Agriculture).

**Core Courses (12-15 Hours Required for 4 or 5 core areas: soil biology, soil chemistry, soil physics, pedology, hydrology)**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CSES 6066</td>
<td>Soil Microbiology Lecture</td>
</tr>
<tr>
<td>CSES 6306</td>
<td>Soil Chemistry</td>
</tr>
<tr>
<td>CSES 7136</td>
<td>Soil Morphology, Genesis, Classification</td>
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</table>
### CSES 7276 Soil Microbiology
### CSES 7316 Environmental Soil Chemistry
### CSES 7956 Seminar
### BSEN 7516 Introduction to Land and Water Engineering
### BSEN 7526 Introduction to Fluvial Geomorphology

#### Elective Courses (14-17 Hours Required)

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<td>Soil Resources and Conservation</td>
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<tr>
<td>CSES 6406</td>
<td>Bioenergy and the Environment</td>
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<tr>
<td>CSES 7016</td>
<td>Environmental Soil Science</td>
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<td>CSES 7076</td>
<td>Soil Erosion and Conservation</td>
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<td>CSES 7286</td>
<td>Applied Geostatistics</td>
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#### Additional Requirements:

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<td>Seminar (I)</td>
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#### Total Hours

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Note: Seminar is not part core courses.
CSES = Crop, Soil, & Environmental Sciences
BSEN = Biosystems Engineering

### Turfgrass Management - MTM

#### Required Courses

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#### Elective Courses (25 Hours Required)

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<td>CSES 6106</td>
<td>Plant Genetics and Crop Improvement</td>
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<td>Soil Chemistry</td>
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<td>CSES 6406</td>
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<td>CSES 6061</td>
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<td>PLPA 6506</td>
<td>Plant Nematology</td>
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<td>ENTM 6366</td>
<td>Landscape Entomology</td>
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<td>CSES 7146</td>
<td>Chemistry and Use of Herbicides in Crop Production</td>
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Anatomy, Physiology and Pharmacology

(See Biomedical Sciences (p. 1347))

Animal Sciences - MS, MAg, PhD

Degree Programs:

• Animal Sciences - MS (p. 1341)
• Animal Sciences - MAg (p. 1341)
• Animal Sciences - PhD (p. 1341)

Graduate study in animal sciences is directed toward the master’s and doctoral degrees. The Master of Agriculture (MAg) is offered as a non-thesis degree and prepares students for careers in secondary education, Cooperative Extension and agribusiness. Graduate programs leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees provide advanced education and technical training in preparation for careers in public and private sectors related to animal science and technology, food science and technology, animal biotechnology, agribusiness and university-level research and education. Areas of specialization include animal nutrition, biochemistry and molecular biology, food technology and safety, growth biology, meat science and muscle biology, functional genomics and reproductive biology. Interdepartmental minor programs in cell and molecular biosciences, ecology and environmental sciences are also available.

Prospective graduate students are evaluated for admission to the graduate program by a departmental graduate-program committee. The committee makes a recommendation to the department head based on its review of academic transcripts, three letters of recommendation, a written statement of intent from the applicant, and Graduate Record Examination (GRE) General Test score; in the case of an international student, the Test of English as a Foreign Language (TOEFL) is also required. Prior to making formal application, prospective students are expected to first contact a prospective faculty advisor in the Department whose area of specialization is compatible with the prospective student’s interest, and inquire about openings in his/her program. The departmental graduate-program committee will not review an application from a prospective graduate student unless requested to do so by a prospective faculty advisor, nor will it recommend that a student be admitted unless a prospective faculty advisor agrees to sponsor the applicant’s graduate program.

Admission to the MAg degree program requires that the student has the bachelor’s degree or evidence of satisfactory progress toward attainment of the bachelor’s degree in animal sciences or a related area in the biological sciences. Admission is based primarily on consideration of Grade Point Average (GPA), GRE scores and, in the case of an international student, TOEFL test scores. Applicants lacking suitable preparatory course work in the basic sciences will be required to correct deficiencies by satisfactorily completing additional courses. The MAg degree requires successful completion of a minimum of 30 credit hours, 21 of which must be in the agricultural or related sciences. Additional courses may be required for individual students. Although MAg students do not write a thesis, they are required to take a comprehensive examination and present a report on their comprehensive scholarly project completed under ANSC 7960 (Special Problems). In addition, MAg students are required to present one academic seminar (ANSC 7950) during their program.

Admission to the MS degree program requires that student have the bachelor’s degree or evidence of satisfactory progress toward attainment of the bachelor’s degree in animal sciences or a related area in the biological sciences. Admission is based primarily on consideration of GPA, GRE scores and, in the case of an international student, TOEFL test scores. Applicants lacking suitable preparatory course work in the basic sciences will be required to correct deficiencies by satisfactorily completing additional courses.
The MS degree requires a minimum of 30 credit hours of graduate work, including at least 21 credit hours in the major field of study. The remainder may be in a minor area selected by the student and upon approval by the advisory committee. In addition to the required course work, the student must complete research, a written thesis and a thesis defense examination as defined by the student’s advisory committee. Students are required to present two academic seminars (ANSC 7950) during their program.

Admission to the PhD degree program usually requires that the student have a master’s degree from a recognized graduate program. However, evidence of exemplary potential may be considered as a criterion for admission with a bachelor’s degree. The doctoral program emphasizes original, scholarly research and includes significant advanced course work. Admission is based primarily on a consideration of GPA, GRE scores and, in the case of an international student, TOEFL test scores. Following completion of all or most course work, doctoral students are required to successfully complete a comprehensive written examination in their area of specialization before taking the oral General Examination, successful performance in which is required for advancement to candidacy. The PhD degree requires a minimum of 60 credit hours beyond the bachelor’s degree and a dissertation describing original research. After completion of the dissertation, the student must pass a final oral examination defending the dissertation. There is no foreign language requirement, but knowledge of a foreign language may be recommended by the student’s advisory committee. Doctoral students are required to present three academic seminars (ANSC 7950) during their program.

All graduate students receiving departmental assistantships are expected to be engaged in service to the department’s research and education programs as deemed appropriate by the academic advisor and department head. All MS and PhD students must register for at least one credit hour of thesis (ANSC 7990) or dissertation (ANSC 8990) research each term. Classified (FLSA-exempt) research associates holding full admission status in the Graduate School for work toward a graduate degree are exempt from this requirement, but must complete 10 hours of thesis research in a MS program or 20 hours of dissertation research in a PhD program following completion of a master’s degree. A PhD degree program undertaken by classified (FLSA-exempt) research associates but not preceded by a master’s degree must include 30 hours of dissertation research credit.

**Animal Sciences - MAg**

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<th>Credits</th>
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<td>ANSC 7960</td>
<td>Special Problems</td>
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**Animal Sciences - MS**

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<tr>
<td>ANSC 7990</td>
<td>Research and Thesis</td>
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**Animal Sciences - PhD**

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<td>Seminar</td>
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**Audiology Program - AuD**

The Department of Communication Disorders offers the professional clinical degree: the Doctor of Audiology (AuD). As opposed to the PhD research degree, the AuD is a clinical practice degree. The degree program is offered in cooperation with the Auburn University
Audiology Program - AuD

at Montgomery Speech and Hearing Clinic. The AuD degree program spans four years (11 semesters including summers). Details are provided at the Department of Communication Disorders website: http://www.cla.auburn.edu/communicationdisorders/.

Most graduates of the AuD program work in clinical settings, such as major hospitals, ENT practice clinics, and private practice facilities. A few graduates teach in the clinical programs in academic institutions.

To complete the program, students must have transportation for courses and clinics in both Auburn and Montgomery as well as for other clinical experiences and internships.

**Admission Requirements**

A bachelor’s degree from an accredited university is necessary. Students with bachelor’s degrees in communication sciences and disorders, or equivalent, receive preference. However, highly qualified students from any discipline are considered. Foundation courses in language development, phonetics, and speech anatomy will be added to the curriculum. At least one undergraduate course each of math, life sciences, statistics, physical sciences, and behavioral sciences is an accreditation expectation, and applicants lacking any of these must comply before conferral of the AuD degree.

Potential students apply both to the Graduate School and to Council of Academic Programs in Communication Sciences and Disorders (CSDCAS). Letters of recommendation must be uploaded to CSDCAS. For computation of ranking formula for selection, applicants must submit one set each of transcripts (for GPA) and GRE scores to CSDCAS, and official GRE scores to the Graduate school.

The Graduate School web application requires the following:

- Application fee
- Official General Test GRE scores sent directly from ETS

The application sent to CSDCAS:

- The department’s application form available on the website
- Three letters of recommendation from former teachers or mentors
- A letter of interest, which will serve as a writing sample
- Transcripts
- Scores from the General Test of the GRE

Those applicants clearing the initial screening will be invited to campus for an interview.

The application deadline is February 1 of each year, with the AuD program starting each fall semester.

**Graduation Requirements**

The curricular plan of study is a static sequence of academic and clinical coursework. The academic and clinical components of the AuD program interact in a logical progression over a four-year period. A total of 121 semester hours are required for the degree.

The early portion of training is largely academic, and the later portions involve mostly applied clinical work. As the program progresses, the balance of academic and clinical work changes substantially. During the first two years of the program, the emphasis is on academic preparation for clinical work. Students must pass comprehensive exams to enter the third year of the program. In the third year of the program, academic courses are combined with advanced seminars on current issues in clinical practice and the completion of an applied clinical research project referred to as a capstone experience. During this third year of the program, students are engaged in a series of intensive clinical internships at local off-campus clinical settings. Students must successfully complete internships at three different clinical settings during the third year, and they return to campus to participate in seminar course work. In the final year of the program, students participate in a clinical residency during which they work full time for a period of nine months. Clinical residencies may be done at any facility in the United States where a certified audiologist agrees to supervise the student within ASHA guidelines.

**Plan of Study**

The four-year sequence of academic and clinical course work, including the semester hours, is as follows:
First Year

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<tr>
<th></th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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Second Year

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<td>CMDS 8620 Outcome Measures In Audiology</td>
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Third Year

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Fourth Year

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Internships and Clinical Residency
As previously stated, students are required to complete several off-campus internships. During their third year, they complete internships in three different locations, and in the final year, they work full-time under the supervision of a certified audiologist.

Other Requirements for the AuD
Along with their course work and internships, students are required to pass comprehensive written exams in order to advance to candidacy. Oral examinations will be conducted if written responses lack detail or clarity. To graduate, students must also successfully complete a capstone project, which can be a planned audiology-related research or clinical project designed to explore a research hypothesis or meet a clinical outcome.
Financial Aid
A limited number of graduate assistantships are available for meritorious students to assist in teaching, research, or clinical roles.

Aviation and Supply Chain Management - MSIS, PhD

Degree Program:
- Information Systems Management - MS (on-campus/full-time and online)
- Information Systems Management - PhD

Graduate Certificate:
- Business Analytics
- Management Information Systems

The department offers graduate study leading to the master of science and the doctor of philosophy degrees in Information Systems Management. The program also offers a joint program leading to both the MSIS and MBA degrees. Applicants must hold a bachelor’s degree from a recognized institution. Graduates of business schools will likely have met this requirement; graduates of other programs may be required to complete additional courses to compensate for deficiencies.

Master of Science in Information Systems
The (MSIS) Program in Business is a non-thesis program that emphasizes practical application of management information systems to managerial problem solving and decision making. Students are required to complete a final project. The program is designed to provide students the opportunity to develop an expertise in a chosen area of management. Applicants to the master's program must have completed an undergraduate degree. The MSIS program is offered as a traditional, on-campus program and as an online program. A twelve-hour graduate certificate is also available.

The MBA/MSIS is a 54-hour program administered jointly by the Aviation and Supply Chain faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 0-3-credit hour internship. Students must apply separately to each program (MISE and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The PhD program in Business with Information Systems Management Concentration prepares graduates to conduct high-quality research in universities, colleges, government and business. Individual flexibility is provided in a program of study that develops the conceptual and methodological skills that graduates need to establish a leadership position in their chosen fields. Objectives of the program are accomplished through the completion of a formal program of study, successful completion of a statistics core, preparation and completion of two examination manuscripts, and dissertation research. Students with assistantships may also be required to teach. Students are expected to have a fulltime presence on campus. Applications to the PhD program must complete an Auburn University Graduate School application. For full consideration, applications must be received no later than February 1, prior to the Fall term.

Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

Business Analytics - Graduate Certificate

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<td>Big Data I</td>
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Information Systems Management (PhD)

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</tbody>
</table>
The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

### Information Systems Management - MSIS

**MS Information Systems Management Non-Thesis (on-campus/full-time)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISMN 7830</td>
<td>Advanced Database Management Systems Projects</td>
<td>3</td>
</tr>
<tr>
<td>ISMN 7660</td>
<td>Information Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>ISMN 7980/7986</td>
<td>MMIS Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 21 Credits from any approved ISMN 6000-7999 or BUAL 6000-7999 | 21

**Total Hours** | 30

**MS Information Systems Management Non-Thesis (online)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISMN 7836</td>
<td>Advanced Database Management Systems Projects</td>
<td>3</td>
</tr>
<tr>
<td>ISMN 7666</td>
<td>Information Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>ISMN 7986</td>
<td>MMIS Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 21 Credits from any approved ISMN 6000-7999 or BUAL 6000-7999 | 21

**Total Hours** | 30

### Management Information Systems - Graduate Certificate

**Management Information Systems (Graduate Certificate)**

Select 4 courses from any approved courses from the following list: ISMN 6000-7999, and BUAL 6650/6, 6660/6. Current Auburn University graduate students may substitute one of their program courses for one of the above courses with approval from the certificate granting department.

**Total Hours** | 12

### Biological Sciences - MS, PhD, Graduate Certification

**Degree Programs:**

- Biological Sciences - MS (p. 1346)
- Biological Sciences - MS (Non-Thesis, Pre-Professional Option)
- Biological Sciences - PhD (p. 1347)

**Graduate Certification:**
• Computational Biology (p. 1346)

The Department of Biological Sciences offers graduate training leading to the MS and PhD degrees in biological sciences; a non-thesis master's degree is optional. Candidates for advanced degrees should have an undergraduate degree in an appropriate area from an accredited institution, with adequate training in biology, chemistry, physics and mathematics. Qualified students lacking prerequisite subjects can be admitted, but may be required by the departmental graduate studies committee to make up the pre-requisites. A satisfactory score on the general GRE is required (suggested minimums of 500 on verbal and quantitative tests).

A major of at least 30 and 60 semester hours may be taken for the MS and PhD degrees, respectively. MS and PhD students must present at least one departmental seminar on their research during the semester of their oral or final examination. There is no foreign language requirement.

Interdisciplinary minors may be taken in biochemistry, cell/molecular biology, ecology, environmental studies and plant, animal, or microbial molecular biology.

Biological Sciences - MS (Non-Thesis, Pre-Professional Option)

The Biological Sciences Pre-Professional MS-NT option will provide students a broad graduate experience, enhancing their knowledge base of biological phenomena and processes, that will improve their credentials for application to dental, medical, optometry, physician assistant, and other health care professional programs.

Biological Sciences Pre-Professional MS-NT

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 7960</td>
<td>Special Problems</td>
<td>4</td>
</tr>
<tr>
<td>Select 26 Credit Hours @6000-7970</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Computational Biology - Graduate Certificate

Offered by the Department of Biological Sciences, this certificate is designed to provide trainees with a broad understanding and appreciation of the utility of computation in relation to “Big Data”, or large data sets that can only be analyzed with an advanced set of computational skills towards revealing patterns, trends, and associations pertaining to biological and life science phenomena. This certificate program requires 18 credit hours of coursework to be completed within a period of three years. All trainees in the certificate program will complete 12 credit hours of required coursework. Trainees will select (at least) six additional credit hours of coursework from a given list that heavily utilize computational approaches and tailored to their specific research interests.

Required coursework (12 credit hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 6800</td>
<td>Introduction to Computational Biology</td>
<td>3</td>
</tr>
<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 7180</td>
<td>Scripting for Biologists</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 7970</td>
<td>Special Topics (Computational Biology Colloquium)</td>
<td>2</td>
</tr>
</tbody>
</table>

Selected elective coursework (6 credit hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
</table>

From approved list of courses that heavily utilize computational approaches. The list of potential electives is expected to grow and evolve given development of new courses tied to continuing new faculty hires at Auburn University.

Total Hours 18

Trainees who successfully complete this certificate program will exhibit proficiency in the comprehension, planning and implementation of computationally intensive experiments and analyses of biological data originating from various sources and should be well-positioned for finding positions in academia, government or the private sector.

MS Biological Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 7950</td>
<td>Masters Thesis Seminar</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 7990</td>
<td>Research and Thesis</td>
<td>4</td>
</tr>
<tr>
<td>Select 25 Credits in @ 6000-8999</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 30
Biological Sciences Thesis - MS
Select 30 Credits in @ 6000-8999 30
Total Hours 30

PhD Biological Sciences

Biological Sciences - PhD

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 8950</td>
<td>Doctoral Seminar (I)</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 8950</td>
<td>Doctoral Seminar (II)</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>

Select 48 Credits in @ 6000-8999 48
Total Hours 60

Biomedical Sciences - MS, PhD

Degree Programs:

- Biomedical Sciences - MS (p. 1347)
- Biomedical Sciences - PhD (p. 1348)

All graduate faculty of the College of Veterinary Medicine participate in a college-wide graduate program leading to the master of science and the doctor of philosophy degrees in Biomedical Sciences (BMS or VBMS for curriculum descriptions). Participating departments are: Anatomy, Physiology and Pharmacology (APP); Clinical Sciences (DCS); and Pathobiology (PATHO).

Applicants to the program are required to meet entrance standards established by the College's Graduate Program Committee, the Graduate School, and their intended area of study. Either a baccalaureate degree or the Doctor of Veterinary Medicine (DVM) degree or equivalent is required for admission.

The three departmental programs represent the gateway to areas of concentration. The ten BMS concentrations (MS and PhD programs unless otherwise stated): Anatomy (APP), Animal Genetic Disease (PATHO), Animal Parasitology (PATHO), Clinical Sciences (including all DCS Residency Programs, MS only), Infectious Disease (PATHO), Molecular Oncology (multidisciplinary through PATHO), Pathology (Anatomic and Clinical; PATHO), Pharmacology (APP), Physiology (APP), and Veterinary Sports Medicine (DCS, MS only). The BMS program offers specific enrichment activities including seminars and journal clubs, training in grant writing, participation in scientific meetings, and opportunities to present results of research at national and international meetings.

A graduate student advisory committee is appointed by the dean of the Graduate School for each student upon recommendation of the college’s Associate Dean for Research and Graduate Studies. The student’s faculty adviser usually serves as the chair of this committee, and the remaining members, selected from the graduate faculty, should have expertise relevant to the student’s area of study. The advisory committee develops a plan of study which must be submitted to the college’s Associate Dean for Research and Graduate Studies for approval and then to the dean of the Graduate School. Study programs are designed to meet the student’s needs and interests while featuring research training and assuring a strong background in biochemistry, biophysics and/or molecular biology. Original research is required for all BMS graduates. Courses must be selected in conformity with the regulations of the college’s BMS Graduate Program Committee and the Graduate School. For additional information, visit: http://www.vetmed.auburn.edu/graduate-program.

A dual degree program (DDP) allows students to pursue DVM and graduate degrees simultaneously in a time-and content-integrated manner. Graduates, particularly DVM/PhD graduates, will have strong backgrounds both in veterinary medicine and research so as to be well prepared for successful careers in academia, industry and/or specialty clinics. For the DDP program, students must be admitted into the College of Veterinary Medicine program via application to the Auburn University College of Veterinary Medicine and to the graduate program via application to the Auburn University Graduate School. Students already admitted to the Graduate School may apply for admission to the DVM program in order to gain entry to the combined degree program. Such students must meet specific criteria to be allowed to pursue this course of study (http://www.vetmed.auburn.edu/graduate-program).

Biomedical Sciences - MS

Biomedical Sciences - MS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>VBMS 7990</td>
<td>Research and Thesis in Biomedical Sciences</td>
<td>4</td>
</tr>
</tbody>
</table>
Biosystems Engineering - MS, PhD

Degree Programs:
- Biosystems Engineering - MS (p. 1348)
- Biosystems Engineering - PhD (p. 1349)

Graduate study in Biosystems Engineering leads to Master of Science (thesis, non-thesis) or Doctor of Philosophy degrees. Instruction, research training, and experience are available in various specialized fields such as ecological engineering; bioenergy and bioproducts engineering; food engineering; biological process engineering; biosystems automation and off-highway vehicle engineering. Applicants are expected to have earned a baccalaureate degree in biosystems engineering or a closely related area. All applicants should provide a written statement of purpose for their graduate study, three letters of reference, and all other data required by Auburn University. Additional details about the requirements, assistantships, and policies for graduate study in the Department of Biosystems Engineering are available at www.eng.auburn.edu/bio.

Biosystems Engineering - MS

The MS (thesis option) in Biosystems Engineering requires a minimum of 30 semester credit hours of graduate course work that includes up to 6 credit hours of thesis research. After completion of research, candidates for the MS thesis option must successfully defend the thesis. The specific requirements for the MS (thesis option) are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSEN 7990</td>
<td>Research and Thesis</td>
<td>6</td>
</tr>
<tr>
<td>BSEN 6250</td>
<td>Deterministic Modeling for Biosystems</td>
<td>3</td>
</tr>
<tr>
<td>BSEN 7950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Select 6 Credits of Other BSEN Courses (@6000-8999) *</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Select 6 Credits of Other Engineering Courses (@ 6000-8999) *</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Select 3 Credits of Statistics or Other Related Courses (@6000-8999) *</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select 5 Credits of Other Courses (@ 6000-8999) *</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

* Specific courses are approved by student advisory committee. BSEN 7990 should be minimum of four credit hours and not more than 6 credit hours.

The MS (non-thesis option) in Biosystems Engineering is offered to those that desire in-depth knowledge in Biosystems Engineering typically needed for non-academic engineering careers. A minimum of 30 semester credit hours of graduate course work is required for this option.

Biosystems Engineering Non-Thesis (MS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSEN 6250</td>
<td>Deterministic Modeling for Biosystems</td>
<td>3</td>
</tr>
<tr>
<td>BSEN 7950</td>
<td>Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>
Select 9 credits of other BSEN courses (@6000-8999) * 
9
Select 6 Credits of Other Engineering Courses (@ 6000-8999) * 
6
Select 3 Credits of Statistics or other related courses (@6000-8999) * 
3
Select 8 Credits of other Courses (@6000-8999) * 
8
Total Hours 
30

* Specific courses are approved by BSEN Graduate Program Coordinator.

The department also offers an accelerated bachelors/masters (ABM) program in Biosystems Engineering. Interested students should contact the department.

### Biosystems Engineering - PhD

The Ph.D. in Biosystems Engineering requires a minimum of 60 semester hours of graduate-level course work beyond the bachelor’s degree. The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree must be less than 50 percent of the credit hours listed on the Plan of Study. Students must take a qualifying examination (written and oral) administered by the student’s advisory committee that tests the student’s knowledge and competence in the proposed research area and in the general field of biosystems engineering. The student advances to Ph.D. candidacy after the successful completion of the qualifying examination. The PhD student will conduct independent research and prepare a dissertation. After completion of the dissertation, the student must pass a final oral examination defending his/her dissertation.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSEN 8990</td>
<td>Research and Dissertation (Minimum)</td>
<td>10</td>
</tr>
<tr>
<td>BSEN 6250</td>
<td>Deterministic Modeling for Biosystems</td>
<td>3</td>
</tr>
<tr>
<td>BSEN 7950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Select 6 Credits of Other BSEN Courses (@6000-8999) *</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Select 20 Credits of Engineering Courses (@ 6000-8999) *</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Select 3 Credits of Statistics or Related Courses (@6000-8999) *</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select 17 Credits of Other Courses (@ 6000-8999) *</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

* Specific courses are approved by student advisory committee

### Brewing Science and Operations, Graduate Certificate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSP 7106</td>
<td>The Business of Brewing</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7116</td>
<td>Brewing Materials</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7126</td>
<td>Science of Brewing I</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7136</td>
<td>Science of Brewing 2</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7146</td>
<td>Facilities and Operations</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7916</td>
<td>Practicum in Brewing Science</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

### Building Science - MBC

#### Degree Programs:
- Building Construction - MBC (p. 1350)

#### Executive Graduate Certificates:
- Construction Management (p. 1351)
- Executive Technical Construction Management (p. 1351)
- Integrated Processes Construction Management (p. 1351)
The McWhorter School of Building Science offers the Master of Building Construction (MBC).

The McWhorter School of Building Science’s non-thesis master of building construction program provides its students with an unparalleled educational experience. From conceptual idea to post-occupancy of facilities, the degree content offers a practical and industry-oriented study of the interdisciplinary and collaborative processes involved in the planning, financing, design, construction and management of the built environment.

Admission to the master of building construction is competitive, and enrollment is limited. The admissions committee considers GRE scores, undergraduate GPA, educational background, letters of recommendation, prior construction industry experience, and other relevant information.

For students holding an accredited undergraduate degree in construction, the MBC curriculum consists of 35 semester hours of academic credit, including a core of BSCI graduate courses (17 credit hours), electives (15 credit hours) and capstone (3 credit hours), taken over a period of three academic terms beginning in the fall of each year.

Students with undergraduate degrees in areas other than construction are given conditional admission to the program, and are required to take a series of five foundation courses (14 credit hours) commencing the summer term prior to fall admission. Upon successful completion of these classes, they are formally admitted to the 35 credit-hour MBC program.

**MBC Degree Requirements**

**Foundation Courses**

Offered in Summer and required for students with undergraduate degree in areas other than construction. There are 5 foundation courses worth 14 semester hours of academic credit.

**The Core Curriculum**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 7020</td>
<td>Integrated Building Processes I</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7030</td>
<td>Construction Information Management</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7040</td>
<td>Integrated Building Processes II</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7050</td>
<td>Executive Issues in Construction</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7060</td>
<td>Research Methods in Building Science</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7950</td>
<td>Graduate Seminar (I)</td>
<td>1</td>
</tr>
<tr>
<td>BSCI 7950</td>
<td>Graduate Seminar (II)</td>
<td>1</td>
</tr>
</tbody>
</table>

All classes are three credit hours except graduate seminar which is one credit hour.

**Electives**

Four building science electives (12 credit hours) and one approved graduate elective (3 credit hours) from any field.

**Capstone**

BSCI 7980, students are required to undertake a capstone project in their final semester. The purpose of the capstone project is to demonstrate the student’s ability to independently explore a new topic, demonstrate appropriate application of the materials, and successfully communicate the information in a professional and academically rigorous format.

Graduate students in Building Science with interests in planning, development and urban design can undertake a Minor in Community Planning. Students must complete additional 9 credit hours of Community Planning coursework and notify MBC GPO/CADC Student Services that they are completing the Community Planning minor.

Note 1: Online Master’s students are not required to take BSCI 7060 (Research Methods) or BSCI 7950 (Graduate Seminar I and II).

Note 2: Online Master’s classes BSCI numbers all end in the number 6 (Example BSCI 7026, BSCI 7036).

**Building Construction (MBC)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 7020</td>
<td>Integrated Building Processes I</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7030</td>
<td>Construction Information Management</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7040</td>
<td>Integrated Building Processes II</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>BSCI 7050</td>
<td>Executive Issues in Construction</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7060</td>
<td>Research Methods in Building Science</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7950</td>
<td>Graduate Seminar (I)</td>
<td>1</td>
</tr>
<tr>
<td>BSCI 7950</td>
<td>Graduate Seminar (II)</td>
<td>1</td>
</tr>
<tr>
<td>BSCI 7980</td>
<td>Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Select 15 Credits in @ 6000-8999 (Electives)</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td><strong>35</strong></td>
</tr>
</tbody>
</table>

* Does not include credit hours for foundation courses which are required for students with an undergraduate degree in a non-construction discipline.

### Building Science (Online) - MBC

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 7026</td>
<td>Integrated Building Processes I</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7036</td>
<td>Construction Information Management</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7046</td>
<td>Integrated Building Processes II</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7056</td>
<td>Executive Issues Construction</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7986</td>
<td>Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Select 21 Credits in @ 6000-8999 (Electives)</strong></td>
<td><strong>21</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

### Construction Management - Graduate Certificate

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 7106</td>
<td>Construction Cost Estimating</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7106</td>
<td>Construction Project Management and Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7126</td>
<td>Construction Law and Risk Management</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7116</td>
<td>Construction Contracting Business</td>
<td>3</td>
</tr>
<tr>
<td>or BSCI 7156</td>
<td>heavy Civil Construction</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

### Executive Technical Construction Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 7036</td>
<td>Construction Information Management</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7106</td>
<td>Mechanical &amp; Plumbing Systems in Buildings</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7106</td>
<td>Electrical Systems in Buildings</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Elective Course:</strong></td>
<td></td>
</tr>
<tr>
<td>BSCI 7146</td>
<td>Structural Systems of Buildings</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7136</td>
<td>Building Construction Sustainability</td>
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<tr>
<td></td>
<td><strong>Total Hours</strong></td>
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### Integrated Processes Construction Management

<table>
<thead>
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<tbody>
<tr>
<td>BSCI 7026</td>
<td>Integrated Building Processes I</td>
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<tr>
<td>BSCI 7046</td>
<td>Integrated Building Processes II</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 7056</td>
<td>Executive Issues Construction</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>Elective Course:</strong></td>
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</tr>
<tr>
<td>BSCI 7136</td>
<td>Building Construction Sustainability</td>
<td>3</td>
</tr>
</tbody>
</table>
Business Administration - MBA, MS, PhD

Degree Programs:

- Master of Science Business Administration, Finance Option - MS (p. 1353)
- Master of Business Administration (with on-campus, online, and Executive and Physicians Executive options) - MBA (p. 1353)
- Business - PhD (with concentrations in Finance, Information Systems, and Management) (p. 1355)

Graduate programs in Business Administration are fully accredited by AACSB International – the Association to Advance Collegiate Schools of Business (AACSB) – and include the master of business administration, the master of science in business administration with a concentration in finance, and the doctor of philosophy in business with concentrations in Finance, Information Systems, and Management.

Application for admission to graduate programs in Business should be made directly to the Graduate School. Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

An Auburn MBA can be an important part of the advantage needed to succeed in an increasingly competitive business environment. The College of Business offers an on-Campus MBA, an Online MBA, an Executive MBA and a Physicians Executive MBA, all structured to provide students with a world-class learning experience. An MBA from Auburn prepares individuals to enter the workplace in key leadership positions. Hands-on leadership training is integrated throughout the program. The MBA is a 39-hour program. MBA students without two years full-time work experience are also required to do an additional 3-credit hour internship. For on-Campus and Online students, dual MBA/MS graduate degree options are available in Finance, Management Information Systems, and Industrial and Systems Engineering.

For more information on MBA Program options, please visit: www.harbert.auburn.edu

Graduate Executive Programs –

The Graduate Executive Programs comprise the Executive MBA, the Physicians Executive MBA, and the Masters of Real Estate Development Executive programs. These programs are designed to be taken as a cohort with one start in the Fall of each year, an exact sequence of courses taken each term and with graduation in the Spring – five semesters later.

Non-Standard Calendar:

Due to the hybrid nature of these Graduate Executive programs, which use a format that combines on-campus residency with online learning, the residencies typically occur during breaks on campus. See the relevant program website for the exact calendar dates per term for each executive program.

Full-Time Credit Hour Requirements:

Students in the Graduate Executive Programs are restricted to the exact courses which are offered to that cohort in any one semester.

The course load varies from term to term – from a minimum of 5 hours to a maximum of 9 hours.

The course load is thus considered to be full time as they cannot take more hours or less as they follow the mandated and approved curriculum.

Tuition Costs Excluded VA Benefit Coverage:

VA benefits will not cover costs for lodging, meals, travel, books, supplies or memberships to organizations. As many of these costs are included in the Graduate Executive Programs’ tuition, those costs have been broken out and will be billed separately. See the relevant program website for the exact amounts per term.

The MBA/MSIS is a 54-hour program administered jointly by the Systems and Technology faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 3-credit hour internship. Students must apply separately to each program (MSIS and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.
The MBA/MSBA-Finance is a 54-hour program administered jointly by the Finance faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 3-credit hour internship. Students must apply separately to each program (MSBA-Finance and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The MBA/MISE is a 55-hour program administered jointly by ISE and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do a 3-credit hour internship in place of one of the 3-hour BUSI or related electives. Students must apply separately to each program (MISE and MBA), but only have to pay one application fee.

Business Administration, Finance

**MSBA Finance Thesis (Option of MS in Business Administration, Management)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7230</td>
<td>Cost Analysis and Systems</td>
<td>3</td>
</tr>
<tr>
<td>FINC 7650</td>
<td>Applied Financial Management</td>
<td>3</td>
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<tr>
<td>FINC 7990</td>
<td>Research and Thesis</td>
<td>4</td>
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<td>Select 12 Credits in FINC 6000-8990 (Electives)</td>
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<td>Total Hours</td>
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**MSBA Finance Non-Thesis (Option of MS in Business Administration, Management)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
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<tbody>
<tr>
<td>BUSI 7110</td>
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<tr>
<td>BUSI 7230</td>
<td>Cost Analysis and Systems</td>
<td>3</td>
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<tr>
<td>FINC 7650</td>
<td>Applied Financial Management</td>
<td>3</td>
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<tr>
<td></td>
<td>Select 12 Credits in FINC 6000-8990 (Electives)</td>
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**MSBA Finance Thesis (Online) Option of MS in Business Administration, Management**

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<tbody>
<tr>
<td>BUSI 7116</td>
<td>Financial Analysis</td>
<td>3</td>
</tr>
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<td>BUSI 7236</td>
<td>Cost Analysis and Systems</td>
<td>3</td>
</tr>
<tr>
<td>FINC 7656</td>
<td>Applied Financial Management</td>
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<tr>
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<td>Select 12 Credits in FINC 6000-8990 (Electives)</td>
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</tr>
<tr>
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**MSBA Finance Non-Thesis (Online) Option of MS in Business Administration, Management**

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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
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<td>Financial Analysis</td>
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<tr>
<td>BUSI 7236</td>
<td>Cost Analysis and Systems</td>
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</tr>
<tr>
<td>FINC 7656</td>
<td>Applied Financial Management</td>
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</tr>
<tr>
<td></td>
<td>Select 12 Credits in FINC 6000-8990 (Electives)</td>
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<tr>
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Business Administration (with on-campus, online, and Executive and Physicians’ Executive options)

**MBA Business Administration (on-campus/full-time)**

<table>
<thead>
<tr>
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<td>Financial Analysis</td>
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<tr>
<td>BUSI 7120</td>
<td>Quantitative Analysis for Business Decisions</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>BUSI 7130</td>
<td>Strategic Analysis and the Competitive Environment</td>
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<tr>
<td>BUSI 7140</td>
<td>Organizational Leadership, Ethics and Change</td>
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<tr>
<td>BUSI 7150</td>
<td>Operational Excellence Through Supply Chain and Quality Management</td>
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</tr>
<tr>
<td>BUSI 7210</td>
<td>Marketing and Consumer Theory</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7220</td>
<td>Information Technology for Competitive Advantage</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7230</td>
<td>Cost Analysis and Systems</td>
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<tr>
<td>BUSI 7310</td>
<td>Integrated Business Project and Case Analysis</td>
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<tr>
<td></td>
<td>12-13 Credits from an approved list; BUSI 7250 (1) Global Business Experience</td>
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<tr>
<td>BUSI 7920</td>
<td>MBA Internship (0-3 hours required for those with less than 2 years work experience)</td>
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**MBA Business Administration (online)**

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
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<td>Financial Analysis</td>
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</tr>
<tr>
<td>BUSI 7126</td>
<td>Quantitative Analysis for Business Decisions</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7136</td>
<td>Strategic Analysis and the Competitive Environment</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7146</td>
<td>Organizational Leadership, Ethics and Change</td>
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<tr>
<td>BUSI 7156</td>
<td>Operational Excellence Through Supply Chain and Quality Management</td>
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<tr>
<td>BUSI 7216</td>
<td>Marketing and Consumer Theory</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7226</td>
<td>Information Technology for Competitive Advantage</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7236</td>
<td>Cost Analysis and Systems</td>
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<td>BUSI 7316</td>
<td>Integrated Business Project and Case Analysis</td>
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</tr>
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<td>12 Credits from an approved list</td>
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<tr>
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<td><strong>Total Hours</strong></td>
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**MBA Business Administration (Physicians Executive)**

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<tbody>
<tr>
<td>BUSI 7116</td>
<td>Financial Analysis</td>
<td>3</td>
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<tr>
<td>BUSI 7126</td>
<td>Quantitative Analysis for Business Decisions</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7136</td>
<td>Strategic Analysis and the Competitive Environment</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7146</td>
<td>Organizational Leadership, Ethics and Change</td>
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<td>BUSI 7156</td>
<td>Operational Excellence Through Supply Chain and Quality Management</td>
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<td>BUSI 7216</td>
<td>Marketing and Consumer Theory</td>
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<td>BUSI 7226</td>
<td>Operations and Information Technology for Competitive Advantage</td>
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</tr>
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<td>BUSI 7236</td>
<td>Cost Analysis and Systems</td>
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</tr>
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<td>BUSI 7316</td>
<td>Integrated Business Project and Case Analysis</td>
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<td>12 Credits from an approved list</td>
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**MBA Business Administration (Executive)**

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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
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<td>Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7126</td>
<td>Quantitative Analysis for Business Decisions</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7136</td>
<td>Strategic Analysis and the Competitive Environment</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7146</td>
<td>Organizational Leadership, Ethics and Change</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7156</td>
<td>Operational Excellence Through Supply Chain and Quality Management</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7216</td>
<td>Marketing and Consumer Theory</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7226</td>
<td>Operations and Information Technology for Competitive Advantage</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7236</td>
<td>Cost Analysis and Systems</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7316</td>
<td>Integrated Business Project and Case Analysis</td>
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<td>12 Credits from an approved list</td>
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</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td>39</td>
</tr>
</tbody>
</table>
PhD Business

The PhD Business offer three concentrations:

- PhD Business - Finance (p. 1445)
- PhD Business - Information Systems Management (p. 1344)
- PhD Business - Management (p. 1480)

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor’s degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of 8990. Enrollment in 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

Chemical Engineering - MS, PhD

Program Degrees:

- Chemical Engineering - MS (p. 1356)
- Chemical Engineering - PhD (p. 1357)

The Chemical Engineering Department offers graduate programs leading to the degrees of master of science and doctor of philosophy. Specialized courses and research training are provided in a wide variety of specialties within chemical engineering or related interdisciplinary areas. Some of these specialties include: surface science, biochemical engineering, catalysis, pulp and paper engineering, environmental engineering, waste conversion, computer-aided process design and simulation, novel bioseparations systems, chemical kinetics and reactor design, biomedical engineering, process control and optimization, thermodynamics, advanced energy research, mass and energy transfer, electrochemical engineering, polymer engineering, interfacial phenomena, process synthesis, material science, nanotechnology, and space science. Additionally, individualized interdisciplinary programs which cross the traditional departmental boundaries are encouraged. These may include collaborative work in chemistry, engineering disciplines, physics, mathematics, agriculture, forestry, biology, microbiology, genetics and health sciences or other areas.

The applicant must hold a bachelor’s degree or its equivalent from an institution of recognized standing and must have the pre-requisite undergraduate experience in areas of study relevant to the proposed graduate program. The General Test of the Graduate Record Examination (GRE) is required. If the applicant’s undergraduate degree is other than chemical engineering, an individualized plan of study will be developed to impart the critical skills inherent in the bachelor’s chemical engineering program. All applicants will be evaluated on an individual basis by the Chemical Engineering Graduate Admissions Committee. The admissions committee will evaluate the undergraduate (and graduate) record, GRE scores, letters of recommendation and any experience in research. Non-core, non-duplicating, “A” grade graduate courses from another university are eligible as determined by the Graduate Program Officer for transfer credit (maximum of 6 credit hours for Masters, 12 credit hours for PhD).

The master of science may be earned under a thesis or non-thesis option. There is not a language requirement for either option. For both options, a total of 30 semester hours of work is necessary and at least 21 hours must be in chemical engineering (CHEN). A total of 12 hours must be taken at the 7000 level or higher, the remaining 18 hours must be at the 6000 level or higher. The following core courses must be taken for a total of 9 hours:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEN 7100</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 7200</td>
<td>Chemical Engineering Thermodynamics</td>
<td>3</td>
</tr>
</tbody>
</table>
Students pursing a MS with thesis degree should enroll in CHEN 7950 Graduate Seminar each semester of enrollment. These students may include six (6) hours of research and thesis as part of the 30 hours. After completion of the thesis, the student must pass a final oral examination defending the thesis. The non-thesis MS degree option does not have a residency, seminar, research or final oral exam requirement. The non-thesis degree can be earned entirely through the Auburn Engineering Graduate Online Program.

The doctor of philosophy provides for advanced course work and emphasizes original, creative research. A dissertation embodying the results of this research represents the major portion of the requirements for this degree. A minimum of 60 semester hours of graduate work past the bachelor’s degree is necessary. Each student may include 10 hours of research and dissertation as part of the 60 hours. Four calendar years beyond the bachelor’s degree or three past the master’s degree usually are needed to complete the PhD. There are four (4) core graduate courses for a total of 12 credit hours:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEN 7100</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 7110</td>
<td>Chemical Engineering Analysis and Advanced Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 7200</td>
<td>Chemical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 7250</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours: 12

Additional 18 credit hours of chemical engineering (minimum 9 credit hours) and/or other elective courses at 6000 level or higher is required. The remaining 30 credit hours are composed of research and dissertation (minimum 10 credit hours), formal courses (6000 level or higher), and graduate seminar.

The General Doctoral Examination consists of two parts, the “PhD Qualifying Examination” and the “PhD Preliminary Oral Examination”. The PhD Qualifying Examination will be successfully fulfilled by earning a B or higher in each of the four (4) core graduate courses above.

At the PhD Preliminary Oral Examination, the student will present to their Faculty Research Advisory Committee a thorough description and comprehensive discussion of his/her proposed dissertation research. Successful completion of the Preliminary Oral Examination requires unanimous approval of the student’s Faculty Research Advisory Committee. Upon successful completion of the PhD Qualifying and Preliminary Oral Examinations, the student advances to candidacy. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

There is no language requirement for the PhD.

Chemical Engineering - MS

The master of science may be earned under a thesis or non-thesis option. There is not a language requirement for either option. For both options, a total of 30 semester hours of work is necessary and at least 21 hours must be in chemical engineering (CHEN). A total of 12 hours must be taken at the 7000 level or higher, the remaining 18 hours must be at the 6000 level or higher. There are three (3) core courses that must be taken for a total of 9 hours:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEN 7100</td>
<td>Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 7200</td>
<td>Chemical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHEN 7250</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Select 3 Credits in @ CHEN 7000-8999</td>
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<td></td>
</tr>
<tr>
<td>Select 9 Credits in @ CHEN 6000-8999</td>
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</tr>
<tr>
<td>Select 9 Credits in @ 6000-8999</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 30

Students pursing a MS with thesis degree should enroll in CHEN 7950 Graduate Seminar each semester of enrollment. These students may include six (6) hours of CHEN 7990 Research and Thesis as part of the 30 hours. After completion of the thesis, the student must pass a final oral examination defending the thesis. The non-thesis MS degree option does not have a residency, seminar, research or final oral exam requirement. The non-thesis degree can be earned entirely through the Engineering Online Graduate Program.
**Chemical Engineering - PhD**

The doctor of philosophy provides for advanced course work and emphasizes original, creative research. A dissertation embodying the results of this research represents the major portion of the requirements for this degree. A minimum of 60 semester hours of graduate work past the bachelor's degree is necessary. Each student may include 10 hours of research and dissertation as part of the 60 hours. Four calendar years beyond the bachelor's degree or three past the master's degree usually are needed to complete the PhD. There are four (4) core graduate courses for a total of 12 credit hours:

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</tr>
<tr>
<td>CHEN 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>

Select 9 Credits in CHEN 6000-8999  
Select 29 Credits in @ 6000-8999  

**Total Hours**  
60

Additional 18 credit hours of chemical engineering (minimum 9 credit hours) and/or other elective courses at 6000 level or higher is required. The remaining 30 credit hours are composed of CHEN 8990 Research and Dissertation (minimum 10 credit hours), formal courses (6000 level or higher), and graduate seminar.

The General Doctoral Examination consists of two parts, the "PhD Qualifying Examination" and the "PhD Preliminary Oral Examination". The PhD Qualifying Examination will be successfully fulfilled by earning a B or higher in each of the four (4) core graduate courses above.

At the PhD Preliminary Oral Examination, the student will present to their Faculty Research Advisory Committee a thorough description and comprehensive discussion of his/her proposed dissertation research. Successful completion of the Preliminary Oral Examination requires unanimous approval of the student’s Faculty Research Advisory Committee. Upon successful completion of the PhD Qualifying and Preliminary Oral Examinations, the student advances to candidacy. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

There is no language requirement for the PhD.

**Chemistry and Biochemistry - MS, PhD**

**Degree Programs:**

- Chemistry - MS (p. 1358)
- Chemistry - PhD (p. 1358)

Graduate study in chemistry leads to the M.S. and PhD degrees. By the end of the second semester, graduate students must submit a plan of study which details the courses that will be taken. This is done with the assistance of the major professor and with the consent of the student's advisory committee.

For the MS degree, the plan of study will consist of a minimum of 30 hours.

**Chemistry (MS)**

Select four of the following required core:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 7100</td>
<td>Advanced Inorganic Chemistry</td>
<td>12</td>
</tr>
<tr>
<td>CHEM 7200</td>
<td>Physical Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 7300</td>
<td>Advanced Physical Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 7500</td>
<td>Advanced Analytical Chemistry</td>
<td></td>
</tr>
<tr>
<td>BCHE 7200</td>
<td>Advanced Biochemistry I</td>
<td></td>
</tr>
<tr>
<td>CHEM 7750</td>
<td>Formal Presentations in Modern Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 7950</td>
<td>Seminar (4 hours)</td>
<td>1</td>
</tr>
</tbody>
</table>
CHEM 7990  
Research and Thesis  
4

9 Credits in @ 6000-8999  
9

For the PhD degree, 60 hours of courses must be completed.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 7750</td>
<td>Formal Presentations in Modern Chemistry (3 hours)</td>
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</tr>
<tr>
<td>CHEM 7950</td>
<td>Seminar (6 hours)</td>
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<tr>
<td>CHEM 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
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</tbody>
</table>

The rest of the courses usually are taken in the major area. Directed Study, CHEM 7930, may be taken for a maximum of 15 hours. PhD students must pass the written and oral examination. All graduate students must orally present their research and defend their theses or dissertations in the final oral examination.

### Chemistry - MS

MS plan of study will consist of a minimum of 30 hours.

**Chemistry (MS)**

Select four of the following required core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 7100</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 7200</td>
<td>Advanced Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 7300</td>
<td>Advanced Physical Chemistry</td>
<td>3</td>
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<tr>
<td>CHEM 7500</td>
<td>Advanced Analytical Chemistry</td>
<td>3</td>
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<tr>
<td>BCHE 7200</td>
<td>Advanced Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 7750</td>
<td>Formal Presentations in Modern Chemistry (1 hour)</td>
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</tr>
<tr>
<td>CHEM 7950</td>
<td>Seminar (4 hours)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 7990</td>
<td>Research and Thesis (4 hours)</td>
<td>4</td>
</tr>
<tr>
<td>Credits in @ 6000-8999</td>
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<td>9</td>
</tr>
</tbody>
</table>

Total Hours  
30

By the end of the second semester, MS students must submit a plan of study which details the courses which will be taken. This is done with the assistance of the major professor and with consent of the student's advisory committee. The rest of the courses usually are taken in the major area. Directed Study, CHEM 7930, may be taken for a maximum of 15 hours. Students must orally present their research and defend their theses in the final oral examination.

### Chemistry - PhD

PhD students must complete a minimum of 60 hours of courses.

**Chemistry (PhD)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>3 Credits in CHEM 7750</td>
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<td>3</td>
</tr>
<tr>
<td>6 Credits in CHEM 7950</td>
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<tr>
<td>CHEM 8990</td>
<td>Research and Dissertation</td>
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<tr>
<td>Credits in @ 6000-8999</td>
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<td>41</td>
</tr>
</tbody>
</table>

Total Hours  
60

By the end of the second semester, PhD students must submit a plan of study which details the courses that will be taken. This is done with the assistance of the major professor and with the consent of the student’s advisory committee. The rest of the courses usually are taken in the major area. Directed study, CHEM 7930, may be taken for a maximum of 15 hours. Students must pass the written and oral general examination. Students must orally present their research and defend their dissertations in the final oral examination.
Civil Engineering - MCE, MS, PhD

Degree Programs:

• Civil Engineering - MCE (p. 1359)
• Civil Engineering - MS (p. 1360)
• Civil Engineering - PhD (p. 1360)

The Department of Civil Engineering offers graduate-level instruction and research programs leading to the degrees of Master of Civil Engineering (MCE), Master of Science (MS) and Doctor of Philosophy (PhD). These programs provide qualified students opportunities for advanced training and specialization and enable them to gain experience conducting engineering research and interpret and communicate their findings. The department offers programs in Construction Engineering and Management, Environmental Engineering, Geotechnical Engineering, Hydraulics/Hydrology, Pavements and Materials, Structural Engineering, and Transportation Engineering. Coursework may be taken in supportive disciplines including applied statistics, building science, computer science or mathematics, with sufficient justification.

Applicants for the graduate programs must have an earned baccalaureate degree (BCE, BS or BSCE) in Civil Engineering or a closely related area and must have completed such formal training as to warrant advanced study in the major and minor fields. Applicants from related disciplines may be required to take prerequisites, as determined by the relevant specialty program and the department. There is no formal foreign language requirement.

All MS candidates must write a thesis. At least 30 semester hours of graduate-level course credit must be completed satisfactorily. At least six of the 30 hours must be in CIVL 7990 and at least 24 hours must be in graduate course work other than CIVL 7990. Candidates must pass a comprehensive examination covering the coursework, research and thesis.

Admission requirements for MCE are the same as those for MS. MCE students must take at least 30 semester hours of graduate-level courses, which may include three-semester hours of CIVL 7980. A plan of study must be approved by the student’s advisory committee.

PhD applicants must have earned a BS or master’s degree in Civil Engineering or a related area. Applicants from other related disciplines may be required to take prerequisites determined by the relevant specialty program and the department.

The PhD is conferred in recognition of mastery of a specific field of knowledge and a contribution to that engineering discipline through the doctoral dissertation. The degree is a research degree, requiring not only completion of certain technical requirements but proof of the candidate’s ability to work independently in an engineering research environment.

To be qualified as a PhD candidate, an admitted doctoral student must pass a written comprehensive examination and a follow-up oral critique administered by the student’s advisory committee. The examination may not be taken sooner than one year after the student begins doctoral course work. Additional academic preparation may be prescribed by the advisory committee to strengthen deficiencies identified by the examination, or the student may be suspended from the program. One retake may be permitted after the student has completed the prescribed preparation. Upon successful completion of the examination, the student becomes a candidate for the PhD.

After successfully completing the comprehensive examination, the doctoral candidate will defend the proposed dissertation topic, which must represent a significant contribution to the state-of-the-art. This defense may be included in the oral critique of the comprehensive examination if the advisory committee agrees. Once the committee approves the research topic, the doctoral candidate may proceed with the research and dissertation. When it is completed, the candidate defends the completed dissertation before the advisory committee and the outside reader appointed by the Graduate School.

Civil Engineering - MCE

<table>
<thead>
<tr>
<th>Civil Engineering (MCE)</th>
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<tbody>
<tr>
<td>30 hours of approved 6000-7980 graduate level courses</td>
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<tr>
<td>Total Hours</td>
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</table>

<table>
<thead>
<tr>
<th>Civil Engineering (Distance MCE)</th>
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</thead>
<tbody>
<tr>
<td>30 hours of approved 6006-7986 graduate level courses</td>
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<tr>
<td>Total Hours</td>
<td>30</td>
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</tbody>
</table>
Civil Engineering - MS

Civil Engineering (MS)
CIVL 7990  Research and Thesis (4-6 credit hours)  4
24-26 hours in approved graduate level courses 6000-7980 (Electives)  26
Total Hours  30

Civil Engineering - PhD

Civil Engineering (PhD)
CIVL 8990  Research and Dissertation  10
30 credit hours in committee approved graded graduate level courses (6000-7986)  30
16-20 credit hours in committee approved graded graduate level courses (6000-7986) or Dissertation (CIVL 8990)  20
0-4 Thesis and Research (7990, optional, maximum of 4 credits in Thesis)  0
Total Hours  60

Communication - MA, Graduate Certificate

Degree Programs:
• Communication - MA (p. 1362)

Graduate Certificates:
• Communication Studies - Graduate Certificate (p. 1362)

The School of Communication and Journalism offers the Master of Arts in Communication and the Graduate Certificate in Communication Studies.

Students earning the MA in Communication have excellent employment opportunities working for organizations ranging from Fortune 100 companies to non-profit groups. For those interested in pursuing a doctorate, our graduates have been admitted to the best PhD programs in the Communication discipline.

For more information about both the MA and the Graduate Certificate, see http://www.cla.auburn.edu/cmjn/. Program statistics (e.g., number of students accepted, average GRE scores, etc.) and additional information on the application process are available on that website.

Master of Arts in Communication

Application Process
Applicants for the MA must hold bachelor’s degrees from an accredited college or university and must take the General Test of the GRE. They must submit a statement of purpose, undergraduate transcripts, GRE scores, a writing sample, recommendation review forms, and letters of recommendation for consideration by an admissions committee.

They should ensure that these materials are submitted to the Graduate School web application:
• Application fee
• Official scores for the General Test of the GRE
• Official transcripts for every institution attended

They should ensure that these materials are submitted to the graduate program in the Department of Communication and Journalism:
• Statement of purpose
• Recommendation review forms
• Three letters of recommendation
• Writing sample

Deadlines for application materials are posted on the departmental website.
MA Degree Requirements

Students may pursue either a thesis or a non-thesis option for the MA in Communication. The MA-thesis option requires 31 hours beyond the bachelor’s degree, including the thesis. The MA-non-thesis option requires 30 hours beyond the bachelor’s degree, including appropriate field experience.

Students without a bachelor’s degree in communication (i.e., communication, journalism, public relations, radio/television/film) must earn an additional 9 graduate credit hours.

The following courses are required for the MA in Communication:

- COMM 7000 Communication Theory
- COMM 7010 Qualitative Methods of Communication Research
- COMM 7020 Quantitative Methods of Communication Research

Upon completion of the required classes, students must pass a written qualifying examination covering material presented in these three courses before continuing in the degree program. All remaining hours are elective course work.

MA-thesis option students will enroll in a minimum of 4 thesis hours (COMM 7990). MA-non-thesis option students will enroll in a minimum of 3 non-thesis project hours (COMM 7980).

All students seeking the master’s degree must pass comprehensive exams prior to graduation. The exams include both written and oral components. The nature of the written portion of the comprehensive exams will vary depending on the choice of the thesis or non-thesis option. For students choosing the thesis option, the thesis typically constitutes the written portion of the comprehensive examination. Students choosing the non-thesis option must pass a written examination covering the program of study as well as any research and special project/internship/field experience.

There is no foreign language requirement.

Graduate Certificate in Communication Studies

Application Process

Applicants for the Graduate Certificate must hold bachelor’s degrees from accredited colleges or universities and must take the General Test of the GRE. An admissions committee evaluates the applicant’s statement of purpose, undergraduate record, GRE scores, writing sample, recommendation review forms, and letters of recommendation.

Applicants should ensure that these materials are submitted to the Graduate School web application:

- Application fee
- Official scores for the General Test of the GRE
- Official transcripts for every institution attended

They should ensure that these materials are submitted to the graduate program in the Department of Communication and Journalism:

- Statement of purpose
- Recommendation review forms
- Three letters of recommendation
- Writing sample

Requirements

The Graduate Certificate in Communication Studies requires 18 hours beyond the bachelor’s degree. It does not require a thesis or field experience. The following courses are required for the Graduate Certificate in Communication Studies:

- COMM 7000 Communication Theory
- COMM 7010 Qualitative Methods of Communication Research
- COMM 7020 Quantitative Methods of Communication Research

Upon completion of these three required classes, students must pass a written qualifying examination covering material presented in these three courses. The remaining 9 hours are elective course work.
Deadlines for application materials are posted on the departmental website.

**Financial Aid**

A limited number of competitive graduate teaching assistantships are available. To get more information about the assistantships and to learn how to apply, please visit the following website: http://www.cla.auburn.edu/cmjn/graduate-program/assistantships/. Students enrolled in the Graduate Certificate in Communication Studies are not eligible for financial aid.

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**Communication - MA**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>COMM 7000</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMM 7010</td>
<td>Historical, Descriptive, and Critical Approaches to Comm.</td>
<td>3</td>
</tr>
<tr>
<td>COMM 7020</td>
<td>Empirical Approaches to Comm. Research</td>
<td>3</td>
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<tr>
<td>COMM 7990</td>
<td>Research and Thesis</td>
<td>4</td>
</tr>
<tr>
<td>Select 8</td>
<td>Credits in COMM 6000-8990</td>
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<tr>
<td>Select 9</td>
<td>Credits in @ 6000-8999 (Electives)</td>
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<td><strong>Total</strong></td>
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**Communication Non-Thesis - MA**

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<tr>
<td>COMM 7000</td>
<td>Communication Theory</td>
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</tr>
<tr>
<td>COMM 7010</td>
<td>Historical, Descriptive, and Critical Approaches to Comm.</td>
<td>3</td>
</tr>
<tr>
<td>COMM 7020</td>
<td>Empirical Approaches to Comm. Research</td>
<td>3</td>
</tr>
<tr>
<td>COMM 7980</td>
<td>Non-Thesis Project in Comm.</td>
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<tr>
<td>Select 9</td>
<td>Credits in COMM 6000-8990</td>
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<tr>
<td>Select 9</td>
<td>Credits in @ 6000-8999 (Electives)</td>
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<td><strong>Total</strong></td>
<td><strong>Hours</strong></td>
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**Communication Studies - Graduate Certificate**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>COMM 7000</td>
<td>Communication Theory</td>
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<tr>
<td>COMM 7010</td>
<td>Historical, Descriptive, and Critical Approaches to Comm.</td>
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<tr>
<td>COMM 7020</td>
<td>Empirical Approaches to Comm. Research</td>
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<td>Select 9</td>
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<td>COMM 7230</td>
<td>Rhetorical Criticism</td>
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<td>COMM 7300</td>
<td>Approaches to Studying Language and Social Interaction</td>
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<tr>
<td>COMM 7410</td>
<td>Development of Rhetorical Theory</td>
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<tr>
<td>COMM 7420</td>
<td>Seminar in Persuasion and Attitude Change</td>
<td></td>
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<tr>
<td>COMM 7430</td>
<td>Seminar in American Public Address</td>
<td></td>
</tr>
<tr>
<td>COMM 7440</td>
<td>Seminar in Argumentation and Debate</td>
<td></td>
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<tr>
<td>COMM 7450</td>
<td>Seminar in Intrapersonal Processes in Comm.</td>
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<tr>
<td>COMM 7460</td>
<td>Seminar in Interpersonal Communication</td>
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<td>COMM 7470</td>
<td>Seminar in Small Group Communication</td>
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<td>COMM 7480</td>
<td>Seminar in Organizational Communication</td>
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<td>COMM 7490</td>
<td>Health Communication</td>
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<td>COMM 7500</td>
<td>Gender Communication</td>
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<td>COMM 7600</td>
<td>Mass Communication Theory</td>
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<td>COMM 7610</td>
<td>Studies in Popular Culture and Mass Communication</td>
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<td>COMM 7620</td>
<td>Broadcast Programming and Criticism</td>
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<tr>
<td>COMM 7630</td>
<td>Media Management</td>
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<tr>
<td>COMM 7640</td>
<td>Seminar in Film Theory and Criticism</td>
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</table>
COMM 7650  The Mass Media and American Politics
COMM 7660  Cultural Studies in Mass Media
COMM 7670  Contemporary Issues in First Amendment Law
COMM 7680  Sports, Media, and Culture
COMM 7810  Public Relations Theory
COMM 7820  Public Relations Campaigns
COMM 7830  Public Relations Case Studies
COMM 7840  Communication Training and Consulting
COMM 7930  Directed Studies
COMM 7970  Special Topics in Communication

Total Hours 18

Communication Disorders - MCD, MS

Degree Programs:
- Communication Disorders - MS (p. 1365)
- Communication Disorders - MCD (p. 1365)

The Department of Communication Disorders offers master’s programs in speech-language pathology accredited by the Council on Academic Accreditation of the American Speech-Language-Hearing Association (ASHA). Two degree options are available: Master of Science in Communication Disorders (MS) and Master of Communication Disorders (MCD). The MS requires a thesis, while the MCD has no thesis requirement. Neither degree requires expertise in a foreign language. Information about these degrees is available at http://www.cla.auburn.edu/communicationdisorders/.

The plan of study for either degree may be designed according to the student’s career interests; however, the curriculum planned must conform to academic and practicum requirements for ASHA certification and Alabama licensure. Students then are prepared for careers in school systems, clinics, hospital/rehabilitation centers, physicians’ offices, and private practice and for pursuing the doctoral degree.

Admission Requirements

The admission requirements are the same for both degrees because the choice of degree program is not made formally until the first semester of graduate study.

A baccalaureate degree from an accredited university is necessary. Those with a degree in communication sciences and disorders, or equivalent, complete the Master of Communication Disorders (MCD) degree with 55 semester credit hours; additional thesis hours are optional for the Master of Science (MS) degree. Highly qualified students from any undergraduate discipline are considered for admission; however, certain foundation courses are necessary and may bring the MCD degree total to 95 semester hours. General education courses on the undergraduate transcript should include at least one course in each of the following areas: math, statistics, life science, physical science, and behavioral science. As this background is expected by the program’s accreditation agency, any deficiency must be fulfilled before conferral of the master’s degree in this program. Students who do not have an undergraduate course in neuroanatomy will be required to take that course as part of their graduate program.

Some application materials are sent directly to the Graduate School and other materials are sent CSDCAS.

Application to Auburn University’s Communication Disorders Dept. requires that you complete both the electronic application through the Communication Sciences and Disorders Centralized Application Service (CSDCAS) AND the online application to the Auburn University Graduate School. Here are specific steps:

1. Apply online to AU’s Graduate School and submit payment.

2. GRE scores must also be submitted to the Graduate School at Auburn University (ETS Institution code 1005)

3. Apply online through CSDCAS (http://www.capcsd.org/csdcas-student-page/) and submit all required information, documentation and payment.

   • Official transcripts from every college or university attended must be sent to CSDCAS.
   • Official GRE scores must be sent to CSDCAS (ETS code 7807)
   • Three professional letters of recommendation must be submitted to CSDCAS
• 1-minute video describing the value and importance of Speech Language Pathologists must be linked in CSDCAS
• For international students whose native language is not English, the TOEFL must be taken and submitted to both CSDCAS and AU Graduate School

January 15th is the annual deadline for applications to the graduate program. To be considered for admission, all materials need to be submitted to AU and CSDCAS no later than January 15th.

Graduation Requirements
The MS in Communication Disorders requires a minimum of 54 hours of graduate course work, including at least four hours of CMDS 7990 Research and Thesis, and an appropriate internship experience, CMDS 7920 Internship in Speech-Language Pathology.

The Master of Communication Disorders requires a minimum 55 hours of graduate course work and appropriate internship experience, CMDS 7920 Internship in Speech-Language Pathology.

Required Courses
This is the course schedule for both degrees, with the exception of CMDS 7990 Research and Thesis (4 hours), which is required only for the MS students. Although they are required to write a thesis, MS students do not take comprehensive exams. CMDS 7990 Research and Thesis is not required for MCD students, who take comprehensive exams rather than write a thesis.

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
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<tbody>
<tr>
<td>CMDS 7570 Evaluation of</td>
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<td>CMDS 7550 Adult Aphasia</td>
<td>3</td>
<td>CMDS 7540 Advanced Voice</td>
<td>3</td>
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<tr>
<td>Research in Speech Pathology</td>
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<td></td>
<td>Disorders</td>
<td></td>
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<tr>
<td>and Audiology</td>
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<tr>
<td>CMDS 7860 Speech Science</td>
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<td>CMDS 7720 Clinical Problem</td>
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<td>CMDS 7840 Augmentative and</td>
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<td>Solving II</td>
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<td>Alternative Communication</td>
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<td>CMDS 7700 Clinical Problem</td>
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<td>CMDS 7530 Advanced Fluency</td>
<td>3</td>
<td>CMDS 7590 Language Disorders:</td>
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<td>Solving I</td>
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<td>School-Age</td>
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<td>CMDS 7970 Special Topics</td>
<td>1-3</td>
<td>CMDS 7500 Clinical Problems in</td>
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<td>CMDS 7820 Dysphagia</td>
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<td>in Speech</td>
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<tr>
<td>CMDS 7520 Language Disorders:</td>
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<td></td>
<td></td>
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<tr>
<td>Birth to Five</td>
<td></td>
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</table>

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDS 7810 Motor Speech</td>
<td>3</td>
<td>CMDS 7920 Internship in Speech-</td>
<td>5</td>
</tr>
<tr>
<td>Disorders</td>
<td></td>
<td>Language Pathology</td>
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</tr>
<tr>
<td>CMDS 7560 Craniofacial</td>
<td>3</td>
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<tr>
<td>Anomalies</td>
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<td></td>
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</tr>
<tr>
<td>CMDS 7740 Clinical Problem</td>
<td>2</td>
<td></td>
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<tr>
<td>Solving III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMDS 7510 Advanced Articulation/</td>
<td>3</td>
<td></td>
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<tr>
<td>Phonological Disorders</td>
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<td></td>
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<tr>
<td>CMDS 7970 Special Topics</td>
<td>1-3</td>
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<tr>
<td>Seminar</td>
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<tr>
<td>CMDS 7500 Clinical Problems</td>
<td>1</td>
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</tr>
<tr>
<td>in Speech</td>
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</tbody>
</table>
Clinical Experience Requirements
In addition to academic course work requirements, both the MCD and MS degree programs require a minimum of 400 clock hours of supervised clinical experience in the practice of speech-language pathology.

Financial Aid
The department has a limited number of graduate assistantships available. These assistantships must be applied for using the Application for Assistantship form downloaded from the departmental website. Assistantships are awarded based on academic performance and research experience.

Communication Disorders - MCD

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
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<th>Hours</th>
<th>Summer</th>
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<tr>
<td>CMDS 7570 Evaluation of Research in Speech Pathology and Audiology</td>
<td>3</td>
<td>CMDS 7550 Adult Aphasia</td>
<td>3</td>
<td>CMDS 7540 Advanced Voice Disorders</td>
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<tr>
<td>CMDS 7860 Speech Science</td>
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<td>CMDS 7720 Clinical Problem Solving II</td>
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<td>CMDS 7840 Augmentative and Alternative Communication</td>
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<td>CMDS 7700 Clinical Problem Solving I</td>
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<td>CMDS 7530 Advanced Fluency Disorders</td>
<td>3</td>
<td>CMDS 7590 Language Disorders: School-Age</td>
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<tr>
<td>CMDS 7970 Special Topics Seminar</td>
<td>1-3</td>
<td>CMDS 7500 Clinical Problems in Speech</td>
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<td>CMDS 7500 Clinical Problems in Speech</td>
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<td>CMDS 7500 Clinical Problems in Speech</td>
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<td>CMDS 7820 Dysphagia</td>
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<td>CMDS 7520 Language Disorders: Birth to Five</td>
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Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMDS 7810 Motor Speech Disorders</td>
<td>3</td>
<td>CMDS 7920 Internship in Speech-Language Pathology</td>
<td>5</td>
</tr>
<tr>
<td>CMDS 7560 Craniofacial Anomalies</td>
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<td></td>
<td></td>
</tr>
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<td>CMDS 7970 Special Topics Seminar</td>
<td>1-3</td>
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</table>

Communication Disorders - MS

First Year

<table>
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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>CMDS 7570 Evaluation of Research in Speech Pathology and Audiology</td>
<td>3</td>
<td>CMDS 7820 Dysphagia</td>
<td>3</td>
<td>CMDS 7540 Advanced Voice Disorders</td>
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</tr>
<tr>
<td>CMDS 7860 Speech Science</td>
<td>3</td>
<td>CMDS 7550 Adult Aphasia</td>
<td>3</td>
<td>CMDS 7840 Augmentative and Alternative Communication</td>
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</tbody>
</table>
Community Planning - (MCP)

The Community Planning Program at Auburn University is a professionally oriented masters degree program that focuses on the skills that professional planners need for practice in an interactive and interdisciplinary environment. The centerpiece of the program is the opportunity for students and faculty to engage with under-served communities throughout Alabama and the Southeast through outreach, teaching, and engaged research. Through working on projects with communities throughout Alabama and the Southeast, students learn to help diverse and complex communities create and implement plans that improve and protect their quality-of-life, culture, resource base, built environment, natural environment, and economic vitality.

The Master of Community Planning (MCP) is a professional, non-thesis degree. Students will normally earn the degree in two academic years by successfully completing 45 credit hours of course work, including two capstone plan-making workshops. The program offers dual degree options with geography, public administration, and landscape architecture (each of which requires a separate application). Enhanced opportunities for interdisciplinary teaching and learning are offered by the program’s distinctive Alabama City Year Program, in which the program focuses on one city in the Southeast each year and students complete multiple outreach and engagement projects in that city in each of their classes.

Master of Community Planning (45 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
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<td>CPLN 6010</td>
<td>Introduction to Community Planning</td>
<td>3</td>
</tr>
<tr>
<td>CPLN 6050</td>
<td>Land and Urban Economics</td>
<td>3</td>
</tr>
<tr>
<td>CPLN 6450</td>
<td>Planning History and Theory</td>
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</tr>
<tr>
<td>CPLN 6460</td>
<td>Geographic Information Systems for Planning and Policy (name to be changed to Geographic Information Systems)</td>
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<tr>
<td>CPLN 7200</td>
<td>Urban Design Studio</td>
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<tr>
<td>CPLN 7240</td>
<td>Quantitative Methods for Planning</td>
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</tr>
<tr>
<td></td>
<td>or POLI 7000</td>
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</tr>
<tr>
<td>CPLN 7600</td>
<td>Synthesis Studio I</td>
<td>3</td>
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</tbody>
</table>
CPLN 7430  Land Use Law (Name to be changed to Land Use Law)  3
CPLN 7610  Synthesis Studio 2  3
POLI 7140  Public Budgeting  3
or POLI 7520  Program Evaluation
or POLI 6550  Issues in Public Administration
or POLI 8120  Qualitative Research Methods

Electives (with MCP director approval)  15

Total Hours  45

Computer Science and Software Engineering - MSwE, MS, PhD

Degree Programs:

- Computer Science and Software Engineering - MSwE (p. 1368)
- Computer Science and Software Engineering - MS (p. 1367)
- Computer Science and Software Engineering - PhD (p. 1368)

Graduate study in the Department of Computer Science and Software Engineering (COMP) leads to the non-thesis master of software engineering (MSwE) or research oriented master of science (MS) and doctor of philosophy (PhD) degrees in computer science and software engineering. All applications are reviewed by the COMP Graduate Admissions Committee.

To enter the MS or the MSwE, the student must hold a bachelor’s degree or its equivalent from an institution of recognized standing. The student also must have the pre-requisite undergraduate experience in areas of computer science and/or software engineering. If the student has deficiencies in the pre-requisites, he or she will be required to take appropriate undergraduate courses. All applicants must submit Graduate Record Examination scores for the general test.

The MS program requires 30 semester credit hours, including six credit hours for research and thesis. The MSwE program requires 33 semester credit hours, including three credit hours for the software engineering design project. There is no language requirement.

For the PhD program, the applicant must hold a master’s degree or have successfully completed a minimum of one academic year of graduate study, from an institution of recognized standing in an area related to the proposed doctoral study. All applicants must submit GRE scores for the general test. The student will take a written qualifying examination soon after gaining admission to the program. Additional examinations, as described in the general Graduate School requirements, are given throughout the program, culminating with the defense of the dissertation. There is no language requirement for the PhD The program typically includes at least one academic year of course work and one year of research beyond the master’s level. The PhD program requires a minimum of 66 semester credit hours of course work beyond the bachelor’s level, including 18 hours of research and dissertation.

Computer Science and Software Engineering - MS

The master of science may be earned under a thesis or non-thesis option. The MS (non-thesis) degree requires a minimum of 33 graduate semester credit hours. All courses in the degree must be taken for a grade. The three required 7000-level courses are COMP7270, COMP7300, and COMP7500. Students may take up to three (3) credit hours of COMP7930 Directed Study. Students may take three (3) credit hours of COMP7980 Master of Science Capstone Engineering Project, which is a graded course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit(s)</th>
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<tbody>
<tr>
<td>COMP 7270</td>
<td>Advanced Topics in Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7300</td>
<td>Advanced Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7500</td>
<td>Advanced Topics in Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 18 Credits in COMP 6000-8999  18
Select 6 Credits in @ 6000-8999  6

Total  33

The Master of Science degree (thesis option) requires a minimum of 30 graduate semester credit hours. All courses in the degree must be taken for a grade; the exception is COMP7990 Research and Thesis, which is offered in incomplete/complete format. The three required 7000-level courses are COMP7270, COMP7300, and COMP7500. Students may take up to three (3) credit hours of COMP7930 Directed Study. A thesis is required for the MS-CSSE degree (i.e., thesis option). A written proposal supporting thesis project must be approved by a student’s supervisory committee, which is comprised of at least three faculty members. One member
of the committee is designated as the major professor (a.k.a., advisor). Students must pass a comprehensive oral examination at the conclusion of their studies. All students with thesis option are required to submit Master’s Final Examination Form to the graduate school.

COMP 7270  Advanced Topics in Algorithms  3
COMP 7300  Advanced Computer Architecture  3
COMP 7500  Advanced Topics in Operating Systems  3
COMP 7990  Research and Thesis  6
Select 9 Credits in COMP 6000-8999  9
Select 6 Credits in @ 6000-8999  6
Total  30

Computer Science and Software Engineering - MSwE

Computer Science and Software Engineering (MSwE)
COMP 7980  Master of Software Engineering Design Project  3
Select 21 Credits in COMP 6000-8999  21
Select 9 Credits in @ 6000-8999  9
Total Hours  33

Computer Science and Software Engineering (Distance) - MSwE
COMP 7980  Master of Software Engineering Design Project  3
Select 21 Credits in COMP 6000-8999  21
Select 9 Credits in @ 6000-8999  9
Total Hours  33

Computer Science and Software Engineering - PhD

PhD
Research and Dissertation:  18
COMP 8990  Research and Dissertation  3
Select 3 Credits in COMP 6000-8999  3
Select 45 Credits in @ 6000-8999  45
Total Hours  66

Consumer and Design Sciences - MS, PhD

Degree Program:
- Consumer and Design Sciences - MS (p. 1370)
- Consumer and Design Sciences - PhD (p. 1371)

Graduate study in the Department of Consumer and Design Sciences, College of Human Sciences, leads to the master of science and the doctor of philosophy. Major focus areas are apparel design or merchandising, interior design, and consumer behavior. The department emphasizes integration of basic and applied knowledge from multiple fields to enhance professional skills for careers in textile and apparel product development and design; production management; retail management; merchandising in textile and apparel retail or design firms; design of residential and commercial interiors; and college teaching and research. A foreign language is not required. Entrants with limited undergraduate backgrounds in their chosen area may need to complete some undergraduate courses. Graduate teaching and research assistantships are available on a competitive basis.

Applicants for the M.S. must have a bachelor’s degree or its equivalent from an accredited college or university. The General Test of the Graduate Record Examination is required. The admissions committee will evaluate the undergraduate record, GRE scores, letter of
intent, resume, and three letters of recommendation. International applicants must submit the Test of English as a Foreign Language and meet the Graduate School admission requirements for this test.

The M.S. degree offers a Thesis Option and a Non-Thesis Option. The Thesis Option requires 30 semester hours; the Non-Thesis Option requires 36 semester hours. Individually designed focus areas incorporate courses in Consumer and Design Sciences and other departments. At least 21 semester hours must be in apparel, interiors, or consumer-related courses.

Requirements common to both options include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS 7040</td>
<td>Protocol for Graduate Study</td>
<td>1</td>
</tr>
<tr>
<td>CADS 7050</td>
<td>Research Methods in Consumer and Design Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CADS 7060</td>
<td>Survey of Consumer and Design Sciences Research</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Graduate level Statistics course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One Graduate level Theory Course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives to support thesis/graduate project topic or to meet career goals</td>
<td>14-17</td>
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<tr>
<td></td>
<td>Select one of the following:</td>
<td>3-6</td>
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<tr>
<td></td>
<td>Graduate Project (Non-Thesis Option) 3-6 credit hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research and Thesis (Thesis Option) 4-6 credit hours</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>30-36</td>
</tr>
</tbody>
</table>

The Non-Thesis Option requires an oral presentation of the completed Graduate Project to the Graduate Advisory Committee. 

CADS 7920 Graduate Internship is recommended as part of the Non-Thesis student’s Plan of Study. The Thesis Option requires an Oral Examination and Defense of the completed Thesis, to be administered by the Graduate Advisory Committee.

An Accelerated BS/MS degree program is available in both Apparel Merchandising, Design and Production Management and in Interior Design. Please contact the Department of Consumer and Design Sciences for more information about these accelerated programs.

Applicants for the PhD must have a master’s degree or its equivalent from an accredited college or university. The General Test of the Graduate Record Examination is required. The admissions committee will evaluate the undergraduate and graduate record, GRE scores, letter of intent, resume, and three letters of recommendation. International applicants must submit the Test of English as a Foreign Language and meet the Graduate School admission requirements for this test.

The PhD focuses on the integration of the science of design and consumer behavior within a research-based product or services management approach for application in the global economy. A minimum of 60 semester hours of graduate level course work is required. At least 30 of these hours must be graded graduate level course work; at least 20 of these hours must be completed at Auburn University.

Individually designed focus areas incorporate courses in Consumer and Design Sciences and other departments. At least 20-25 graduate credit hours, excluding thesis and dissertation hours, must be in Department of Consumer and Design Sciences courses (or the equivalent).

Requirements include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CADS 7040</td>
<td>Protocol for Graduate Study</td>
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</tr>
<tr>
<td>CADS 7050</td>
<td>Research Methods in Consumer and Design Sciences</td>
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<tr>
<td>CADS 7060</td>
<td>Survey of Consumer and Design Sciences Research</td>
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</tr>
<tr>
<td></td>
<td>At least 2 CADS graduate level theory courses</td>
<td>6</td>
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<tr>
<td></td>
<td>At least two Graduate level Statistics courses</td>
<td>6-8</td>
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<td></td>
<td>Electives to support dissertation topic and/or to meet career goals</td>
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<td>Research &amp; Thesis 1,2</td>
<td>4</td>
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<td></td>
<td>Research &amp; Dissertation</td>
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<tr>
<td>Total Hours</td>
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<td>60-66</td>
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</table>
If student has a non-thesis Master's degree, a manuscript suitable for submission to a research journal must be prepared and submitted prior to beginning the dissertation research.

If thesis hours are not applicable, 4 hours must be satisfied with approved electives.

PhD students must pass a General Doctoral Examination after completion of the course work and prior to proceeding to the dissertation. The General Doctoral Examination has written and oral parts to evaluate comprehension of existing knowledge in the student's area of study. Upon successful completion of the Examination, the student enters the candidacy for the Doctor of Philosophy degree and proceeds with the dissertation research. The Final Oral Examination is the defense of the dissertation, which must receive unanimous approval by the Graduate Advisory Committee and the Outside Reader before the PhD can be conferred.

### Consumer and Design Sciences - MS

#### Consumer and Design Sciences Thesis (MS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
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<tr>
<td>CADS 7040</td>
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<td>CADS 7050</td>
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<td>CADS 7060</td>
<td>Survey of Consumer and Design Sciences Research</td>
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Select One of the following Graduate level Statistics Course:

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BUAL 6600/6606</td>
<td>Predictive Modeling I</td>
</tr>
<tr>
<td>BUAL 6610/6616</td>
<td>Predictive Modeling II</td>
</tr>
<tr>
<td>BUAL 6650/6656</td>
<td>Big Data I</td>
</tr>
<tr>
<td>BUAL 6660/6666</td>
<td>Big Data II</td>
</tr>
<tr>
<td>ECON 7310</td>
<td>Econometrics I</td>
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<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7300</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>ERMA 7310</td>
<td>Design and Analysis in Education II</td>
</tr>
<tr>
<td>HDFS 8050</td>
<td>Advanced Research Methods: Covariance Structure Analysis</td>
</tr>
<tr>
<td>HDFS 8060</td>
<td>Multilevel Modeling</td>
</tr>
<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
</tr>
<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
</tr>
<tr>
<td>STAT 7010</td>
<td>Experimental Statistics II</td>
</tr>
<tr>
<td>STAT 7020</td>
<td>Regression Analysis</td>
</tr>
<tr>
<td>STAT 7030</td>
<td>Categorical Data Analysis</td>
</tr>
<tr>
<td>STAT 7100</td>
<td>Statistical Analysis of Survey, Aggregate and Large Data Sources</td>
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<td>STAT 7620</td>
<td>Nonparametric Statistics</td>
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<td>STAT 7840</td>
<td>Applied Multivariate Statistical Analysis</td>
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<td>STAT 7860</td>
<td>Applied Time Series Analysis</td>
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Select One of the following Graduate level Theory Course:

<table>
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<th>Course Title</th>
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<tbody>
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<td>Environmental Design Theories and Applications</td>
</tr>
<tr>
<td>CADS 7200</td>
<td>Aesthetics Theory in Consumer and Design Sciences</td>
</tr>
<tr>
<td>CADS 7670</td>
<td>Social Psychological Theories in Clothing Behavior</td>
</tr>
<tr>
<td>CADS 7690</td>
<td>Consumer Theory in Apparel and Interiors</td>
</tr>
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</table>

Electives to support thesis topic or to meet career goals: 11-13

Research and Thesis (Thesis Option) 4-6 credit hours: 6-4

Total Hours: 30

#### Consumer and Design Sciences Non-Thesis (MS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
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<td>Survey of Consumer and Design Sciences Research</td>
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Select One of the following Graduate level Statistics Course:

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<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>BUAL 6610/6616</td>
<td>Predictive Modeling II</td>
</tr>
<tr>
<td>BUAL 6650/6656</td>
<td>Big Data I</td>
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<td>ERMA 7210</td>
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<td>ERMA 7310</td>
<td>Design and Analysis in Education II</td>
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<tr>
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<tr>
<td>SOCY 7100</td>
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<tr>
<td>STAT 7000</td>
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</tr>
<tr>
<td>STAT 7620</td>
<td>Nonparametric Statistics</td>
</tr>
<tr>
<td>STAT 7840</td>
<td>Applied Multivariate Statistical Analysis</td>
</tr>
<tr>
<td>STAT 7860</td>
<td>Applied Time Series Analysis</td>
</tr>
</tbody>
</table>
BUAL 6600/6606 Predictive Modeling I
BUAL 6610/6616 Predictive Modeling II
BUAL 6650/6656 Big Data I
BUAL 6660/6666 Big Data II
ECON 7310 Econometrics I
ERMA 7210 Theory and Methodology of Qualitative Research
ERMA 7220 Applied Qualitative Research
ERMA 7300 Design and Analysis in Education I
ERMA 7310 Design and Analysis in Education II
HDFS 8050 Advanced Research Methods: Covariance Structure Analysis
HDFS 8060 Multilevel Modeling
SOCY 7100 Statistical Analysis of Survey, Aggregate, and Large Data Sources
STAT 7000 Experimental Statistics I
STAT 7010 Experimental Statistics II
STAT 7020 Regression Analysis
STAT 7030 Categorical Data Analysis
STAT 7100 Statistical Analysis of Survey, Aggregate and Large Data Sources
STAT 7620 Nonparametric Statistics
STAT 7840 Applied Multivariate Statistical Analysis
STAT 7860 Applied Time Series Analysis

Select One of the following Graduate level Theory Course:
  CADS 7100 Environmental Design Theories and Applications
  CADS 7200 Aesthetics Theory in Consumer and Design Sciences
  CADS 7670 Social Psychological Theories in Clothing Behavior
  CADS 7690 Consumer Theory in Apparel and Interiors

Electives to support graduate project topic or to meet career goals 17-20
Graduate Project (Non-Thesis Option) 3-6 credit hours 6-3

Total Hours 36

Consumer and Design Sciences - PhD

Consumer and Design Sciences (PhD)
  CADS 7040 Protocol for Graduate Study 1
  CADS 7050 Research Methods in Consumer and Design Sciences 3
  CADS 7060 Survey of Consumer and Design Sciences Research 3
At least 2 CADS graduate level theory courses 6
At least two Graduate level Statistics courses 6-8
Electives to support dissertation topic and/or to meet career goals 27-31
  CADS 7990 Research And Thesis 4
  CADS 8990 Research And Dissertation 10

Total Hours 60

Curriculum and Teaching - MEd, MS, EdS, PhD

Degree Programs
  • Agriscience Education (p. 1374)
  • Business and Marketing Education (p. 1376)
  • Career and Technical Education (p. 1379)
  • Early Childhood Education (p. 1380)
  • Elementary Education (p. 1382)
• English for Speakers of Other Languages (p. 1387)
• English Language Arts Education (p. 1384)
• Foreign Language Education: French or Spanish (p. 1388)
• Mathematics Education (p. 1392)
• Music Education: Instrumental or Vocal (p. 1395)
• Reading Education (p. 1398)
• Science Education: General Science, Biology, Chemistry, or Physics (p. 1400)
• Social Science Education: General Social Science or History (p. 1409)

Graduate Certificates
• Community Music (p. 1414)
• Reading Instruction (p. 1400)
• Teaching English as a Second Language (TESL)/Teaching English as a Foreign Language (TEFL) (p. 1414)

The Department of Curriculum and Teaching offers graduate certificates and graduate degree programs leading to the master of education (certification option), master of science (non-certification option), specialist in education, and doctor of philosophy. All graduate teacher certification programs are approved by the Alabama State Board of Education (ALSBE). Auburn University's College of Education is accredited through the National Council for Accreditation of Teacher Education (NCATE). Music education programs are also accredited by the National Association of Schools of Music (NASM).

Master’s Degree Programs (MEd/MS)

Master of education (MEd) degree programs include both alternative and traditional certification options. Alternative MEd certification programs offer qualified students who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a master's degree. Traditional MEd certification programs offer advanced study in pedagogy. MS non-certification programs provide interdisciplinary graduate-level education for community-based or international educators who do not wish to gain teacher certification/licensure in the United States.

Applicants to master's degree programs must satisfy the Graduate School's admission requirements. Departmental admission requirements include a bachelor's degree from an accredited college or university with a minimum GPA of 2.75 overall or a master's or higher degree with a GPA of at least 3.0. This GPA must be documented on the official transcript of the degree granting institution and must be the GPA that was used as the basis for granting the degree, not a GPA that includes post-degree courses. Admission requirements also include academic good standing at the institution last attended, competitive GRE scores, letters of recommendation, current resume, clear background check, and approval by the department. In addition, applicants to alternative MEd certification programs must satisfy the State's teaching field admission requirements and submit a passing score on each of the Praxis Core Academic Skills for Educators (Reading, Writing, and Mathematics). Applicants to a traditional MEd certification program must hold a valid bachelor's-level professional educator certificate in the same teaching field as the MEd, except for English for speakers of other languages (ESOL) and reading education. Admission to the MEd ESOL program requires at least a valid bachelor's-level professional educator certificate in any teaching field. Admission to the MEd certification program in reading education includes (a) a valid bachelor's-level professional educator certificate in early childhood education, elementary education, or collaborative special education teacher Grades K-6 and two full years of full-time classroom teaching experience or (b) a valid bachelor's-level professional educator certificate in any area of education, two full years of full-time classroom teaching experience, and a passing score on the Praxis II Teaching Reading test validated for use in Alabama.

Degree requirements for MEd certification programs are in compliance with regulations established by the ALSBE. Alternative MEd certification programs range from 30-44 hours and typically take a minimum of four semesters to complete if enrolled full-time; additional undergraduate coursework may be required. Degree requirements include a semester long, full-time internship; satisfactory completion of the State's testing program including passing scores on the appropriate Praxis II assessments prior to internship; and a written comprehensive exam.

Traditional MEd certification programs and MS non-certification programs require a minimum of 30 semester hours and a comprehensive examination. Requirements for MEd certification programs in reading education and ESOL include a passing score on the appropriate Praxis II subject assessment.

In accordance with State regulations, effective for students unconditionally admitted to an MEd certification program prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet master's-level certification program requirements. Effective for
students unconditionally admitted to an MEd certification program July 1, 2017 and after, a minimum GPA of 3.25 will be required on all courses used to meet master’s-level certification program requirements.

**Specialist in Education Degree Programs (EdS)**

Applicants to EdS programs must satisfy the Graduate School’s admission requirements. Departmental admission requirements include a master’s degree from an accredited college or university, academic good standing at the institution last attended, competitive GRE scores, letters of recommendation, current resume, a valid master’s-level professional educator certificate in an appropriate area of teaching, clear background check, and approval by the department.

Degree requirements for specialist-level teacher certification programs are in compliance with regulations established by the ALSBE. Specialist programs include a minimum of 30 semester hours beyond the master’s degree. Additional requirements include satisfactory completion of a field project and a written comprehensive exam.

In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.25 is required on all courses used to meet specialist-level certification program requirements. Effective for students unconditionally admitted July 1, 2017 and after, a minimum GPA of 3.50 will be required on all courses used to meet specialist-level certification program requirements.

**Master’s- and Specialist-Level Certification**

Individuals completing State-approved MEd certification programs are eligible to apply for Alabama Class A certification; individuals completing State-approved specialist-level certification programs are eligible to apply for Alabama Class AA certification. Effective September 1, 2018, the Alabama State Board for Education will require an acceptable score on the edTPA for initial certification in a teaching field. This state certification requirement applies to individuals completing alternative master's programs. Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

**Doctor of Philosophy Degree Programs (PhD)**

Applicants to PhD programs must satisfy the Graduate School’s admission requirements. Departmental admission requirements include a competitive GRE score, current resume, statement of purpose, letters of recommendation, and approval by the department.

All doctoral programs require a minimum of 80 semester hours beyond the bachelor’s degree. Research methods, statistics, and foundations of education courses are components of all doctoral programs. The remaining hours are divided between the area of specialization and approved support courses. Plans of study for students in secondary education fields must contain at least 30 semester hours of graduate courses in the appropriate teaching fields. After satisfactory completion of coursework and a general written and oral examination, the student advances to candidacy. Doctoral students must register for at least 10 semester hours of doctoral research while completing a dissertation. Doctoral students must enroll each semester during their program.

**Graduate Certificates**

The Department of Curriculum and Teaching offers graduate certificates in Teaching English as a Second Language (TESL)/Teaching English as a Foreign Language (TEFL), Community Music Education, and Reading Instruction. Departmental admission requirements for these graduate certification programs include a transcript showing the applicant’s last degree completed, a current resume, and three letters of recommendation.

The Department in collaboration with the Department of Educational Foundations, Leadership and Technology also offers a graduate certificate in Adult Education and English Language Teaching. Applicants should contact the Department of Educational Foundations, Leadership and Technology for admission requirements for the Adult Education and English Language Teaching graduate certificate program.

**Online Learning Graduate Programs and Courses**

The Department of Curriculum and Teaching offers the majority of graduate programs through online learning as well as through residential study.

**Additional Information**

Detailed admission and program requirements for the department’s multiple areas of graduate study are available on the Department of Curriculum and Teaching’s website, Graduate Application and Admission (http://www.education.auburn.edu/ct-grad-admissions).
Agriscience Education - MEd/MS, EdS

Agriscience Education - MEd/MS (http://www.education.auburn.edu/graduate-degree-cert/agriscience-education-med-ms), EdS (http://www.education.auburn.edu/graduate-degree-cert/agriscience-eds)

Agriscience Education - MEd (Alternative Certification, Online Option Available)

Alternative Class A Education Program Checklist

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.

Required: 4 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7300/7306</td>
<td>Integrating Technology in Career and Technical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 8 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7000/7006</td>
<td>Foundations of Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7010/7016</td>
<td>Youth Program Development</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7120/7126</td>
<td>Courses of Study in Agriscience Education</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7900/7906</td>
<td>Directed Studies</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7970/7976</td>
<td>Special Topics in Area of Specialization</td>
<td>9</td>
</tr>
</tbody>
</table>

Other advisor approved courses 6000 level and above in the teaching field (i.e., CTCT, AGEC, AGRI, AGRN, ANSC, CSES, ENTM, ENVI, FDSC, FISH, FORY, HORT, PLPA, POUL, RSOC)

Professional Studies: 21 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6050/6056</td>
<td>Methods of Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 6060/6066</td>
<td>Program Planning in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7920/7926</td>
<td>Clinical Residency</td>
<td>9</td>
</tr>
</tbody>
</table>

Total Hours: 33

1 RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRO 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 18 hours in Professional Studies and 30 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements. Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work. Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total hours noted above and must be completed prior to Clinical Residency.

Agriscience Education - MEd (Certification, Online Option Available)

Class A Program Checklist for Teaching Field

Teaching Field: 15 hours

At least 1/3 of the program shall be teaching field courses.

Required: 3 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7300/7306</td>
<td>Integrating Technology in Career and Technical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 12 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7100/7106</td>
<td>Teaching Mechanical Technology</td>
<td>9</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>CTCT 7120/7126</td>
<td>Courses of Study in Agriscience Education</td>
<td></td>
</tr>
<tr>
<td>CTCT 7900/7906</td>
<td>Directed Studies</td>
<td></td>
</tr>
<tr>
<td>CTCT 7910/7916</td>
<td>Practicum in Area of Specialization 1</td>
<td></td>
</tr>
<tr>
<td>CTCT 7960/7966</td>
<td>Special Problems</td>
<td></td>
</tr>
<tr>
<td>CTCT 7970/7976</td>
<td>Special Topics in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTCT 7900/7906</td>
<td>Directed Studies</td>
<td></td>
</tr>
<tr>
<td>CTCT 7910/7916</td>
<td>Practicum in Area of Specialization 1</td>
<td></td>
</tr>
<tr>
<td>CTCT 7960/7966</td>
<td>Special Problems</td>
<td></td>
</tr>
<tr>
<td>CTCT 7970/7976</td>
<td>Special Topics in Area of Specialization</td>
<td></td>
</tr>
</tbody>
</table>

Other advisor-approved courses in the teaching field (i.e., CTCT, AGEC, AGRI, AGRN, ANSC, CSES, ENTM, ENVI, FDSC, FISH, FORY, HORT, PLPA, POUL, or RSOC)

Survey of Special Education/Diversity Course: 3 hours

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 2

Additional Courses: 12 hours

Required: 6 hours

CTCT 7010/7010 Youth Program Development

CTCT 7710/7716 Advanced Teaching Methods

Select 6 hours from the following:

CTCT 6080/6086 Principles of Coordination

CTCT 7000/7006 Foundations of Career and Technical Education

CTCT 7730/7736 Program Evaluation

CTCT 7750/7756 Administration of Career and Technical Education

CTCT 7760/7766 Comprehensive Planning in Career and Technical Education

CTCT 7780/7786 Research in Career and Technical Education

CTCT 7950/7956 Seminar in Area of Specialization

CTCT 7990/7996 Research and Thesis

Other advisor-approved supporting courses 6000 level and above 3

Total Hours 30

1 Required unless teaching in area of certification at an approved school site.

2 RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Agriscience Education - MS (Non-certification, Online Option Available)

**Agriscience Education - MS (Non-certification)**

**Teaching and Learning: 15 Hours**

CTSE 7000/7006 Orientation to Teaching and Learning 1

CTSE 7800/7806 Capstone in Teaching and Learning 2

Advisor-Approved CTCT Courses: 12 Hours 12

Advisor-Approved Electives: 15 Hours 15

Total Hours 30

### Agriscience Education - EdS (Certification, Online Option Available)

**Class AA Program Checklist for Teaching Field**

**Teaching Field: 12 Hours**

At least 1/3 of the program shall be teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses from the following: 12
CTCT 7100/7106  Teaching Mechanical Technology
CTCT 7120/7126  Courses of Study in Agriscience Education
CTCT 7900/7906  Directed Studies
CTCT 7910/7916  Practicum in Area of Specialization
CTCT 7960/7966  Special Problems
CTCT 7970/7976  Special Topics in Area of Specialization

Other advisor-approved courses 6000 level and above in teaching field (i.e., CTCT, AGEC, AGRI, AGRN, ANSC, CSES, ENTM, ENVI, FISH, FORY, HORT, PLPA, POUL, or RSOC)

**Survey of Special Education/Diversity Course: 3 hours**
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

**Additional Courses: 15 Hours**
Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CTCT 6080/6086</td>
<td>Principles of Coordination</td>
</tr>
<tr>
<td>CTCT 7000/7006</td>
<td>Foundations of Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7010/7016</td>
<td>Youth Program Development</td>
</tr>
<tr>
<td>CTCT 7200/7206</td>
<td>Career and Occupational Information</td>
</tr>
<tr>
<td>CTCT 7300/7306</td>
<td>Integrating Technology in Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7710/7716</td>
<td>Advanced Teaching Methods</td>
</tr>
<tr>
<td>CTCT 7720/7726</td>
<td>Advanced Program Planning in Area of Specialization</td>
</tr>
<tr>
<td>CTCT 7730/7736</td>
<td>Program Evaluation</td>
</tr>
<tr>
<td>CTCT 7750/7756</td>
<td>Administration of Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7760/7766</td>
<td>Comprehensive Planning in Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7770/7776</td>
<td>Clinical Supervision</td>
</tr>
<tr>
<td>CTCT 7780/7786</td>
<td>Research in Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 8910</td>
<td>Practicum in Area of Specialization</td>
</tr>
<tr>
<td>CTCT 8980/8986</td>
<td>Field Project</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000 level and above

Total Hours 30

1. RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. To ensure a field experience, CTCT 8910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTCT 8980/CTCT 8986 is required for those seeking the EdS degree.

3. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

   In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

   Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

   All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**Business and Marketing Education - MEd/MS, EdS**

**Business and Marketing Education - MEd/MS** (http://www.education.auburn.edu/graduate-degree-cert/business-marketing-masters), **EdS** (http://www.education.auburn.edu/graduate-degree-cert/business-marketing-eds)

**Business/Marketing Education - MEd (Alternative Certification, Online Option Available)**

Alternative Class A Education Program Checklist

Teaching Field: 22 hours
At least 1/3 of the program shall be in teaching field courses.

**Required: 4 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7300/7306</td>
<td>Integrating Technology in Career and Technical Education</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7950/7956</td>
<td>Seminar in Area of Specialization</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 18 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6080/6086</td>
<td>Principles of Coordination</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 6200/6206</td>
<td>Records Management Systems</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 6240/6246</td>
<td>Multimedia Design</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 6250/6256</td>
<td>Information Design &amp; Analysis</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 6260/6266</td>
<td>Applied Computer Technology</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 6940/6946</td>
<td>Work Experience in Information Technology</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7970/7976</td>
<td>Special Topics in Area of Specialization</td>
<td>1</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTCT, ACCT, BUSI, FINC, HRMN, ISMN, MNGT, or MKTG)

**Professional Studies: 22 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6050/6056</td>
<td>Methods of Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 6060/6066</td>
<td>Program Planning in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7910/7916</td>
<td>Practicum in Area of Specialization (Co-requisite with CTCT 6050/CTCT 6056)</td>
<td>1</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7920/7926</td>
<td>Clinical Residency</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours: 44**

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1. Required if not previously completed at undergraduate level.
2. RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 19 hours in Professional Studies and 41 total program hours.
3. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

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**Business/Marketing Education - MEd (Certification, Online Option Available)**

**Class A Program Checklist for Teaching Field**

**Teaching Field: 18 hours**

At least 1/3 of the program shall be teaching field courses.

**Required: 3 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7300/7306</td>
<td>Integrating Technology in Career and Technical Education</td>
<td>3</td>
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</table>

Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CTCT 6200/6206</td>
<td>Records Management Systems</td>
<td></td>
</tr>
<tr>
<td>CTCT 6240/6246</td>
<td>Multimedia Design</td>
<td></td>
</tr>
<tr>
<td>CTCT 6250/6256</td>
<td>Information Design &amp; Analysis</td>
<td></td>
</tr>
<tr>
<td>CTCT 6260/6266</td>
<td>Applied Computer Technology</td>
<td></td>
</tr>
<tr>
<td>CTCT 7200/7206</td>
<td>Career and Occupational Information</td>
<td></td>
</tr>
<tr>
<td>CTCT 7240/7246</td>
<td>Administrative Management</td>
<td></td>
</tr>
</tbody>
</table>
CTCT 7970/7976 Special Topics in Area of Specialization

Other advisor-approved courses 6000 level and above in teaching field (i.e., CTCT, ACCT, BUSI, FINC, HRMN, ISMN, MNGT, or MKTG)

**Survey of Special Education/ Diversity Course: 3 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Courses: 9 Hours**

**Required: 4 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7710/7716 Advanced Teaching Methods</td>
<td>3</td>
</tr>
<tr>
<td>CTCT 7950/7956 Seminar in Area of Specialization</td>
<td>1</td>
</tr>
</tbody>
</table>

Select 5 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6080/6086 Principles of Coordination</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7000/7006 Foundations of Career and Technical Education</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7010/7016 Youth Program Development</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7720/7726 Advanced Program Planning in Area of Specialization</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7730/7736 Program Evaluation</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7750/7756 Administration of Career and Technical Education</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7760/7766 Comprehensive Planning in Career and Technical Education</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7770/7776 Clinical Supervision</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7780/7786 Research in Career and Technical Education</td>
<td>1</td>
</tr>
<tr>
<td>CTCT 7910/7916 Practicum in Area of Specialization</td>
<td>2</td>
</tr>
<tr>
<td>CTCT 7990/7996 Research and Thesis</td>
<td>1</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000 level and above |

**Total Hours**

1. RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. Required unless teaching in area of certification at an approved school site.

3. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

---

**Business/Marketing Education - MS (Non-certification, Online Option Available)**

**Business/Marketing Education - MS (Non-certification)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7000/7006 Orientation to Teaching and Learning</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7800/7806 Capstone in Teaching and Learning</td>
<td>2</td>
</tr>
</tbody>
</table>

**Advisor-Approved CTCT Courses: 18 Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6200/6206 Records Management Systems</td>
<td>18</td>
</tr>
</tbody>
</table>

**Advisor-Approved Electives: 9 Hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6240/6246 Multimedia Design</td>
<td>9</td>
</tr>
</tbody>
</table>

**Total Hours**

**Business/Marketing Education - EdS (Certification, Online Option Available)**

**Class AA Program Checklist for Teaching Field**

**Teaching Field: 18 Hours**

At least 1/3 of the program shall be teaching field courses.

Select 18 hours of advisor-approved 6000-8000 level courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 6200/6206 Records Management Systems</td>
<td>18</td>
</tr>
<tr>
<td>CTCT 6240/6246 Multimedia Design</td>
<td>18</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CTCT 6250/6256</td>
<td>Information Design &amp; Analysis</td>
</tr>
<tr>
<td>CTCT 6260/6266</td>
<td>Applied Computer Technology</td>
</tr>
<tr>
<td>CTCT 7240/7246</td>
<td>Administrative Management</td>
</tr>
<tr>
<td>CTCT 7300/7306</td>
<td>Integrating Technology in Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7810</td>
<td>Supervised College Teaching ¹</td>
</tr>
<tr>
<td>CTCT 7970/7976</td>
<td>Special Topics in Area of Specialization</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTCT, ACCT, BUSI, FINC, HRMN, ISMN, MNGT, or MKTG)

**Survey of Special Education/Diversity Course:** 3 hours
- RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course ²

**Additional Courses:** 9 Hours
Select 9 hours from the following:
- CTCT 7780/7786 Research in Career and Technical Education ³
- CTCT 7000/7006 Foundations of Career and Technical Education
- CTCT 7010/7016 Youth Program Development
- CTCT 7200/7206 Career and Occupational Information
- CTCT 7710/7716 Advanced Teaching Methods
- CTCT 7720/7726 Advanced Program Planning in Area of Specialization
- CTCT 7730/7736 Program Evaluation
- CTCT 7750/7756 Administration of Career and Technical Education
- CTCT 7760/7766 Comprehensive Planning in Career and Technical Education
- CTCT 7770/7776 Clinical Supervision
- CTCT 7910/7916 Practicum in Area of Specialization
- CTCT 7950/7956 Seminar in Area of Specialization
- CTCT 8800/8806 Teacher Education
- CTCT 8910 Practicum in Area of Specialization ⁴
- CTCT 8980/8986 Field Project ⁴
- Other advisor-approved supporting courses 6000 level and above ⁵

**Total Hours** 30

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¹ Required for graduate assistants teaching courses.

² RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

³ Required if not previously completed.

⁴ To ensure a field experience, CTCT 8910 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTCT 8980/CTCT 8986 is required for those seeking the EdS degree.

⁵ Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

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**Career and Technical Education – PhD**

**Career and Technical Education – PhD** ([http://www.education.auburn.edu/graduate-degree-cert/career-tech-ed-phd](http://www.education.auburn.edu/graduate-degree-cert/career-tech-ed-phd))

**Career and Technical Education - PhD**
- CTCT 8990/8996 Research and Dissertation ¹⁰
Select 80 Hours in @ 6000-8999
Total Hours 90

Early Childhood Education – MEd/MS, EdS, PhD


Early Childhood Education - MEd (Certification, Online Option Available)

Class A Program Checklist for Teaching Field

Teaching Field: 24 hours
At least 1/3 of the program shall be teaching field courses.

Required: 9 hours
CTEC 7510/7516 Research Studies in Early Childhood Education 3
CTEC 7520/7526 Curriculum and Teaching in Early Childhood Education 3
EDMD 7210/7216 Integration of Technology Into Curriculum 3

Select 15 hours of the following: 15
CTEC 7200/7206 Early Childhood Education Perspective
CTEC 7210/7216 Origins of Thought
CTEC 7260/7266 Play and Early Childhood Education
CTEC 7270/7276 Theory-Based Problems in Early Childhood Education
CTEC 7540/7546 Evaluation of Programs in Early Childhood Education
CTEC 7910/7916 Practicum in Area of Specialization 1
CTEC 7990/7996 Research and Thesis
CTEE 7540/7546 Evaluation of Programs in Areas of Specialization

Other advisor-approved courses 6000 level and above in teaching field (i.e., CTEC, CTEE, CTRD, CTES, CTMU, RSED)

Survey of Special Education/ Diversity Course: 3 hours
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 2

Additional Courses: 3 hours
Select 3 hours of advisor-approved supporting courses 6000 level or above 3

Total Hours 30

1 Required unless teaching in area of certification at an approved school site.
2 RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Early Childhood Education - MS (Non-certification, Online Option Available)

Early Childhood Education - MS (Non-certification)

Teaching and Learning: 15 Hours

CTSE 7000/7006 Orientation to Teaching and Learning 1
CTSE 7800/7806 Capstone in Teaching and Learning 2
EDMD 7000/EDMD 7006 or other advisor-approved instructional design course 3
Advisor-approved CTEC Courses: 9 Hours 9
Advisor-Approved Electives: 15 Hours 15
Total Hours 30

**Early Childhood Childhood Education - EdS (Certification, Online Option Available)**

**Class AA Program Checklist for Teaching Field**

**Teaching Field: 15 Hours**

At least 1/3 of the program shall be teaching field courses.

Select 15 hours from the following:

- CTEC 7270/7276 Theory-Based Problems in Early Childhood Education 3
- CTEC 7540/7546 Evaluation of Programs in Early Childhood Education 1 3
- CTEC 8240/8246 Research in Early Childhood Education 3
- CTEC 8270/8276 Theory-Based Problems in Early Childhood Education 2 3
- CTEC 8720/8726 Designing Early Childhood Curriculum 3

Other advisor-approved 6000 level or above in the Teaching Field (i.e. CTEC, CTEE, CTRD,CTES, CTMU, RSED) 3

**Survey of Special Education/Diversity Course: 3 hours**

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 3

**Additional Courses: 12 hours**

Required: 9 hours

- ERMA 7100 Advanced Study of Educational Measurement and Evaluation 3
- ERMA 7210 Theory and Methodology of Qualitative Research 3
  or ERMA 7300/7306 Design and Analysis in Education I
- EPSY 7400/7406 Ed Psych & Educational Implica 3
  or EPSY 7410 The Individual in the Teaching-Learning Process

Select remaining 3 hours from the following: 3

- CTEC 7910/7916 Practicum in Area of Specialization 4
- CTEC 8980/8986 Field Project 4

Other advisor-approved supporting courses 6000 level or above 5

Total Hours 30

---

1 Required if not previously completed.
2 CTEC 8270/CTEC 8276 may be repeated with different titles (e.g., Possibility & Necessity, Understanding Causality)
3 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
4 To ensure a field experience, CTEC 7910/CTEC 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTEC 8980/CTEC 8986 is required for those seeking the EdS degree.
5 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**Early Childhood Education - PhD**

**Early Childhood Education - PhD**

Research: 18-21 Hours 18-21

- CTEC 8240/8246 Research in Early Childhood Education
<table>
<thead>
<tr>
<th>CRSE</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
</tr>
<tr>
<td>ERMA 8320/8326</td>
<td>Design and Analysis in Education III</td>
</tr>
<tr>
<td>ERMA 8340</td>
<td>A Practical Introduction to Structural Equation Modeling</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
</tr>
<tr>
<td>CTEC 8850</td>
<td>Constructivist Investigations in Early Childhood Settings</td>
</tr>
</tbody>
</table>

Foundations of Education: 9 Hours

<table>
<thead>
<tr>
<th>CRSE</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSY 7400/7406</td>
<td>Ed Psych &amp; Educational Implica</td>
</tr>
<tr>
<td>EPSY 7410</td>
<td>The Individual in the Teaching-Learning Process</td>
</tr>
<tr>
<td>ERMA, ESPY, EDMD, EDLD, or FOUN Elective</td>
<td></td>
</tr>
</tbody>
</table>

Teaching Field: 30-45 Hours (Generally transferred from Master's or EdS degrees.)

<table>
<thead>
<tr>
<th>CRSE</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEC 8720/8726</td>
<td>Designing Early Childhood Curriculum</td>
</tr>
<tr>
<td>CTEC 7270/7276</td>
<td>Theory-Based Problems in Early Childhood Education</td>
</tr>
<tr>
<td>CTEC 8270/8276</td>
<td>Theory-Based Problems in Early Childhood Education</td>
</tr>
</tbody>
</table>

Specialized Professional Courses: 18-21 Hours

<table>
<thead>
<tr>
<th>CRSE</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEC 8990/8996</td>
<td>Research and Dissertation</td>
</tr>
</tbody>
</table>

Total Hours 85-106

Elementary Education – MEd/MS, EdS, PhD

Elementary Education – MEd/MS (http://www.education.auburn.edu/graduate-degree-cert/elem-ed-masters), EdS (http://www.education.auburn.edu/graduate-degree-cert/elem-ed-eds), PhD (http://www.education.auburn.edu/graduate-degree-cert/elem-ed-phd)

Elementary Education - MEd (Certification, Online Option Available)

Class A Program Checklist for Teaching Field

Teaching Field: 24 hours

At least 1/3 of the program shall be teaching field courses.

Required: 3 hours

<table>
<thead>
<tr>
<th>CRSE</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEE 7510/7516</td>
<td>Research Studies in Education in Areas of Specialization</td>
</tr>
</tbody>
</table>

Select 21 hours from the following: 1

<table>
<thead>
<tr>
<th>CRSE</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEE 7010/7016</td>
<td>Approaches to Teaching</td>
</tr>
<tr>
<td>CTEE 7410/7416</td>
<td>Curriculum and Teaching in Social Science (Grades K-6)</td>
</tr>
<tr>
<td>CTEE 7420/7436</td>
<td>Curriculum and Teaching in Language Arts (Grades K-6)</td>
</tr>
<tr>
<td>CTEE 7430/7436</td>
<td>Curriculum and Teaching in Natural Science (Grades K-6)</td>
</tr>
<tr>
<td>CTEE 7440/7446</td>
<td>Curriculum and Teaching in Mathematics (Grades K-6)</td>
</tr>
<tr>
<td>CTEE 7490</td>
<td>The Elementary School Program</td>
</tr>
<tr>
<td>CTEE 7530/7536</td>
<td>Organization of Programs in Elementary Education</td>
</tr>
<tr>
<td>CTEE 7540/7546</td>
<td>Evaluation of Programs in Areas of Specialization</td>
</tr>
<tr>
<td>CTEE 7910/7916</td>
<td>Practicum in Area of Specialization 2</td>
</tr>
<tr>
<td>CTEE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTEE 7990/7996</td>
<td>Research and Thesis</td>
</tr>
<tr>
<td>CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTEC, CTEE, CTRD, CTES, CTMU)

Survey of Special Education/Diversity Course: 3 hours

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 3

Additional Courses: 3 hours
Other advisor-approved supporting courses 6000 level and above

Total Hours 30

1 Coursework in the Teaching Field must include content in language arts, math, social studies, and science.
2 Required unless teaching in area of certification at an approved school site.
3 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Elementary Education - MS (Non-certification, Online Option Available)

#### Elementary Education - MS (Non-certification)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7000/7006</td>
<td>Orientation to Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7800/7806</td>
<td>Capstone in Teaching and Learning</td>
<td>2</td>
</tr>
</tbody>
</table>

| Advisor-Approved CTEE Courses: 15 Hours | 15 |
| Advisor-Approved Electives: 12 Hours  | 12 |

Total Hours 30

### Elementary Education - EdS (Certification)

#### Class AA Program Checklist for Teaching Field

**Teaching Field: 21 Hours**

At least 1/3 of the program shall be teaching field courses.

Select 21 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEE 7010/7016</td>
<td>Approaches to Teaching</td>
<td>1</td>
</tr>
<tr>
<td>CTEE 7410/7416</td>
<td>Curriculum and Teaching in Social Science (Grades K-6)</td>
<td>1</td>
</tr>
<tr>
<td>CTEE 7420/7426</td>
<td>Curriculum and Teaching in Language Arts (Grades K-6)</td>
<td>1</td>
</tr>
<tr>
<td>CTEE 7430/7436</td>
<td>Curriculum and Teaching in Natural Science (Grades K-6)</td>
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<td>1</td>
</tr>
<tr>
<td>CTEE 7490</td>
<td>The Elementary School Program</td>
<td>1</td>
</tr>
<tr>
<td>CTEE 7510/7516</td>
<td>Research Studies in Education in Areas of Specialization</td>
<td>1</td>
</tr>
<tr>
<td>CTEE 7530/7536</td>
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<td>1</td>
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<tr>
<td>CTEE 7540/7546</td>
<td>Evaluation of Programs in Areas of Specialization</td>
<td>1</td>
</tr>
<tr>
<td>CTEE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td>2</td>
</tr>
<tr>
<td>CTEE 8980/8986</td>
<td>Field Project</td>
<td>2</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level and above in the teaching field (i.e., CTEC, CTEE, CTRD, CTSE, CTMU)

**Survey of Special Education/Diversity Course: 3 hours**

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

**Additional Courses: 6 hours required**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>1</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level and above

Total Hours 30
1 Required if not previously completed.

2 To ensure a field experience, CTEE 7910/CTEE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTEE 8980/CTEE 8986 is required for those seeking the EdS degree.

3 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**Elementary Education - PhD**

**Elementary Education - PhD**

**Elementary Education: 30 Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEE 7010/7016</td>
<td>Approaches to Teaching</td>
</tr>
<tr>
<td>CTEE 7410/7416</td>
<td>Curriculum and Teaching in Social Science (Grades K-6)</td>
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<tr>
<td>CTEE 7420/7426</td>
<td>Curriculum and Teaching in Language Arts (Grades K-6)</td>
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<tr>
<td>CTEE 7430/7436</td>
<td>Curriculum and Teaching in Natural Science (Grades K-6)</td>
</tr>
<tr>
<td>CTEE 7440/7446</td>
<td>Curriculum and Teaching in Mathematics (Grades K-6)</td>
</tr>
<tr>
<td>CTEE 7490</td>
<td>The Elementary School Program</td>
</tr>
<tr>
<td>CTEE 7530/7536</td>
<td>Organization of Programs in Elementary Education</td>
</tr>
<tr>
<td>CTEE 7540/7546</td>
<td>Evaluation of Programs in Areas of Specialization</td>
</tr>
<tr>
<td>CTEE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTEE 8950</td>
<td>Seminar</td>
</tr>
</tbody>
</table>

**Research Coursework: 18 Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
</tr>
</tbody>
</table>

**Other Coursework: 32 Hours**

Choose from CTRD 7000-7999, CTEC 7000-7999, EDMD 7000-7999, RSED 7000-7999

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTEE 8990/8996</td>
<td>Research and Dissertation</td>
</tr>
</tbody>
</table>

**Total Hours**

90

**English Language Arts Education – MEd/MS, EdS, PhD**

**English Language Arts Education – MEd/MS** (http://www.education.auburn.edu/graduate-degree-cert/english-ed-masters), **EdS** (http://www.education.auburn.edu/graduate-degree-cert/english-language-arts-education-eds), **PhD** (http://www.education.auburn.edu/graduate-degree-cert/eng-lang-arts-ed-phd)

**English Language Arts Education - MEd (Alternative Certification)**

**Alternative Class A Education Program Checklist**

**Teaching Field: 12 hours**

At least 1/3 of the program shall be in teaching field courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
</tr>
</tbody>
</table>
Select 9 hours of advisor-approved 6000-7000 level courses in English

Professional Studies: 21 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>or CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>2</td>
</tr>
<tr>
<td>CTSE 6210/6216</td>
<td>Teacher Inquiry Workshop: Problems and Possibilities</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7920/7926</td>
<td>Clinical Residency</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours: 33

1. English Language Arts programs shall require at least one course in two areas within the broader field.
2. RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 18 hours in Professional Studies and 30 total program hours.
3. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

English Language Arts Education - MEd (Certification)

Class A Program Checklist for Teaching Field

Teaching Field: 12 hours

At least 1/3 of the program shall be teaching field courses.

Select 9 hours of advisor-approved 6000-7000 level courses in English

Select 3 hours of advisor-approved 6000-7000 level courses in the teaching field (i.e., speech, grammar, reading, rhetoric, or composition)

Survey of Special Education/Diversity Course: 3 hours

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

Additional Courses: 15 hours

Required: 10 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td>1</td>
</tr>
<tr>
<td>EDMD 7210/7216</td>
<td>Integration of Technology Into Curriculum</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 5 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
<td></td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>CTSE 7990/7996</td>
<td>Research and Thesis</td>
<td></td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000 level and above

Total Hours: 30
English Language Arts programs shall require at least one course in two areas within the broader field.

RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**English Language Arts Education - MS (Non-certification)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7000/7006</td>
<td>Orientation to Teaching and Learning</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7800/7806</td>
<td>Capstone in Teaching and Learning</td>
<td>2</td>
</tr>
<tr>
<td>EDM 7000/7006</td>
<td>Instructional Design and Development (or other advisor-approved instructional design course – 3 hrs)</td>
<td>3</td>
</tr>
<tr>
<td>Advisor-Approved CTSE (English Language Arts) Courses: 9 Hours</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Advisor-Approved Electives: 15 Hours</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**English Language Arts Education - EdS (Certification)**

**Class AA Program Checklist for Teaching Field**

Teaching Field: 12 Hours

At least 1/3 of the program shall be teaching field courses.

Select 9 hours of advisor-approved 6000-7000 level courses in English | 9
Select 3 hours of advisor-approved 6000-7000 level courses in the teaching field (i.e., speech, grammar, reading, rhetoric, or composition) | 3

**Survey of Special Education/Diversity Course: 3 hours**

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course | 3

**Additional Courses: 15 hours**

Select 15 hours from the following: | 15
- CTSE 7510 Research Studies in Area of Specialization
- CTSE 7520 Curriculum and Teaching in Area of Specialization
- CTSE 7530 Organization of Program in Area of Specialization
- CTSE 7540 Evaluation of Program in Area of Specialization
- CTSE 7900/7906 Directed Studies
- CTSE 7910/7916 Practicum in Area of Specialization
- CTSE 7970/7976 Special Topics
- CTSE 8980/8986 Field Project
- Other advisor-approved supporting courses 6000 level and above | 5

**Total Hours** | **30**

---

1. English Language Arts programs shall require at least one course in two areas within the broader field.
2. RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
3. CTSE 7520 required if a graduate level course in curriculum and teaching in English Education not previously completed; CTSE 7540 required if a graduate level course in evaluation of English Education not previously completed.
To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree.

Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

English Language Arts Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
</tr>
</tbody>
</table>

Research: 18 Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
</tr>
</tbody>
</table>

Other Approved Research Electives

Department Electives: 6 Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 6010/6016</td>
<td>Language Study for Teachers</td>
</tr>
<tr>
<td>CTSE 6020</td>
<td>Rhetoric and Composition for Teachers</td>
</tr>
<tr>
<td>CTSE 6710</td>
<td>Language Study for Teachers</td>
</tr>
</tbody>
</table>

Teaching Field: 30 Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 6000-8000 (24-30)</td>
<td>Approaches to English Grammar</td>
</tr>
<tr>
<td>COMM 6000-8000 (6)</td>
<td>Language Study for Teachers</td>
</tr>
</tbody>
</table>

Common Areas: 12 Hours

Total Hours 88

English for Speakers of Other Languages - MEd

English for Speakers of Other Languages - MEd (http://www.education.auburn.edu/graduate-degree-cert/esol-masters)

English for Speakers of Other Languages - MEd (Certification, Online Option Available)

Class A Program Checklist for Teaching Field

Teaching Field: 21 hours

Required: 15 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 6840</td>
<td>Approaches to English Grammar</td>
</tr>
<tr>
<td>or CTSE 6010/6016</td>
<td>Language Study for Teachers</td>
</tr>
<tr>
<td>CTES 7420/7426</td>
<td>Applied Linguistics in Second Language Acquisition</td>
</tr>
<tr>
<td>CTES 7460/7466</td>
<td>Teaching English to Speakers of Other Languages in P-12</td>
</tr>
<tr>
<td>CTES 7470/7476</td>
<td>Issues in English for Speakers of Other Languages Education (ESOL)</td>
</tr>
<tr>
<td>CTES 7480/7486</td>
<td>Assessment in English for Speakers of Other Languages (ESOL)</td>
</tr>
</tbody>
</table>

Select 6 hours of advisor-approved 6000-7000 level courses in the teaching field (i.e., English, ESOL, English language arts, language, or reading)
# Foreign Language Education: French or Spanish - MEd/MS, EdS

**Foreign Language Education: French or Spanish - MEd/MS (http://www.education.auburn.edu/graduate-degree-cert/foreign-lang-masters), EdS (http://www.education.auburn.edu/graduate-degree-cert/foreign-lang-eds)**

## French Education - MEd (Alternative Certification, Online Option Available)

### Teaching Field: 15 hours

At least 1/3 of the program shall be in teaching field courses.

Select 15 Hours of advisor-approved 6000-7000 level courses in French

### Professional Studies: 27 hours

| Course       | Title                                                                 | Hours |
|--------------|                                                                      |       |
| CTSE 7520/7526 | Curriculum and Teaching in Area of Specialization ¹                   | 3     |
| CTSE 7530/7536 | Organization of Program in Area of Specialization                    | 3     |
| CTSE 7540/7546 | Evaluation of Program in Area of Specialization                      | 3     |
| CTRD 6710/6716 | Literacy and Inquiry in the Content Areas: Grades 6-12               | 3     |
| or CTRD 6000/6006 | Language and Literacy in the Content Areas                             |       |
| RSED 6000/6006 | Advanced Survey of Exceptionality ¹                                   | 3     |
| CTSE 6220/6226 | Class Management and Discipline in Foreign Language Classroom ²     | 1     |
| CTSE 7920/7926 | Clinical Residency ²                                                 | 11    |

Total Hours: 42

¹ RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTSE 7520/6 Curriculum & Teaching in Foreign Language and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 24 hours in Professional Studies and 39 total program hours.

² Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

**French Education - MEd (Certification, Online Option Available)**

**Class A Program Checklist for Teaching Field**

**Teaching Field: 15 hours**

Select 15 Hours of advisor-approved 6000-7000 level courses in French

**Survey of Special Education/Diversity Course**

See RSED 6000/6 and CTSE 7520/6 in Additional Courses

**Additional Courses: 15 hours**

Required: 12 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12</td>
<td>3</td>
</tr>
<tr>
<td>or CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 hours of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>2</td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td>2</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7990/7996</td>
<td>Research and Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000-level and above

Total Hours: 30

---

1. RSED 6000/6 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTSE 7520/6 Curriculum and Teaching in Foreign Language.

2. Required unless teaching in area of certification at an approved school site.

3. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**French Education - MS (Non-certification, Online Option Available)**

**French Education - MS (Non-certification)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7000/7006</td>
<td>Orientation to Teaching and Learning</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7800/7806</td>
<td>Capstone in Teaching and Learning</td>
<td>2</td>
</tr>
<tr>
<td>CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12 (or other advisor-approved instructional design course - 3 hrs)</td>
<td>3</td>
</tr>
</tbody>
</table>

Advisor-Approved CTSE (Foreign Language Education) courses: 9 hours

Advisor-Approved Electives: 15 hours

Total Hours: 30
### French Education - EdS (Certification, Online Option Available)

#### Class AA Program Checklist for Teaching Field

**Teaching Field: 15 hours**

At least 1/3 of the program shall be teaching field courses.

Select 15 hours of advisor-approved 6000-7000 level courses in French.

**Survey of Special Education/Diversity Course: 3 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality OR state-approved diversity course</td>
</tr>
</tbody>
</table>

**Additional Courses: 12 hours**

Required 3 hours:

- CTSE 8980/8986 Field Project

Select 9 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000-level and above

**Total Hours: 30**

1. RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. Required if not previously completed at Auburn University.

3. Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Spanish Education - MEd (Alternative Certification, Online Option Available)

#### Teaching Field: 15 hours

At least 1/3 of the program shall be in teaching field courses.

Select 15 hours of advisor-approved 6000-7000 level courses in Spanish.

**Professional Studies: 27 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12</td>
</tr>
<tr>
<td>or CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
</tr>
<tr>
<td>CTSE 6220/6226</td>
<td>Class Management and Discipline in Foreign Language Classroom</td>
</tr>
<tr>
<td>CTSE 7920/7926</td>
<td>Clinical Residency</td>
</tr>
</tbody>
</table>

**Total Hours: 42**
RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTSE 7520/6 Curriculum & Teaching in Foreign Language and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 24 hours in Professional Studies and 39 total program hours.

Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Spanish Education - MEd (Certification, Online Option Available)

Class A Program Checklist for Teaching Field

Teaching Field: 15 hours

At least 1/3 of the program shall be teaching field courses.

Select 15 hours of advisor-approved 6000-7000 level courses in Spanish

Survey of Special Education/Diversity Course

See RSED 6000/6 and CTSE 7520/6 in Additional Courses

Additional Courses: 15 hours

Required: 12 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12</td>
</tr>
<tr>
<td>or CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
</tr>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
</tbody>
</table>

Select 3 hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
</tr>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTSE 7990/7996</td>
<td>Research and Thesis</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000-level and above

Total Hours 30

1 RSED 6000/6 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTSE 7520/6 Curriculum and Teaching in Foreign Language.

2 Required unless teaching in area of certification at an approved school site.

3 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Spanish Education - MS (Non-certification, Online Option Available)

Spanish Education - MS (Non Teacher Certification)

CTSE 7000/7006 Orientation to Teaching and Learning 1
Mathematics Education - MEd, EdS, PhD

Mathematics Education - MEd (http://www.education.auburn.edu/graduate-degree-cert/math-ed-masters), EdS (http://www.education.auburn.edu/graduate-degree-cert/math-ed-eds), PhD (http://www.education.auburn.edu/graduate-degree-cert/math-ed-phd)

Mathematics Education - MEd (Alternative Certification)

Alternative Class A Education Program Checklist

Teaching Field: 15 hours

At least 1/3 of the program shall be in teaching field courses.

CTSE 7800/7806 Capstone in Teaching and Learning 2
CTRD 6710/6716 Literacy and Inquiry in the Content Areas: Grades 6-12 3

or advisor-approved instructional design course

Select 9 hours of CTSE (Foreign Language Education) Advisor approved courses 9
Select 15 hours of Advisor approved Electives 15

Total Hours 30

Spanish Education - EdS (Certification, Online Option Available)

Class AA Program Checklist for Teaching Field

Teaching Field: 15 hours 15

At least 1/3 of the program shall be teaching field courses.

Select 15 hours of advisor-approved 6000-7000 level courses in Spanish

Survey of Special Education/Diversity Course: 3 hours 3

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 1

Additional Courses: 12 hours

Required 3 hours:
CTSE 8980/8986 Field Project 3

Select 9 hours from the following: 9

CTSE 7510 Research Studies in Area of Specialization
CTSE 7520/7526 Curriculum and Teaching in Area of Specialization 2
CTSE 7530/7536 Organization of Program in Area of Specialization 2
CTSE 7540/7546 Evaluation of Program in Area of Specialization 2
CTSE 7900/7906 Directed Studies
CTSE 7910/7916 Practicum in Area of Specialization
CTSE 7970/7976 Special Topics
CTRD 6710/6716 Literacy and Inquiry in the Content Areas: Grades 6-12

Other advisor-approved supporting courses 6000-level and above 3

Total Hours 30

1 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 Required if not completed at Auburn University.

3 Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Select 15 hours of advisor-approved 6000-7000 level courses in Math

### Professional Studies: 28 hours

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>or CTSE 7560</td>
<td>Equity Issues in Mathematics Education</td>
<td></td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 6040</td>
<td>Technology and Applications in Secondary Mathematics Education</td>
<td>4</td>
</tr>
<tr>
<td>CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7920/7926</td>
<td>Clinical Residency</td>
<td>8</td>
</tr>
<tr>
<td>CTSE 6230/6236</td>
<td>Managing Middle and High School Classroom (Math Education)</td>
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Total Hours: 43

---

1. RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 25 hours in Professional Studies and 40 total program hours.

2. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

---

### Mathematics Education - MEd (Certification)

#### Class A Program Checklist for Teaching Field

**Teaching Field: 12 hours**

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in Mathematics

#### Special Education/Diversity Course: 3 hours

RSED 6000/6006 Advanced Survey of Exceptionality OR CTSE 7560 Equity Issues in Math OR other state-approved diversity course

#### Additional Courses: 15 hours

Required: 7-9 hours

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<th>Course Code</th>
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<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>or CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
</tr>
</tbody>
</table>

Select the remaining 6-8 hours from the following:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CTSE 6040</td>
<td>Technology and Applications in Secondary Mathematics Education</td>
</tr>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
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<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTSE 7990/7996</td>
<td>Research and Thesis</td>
</tr>
<tr>
<td>Other advisor approved courses 6000 level and above</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 30
1 RSED 6000/6 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTSE 7560 Equity Issues in Math or a state approved diversity course. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

3 Required if CTSE 5040 not completed at AU.

4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Mathematics Education - EdS (Certification)

#### Class AA Program Checklist for Teaching Field

| Teaching Field: 12 hours |  
| --- | --- |
| At least 1/3 of the program shall be in teaching field courses. |  
| Select 12 hours of advisor-approved 6000-7000 level courses in Mathematics | 12 |

| Survey of Special Education/Diversity Course: 3 hours |  
| --- | --- |
| RSED 6000/6006 Advanced Survey of Exceptionality OR CTSE 7560 Equity Issues in Math OR other state-approved diversity course | 3 |

| Additional Courses: 15 hours |  
| --- | --- |
| Required: 1-3 hours |  
| CTSE 8980/8986 Field Project | 2 |

Select the remaining 12-14 hours from the following:

|  |  
| --- | --- |
| CTSE 7510 Research Studies in Area of Specialization |  
| CTSE 7520 Curriculum and Teaching in Area of Specialization | 3 |
| CTSE 7530 Organization of Program in Area of Specialization | 4 |
| CTSE 7540 Evaluation of Program in Area of Specialization | 5 |
| CTSE 7560 Equity Issues in Mathematics Education | 1,3 |
| CTSE 7900/7906 Directed Studies |  
| CTSE 7910/7916 Practicum in Area of Specialization |  
| CTSE 7970/7976 Special Topics |  
| Other advisor-approved supporting courses 6000 level and above | 6 |

**Total Hours** 30

---

1 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2 To ensure a field experience, a minimum of 1 hour of CTSE 8980/CTSE 8986 is required for those seeking Class AA certification only; 3 hours is required for those seeking the EdS degree.

3 Required if not previously completed at Auburn University.

4 Required if graduate level course in organization in math education not previously completed.

5 Required if graduate level course in evaluation in math education not previously completed.

6 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements. [Add note to curriculum model and DegreeWorks/Program Block. The additional GPA will be calculated and monitored by the college.]
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Mathematics Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>Select 57 Hours in @ 6000-8999</td>
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<td>Total Hours</td>
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<td>85</td>
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</table>

### Music Education: Instrumental or Vocal - MEd/MS, EdS, PhD

**Music Education: Instrumental or Vocal - MEd/MS** ([http://www.education.auburn.edu/graduate-degree-cert/music-ed-masters](http://www.education.auburn.edu/graduate-degree-cert/music-ed-masters)), **EdS** ([http://www.education.auburn.edu/graduate-degree-cert/music-ed-eds](http://www.education.auburn.edu/graduate-degree-cert/music-ed-eds)), **PhD** ([http://www.education.auburn.edu/graduate-degree-cert/music-ed-phd](http://www.education.auburn.edu/graduate-degree-cert/music-ed-phd))

**Instrumental Music Education - MEd (Certification, Online Option Available)**

**Class A Program Checklist for Teaching Field**

**Teaching Field: 11 hours**
- At least 1/3 of the program shall be teaching field courses.
- Select 11 hours from graduate level courses in Music (MUSI, MUSE, and/or MUAP) 11

**Special Education/Diversity Course: 3 hours**
- RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 1

**Additional Courses: 16 hours**

**Required: 4 hours**
- CTMU 7000/7006 School and Community Music 1
- CTMU 7910/7916 Practicum in Area of Specialization 3

**Select 3 hours from the following:**
- CTMU 7550/7556 Applications of Technology in Music Education 3
- CTMU 7560/7566 Digital Media Production for Music Education
- CTMU 7570 Music Instruction Multimedia Research and Development

**Select 9 hours from the following:**
- CTMU 7510/7516 Research Studies in Music Education 9
- CTMU 7520/7526 Curriculum and Teaching in Music Education
- CTMU 7530/7536 Organization of Program in Music Education
- CTMU 7540/7546 Evaluation of Program in Music Education
- CTMU 7970/7976 Special Topics
- CTMU 7990/7996 Research and Thesis
- Other advisor-approved CTMU courses 6000 level or above

**Total Hours**
- 30

1 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements. Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Instrumental Music Education - MS (Non-certification, Online Option Available)

**Instrumental Music Education - MS (Non-certification)**

- CTSE 7000/7006 Orientation to Teaching and Learning 1
- CTSE 7800/7806 Capstone in Teaching and Learning 2
- Advisor-Approved CTMU courses: 12 hours 12
- Advisor-Approved Electives: 15 hours 15
- Total Hours 30

Instrumental Music Education - EdS (Certification, Online Option Available)

**Class AA Program Checklist for Teaching Field**

- Teaching Field: 11 hours
  - At least 1/3 of the program shall be teaching field courses
  - Select 11 hours of advisor-approved 6000-7000 level courses in Music (MUSI, MUSE, and/or MUAP) 11

**Survey of Special Education/Diversity Course: 3 hours**

- RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 1

**Additional Courses: 16 hours**

- CTMU 8980/8986 Field Project 3
- Select 10 hours of the following: 10
  - CTMU 7000/7006 School and Community Music 2
  - CTMU 7510/7516 Research Studies in Music Education
  - CTMU 7520/7526 Curriculum and Teaching in Music Education
  - CTMU 7530/7536 Organization of Program in Music Education
  - CTMU 7540/7546 Evaluation of Program in Music Education
  - CTMU 7550/7556 Applications of Technology in Music Education
  - CTMU 7560/7566 Digital Media Production for Music Education
  - CTMU 7570 Music Instruction Multimedia Research and Development
  - CTMU 7910/7916 Practicum in Area of Specialization
  - CTMU 7970/7976 Special Topics
  - Other advisor-approved CTMU courses
- Select 3 hours of advisor-approved CTMU courses 6000 level and above 3
- Total Hours 30

---

1. RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. Required if not previously completed at Auburn University.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements. Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**Instrumental Music Education - PhD**

**Instrumental Music Education - PhD**

- CTMU 8990/8996 Research and Dissertation 10
### Vocal Music Education - MEd (Certification, Online Option Available)

#### Class A Program Checklist for Teaching Field

**Teaching Field: 11 hours**

- At least 1/3 of the program shall be teaching field courses.
- Select 11 hours from graduate level courses in Music (MUSI, MUSE, and/or MUAP)

#### Survey of Special Education/Diversity Course: 3 hours

- RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

#### Additional Courses: 16 hours

- Required: 4 hours
  - CTMU 7000/7006 School and Community Music
  - CTMU 7910/7916 Practicum in Area of Specialization
- Select 3 hours from the following:
  - CTMU 7550/7556 Applications of Technology in Music Education
  - CTMU 7560/7566 Digital Media Production for Music Education
  - CTMU 7570 Music Instruction Multimedia Research and Development
- Select 9 hours from the following:
  - CTMU 7510/7516 Research Studies in Music Education
  - CTMU 7520/7526 Curriculum and Teaching in Music Education
  - CTMU 7530/7536 Organization of Program in Music Education
  - CTMU 7540/7546 Evaluation of Program in Music Education
  - CTMU 7970/7976 Special Topics
  - CTMU 7990/7996 Research and Thesis
- Other advisor approved CTMU courses 6000 level or above

#### Total Hours

- 80
- 90

---

### Vocal Music Education - MS (Non-certification, Online Option Available)

**Vocal Music Education - MS (Non Teacher Certification)**

#### CTSE 7000/7006 Orientation to Teaching and Learning

- 1

#### CTSE 7800/7806 Capstone in Teaching and Learning

- 2

#### Select 12 hours of CTMU (Music Education) Advisor approved courses

- 12

#### Select 15 hours of Advisor approved Electives

- 15

#### Total Hours

- 30

---

### Vocal Music Education - EdS (Certification, Online Option Available)

**Class AA Program Checklist for Teaching Field**

**Teaching Field: 11 hours**

- At least 1/3 of the program shall be teaching field courses.
- Select 11 hours of advisor-approved 6000-7000 level courses in Music (MUSI, MUSE, and/or MUAP)

---

1. RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Survey of Special Education/Diversity Course: 3 hours
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course ³

Additional Courses: 16 hours
CTMU 8980/8986 Field Project 3
Select 10 Hours of the following: 10
- CTMU 7000/7006 School and Community Music ²
- CTMU 7510/7516 Research Studies in Music Education
- CTMU 7520/7526 Curriculum and Teaching in Music Education
- CTMU 7530/7536 Organization of Program in Music Education
- CTMU 7540/7546 Evaluation of Program in Music Education
- CTMU 7550/7556 Applications of Technology in Music Education
- CTMU 7560/7566 Digital Media Production for Music Education
- CTMU 7570 Music Instruction Multimedia Research and Development
- CTMU 7910/7916 Practicum in Area of Specialization
- CTMU 7970/7976 Special Topics

Other advisor-approved CTMU courses
Select 3 hours of advisor-approved CTMU courses 6000 level and above 3

Total Hours 30

¹ RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

² Required if not previously completed at Auburn University.

³ In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Vocal Music Education - PhD

CTMU 8990/8996 Research and Dissertation 10
Select 80 Hours in @ 6000-8999 80
Total Hours 90

Reading Education – MEd/MS, PhD

Reading Education – MEd/MS (http://www.education.auburn.edu/graduate-degree-cert/reading-education-masters), PhD (http://www.education.auburn.edu/graduate-degree-cert/reading-education-phd)

Reading Education - MEd (Certification, Online Option Available)

Teaching Field: 18 hours
At least 1/3 of the program shall be teaching field courses.

- CTRD 6000/6006 Language and Literacy in the Content Areas ¹
- CTRD 6700/6706 Developmental Reading K-12
- CTRD 7400/7406 Assessment and Instruction for Reading Intervention
- CTRD 7510/7516 Research Studies in Reading Education
- CTRD 7520/7526 Curriculum and Teaching in Reading Education
- CTRD 7530/7536 Organization of Program in Reading Education

¹ All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
**Survey of Special Education / Diversity Course**

See RSED 6000/6 in Additional Courses AND CTRD 6000/6 in Teaching Field

### Additional Courses: 6 hours

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<th>Course</th>
<th>Hours</th>
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<tbody>
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<td>CTRD 7990/7996</td>
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<tr>
<td>RSED 6000/6006</td>
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</tbody>
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**Other advisor-approved supporting courses 6000 level and above**

### Internship: 6 hours

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<tr>
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</tr>
<tr>
<td>CTRD 7920/7926</td>
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</table>

**Total Hours**

1. RSED 6000/6 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy.

2. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

   In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

   Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

   All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

**Reading Education - MS (Non-certification, Online Option Available)**

### Reading Education - MS (Non-certification)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7000/7006</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7800/7806</td>
<td>2</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>3</td>
</tr>
<tr>
<td>Select 9 hours of CTRD (Reading Education) Advisor approved courses</td>
<td>9</td>
</tr>
<tr>
<td>Select 15 hours of Advisor approved Electives</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total Hours**

**Reading Education - PhD**

### Reading Education - PhD

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRD 6710/6716</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 7400/7406</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 7510/7516</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 7520/7526</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 7530/7536</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 7920/7926</td>
<td>6</td>
</tr>
<tr>
<td>CTRD 8990/8996</td>
<td>10</td>
</tr>
<tr>
<td>ERMA 7200/7206</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>3</td>
</tr>
<tr>
<td>Select 43 Hours in @ 6000-8999</td>
<td>43</td>
</tr>
</tbody>
</table>

**Total Hours**

1399
Reading Instruction - Graduate Certificate

Required Courses (6 Hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 6700/6706</td>
<td>Developmental Reading K-12</td>
<td>3</td>
</tr>
<tr>
<td>or CTRD 6710/6716</td>
<td>Literacy and Inquiry in the Content Areas: Grades 6-12</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Science Education: General Science, Biology, Chemistry, or Physics – MEd/MS, EdS, PhD

Science Education: General Science, Biology, Chemistry, or Physics – MEd/MS (http://www.education.auburn.edu/graduate-degree-cert/science-masters), EdS (http://www.education.auburn.edu/graduate-degree-cert/science-ed-eds), PhD (http://www.education.auburn.edu/graduate-degree-cert/science-ed-phd)

General Science Education - MEd (Alternative Certification)

Alternative Class A Education Program Checklist

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Science

Professional Studies: 25 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>or CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTSE 6100</td>
<td>Curriculum and Teaching II: Science</td>
<td>4</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 6240/6246</td>
<td>Clinical Residency Seminar in Science Teaching</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7920/7926</td>
<td>Clinical Residency</td>
<td>8</td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>37</td>
</tr>
</tbody>
</table>

1. General Science programs shall require at least one course in two areas within the broader field (e.g., biology, chemistry, physics, and geology).
2. RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.
3. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.
General Science Education - MEd (Certification)

Class A Program Checklist for Teaching Field

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Science 1 12

Survey of Special Education/Diversity Course: 3 hours
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 2 3

Additional Courses: 15 hours

Required: 6-8 hours

CTSE 6000 Technology in Science Education
CTSE 7540/7546 Evaluation of Program in Area of Specialization
CTSE 7910/7916 Practicum in Area of Specialization 3

Select the remaining 7-9 hours from the following:

CTSE 7510 Research Studies in Area of Specialization
CTSE 7520 Curriculum and Teaching in Area of Specialization
CTSE 7530 Organization of Program in Area of Specialization
CTSE 7900/7906 Directed Studies
CTSE 7970/7976 Special Topics
CTSE 7990/7996 Research and Thesis

Other advisor-approved supporting courses 6000 level and above 4

Total Hours 30

1 General Science programs shall require at least one course in two areas within the broader field (e.g., biology, chemistry, physics, geology).
2 RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
3 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.
4 Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Science Education - MS (Non-certification)

General Science Education - MS (Non-certification)

CTSE 7000/7006 Orientation to Teaching and Learning 1
CTSE 7800/7806 Capstone in Teaching and Learning 2
Advisor-Approved CTSE (Science Education) courses: 9 hours 9
Advisor-Approved Electives: 18 hours 18

Total Hours 30

General Science Education - EdS (Certification)

Class AA Program Checklist for Teaching Field

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Science 1 12

Survey of Special Education/Diversity Course: 3 hours 3
General Science Education - MEd/MS, EdS, PhD

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

Additional Courses: 15 hours

Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 6000</td>
<td>Technology in Science Education</td>
</tr>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTSE 8980/8986</td>
<td>Field Project</td>
</tr>
<tr>
<td>Other advisor-approved courses 6000 level and above in Science Education</td>
<td></td>
</tr>
<tr>
<td>Other advisor-approved supporting courses 6000 level and above</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 30

1. General Science programs shall require at least one course in two areas within the broader field (e.g., biology, chemistry, physics, geology).

2. RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

3. CTSE 7510 required if a graduate level course in research studies in Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

4. To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree.

5. Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

General Science Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
</tr>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
</tr>
<tr>
<td>ERMA 8320/8326</td>
<td>Design and Analysis in Education III</td>
</tr>
<tr>
<td>Select 60 Hours in @ 6000-8999</td>
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</tr>
</tbody>
</table>

Total Hours 88

Biology Education - MEd (Alternative Certification)

Alternative Class A Education Program Checklist

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in Biology
Professional Studies: 25 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>or CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 6100</td>
<td>Curriculum and Teaching II: Science</td>
<td>4</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas ^ 1</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality ^ 1</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 6240/6246</td>
<td>Clinical Residency Seminar in Science Teaching ^ 2</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7920/7926</td>
<td>Clinical Residency ^ 2</td>
<td>8</td>
</tr>
</tbody>
</table>

Total Hours: 37

^1 RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

^2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Biology Education - MEd (Certification)

Class A Program Checklist for Teaching Field

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in Biology 12

Survey of Special Education/Diversity Course: 3 hours

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course ^ 1 3

Additional Courses: 15 hours 15

Required: 6-8 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 6000</td>
<td>Technology in Science Education</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization ^ 2</td>
</tr>
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Select the remaining 7-9 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTSE 7990/7996</td>
<td>Research and Thesis</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 6000 level and above ^ 3

Total Hours: 30

^1 RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

^2 1 hour is required if teaching in an area of certification at an approved school site or 3 hours required if not teaching in an area of certification.
Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Biology Education - EdS (Certification)

#### Class AA Program Checklist for Teaching Field

**Teaching Field: 12 hours**

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in Biology  

**Survey of Special Education/Diversity Course: 3 hours**

1. RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

**Additional Courses: 15 hours**

Select 15 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 6000</td>
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<td>CTSE 7530</td>
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<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
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<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CTSE 8980/8986</td>
<td>Field Project</td>
</tr>
</tbody>
</table>

**Total Hours**

30

1. RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification.

2. CTSE 7510 required if a graduate level course in Research Studies in Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

3. To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree.

4. Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Biology Education - PhD

#### Biology Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
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<tr>
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<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
</tr>
</tbody>
</table>

10

3

3

3
### ERMA 7310/7316 Design and Analysis in Education II 3
### ERMA 8320/8326 Design and Analysis in Education III 3
### Select 60 Hours in @ 6000-8999 60
### Total Hours 88

**Chemistry Education - MEd (Alternative Certification)**

**Alternative Class A Education Program Checklist**

**Teaching Field: 12 hours**
At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Chemistry 12

**Professional Studies: 25 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>or CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td></td>
</tr>
<tr>
<td>CTSE 6100</td>
<td>Curriculum and Teaching II: Science</td>
<td>4</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas ^1</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality ^1</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 6240/6246</td>
<td>Clinical Residency Seminar in Science Teaching ^2</td>
<td>1</td>
</tr>
<tr>
<td>CTSE 7920/7926</td>
<td>Clinical Residency ^2</td>
<td>8</td>
</tr>
</tbody>
</table>

Total Hours 37

---

1. RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

2. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

**Chemistry Education - MEd (Certification)**

**Class A Program Checklist for Teaching Field**

**Teaching Field: 12 hours**
At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Chemistry 12

**Survey of Special Education/Diversity Course**

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course ^1

**Additional Courses: 15 hours**

15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 6000</td>
<td>Technology in Science Education</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization ^2</td>
</tr>
</tbody>
</table>

Select the remaining 7-9 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
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</tr>
<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
</tr>
</tbody>
</table>
CTSE 7900/7906  Directed Studies
CTSE 7970/7976  Special Topics
CTSE 7990/7996  Research and Thesis

Other advisor-approved supporting courses 6000 level and above 3

Total Hours 30

1. RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. 1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.

3. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Chemistry Education - EdS (Certification)

Class AA Program Checklist for Teaching Field

Teaching Field: 12 hours
At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Chemistry 12

Survey of Special Education/Diversity Course: 3 hours
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course 1 3

Additional Courses: 15 hours
Select 15 hours from the following: 15

- CTSE 6000  Technology in Science Education
- CTSE 7510  Research Studies in Area of Specialization 2
- CTSE 7520  Curriculum and Teaching in Area of Specialization
- CTSE 7530  Organization of Program in Area of Specialization
- CTSE 7540/7546  Evaluation of Program in Area of Specialization 2
- CTSE 7900/7906  Directed Studies
- CTSE 7910/7916  Practicum in Area of Specialization 3
- CTSE 7970/7976  Special Topics
- CTSE 8980/8986  Field Project 3

Other advisor approved courses in Science Education
Other advisor-approved supporting courses 6000 level and above 4

Total Hours 30

1. RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. CTSE 7510 required if a graduate level course in research studies in Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed.

3. To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree.

4. Supporting courses may not exceed 6 hours and must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.
Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Chemistry Education - PhD

Chemistry Education - PhD

CTSE 8990/8996 Research and Dissertation 10
ERMA 7200/7206 Basic Methods in Education Research 3
ERMA 7210 Theory and Methodology of Qualitative Research 3
ERMA 7220 Applied Qualitative Research 3
ERMA 7300/7306 Design and Analysis in Education I 3
ERMA 7310/7316 Design and Analysis in Education II 3
ERMA 8320/8326 Design and Analysis in Education III 3
Select 60 Hours in @ 6000-8999 60
Total Hours 88

Physics Education - MEd (Alternative Certification)

Alternative Class A Education Program Checklist

Teaching Field: 12 hours
At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Physics 12

Professional Studies: 25 hours

CTSE 7510 Research Studies in Area of Specialization 3
or CTSE 7530 Organization of Program in Area of Specialization
CTSE 6100 Curriculum and Teaching II: Science 4
CTRD 6000/6006 Language and Literacy in the Content Areas 3
CTSE 7540/7546 Evaluation of Program in Area of Specialization 3
RSED 6000/6006 Advanced Survey of Exceptionality 3
CTSE 6240/6246 Clinical Residency Seminar in Science Teaching 1 1
CTSE 7920/7926 Clinical Residency 2 8
Total Hours 37

1 RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 22 hours in Professional Studies and 34 total program hours.

2 Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

Physics Education - MEd (Certification)

Class A Program Checklist for Teaching Field

Teaching Field: 12 hours
At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in Physics  

**Survey of Special Education/Diversity Course: 3 hours**  
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course  

**Additional Courses: 15 hours**

Required: 6-8 hours  
- CTSE 6000: Technology in Science Education  
- CTSE 7540/7546: Evaluation of Program in Area of Specialization  
- CTSE 7910/7916: Practicum in Area of Specialization  

Select the remaining 7-9 hours from the following:  
- CTSE 7510: Research Studies in Area of Specialization  
- CTSE 7520: Curriculum and Teaching in Area of Specialization  
- CTSE 7530: Organization of Program in Area of Specialization  
- CTSE 7900/7906: Directed Studies  
- CTSE 7970/7976: Special Topics  
- CTSE 7990/7996: Research and Thesis  
- Other advisor-approved supporting courses 6000 level and above  

**Total Hours: 30**

---

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<thead>
<tr>
<th>Requirement</th>
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<tbody>
<tr>
<td>1</td>
<td>RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.</td>
</tr>
<tr>
<td>2</td>
<td>1 hour is required if teaching in area of certification at an approved school site or 3 hours required if not teaching in an area of certification.</td>
</tr>
<tr>
<td>3</td>
<td>Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field). In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements. Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.</td>
</tr>
</tbody>
</table>

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**Physics Education - EdS (Certification)**

**Class AA Program Checklist for Teaching Field**

**Teaching Field: 12 hours**

Select 12 hours of advisor-approved 6000-7000 level courses in Physics  

**Survey of Special Education/Diversity Course: 3 hours**  
RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course  

**Additional Courses: 15 hours**

Select 15 hours from the following:  
- CTSE 6000: Technology in Science Education  
- CTSE 7510: Research Studies in Area of Specialization  
- CTSE 7520: Curriculum and Teaching in Area of Specialization  
- CTSE 7530: Organization of Program in Area of Specialization  
- CTSE 7540/7546: Evaluation of Program in Area of Specialization  
- CTSE 7900/7906: Directed Studies  
- CTSE 7910/7916: Practicum in Area of Specialization  
- CTSE 7970/7976: Special Topics  
- CTSE 8980/8986: Field Project  

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<table>
<thead>
<tr>
<th>Requirement</th>
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<tbody>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Other advisor-approved supporting courses 6000 level and above

| 1. | RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website. |
| 2. | CTSE 7510 required if a graduate level course in research studies in Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Science Education not previously completed. |
| 3. | To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree. |
| 4. | Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field). In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements. Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work. |

Physics Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
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<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
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<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>3</td>
</tr>
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<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
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<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
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</tr>
<tr>
<td>ERMA 8320/8326</td>
<td>Design and Analysis in Education III</td>
<td>3</td>
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</tbody>
</table>

Select 60 Hours in @ 6000-8999

| 60 |

Total Hours 88

Social Science Education: General Social Science or History – MEd, EdS, PhD

Social Science Education: General Social Science or History – MEd (http://www.education.auburn.edu/graduate-degree-cert/soc-sci-hist-masters), EdS (http://www.education.auburn.edu/graduate-degree-cert/social-science-history-eds), PhD (http://www.education.auburn.edu/graduate-degree-cert/so-sci-hist-phd)

General Social Science Education - MEd (Alternative Certification)

Alternative Class A Education Program Checklist

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in Social Science 1

| 12 |

Professional Studies: 24 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
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</tr>
<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas 2</td>
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</tr>
<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality 2</td>
<td>3</td>
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<tr>
<td>CTSE 6250/6256</td>
<td>Seminar in Social Science Education 3</td>
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</table>
General Social Science Education - MEd (Certification)

Class A Program Checklist for Teaching Field

Teaching Field: 12 hours

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in Social Science

Survey of Special Education/Diversity Course: 3 hours

RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

Additional Courses: 15 hours

Required: 12 hours:

EDMD 7210/7216 Integration of Technology Into Curriculum

CTSE 7520 Curriculum and Teaching in Area of Specialization

CTSE 7540 Evaluation of Program in Area of Specialization

CTSE 7910/7916 Practicum in Area of Specialization

Select 3 hours from the following:

Other advisor-approved supporting courses 6000 level and above

Total Hours

1. General Social Studies programs shall require at least one course in two areas within the broader field (i.e., ECON, GEOG, HIST, POLI).

2. RSED 6000/6 must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 21 hours in Professional Studies and 33 total program hours.

3. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

General Social Science Education - EdS (Certification)

Class AA Program Checklist for Teaching Field

Teaching Field: 12 hours

At least 1/3 of the program shall be teaching field courses.

General Social Studies programs shall require at least one course in two areas within the broader field (i.e., ECON, GEOG, HIST, POLI).

RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Select 12 hours of advisor-approved 6000-7000 level courses in Social Science  

**Survey of Special Education/Diversity Course: 3 hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality OR state-approved diversity course</td>
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</tbody>
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**Additional Courses: 15 hours**

Select 9 hours from the following:

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<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
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<tr>
<td>CTSE 7520</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7530</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
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<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
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<td>CTSE 7970/7976</td>
<td>Special Topics</td>
<td>3</td>
</tr>
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<td>CTSE 8980/8986</td>
<td>Field Project</td>
<td>4</td>
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Select the remaining 6 hours from the following:

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<tr>
<td>Other advisor-approved supporting courses 6000 level and above</td>
<td></td>
<td>5</td>
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</tbody>
</table>

**Total Hours** 30

---

1. General Social Studies programs shall require at least one course in two areas within the broader field. (i.e., ECON, GEOG, HIST, POLI).
2. RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.
3. CTSE 7520 required if a graduate level course in Curriculum and Teaching in Social Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Social Science Education not previously completed.
4. To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree.
5. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

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**General Social Science Education - PhD**

**General Social Science Education - PhD**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<td>CTSE 7510</td>
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<tr>
<td>CTSE 7520/7526</td>
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<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
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<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
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<tr>
<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
<td>10</td>
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<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
<td>3</td>
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</tbody>
</table>

Select 60 Hours in @ 6000-8999

**Total Hours** 60

**History Education - MEd (Alternative Certification)**

**Alternative Class A Education Program Checklist**

**Teaching Field: 12 hours**

At least 1/3 of the program shall be in teaching field courses.
Select 12 hours of advisor-approved 6000-7000 level courses in History

**Professional Studies: 24 hours**

- **CTSE 7910/7916** Practicum in Area of Specialization 3
- **CTRD 6000/6006** Language and Literacy in the Content Areas 1 3
- **CTSE 7520** Curriculum and Teaching in Area of Specialization 3
- **CTSE 7540** Evaluation of Program in Area of Specialization 3
- **RSED 6000/6006** Advanced Survey of Exceptionality 1 3
- **CTSE 6250/6256** Seminar in Social Science Education 2 1
- **CTSE 7920/7926** Clinical Residency 2 8

**Total Hours** 36

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**History Education - MEd (Certification)**

**Class A Program Checklist for Teaching Field**

**Teaching Field: 12 hours**

At least 1/3 of the program shall be in teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in History 12

**Survey of Special Education/Diversity Course: 3 hours**

- **RSED 6000/6006** Advanced Survey of Exceptionality OR state-approved diversity course 1 3

**Additional Courses: 15 hours**

Required: 12 hours

- **EDMD 7210/7216** Integration of Technology Into Curriculum 3
- **CTSE 7520** Curriculum and Teaching in Area of Specialization 3
- **CTSE 7540** Evaluation of Program in Area of Specialization 3
- **CTSE 7910/7916** Practicum in Area of Specialization 3

Select 3 hours from the following:

- Other advisor-approved supporting courses 6000 level and above 2 3

**Total Hours** 30

---

1. **RSED 6000/6** must be completed if a survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with **CTRD 6000/6** Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 21 hours in Professional Studies and 33 total program hours.

2. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Clinical Residency.

---

1. **RSED 6000/6** Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
# History Education - EdS (Certification)

## Class AA Program Checklist for Teaching Field

### Teaching Field: 12 Hours

At least 1/3 of the program shall be teaching field courses.

Select 12 hours of advisor-approved 6000-7000 level courses in History

<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Survey of Special Education/Diversity Course: 3 hours</td>
<td>3</td>
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</table>

Select RSED 6000/6006 Advanced Survey of Exceptionality OR state-approved diversity course

### Additional Courses: 15 hours

Select 9 hours from the following:

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<th>Course Title</th>
<th>Hours</th>
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</thead>
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<tr>
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<td>Organization of Program in Area of Specialization</td>
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<tr>
<td>CTSE 7540</td>
<td>Evaluation of Program in Area of Specialization</td>
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</tr>
<tr>
<td>CTSE 7900/7906</td>
<td>Directed Studies</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7910/7916</td>
<td>Practicum in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7970/7976</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 8980/8996</td>
<td>Field Project</td>
<td>3</td>
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</table>

Select the remaining 6 hours from the following:

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<tbody>
<tr>
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**Total Hours:** 30

---

1. RSED 6000/6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification. State-approved diversity courses for Auburn University are posted on the ALSDE website.

2. CTSE 7520 required if a graduate level course in Curriculum and Teaching in Social Science Education not previously completed; CTSE 7540 required if a graduate level course in evaluation in Social Science Education not previously completed.

3. To ensure a field experience, CTSE 7910/CTSE 7916 is required for those seeking Class AA certification only; this requirement is in addition to any practicum credit counted for Class A certification. CTSE 8980/CTSE 8986 is required for those seeking the EdS degree.

4. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

# History Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTSE 7510</td>
<td>Research Studies in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7520/7526</td>
<td>Curriculum and Teaching in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7530/7536</td>
<td>Organization of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 7540/7546</td>
<td>Evaluation of Program in Area of Specialization</td>
<td>3</td>
</tr>
<tr>
<td>CTSE 8990/8996</td>
<td>Research and Dissertation</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 60 Hours in @ 6000-8999

**Total Hours:** 88
Community Music - Graduate Certificate

Community Music - Graduate Certificate (http://www.education.auburn.edu/graduate-degree-cert/graduate-certificate-community-music)

Community Music - GCRT

CTMU 7000/7006 School and Community Music 1

Select 4 Credits of the following: 4

CTMU 6110 Children's Music Learning
CTMU 6120/6126 School and Community General Music Education
CTMU 6130 School and Community Instrumental Music Education
CTMU 6140 School and Community Vocal Music Education

Select 3 Credits of the following: 3

MUSI 7000/7006 Graduate Choral Conducting I
MUSI 7010/7016 Graduate Choral Conducting II
MUSI 7040/7046 Graduate Instrumental Conducting I
MUSI 7050/7056 Graduate Instrumental Conducting II
MUSI 7100/7106 Choral Arranging I
MUSI 7110/7116 Choral Arranging II
MUSI 7970/7976 Special Topics in Music

Select 6 Credits of the following: 6

CTMU 6110 Children's Music Learning
CTMU 6120/6126 School and Community General Music Education
CTMU 6130 School and Community Instrumental Music Education
CTMU 6140 School and Community Vocal Music Education
CTMU 7510/7516 Research Studies in Music Education
CTMU 7520/7526 Curriculum and Teaching in Music Education
CTMU 7530/7536 Organization of Program in Music Education
CTMU 7540/7546 Evaluation of Program in Music Education
CTMU 7550/7556 Applications of Technology in Music Education
CTMU 7560/7566 Digital Media Production for Music Education
CTMU 7970/7976 Special Topics
EPSY 8410/8416 Learning in the Social Context
RSED 6000/6006 Advanced Survey of Exceptionality

Total Hours 14

Teaching English as a Second Language/Teaching English as a Foreign Language - Graduate Certificate

Teaching English as a Second Language/Teaching English as a Foreign Language - Graduate Certificate (http://www.education.auburn.edu/graduate-degree-cert/tesl-tefl-grad-certificate)

TESL/TEFL Education - GCRT

Select 12 hours from the following: 12

CTES 7400/7406 Technology and Media in English for Speakers of Other Languages Education (ESOL)
CTES 7420/7426 Applied Linguistics in Second Language Acquisition
CTES 7460/7466 Teaching English to Speakers of Other Languages in P-12
CTES 7470/7476 Issues in English for Speakers of Other Languages Education (ESOL)
Cybersecurity Engineering - MS

This graduate program prepares students for analyzing, developing, investigating, protecting, and defending the cyber ecosystem of organizations. As such, it focuses on the engineering and technical aspects of cybersecurity. The degree is designed to appeal to practitioners as well as research scholars through the choice of capstone experience.

The Master of Cybersecurity Engineering degree entails a minimum of 33 semester graduate credit hours. The following courses are required:

Foundational Courses (9 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 7270/7276</td>
<td>Advanced Topics in Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7300/7306</td>
<td>Advanced Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7500/7506</td>
<td>Advanced Topics in Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Cybersecurity-Specific Courses (9 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 6350/6356</td>
<td>Digital Forensics</td>
<td>3</td>
</tr>
<tr>
<td>COMP 6370/6376</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7370/7376</td>
<td>Advanced Computer and Network Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Cybersecurity-Specific Courses (select three of the courses listed below for a total of 9 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 6180</td>
<td>Cryptography</td>
<td>3</td>
</tr>
<tr>
<td>COMP 6520/6526</td>
<td>Network and Operating System Administration</td>
<td>3</td>
</tr>
<tr>
<td>COMP 6700/6706</td>
<td>Software Process</td>
<td>3</td>
</tr>
<tr>
<td>COMP 6720/6726</td>
<td>Real Time and Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7700</td>
<td>Software Architecture</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7710/7716</td>
<td>Software Environments</td>
<td>3</td>
</tr>
<tr>
<td>COMP 7720/7726</td>
<td>Software Re-Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses (3 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000/7000/8000#</td>
<td>level coursework relevant to cybersecurity and approved by the major professor.</td>
<td>3</td>
</tr>
</tbody>
</table>

Capstone experience (3 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 7980/7986</td>
<td>Capstone Engineering Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 33

Students who have taken the 5000-level version of any 6000-level course cannot take the course in its 6000-level format. They must substitute other cybersecurity-relevant graduate course as directed by the major professor. All courses in the degree must be taken for a grade. The exception is COMP 7980/COMP 7986, the Capstone Engineering Project, which is offered only in pass/fail format.

A project demonstrating mastery of cybersecurity engineering is required for the degree. The project includes both software and a written report. A proposal supporting the project must be approved by the student's major professor before work on the project may start. The format for the proposal and the project report are determined by the student's major professor. The project report must be given to the department's graduate program office upon completion for filing as a technical report.

This degree can be earned entirely through on-campus instruction, through the Engineering Online Graduate Program, or a combination of the two. Distance students should note that MATH 6180, Cryptography, is offered only in an on-campus format and cannot include it as one of their elective cybersecurity-specific courses.

Economics - MS

The Department of Economics offers the Master of Science in Economics and a PhD track that is described elsewhere. The MS is an academic degree preparing students for careers in business, government, and academia.

More information about the MS in Economics is available at http://www.cla.auburn.edu/economics/.
Admission Requirements for the MS in Economics

Applicants for the MS in Economics must have a bachelor’s degree or its equivalent from an accredited college or university. A minimum of 18 semester hours of economics and the completion of a calculus sequence are also needed to enter the program. The General Test of the GRE is required. A minimum score of 153 (or 500 on the old GRE scale) on the Verbal GRE portion and a minimum score of 148 (or 600 on the old GRE scale) on the Quantitative GRE portion are required. The graduate committee will evaluate applicants based on their undergraduate records, GRE scores, and letters of recommendation.

Applicants should ensure that the following materials are submitted to the Graduate School web application at http://www.grad.auburn.edu/:

- Official scores from the General Test of the GRE
- Official transcripts from every undergraduate institution attended
- Official TOEFL scores for international students

They should ensure that the following materials are submitted to the graduate program officer in the Department of Economics:

- Three letters of recommendation
- Statement of purpose

For applicants to be given full consideration for financial support, a completed application and supporting documents should be received by March 1. Admission and funding decisions will begin shortly thereafter. Later applications will be considered, but decisions will be contingent upon availability.

Graduation Requirements

Students must complete a total of 30 credit hours of course work, including required courses and electives, and comprehensive examinations. No thesis is required for the MS.

Required Core Courses

Masters students are required to complete the following nine core courses. Transferring credit hours from other peer institutions is allowed only in exceptional cases.

### First Year

**Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 7110</td>
<td>Microeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7130</td>
<td>Mathematical Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7310</td>
<td>Econometrics I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 7120</td>
<td>Microeconomics II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7210</td>
<td>Macroeconomics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7320</td>
<td>Econometrics II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Second Year

**Fall**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 7220</td>
<td>Macroeconomics II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7330</td>
<td>Microeconometrics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 7340</td>
<td>Macroeconometrics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Students must take 3 hours of electives at the 6000-level or above in consultation with the Director of Graduate Studies. The core curriculum and the electives combine for a minimum of 30 total semester hours.

Comprehensive Examinations

Students must achieve satisfactory (MS level pass) on 3 comprehensive examinations in microeconomics, macroeconomics, and econometrics. Only one retake is permitted on each exam. Please note that there is no thesis required.
Financial Aid

Financial aid, usually in the form of graduate teaching assistantships is available on a competitive basis for PhD students in good academic standing. Funding normally consists of a tuition waiver and monthly stipend.

Applied Economics - Forestry (PhD)

PhD in Applied Economics is administered jointly by the Department of Economics, the Department of Agricultural Economics and Rural Sociology, and the School of Forestry and Wildlife Sciences. Forestry students in this program will take core courses in microeconomics, macroeconomics, and econometrics in the Department of Economics and pass written preliminary exams given there. An additional oral examination is required in the SFWS for admission to candidacy. The minimum number of hours in this doctoral program is 60 semester hours earned through instruction beyond the bachelor’s degree, including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (7000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990 and must include at least 10 hours of 8990. As with all other PhD students in the SFWS, students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950). Dissertation work under this degree program generally involves in-depth economic analysis of a forestry/natural resources/environment issue or problem.

Allied Economics Forestry (PhD)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 7510</td>
<td>Research Methods</td>
<td>2</td>
</tr>
<tr>
<td>FOWS 7950</td>
<td>Graduate Seminar</td>
<td>1</td>
</tr>
<tr>
<td>FORY 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>Select 37 Credits in @ 6000-8999 (Electives)</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Select 10 Credits in FORY 6000-8999</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>60</strong></td>
</tr>
</tbody>
</table>

Applied Economics - Liberal Arts (PhD)

The PhD in Applied Economics is offered jointly by the Department of Economics, the Department of Agricultural Economics and Rural Sociology, and the School of Forestry and Wildlife Sciences. The PhD track described below is offered in the Department of Economics, which also offers an MS in Economics described elsewhere.

More information about the PhD track offered in the Department of Economics is available at http://www.cla.auburn.edu/economics/.

Information about the PhD track offered in the Department of Agriculture Economics and Rural Sociology is available at http://www.ag.auburn.edu/agec/grad/.

Information about the PhD track offered in the School of Forestry and Wildlife Sciences is available at http://wp.auburn.edu/sfws/students/graduate-study/.

Admission Requirements

Applicants for the PhD track in Applied Economics offered through the Department of Economics must have a bachelor’s degree or its equivalent from an accredited college or university. A minimum of 18 semester hours of economics and the completion of a calculus sequence are also needed to enter the program. The General Test of the GRE is required. A minimum score of 153 (or 500 on the old GRE scale) on the Verbal GRE portion and a minimum score of 148 (or 600 on the old GRE scale) on the Quantitative GRE portion are required. The graduate committee will evaluate applicants based on their undergraduate records, GRE scores, and letters of recommendation.

Applicants should ensure that the following materials are submitted to the Graduate School web application at http://www.grad.auburn.edu/:

- Official scores from the General Test of the GRE
- Official transcripts from every undergraduate institution attended
- Official TOEFL scores for international students

They should ensure that the following materials are submitted to the graduate program officer in the Department of Economics:
• Three letters of recommendation
• Statement of purpose

For applicants to be given full consideration for financial support, a completed application and supporting documents should be received by March 1. Admission and funding decisions will begin shortly thereafter. Later applications will be considered, but decisions will be contingent upon availability.

Graduation Requirements

Students must complete a minimum of 60 semester hours of course work at the 7000-level or above. Any course work outside of the Department of Economics must be approved by the director of graduate studies. As part of their 60 credit hours, students complete the required courses listed below. They must also pass comprehensive exams in three areas and complete course work in two advanced fields. Finally, students must write and successfully defend a dissertation.

Core Curriculum

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 7110 Microeconomics I</td>
<td>3</td>
<td>ECON 7120 Microeconomics II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECON 7130 Mathematical Economics</td>
<td>3</td>
<td>ECON 7210 Macroeconomics I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECON 7310 Econometrics I</td>
<td>3</td>
<td>ECON 7320 Econometrics II</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Fall</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 7220 Macroeconomics II</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECON 7330 Microeconometrics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ECON 7340 Macroeconometrics</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Comprehensive Examination

Students must achieve satisfactory performance (Ph.D. level pass) on three comprehensive (preliminary) examinations in microeconomics, macroeconomics, and econometrics. Only one retake is permitted on each exam. Students are graded separately on each exam. All students enrolled in the Ph.D. program MUST pass all three preliminary examinations by the end of the second December after their initial three semesters in the program.

Completion of Two Advanced Fields

Students must complete the coursework and pass a written examination in two advanced fields. Field coursework consists of a minimum two course sequence and must be approved in advance by the Director of Graduate Studies.

Candidacy

Students will be admitted to candidacy after completing two advanced fields, forming a dissertation committee, and successfully passing a general Oral Examination (dissertation proposal). The Oral Examination is normally taken during the third year, and requires approval by the Graduate School at least one week prior. Upon successful completion of the proposal, the student becomes a candidate for the Ph.D. degree and has four calendar years to complete remaining requirements.

Dissertation and Oral Defense

Students must write a dissertation and pass an oral defense. Students must register for at least 10 semester hours of dissertation research (ECON 8990).

Financial Aid

Financial aid, usually in the form of graduate teaching assistantships, is available on a competitive basis for PhD students in good academic standing. Funding normally consists of a tuition waiver and monthly stipend.
Educational Foundations, Leadership and Technology - MEd, MS, EdS, PhD

Degree Programs
- Administration of Elementary and Secondary Education (p. 1420)
- Administration of Higher Education (p. 1422)
- Administration of Supervision and Curriculum (p. 1422)
- Adult Education (p. 1423)
- Agricultural Leadership (p. 1424)
- Educational Psychology (p. 1424)
- Library Media (p. 1426)

Graduate Certificates
- Adult Education (p. 1428)
- Adult Education and English Language Teaching (p. 1428)
- College/University Teaching (p. 1428)
- Educational Leadership (p. 1429)
- Extension Educator (p. 1429)
- Instructional Leadership (p. 1426)
- Instructional Technology for Distance Education (p. 1429)
- MEd Administration of Elementary and Secondary Education Pgrm (p. 1425)
- Program Evaluation (p. 1430)
- Technology Educator (p. 1430)

Minor
- Sport Management (p. 1430)

The Department of Educational Foundations, Leadership and Technology offers degree programs, graduate certificates, and a minor. Degree programs lead to a master of education (non-thesis option), master of science (thesis option), specialist in education, or doctor of philosophy. Graduate degrees are available in the areas of administration of elementary and secondary education, administration of higher education, administration of supervision and curriculum, adult education, educational psychology and library media. The graduate certification programs in administration of elementary and secondary education (instructional leadership) and library media are approved by the Alabama State Board of Education (ALSBE). The College of Education is accredited by the National Council for Accreditation of Teacher Education (NCATE).

Applicants to the department’s graduate programs must satisfy the Graduate School’s admission requirements. Departmental admission requirements include a degree from an accredited college or university, competitive Graduate Record Examination (GRE) or Miller Analogies Test (MAT) scores, a GPA of at least a 2.75 on undergraduate coursework, a statement of intent, three recommendations, and any remaining admission requirements as identified by the program or department.

Master’s Degree Programs (MEd/MS)
Master’s degree programs are offered in administration of elementary and secondary education, administration of higher education, administration of supervision and curriculum, adult education, and library media. All programs require a minimum of 30 semester hours, an internship and/or practicum, and a comprehensive examination.

Master’s-level certification programs include instructional leadership (MEd in administration of elementary and secondary education) and library media. Admission requirements established by the Alabama State Board of Education, including those pertaining to a clear background check, prior certification, and teaching experience must be satisfied prior to admission to one of these programs. Degree requirements for both programs are in compliance with State regulations. Graduation requirements include a passing score on the appropriate Praxis II subject assessment.

In accordance with State regulations, a minimum GPA of 3.25 is required on all courses used to meet master’s-level certification program requirements.
Specialist in Education Degree Programs (EdS)
EdS programs are offered in administration of elementary and secondary education, adult education, and library media. All programs require a minimum of 30 semester hours, a directed field project, and a comprehensive examination.

Specialist-level certification programs include instructional leadership (EdS in administration of elementary and secondary education) and library media. Admission requirements established by the Alabama State Board of Education, including those pertaining to a clear background check, prior certification, and teaching experience must be satisfied prior to admission to one of these programs. Degree requirements for both programs are in compliance with State regulations.

In accordance with State regulations, a minimum GPA of 3.50 is required on all courses used to meet specialist-level certification program requirements.

Master’s- and Specialist-Level Certification
Individuals completing State-approved master’s-level certification programs are eligible to apply for Alabama Class A certification; individuals completing State-approved specialist-level certification programs are eligible to apply for Alabama Class AA certification. Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

Doctor of Philosophy Degree Programs (PhD)
PhD programs require a minimum of 60 semester hours beyond the bachelor’s degree. Research methods, statistics, and foundations of education are components of all doctoral programs. The department offers a doctorate in the areas of administration of elementary and secondary education, administration of higher education, administration of supervision and curriculum, adult education, and educational psychology. After satisfactory completion of coursework and a general written and oral examination, the student advances to candidacy. Doctoral students must register for at least 10 hours of dissertation credit while completing a dissertation.

Minor and Graduate Certificates
The Department of Educational Foundations, Leadership and Technology offers a minor in sport management and graduate certificates in adult education, college/university teaching, educational leadership, extension educator, instructional leadership, instructional technology (technology educator and instructional technology for distance education), and program evaluation. In addition, the Department in collaboration with the Department of Curriculum and Teaching offers a graduate certificate in adult education and English language teaching.

Additional Information
Detailed admission and program requirements for the department’s multiple areas of graduate study are available on the College of Education’s website, Academics (http://www.education.auburn.edu/academics/). The University schedule of courses is available on the Auburn University website.

Administration of Elementary and Secondary Education - MEd, EdS, PhD

| Administration of Elementary and Secondary Education - MEd (Certification) |
|-------------------------|--------------------------|
| Class A Program Checklist For Instructional Leadership              |

<table>
<thead>
<tr>
<th>Instructional Leadership Courses: 30 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 7210/7216</td>
</tr>
<tr>
<td>EDLD 7500</td>
</tr>
<tr>
<td>EDLD 7510/7516</td>
</tr>
</tbody>
</table>
### Administration of Elementary and Secondary Education - EdS (Certification, Online Option Available)

#### Class AA Program Checklist For Instructional Support Personnel

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADED 7600/7606</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8260/8266</td>
<td>Theory and Development of Organizations</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8270/8276</td>
<td>Leadership in Finance and Management</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8310/8316</td>
<td>Leadership in the Development and Application of Curriculum and Theory Design</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8400/8406</td>
<td>Ethics for Leaders</td>
<td>3</td>
</tr>
<tr>
<td>EDM 7010/7016</td>
<td>Instructional and Information Technologies</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7410/7416</td>
<td>Program Implementation in Specialization (Leadership)</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8220/8226</td>
<td>Personal and Professional Development</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8980/8986</td>
<td>Project Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Survey of Special Education/Diversity Course**

See RSED 6000/6 in Additional Courses AND RSED 7410/6 in Instructional Support Area

**Additional Courses: 6 hours**

Select 6 hours of advisor-approved supporting courses. At least 3 hours must be outside of Educational Leadership (EDLD).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>2</td>
</tr>
</tbody>
</table>

Other advisor-approved supporting courses 3

**Total Hours** 33

---

1. If EDLD 7910/6 Practicum (1 hour) must be completed to meet state admission requirements, 28 hours is required in the Instructional Support Area resulting in 34 total program hours.

2. RSED 6000/6 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with RSED 7410/6 Program Implementation in Leadership.
Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Individuals must be unconditionally admitted to the Class AA instructional leadership program before enrolling in any leadership courses in the program.

Course used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

### Administration of Elementary and Secondary Education - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 8950</td>
<td>Seminar (I)</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8950</td>
<td>Seminar (II)</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8990/8996</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
</tbody>
</table>

Select 48 Credits in @ 6000-8999

Total Hours

### Administration of Higher Education – MEd, PhD

**Administration of Higher Education – MEd** ([http://www.education.auburn.edu/graduate-degree-cert/administration-higher-education-m-ed](http://www.education.auburn.edu/graduate-degree-cert/administration-higher-education-m-ed)), **PhD** ([http://www.education.auburn.edu/graduate-degree-cert/administration-higher-education-ph-d](http://www.education.auburn.edu/graduate-degree-cert/administration-higher-education-ph-d))

**Administration of Higher Education - MEd**

Select 33 Credits in @ 6000-8999

Total Hours

**Administration of Higher Education - PhD**

Select 81 Credits in @ 6000-8999

HIED 8990 | Research and Dissertation | 10

Total Hours

### Administration of Supervision and Curriculum – MEd, PhD

**Administration of Supervision and Curriculum – MEd** ([http://www.education.auburn.edu/graduate-degree-cert/m-ed-in-administration-of-supervision-and-curriculum](http://www.education.auburn.edu/graduate-degree-cert/m-ed-in-administration-of-supervision-and-curriculum)), **PhD** ([http://www.education.auburn.edu/graduate-degree-cert/administration-supervision-curriculum-ph-d](http://www.education.auburn.edu/graduate-degree-cert/administration-supervision-curriculum-ph-d))

**Administration of Supervision and Curriculum - MEd**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 7210</td>
<td>Multiprofessional Leadership for Equity</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7330</td>
<td>Introduction to Curriculum and Instructional Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8300</td>
<td>Curriculum Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7000/7006</td>
<td>Instructional Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7210/7216</td>
<td>Integration of Technology Into Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>3</td>
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Select 12 Credits in @ 6000-8999

Total Hours

**Administration of Supervision and Curriculum - PhD**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDLD 8200/8206</td>
<td>Assessment and Evaluation in Learning Organizations</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8210</td>
<td>Educational Leadership: Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8220/8226</td>
<td>Personal and Professional Development</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8250</td>
<td>Organizational Power, Politics and Policy Formation</td>
<td>3</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
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<td>---------</td>
</tr>
<tr>
<td>EDLD 8260/8266</td>
<td>Theory and Development of Organizations</td>
<td>3</td>
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<tr>
<td>EDLD 8300</td>
<td>Curriculum Theory and Practice</td>
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<td>EDLD 8310</td>
<td>Leadership in the Development and Application of Curriculum and Theory Design</td>
<td>3</td>
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<td>EDLD 8400</td>
<td>Ethics for Leaders</td>
<td>3</td>
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<tr>
<td>EDLD 8950</td>
<td>Seminar (I)</td>
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<tr>
<td>EDLD 8950</td>
<td>Seminar (II)</td>
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<tr>
<td>EDLD 8990/8996</td>
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<tr>
<td>Select 24 Credits in @ 6000-8999</td>
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**Adult Education - MEd/MS, EdS, PhD**

**Adult Education - MEd/MS** ([http://www.education.auburn.edu/graduate-degree-cert/adult-education-m-ed-m-s](http://www.education.auburn.edu/graduate-degree-cert/adult-education-m-ed-m-s)), **EdS** ([http://www.education.auburn.edu/graduate-degree-cert/adult-education-ed-s](http://www.education.auburn.edu/graduate-degree-cert/adult-education-ed-s)), **PhD** ([http://www.education.auburn.edu/graduate-degree-cert/adult-education-ph-d](http://www.education.auburn.edu/graduate-degree-cert/adult-education-ph-d))

**Adult Education - MS (thesis)**

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<tr>
<td>ADED 7910</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7990</td>
<td>Research and Thesis</td>
<td>6</td>
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**Adult Education - MEd (Online Option Available)**

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<th>Course Title</th>
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</thead>
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<tr>
<td>ADED 7920/7926</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7910/7916</td>
<td>Practicum</td>
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**Adult Education - MEd (Distance)**

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<td>ADED 7926</td>
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<td>ADED 7916</td>
<td>Practicum</td>
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**Adult Education - EdS (Online Option Available)**

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<tr>
<td>ADED 8980</td>
<td>Field Project</td>
<td>6</td>
</tr>
<tr>
<td>or ADED 8986</td>
<td>Field Project</td>
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**Adult Education - PhD**

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>ADED 8990/8996</td>
<td>Research and Dissertation</td>
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<tr>
<td>Select 80 Credits in @ 6000-8999</td>
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<tr>
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</table>
### Agricultural Leadership - MS

**Core Courses — College of Education - Select 18 credit hours in the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ADED 7050/7056</td>
<td>Methods of Teaching in Adult Education</td>
</tr>
<tr>
<td>ADED 7600/7606</td>
<td>Nature of Adult Education</td>
</tr>
<tr>
<td>ADED 7640/7646</td>
<td>Workforce Education</td>
</tr>
<tr>
<td>ADED 7010/7016</td>
<td>Learning Resources</td>
</tr>
</tbody>
</table>

**Career and Technical Education Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTCT 7000/7006</td>
<td>Foundations of Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7780/7786</td>
<td>Research in Career and Technical Education</td>
</tr>
<tr>
<td>CTCT 7910/7916</td>
<td>Practicum in Area of Specialization</td>
</tr>
</tbody>
</table>

**Specialty Area – College of Agriculture Courses — Select 9 credit hours in the following:**

<table>
<thead>
<tr>
<th>Department</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>Agronomy and Soils (Soils, Crops, Turf Specialties)</td>
<td>CSES 6010/6016 Analy Plant, Soil &amp; Ani Data</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>ENTM 6360/6366 Landscape Entomology</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>PLPA 6200/6206 Mycology</td>
</tr>
<tr>
<td>Entomology and Plant Pathology</td>
<td>PLPA 6600 Physiology of Plant Health and Disease</td>
</tr>
<tr>
<td>Poultry and Food Science</td>
<td>FDSC 6150/6156 Food Laws And Regulations</td>
</tr>
<tr>
<td>Poultry and Food Science</td>
<td>FDSC 6200/6206 Developing, Implementing, and Auditing Food Safety Programs</td>
</tr>
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</table>

**Advisor-Approved Electives: 6 Hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSES 7990/7996</td>
<td>Research and Thesis</td>
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</tbody>
</table>

**Total Hours**

33

### Educational Psychology – PhD

**Educational Psychology – PhD**

**Educational Psychology - PhD**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSY 7400/7406</td>
<td>Ed Psych &amp; Educational Implica</td>
</tr>
<tr>
<td>EPSY 7410</td>
<td>The Individual in the Teaching-Learning Process</td>
</tr>
<tr>
<td>EPSY 7420/7426</td>
<td>Learning Theory and Educational Practice</td>
</tr>
<tr>
<td>EPSY 8440</td>
<td>Ed Psych Apprent Seminar</td>
</tr>
<tr>
<td>EPSY 8540</td>
<td>Educational Psychology Research Apprenticeship Seminar</td>
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</tbody>
</table>

**Total Hours**

33
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSY 8640</td>
<td>Educational Psychology Learning and Instruction Apprenticeship Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7100</td>
<td>Advanced Study of Educational Measurement and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7200/7206</td>
<td>Basic Methods in Education Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
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<tr>
<td>ERMA 8320/8326</td>
<td>Design and Analysis in Education III</td>
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<tr>
<td></td>
<td>Select 12 Credits in the following:</td>
<td>12</td>
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<tr>
<td>EPSY 8990/8996</td>
<td>Research and Dissertation</td>
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<tr>
<td>ERMA 8990/8996</td>
<td>Research and Dissertation</td>
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<tr>
<td></td>
<td>Select 27 Credits in  @ 6000-8999</td>
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<td>Total Hours</td>
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**MEd Administration of Elementary and Secondary Education Prgm**

**Class A Program Checklist for Instructional Leadership**

**Instructional Leadership Courses: 30 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 7210/7216</td>
<td>Multiprofessional Leadership for Equity 1</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7500/7506</td>
<td>Principal Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7510/7516</td>
<td>Action Research and Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7520/7526</td>
<td>Leadership and the Learning Organization</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7530/7536</td>
<td>Planning and Continuous Improvement</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7540/7546</td>
<td>Instructional and Curricular Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7550/7556</td>
<td>Educational Finance and Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7560/7566</td>
<td>Educational Systems and Communities</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7570/7576</td>
<td>Legal and Ethical Issues</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7580/7586</td>
<td>Supervision and Personnel Issues in Education</td>
<td>3</td>
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</table>

**Survey of Special Education / Diversity Course 1**

**Internship: 3 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 7930/7936</td>
<td>Administrative Internship/Residency</td>
<td>3</td>
</tr>
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<td></td>
<td>Total Hours</td>
<td>33</td>
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</table>

1EDLD 7210/6 Multiprofessional Leadership for Equity fulfills the state diversity course requirement. However, if a survey of special education course was not completed for prior level certification, RSED 6000/6 Advanced Survey of Exceptionality (3 hours) must be completed resulting in 36 total program hours.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

An applicant for certification in instructional Leadership who holds Class A certification in another teaching field or area of instructional support must take all courses indicated above that were not required for certification in another program at the Class A level.

Individuals must be unconditionally admitted to the Class A Instructional Leadership program before enrolling in any instructional leadership courses in the program.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Instructional Leadership - Graduate Certificate

Instructional Leadership - Graduate Certificate [http://www.education.auburn.edu/graduate-degree-cert/administration-elementary-secondary-education-graduate-certificate]

Instructional Leadership - GCRT

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDLD 7210/7216</td>
<td>Multiprofessional Leadership for Equity ¹</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7200/7206</td>
<td>Supervision and Personnel Management</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7220/7226</td>
<td>Organizational and School Management</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7510/7516</td>
<td>Action Research and Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 7520/7526</td>
<td>Leadership and the Learning Organization</td>
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<tr>
<td>EDLD 7530/7536</td>
<td>Planning and Continuous Improvement</td>
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<tr>
<td>EDLD 7540/7546</td>
<td>Instructional and Curricular Leadership</td>
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Total Hours 21

Library Media – MEd, EdS


Library Media - MEd (Certification, Online Option Available)

Class A Program Checklist for Library Media

Instructional Support Area: 21 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDM 7000/7006</td>
<td>Instructional Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>EDM 7010/7016</td>
<td>Instructional and Information Technologies</td>
<td>3</td>
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<tr>
<td>EDM 7100/7106</td>
<td>Selection and Use of Media for Youth</td>
<td>3</td>
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<tr>
<td>EDM 7110/7116</td>
<td>Bibliographic Description, Organization and Control</td>
<td>3</td>
</tr>
<tr>
<td>EDM 7120/7126</td>
<td>Information Sources, Services and Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDM 7130/7136</td>
<td>Administration of Media and Technology Services</td>
<td>3</td>
</tr>
<tr>
<td>EDM 7210/7216</td>
<td>Integration of Technology Into Curriculum</td>
<td>3</td>
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</table>

Internship: 3 hours

EDMD 7920/7926 Clinical Residency 3

Survey of Special Education/Diversity Course: 3 hours

Select one of the following:

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality (required if not previously completed) ¹</td>
<td>3</td>
</tr>
<tr>
<td>FOUN 7020/7026</td>
<td>Social and Cultural Diversity in American Education</td>
<td>3</td>
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<tr>
<td>FOUN 7000/7006</td>
<td>Cultural Foundations of Education</td>
<td>3</td>
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<tr>
<td>CTES 7470/7476</td>
<td>Issues in English for Speakers of Other Languages Education (ESOL)</td>
<td>3</td>
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<tr>
<td>RSED 7400/7406</td>
<td>Curriculum and Teaching in Specialization</td>
<td>3</td>
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<tr>
<td>RSED 7460/7466</td>
<td>Positive Behavior Supports</td>
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Additional Courses: 3 hours

Select one of the following:

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<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EPSY 7400/7406</td>
<td>Ed Psych &amp; Educational Implica</td>
<td>3</td>
</tr>
<tr>
<td>EPSY 7420/7426</td>
<td>Learning Theory and Educational Practice</td>
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</table>

Other advisor-approved supporting courses 6000 level or above ²

Total Hours 30

¹ RSED 6000/6 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may not be used to fulfill the requirement if a survey of special education course was completed for prior level certification.

² Other advisor-approved supporting courses 6000 level or above
Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, research, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative 3.25 GPA will be required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Library Media - EdS (Certification, Online Option Available)

Class AA Program Checklist for Library Media

Instructional Support Area: 21 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDMD 7020/7026</td>
<td>Principles of Graphic Design for Instruction</td>
<td>3</td>
</tr>
<tr>
<td>or EDMD 7230/7236</td>
<td>Theory and Practice of Distance Education</td>
<td></td>
</tr>
<tr>
<td>EDMD 7300/7306</td>
<td>Research in Instructional Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7310/7316</td>
<td>Evaluation of Media and Technology Programs</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7320/7326</td>
<td>Advanced Information Sources and Services</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7900/7906</td>
<td>Directed Studies</td>
<td>3</td>
</tr>
<tr>
<td>or EDMD 7970/7976</td>
<td>Special Topics in Instructional Technology</td>
<td></td>
</tr>
<tr>
<td>EDMD 7980/7986</td>
<td>Field Project</td>
<td>6</td>
</tr>
</tbody>
</table>

Survey of Special Education/Diversity Course: 3 hours

Select one of the following

- RSED 6000/6006 Advanced Survey of Exceptionality
- FOUN 7020/7026 Social and Cultural Diversity in American Education
- FOUN 7000/7006 Cultural Foundations of Education
- CTES 7470/7476 Issues in English for Speakers of Other Languages Education (ESOL)
- RSED 7400/7406 Curriculum and Teaching in Specialization
- RSED 7460/7466 Positive Behavior Supports

Additional Courses: 6 hours

Select two of the following for 6 credit hours:

- EDLD 7330 Introduction to Curriculum and Instructional Leadership
- ERMA 7100 Advanced Study of Educational Measurement and Evaluation
- ERMA 7200/7206 Basic Methods in Education Research
- FOUN 7010/7016 History of American Education
- FOUN 7040 Philosophy and Educational Research
- Other advisor-approved supporting courses 6000 level or above

Total Hours: 30

1. RSED 6000/6006 Advanced Survey of Exceptionality MUST be used to fulfill requirement if survey of special education course was not completed for prior level certification. It may NOT be used to fulfill the requirement if a survey of special education course was completed for prior level certification.

2. Required if not previously completed.

3. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
### Adult Education - Graduate Certificate

**Adult Education and English Language Teaching - Graduate Certificate** ([http://www.education.auburn.edu/graduate-degree-cert/adult-education-english-language-teaching-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/adult-education-english-language-teaching-graduate-certificate))

**Adult Education - GCRT (Online Option Available)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADED 7050/7056</td>
<td>Methods of Teaching in Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7600/7606</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7620/7626</td>
<td>Concepts, Programs, and Resources in Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7650/7656</td>
<td>Teaching the Disadvantaged Adult</td>
<td>3</td>
</tr>
<tr>
<td><strong>Select one of the following:</strong></td>
<td></td>
<td><strong>Total Hours</strong> 15</td>
</tr>
<tr>
<td>ADED 7640/7646</td>
<td>Workforce Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7910/7916</td>
<td>Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

### Adult Education and English Language Teaching - Graduate Certificate

**Adult Education and English Language Teaching - Graduate Certificate** ([http://www.education.auburn.edu/graduate-degree-cert/adult-education-english-language-teaching-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/adult-education-english-language-teaching-graduate-certificate))

**Adult Education and English Language Teaching - GCRT**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADED 7600/7606</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7650/7656</td>
<td>Teaching the Disadvantaged Adult</td>
<td>3</td>
</tr>
<tr>
<td><strong>Select 6 Credit of the following:</strong></td>
<td></td>
<td><strong>Total Hours</strong> 12</td>
</tr>
<tr>
<td>CTEC 7420/7426</td>
<td>Applied Linguistics in Second Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>CTEC 7460/7466</td>
<td>Teaching English to Speakers of Other Languages in P-12</td>
<td>3</td>
</tr>
<tr>
<td>CTEC 7470/7476</td>
<td>Issues in English for Speakers of Other Languages Education (ESOL)</td>
<td>3</td>
</tr>
<tr>
<td>CTEC 7480/7486</td>
<td>Assessment in English for Speakers of Other Languages (ESOL)</td>
<td>3</td>
</tr>
</tbody>
</table>

### College/University Teaching - Graduate Certificate

**College/University Teaching - Graduate Certificate** ([http://www.education.auburn.edu/graduate-degree-cert/college-university-teaching-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/college-university-teaching-graduate-certificate))

**College/University Teaching - GCRT**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIED 7910</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>HIED 8500</td>
<td>The Professoriate</td>
<td>3</td>
</tr>
<tr>
<td>HIED 8510</td>
<td>Seminar in College Teaching</td>
<td>3</td>
</tr>
<tr>
<td><strong>Select 3 credits in the following:</strong></td>
<td></td>
<td><strong>Total Hours</strong> 12</td>
</tr>
<tr>
<td>ADED 7650/7656</td>
<td>Teaching the Disadvantaged Adult</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7970</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>ADED 8970</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8300</td>
<td>Curriculum Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>EPSY 7400</td>
<td>Ed Psych &amp; Educational Implica</td>
<td>3</td>
</tr>
<tr>
<td>EPSY 7410</td>
<td>The Individual in the Teaching-Learning Process</td>
<td>3</td>
</tr>
<tr>
<td>EPSY 7420</td>
<td>Learning Theory and Educational Practice</td>
<td>3</td>
</tr>
<tr>
<td>FOUN 7020</td>
<td>Social and Cultural Diversity in American Education</td>
<td>3</td>
</tr>
<tr>
<td>GRAD 8940</td>
<td>Preparing Future Faculty Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>GRAD 8950</td>
<td>Preparing Future Faculty Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>
Other related course(s) as approved by certificate coordinator

| Total Hours | 12 |
| Required unless credit was earned for the EDLD equivalent. |

### Educational Leadership - Graduate Certificate

**Educational Leadership - Graduate Certificate** ([http://www.education.auburn.edu/graduate-degree-cert/educational-leadership-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/educational-leadership-graduate-certificate))

**Educational Leadership - GCRT**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 7210/7216</td>
<td>Multiprofessional Leadership for Equity</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8220/8226</td>
<td>Personal and Professional Development</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8400/8406</td>
<td>Ethics for Leaders</td>
<td>3</td>
</tr>
<tr>
<td>EDLD 8940/8946</td>
<td>Directed Field Experience in Educational Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLD 8240</td>
<td>Trends and Issues in Educational Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 Credits in @ 6000-8999

| Total Hours | 15 |

### Extension Educator - Graduate Certificate

**Extension Educator - Graduate Certificate** ([http://www.education.auburn.edu/graduate-degree-cert/extension-educator-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/extension-educator-graduate-certificate))

**Extension Educator - GCRT**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADED 7600/7606</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7650/7656</td>
<td>Teaching the Disadvantaged Adult</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7910/7916</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 7410</td>
<td>Extension Programs and Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

or ADED 7670/7676 | Adult Education in Cooperative Extension |

Select 3 Credits in @ 6000-8999 (Elective)

| Total Hours | 15 |

### Instructional Technology for Distance Education - Graduate Certificate

**Instructional Technology for Distance Education - Graduate Certificate** ([http://www.education.auburn.edu/graduate-degree-cert/instructional-technology-distance-education-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/instructional-technology-distance-education-graduate-certificate))

**Instructional Technology for Distance Education - GCRT**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDMD 7000/7006</td>
<td>Instructional Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7020/7026</td>
<td>Principles of Graphic Design for Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7200/7206</td>
<td>Applied Instructional Design</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7230/7236</td>
<td>Theory and Practice of Distance Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 credit hours of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSY 7400/7426</td>
<td>Ed Psych &amp; Educational Implica</td>
<td></td>
</tr>
<tr>
<td>EPSY 7420/7426</td>
<td>Learning Theory and Educational Practice</td>
<td></td>
</tr>
<tr>
<td>EDMD 7300/7306</td>
<td>Research in Instructional Technology</td>
<td></td>
</tr>
<tr>
<td>EDMD 7900/7906</td>
<td>Directed Studies</td>
<td></td>
</tr>
<tr>
<td>EDMD 7910/7916</td>
<td>Practicum</td>
<td></td>
</tr>
<tr>
<td>EDMD 7930</td>
<td>Teaching Apprenticeship</td>
<td></td>
</tr>
</tbody>
</table>
Program Evaluation - Graduate Certificate

Program Evaluation - Graduate Certificate ([http://www.education.auburn.edu/graduate-degree-cert/program-evaluation-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/program-evaluation-graduate-certificate))

Program Evaluation - GCRT

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7210</td>
<td>Theory and Methodology of Qualitative Research</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 8100</td>
<td>Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 8200/8206</td>
<td>Survey Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 9 credit hours of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7220</td>
<td>Applied Qualitative Research</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
</tr>
<tr>
<td>ERMA 7320/7326</td>
<td>Applied Quantitative Research</td>
</tr>
<tr>
<td>ERMA 7400</td>
<td>Mixed Methods Research</td>
</tr>
<tr>
<td>ERMA 8120</td>
<td>Teacher Evaluation</td>
</tr>
<tr>
<td>ERMA 8210</td>
<td>Prep Research for Publication</td>
</tr>
<tr>
<td>ERMA 8320/8326</td>
<td>Design and Analysis in Education III</td>
</tr>
<tr>
<td>ERMA 8330</td>
<td>Non-Parametric Data Analysis in Education Research</td>
</tr>
<tr>
<td>ERMA 8340</td>
<td>A Practical Introduction to Structural Equation Modeling</td>
</tr>
<tr>
<td>ERMA 8350</td>
<td>Advanced Measurement Theory</td>
</tr>
</tbody>
</table>

3 hrs other certificate coordinator approved course (e.g. EDLD 8200, COUN 8300, POLI 8020)

Total Hours 18

Technology Educator - Graduate Certificate

Technology Educator - Graduate Certificate ([http://www.education.auburn.edu/graduate-degree-cert/technology-educator-graduate-certificate](http://www.education.auburn.edu/graduate-degree-cert/technology-educator-graduate-certificate))

Technology Educator - GCRT

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDMD 7000/7006</td>
<td>Instructional Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7010/7016</td>
<td>Instructional and Information Technologies</td>
<td>3</td>
</tr>
<tr>
<td>EDMD 7210/7216</td>
<td>Integration of Technology Into Curriculum</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 credit hours of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDMD 7200/7206</td>
<td>Applied Instructional Design</td>
</tr>
<tr>
<td>EDMD 7900/7906</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>EDMD 7910/7916</td>
<td>Practicum</td>
</tr>
<tr>
<td>EDMD 7930</td>
<td>Teaching Apprenticeship</td>
</tr>
<tr>
<td>EDMD 7970/7976</td>
<td>Special Topics in Instructional Technology</td>
</tr>
</tbody>
</table>

Total Hours 12

Sport Management - Graduate Minor

Sport Management - Graduate Minor ([http://www.education.auburn.edu/graduate-degree-cert/graduate-minor-sport-management](http://www.education.auburn.edu/graduate-degree-cert/graduate-minor-sport-management))

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 6820</td>
<td>Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7750</td>
<td>Advanced Sport Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or KINE 7970</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>HIED 7400</td>
<td>Sport Marketing and Public Relations</td>
<td>3</td>
</tr>
</tbody>
</table>
Electrical and Computer Engineering - MS, PhD

Degree Program:

• Electrical and Computer Engineering - MS (p. 1431)
• Electrical and Computer Engineering - PhD (p. 1432)

Electrical and Computer Engineering (ECE) offers graduate programs of instruction and research leading to master and doctoral degrees. Instruction is offered and research facilities are available to support graduate study in control systems & robotics, digital signal processing and communications, wireless engineering, electromagnetics modeling and analysis, microelectronics & microelectromechanical systems (MEMS), magnetic resonance imaging (MRI), power systems, digital systems, and computer engineering. Additionally, individualized programs that cross the traditional boundaries of engineering, mathematics and the sciences can be accommodated.

For admission at the master’s level, the applicant must hold a bachelor’s degree or its equivalent from an institution of recognized standing. Master’s degree programs are available to graduates of engineering curricula and, in cases of exceptional academic credentials, to graduates of mathematics and science curricula.

An applicant for admission to the PhD program should hold a master’s degree, or have taken a minimum of one academic year of graduate study, from an institution of recognized standing in an area of study related to the proposed doctoral work. An applicant who holds a bachelor’s degree in electrical or computer engineering and has exceptional academic credentials may apply for direct admission to the PhD program.

All applicants must submit Graduate Record Examination scores for the General Test, three recommendation letters, a statement of purpose, and a resume. International applicants must also submit scores for either the TOEFL or IELTS exam.

Applications for admission are reviewed by the departmental graduate faculty. Decisions are based upon the applicant’s potential for success in advanced-level study as indicated by letters of reference, GRE scores and previous academic achievement.

The MS (thesis option) program requires a minimum of 30 semester hours of work, including 4 to 6 semester hours of research and thesis. MS (thesis option) students must pass an oral examination on the thesis. The MS (non-thesis option) program requires 33 semester hours of coursework, including at least 18 semester hours of ECE courses. Both masters programs must include courses in at least three of the major research areas in ECE and no more than 3 semester hours of independent study.

Students admitted to the doctoral program will take a written qualifying examination soon after entering, covering fundamental undergraduate material in ECE. Additional examinations are given throughout the program. The program generally consists of a minimum of 60 semester hours of course work beyond the bachelor’s level, including at least 10 hours of research and dissertation. A minor of at least 9 semester hours in a closely related field outside of the major area of study, either within or outside of ECE, is required.

Electrical and Computer Engineering - MS

The following are the requirements for the thesis option

Electrical and Computer Engineering (MS Thesis)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELEC 7990</td>
<td>Research and Thesis</td>
<td>4</td>
</tr>
<tr>
<td>Select 17</td>
<td>Credits at 6000-8999</td>
<td>17</td>
</tr>
<tr>
<td>Select 9</td>
<td>Credits at 6000-8999</td>
<td>9</td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

The following are the requirements for the non-thesis options (on-campus and distance)

Electrical and Computer Engineering (MS Non-Thesis)

Select 21 Credits at 6000-8999 in the Major Area 21
Select 12 Credits at 6000-8999 (Electives) 12

Total Hours 33

Electrical and Computer Engineering - Distance (MS Non-Thesis)
Select 21 Credits at 6000-8999 in the Major Area 21
Select 12 Credits at 6000-8999 (Electives) 12

Total Hours 33

Electrical and Computer Engineering - PhD

Electrical and Computer Engineering (PhD)
ELEC 8990 Research and Dissertation 10
Select 30 Credits (Graded) at 6000-8999 30
Select 20 Credits (Graded or Ungraded) at 6000-8999 20

Total Hours 60

English - MA, MTPC, PhD, Graduate Certificate

Degree Programs:
- English - MA
- English - PhD (p. 1435)
- Technical and Professional Communication - MTPC (p. 1435)

Graduate Certificate:
- Technical Communication (p. 1435)

The Department of English offers programs leading to the Master of Arts (MA), the Master of Technical and Professional Communication (MTPC), and the PhD. These graduate programs prepare students for careers in teaching and research, writing, editing, business, and other professions seeking broadly educated individuals skilled in analysis and communication. In addition, individuals holding a teaching certificate may, with an additional graduate course in Communication, earn Alabama Class A or AA certification under a state-approved Strengthened Subject Matter Option program in English/Language Arts. The Department of English also offers the Graduate Certificate in Technical Communication (GCTC).

More information about the MA in English is available at http://www.cla.auburn.edu/english/graduate-studies/ma/.

More information about the MTPC is available at http://www.cla.auburn.edu/mtpc/.

More information about the PhD in English is available at http://www.cla.auburn.edu/english/graduate-studies/phd/.

More information about the Graduate Certificate in Technical Communication is available at http://cla.auburn.edu/english/graduate-studies/graduate-certificate-in-technical-communication/.

Master of Arts

Admission Requirements
For admission to the MA program, the student must normally have a bachelor’s degree from an accredited institution with the equivalent of 24 semester hours of credit in upper-division English courses and satisfactory scores on the General Test of the GRE. Applicants lacking the required undergraduate courses must typically make up these deficiencies before they can be admitted to the degree program.

Applicants should ensure that the following materials are submitted to the Graduate School web application:
- Official transcripts from every undergraduate institution attended
- Official scores from the General Test of the GRE

They should submit the following to the Department of English:
• Writing sample
• Statement of purpose
• Three confidential letters of recommendation that speak to the applicant’s potential for successful graduate study

Application materials are due by January 15.

Options and Course Requirements
For the MA, students may select one of the following three tracks: literature, composition and rhetoric, or creative writing. Each track requires a minimum of 30 credit hours of coursework.

The literature track requires the following:
• Three major area courses (one pre-1800 literature, one post-1800 literature, one literary theory)
• One comparative literature, genre, or author-based course
• One technology and culture, globalism, sustainability, or diversity course
• One course in technical and professional communication, rhetoric and composition, linguistics, or creative writing
• Two elective courses in English
• ENGL 7940 Practicum in Teaching College English
• Two courses in a coordinated minor, chosen from courses in English or another discipline relevant to the student’s professional and academic goals

The creative writing track requires the following:
• Three major area courses (ENGL 7130 Fiction Writing and ENGL 7140 Poetry Writing, with one repeated for a total of three creative writing courses)
• One pre-1800 literature course
• One technical and professional communication, rhetoric and composition, or linguistics course
• One technology and culture, globalism, sustainability, or diversity course
• Two courses in a coordinated minor, chosen from courses in English or another discipline relevant to the student’s professional and academic goals
• Two elective courses in English
• ENGL 7940 Practicum in Teaching College English

The composition and rhetoric track requires the following:
• Three major area courses (ENGL 7040 English Composition: Issues and Approaches, ENGL 7050 Studies in Composition, and ENGL 7300 Rhetoric Theory and Practice)
• One course in technical and professional communication or linguistics
• One literature or creative writing course
• One technology and culture, globalism, sustainability, or diversity course
• Two courses in a coordinated minor, chosen from courses in English or another discipline relevant to the student’s professional and academic goals
• Two elective courses in English
• ENGL 7940 Practicum in Teaching College English

Other Graduation Requirements
In addition to completing the required course work, students must successfully complete a portfolio and pass an oral examination based on the portfolio. They also must demonstrate reading knowledge of one foreign language.

Master of Technical and Professional Communication

Admission Requirements
For admission to the MTPC program, students must have a bachelor’s degree from an accredited institution, satisfactory scores on the General Test of the GRE, and excellent writing skills. Undergraduate course work in English is not required.

Applicants should ensure that the following materials are submitted to the Graduate School web application:
• Official transcripts from every undergraduate institution attended, including high school transcripts in the case of AP classes
• Official scores from the General Test of the GRE

They should submit the following to the Department of English:

• A sample of professional or scholarly writing (e.g., a technical manual, a business report, a research essay)
• A statement of purpose explaining their interest in the program
• Three letters of recommendation. At least two of the letters should come from professors or instructors; the other letter may come from an academic advisor, an employer, or some other person who can speak to their potential for success in the MTPC program.

Application materials should be received by January 15.

Course Requirements

• Four required courses (ENGL 7000 Technical and Professional Editing, ENGL 7010 Technical and Professional Communication: Issues and Approaches, ENGL 7060 Web Development, ENGL 7080 Document Design in Technical and Professional Communication)
• Three elective courses in English approved by the student's advisory committee
• Three courses in a coordinated minor or three additional courses in English approved by the student's advisory committee
• ENGL 7940 Practicum in Teaching College English

Other Graduation Requirements

Students must compile a portfolio of work accepted by the student's advisory committee, make a formal presentation about the portfolio, and pass an oral examination.

PhD

Admission Requirements

For admission to the PhD program, the student must normally have a master's degree in English and satisfactory scores on the General Test of the GRE.

Applicants should ensure that the following materials are submitted to the Graduate School web application:

• Official transcripts from every undergraduate and graduate institution attended
• Official scores from the General Test of the GRE

They should submit the following to the Department of English:

• Writing sample
• Statement of purpose
• Three confidential letters of recommendation that speak to the applicant's potential for successful graduate study

Concentrations and Course Requirements

The PhD requires a minimum of 60 credit hours beyond the BA, including 10 hours of dissertation credit. Students entering our program with an MA in English from Auburn or from another institution transfer in their course work; in consultation with their graduate advisory committee, students then select additional courses. Students may choose to pursue either a concentration in literature or a concentration in composition and rhetoric.

Other Graduation Requirements

After completing course work, students must take general doctoral examinations, both written and oral, over three related areas. These areas might include a literary period, a genre, an issue in composition or rhetorical studies, language and linguistics, or literary and cultural theory. After passing these examinations, students advance to doctoral candidacy. Within three months after advancing to doctoral candidacy, students must submit an approved dissertation prospectus to the director of graduate studies. Students must write and defend a dissertation.

Doctoral students must demonstrate a reading knowledge of two foreign languages or advanced proficiency in one foreign language.
Graduate Certificate in Technical Communication

Admission Requirements
For admission to the Graduate Certificate in Technical Communication, students must have a bachelor’s degree from an accredited institution and excellent writing skills.

Applicants should ensure that the following materials are submitted to the Graduate School web application:

- Official transcripts from every undergraduate institution attended

They should submit the following to the Department of English:

- A sample of professional or scholarly writing (e.g., a technical manual, a business report, a research essay)
- A statement of purpose explaining their interest in the program
- Three letters of recommendation from professors, academic advisers, employers, or others who can speak to their potential for success in the GCTC program

Financial Aid
The department offers financial aid in two forms: fellowships and assistantships. Graduate teaching assistantships or graduate assistantships are often available for the most qualified students, except those enrolled in the GCTC. Assistantships are renewable, provided that students perform satisfactorily and make adequate progress toward the degree. A few outstanding applicants also receive first-year or second-year fellowships. Review of applications for financial aid will begin on January 15 for the MA, PhD, and MTPC.

Graduate Certificate in Technical Communication

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
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</tr>
<tr>
<td>ENGL 7010</td>
<td>Technical and Professional Communication: Issues and Approaches</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 7080</td>
<td>Document Design</td>
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MA English

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<td>ENGL 7940</td>
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PhD English

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Technical and Professional Communication

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<td>ENGL 7010</td>
<td>Technical and Professional Communication: Issues and Approaches</td>
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<td>ENGL 7060</td>
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<td>ENGL 7940</td>
<td>Practicum in Teaching College English</td>
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Entomology and Plant Pathology - ABM

ABM in Entomology

Example Curriculum for Student from COSAM: Biology: CONS track

There is a 16 h max for credit load requirements. This is not exceeded in this curriculum in semesters where the student is taking dual credit ABM courses. Student will begin the Graduate Course work in the Junior Year. In the Fall semester of the Junior Year, they would complete the Gateway course ENTM 3040. In spring of the Junior Year, they would select an ENTM Graduate course listed as an Eco 'Evol:Diversity Elective. In their Senior year, students would accumulate 4 more hours in ENTM courses either Spring or Fall as electives. With this model, students would bring 9 graduate hours from their undergraduate curriculum, conduct research the following fall and spring as well as complete the required coursework. The Master's degree in ENTM requires 30 hours with 21 of those in ENTM courses. With the following model, students will have 9 hours of graduate work in ENTM from their undergraduate curriculum, then achieve 18 more hours in fall and spring (9 hours each) with the balance in research hours during the Summer semester between the Senior year as an undergraduate and the first summer as a graduate student.

Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
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<td>BIOL 1030 Organismal Biology</td>
<td>3</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1610 Calculus I</td>
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<td>Core History</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>Core Social Science</td>
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</tr>
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Sophomore

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<tr>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>Core Fine Arts</td>
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<td>Core Social Science/Humanities</td>
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</tr>
<tr>
<td>Core Social Science</td>
<td>3</td>
<td>Core History or Literature</td>
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<tr>
<td>Core Humanities</td>
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<td>BIOL 3060 Ecology</td>
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</tr>
<tr>
<td>Core Literature</td>
<td>3</td>
<td>BIOL 3030 Evolution and Systematics</td>
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</tr>
<tr>
<td>BIOL 3000 Genetics</td>
<td>3</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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Junior

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<tr>
<th>Fall</th>
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<tbody>
<tr>
<td>BIOL 4020 Vertebrate Biodiversity</td>
<td>4</td>
<td>BIOL 5240 Animal Physiology</td>
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<tr>
<td>WILD 3280 Wildlife Ecology, Conservation, and Management</td>
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<td>Elective for ABM: ENTM 6640</td>
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<tr>
<td>BIOL 3100 Plant Biology</td>
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<td>BIOL 4100 Cell Biology</td>
<td>3</td>
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<td>ENTM 3040 General Entomology (Gateway course)</td>
<td>4</td>
<td>PHYS 1000 Foundations of Physics</td>
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<td>15</td>
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### Senior

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<tr>
<th>Course/Category</th>
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<tr>
<td>BIOL Elective</td>
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<tr>
<td>BIOL 5090 Conservation Biology</td>
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<tr>
<td>BIOL 4010 Invertebrate Biodiversity</td>
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</tr>
<tr>
<td>Free Elective: Option for ABM</td>
<td>4 BIOL 4950 Senior Seminar</td>
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<tr>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<tr>
<td>UNIV 4AA0 University Graduation</td>
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| Total Hours: 125 |

### GRADUATE

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<thead>
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<th>Course/Category</th>
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<tr>
<td>PLPA 7990 Research and Thesis a</td>
<td>1-5</td>
<td>3-7</td>
<td>1-5</td>
</tr>
<tr>
<td>PLPA 7080, 5050, or statistics course</td>
<td>3-4</td>
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<table>
<thead>
<tr>
<th>Course/Category</th>
<th>Summer Hours</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
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<tr>
<td>PLPA course electives a</td>
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<td>3-7</td>
<td></td>
</tr>
<tr>
<td>PLPA 7990 Research and Thesis</td>
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</table>

### Entomology Graduate Program Core Requirements

- ENTM 3040-gateway course
- ENTM 6300 Systematic Entomology
- ENTM 6440 Insect Morphology
- ENTM 6200 Insect Physiology
- ENTM 7950 Seminar (required enrollment in the final semester for MS students)
- Statistics course (STAT 7000 CSES 7080, or equivalent)

### Entomology Graduate Course Electives

- ENTM 4960 Special Problems in Entomology
- ENTM 6030 Insecticides in the Environment
- ENTM 6140 Aquatic Insects
- ENTM 6150 Arachnology
- ENTM 6220 Insect Ecology
- ENTM 6330 Integrated Pest Management
- ENTM 6340 Urban Forest Insects
- ENTM 6360/6366 Landscape Entomology
- ENTM 6370 Urban Entomolog
- ENTM 7100 General Toxicology
- ENTM 7130 Biological and Microbial Control of Insects
- ENTM 7190 Plant and Animal Interactions
- ENTM 7330 Medical-Veterinary Entomology
- ENTM 7930 Journal Review for Entomology and Plant Pathology
- PLPA 7820 Research Proposal Writing
- STAT 7000 Experimental Statistics
- CSES 6010/6016 Analysis of Plant, Soil, and Animal Data

**ABM: Master's in Agriculture**
Example Curriculum for Student from CoA: Horticulture

Two tracks, Nursery and Greenhouse, and Fruit and Vegetable Production are the best fits for an ABM in EPP. The Master of Agriculture (M.Ag) is a non-thesis option for students who do not wish to enter a doctoral program. The Master of Agriculture degree requires at least 32 semester hours of course work, 21 of which must be in ENTM or PLPA, with the remainder of credit hours taken from other, related areas as determined by the student's Advisory Committee. In the following curriculum students complete the gateway courses in their Junior year and begin taking ABM courses in the senior year. Students will bring 9 hours from undergraduate and complete coursework in the following summer, fall, and spring semesters.

<table>
<thead>
<tr>
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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tr>
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<td>HORT 1010 Introduction to Horticulture</td>
<td>1</td>
<td>BIOL 1030 Organismal Biology</td>
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<td>Core MATH</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
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<td></td>
<td>BIOL 1020 Principles of Biology</td>
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<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
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<tr>
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<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<tr>
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<td>Core History sequence I</td>
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<td>Core History sequence II</td>
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Sophomore

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<tr>
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<tr>
<td></td>
<td>HORT 3220 Arboriculture</td>
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<td>COMM 1000 Public Speaking</td>
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<td>Social Science Choice</td>
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<td>Core Literature II or Humanities Choice</td>
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<td>ECON 2020 Principles of Microeconomics or 2030 Principles of Macroeconomics</td>
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<td>HORT 2240 Plant Propagation</td>
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<td>Core Literature I</td>
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<td>HORT 3210 Small Trees, Shrubs and Vines</td>
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<td>CSES 2040 Basic Soil Science</td>
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Junior

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<tr>
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<td>HORT 3000 Growth and Development of Horticultural Plants</td>
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<td>ENTM 4020 Economic Entomology</td>
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<td>HORT 3950 Careers in Horticulture</td>
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<td>HORT 4100 Herbaceous Ornamentals</td>
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<td>Group 1 elective</td>
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<td>CSES 3150 Turfgrass Management</td>
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Senior

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<tr>
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<td>HORT 5220 Greenhouse Management Science</td>
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<td>Group 2 Elective</td>
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Total Hours: 116-128
GRADUATE

Summer
PLPA 7990 Research and Thesis \(^a\) 1-5
PLPA 7080, 5050, or statistics course 3-4

Fall
PLPA course electives \(^a\) 3-7
PLPA 7990 Research and Thesis 1-5

Spring
PLPA grad course electives \(^a\) 3-7
PLPA 7950 Seminar in Plant Pathology 1
PLPA 7990 Research and Thesis 1-5

Graduate Program Core Requirements
Graduate Program Core Requirements
ENTM 7950 Seminar (required enrollment in the final semester for MS students) Statistics course (STAT 7000 CSES 7080, or equivalent))

a Summer Electives
ENTM 6360, PLPA 5050, PLPA 6206, PLPA 6506, PLPA 7080

b Graduate Course Electives
PLPA 6050 Plant Disease Diagnosis
PLPA 6200/6206 Introductory Mycology
PLPA 6400 Plant Virology
PLPA 6500/6506 Plant Nematology
PLPA 6920/ENTM 6920 Internship
PLPA 7080 Field Survey of Plant Pathology
PLPA 7300 Plant-Bacterial Interactions
PLPA 7820 Research Proposal Writing
PLPA 7860 Plant Disease Epidemiology
PLPA 7861 Plant Disease Epidemiology Laboratory
PLPA 7900/ENTM 7900 Directed Studies
PLPA 7960/ENTM 7960 Special Problems
ENTM 6300 Systematic Entomology
ENTM 6440 Insect Morphology
ENTM 6200 Insect Physiology
ENTM 6030 Insecticides in the Environment
ENTM 6140 Aquatic Insects
NTM 6150 Arachnology
ENTM 6220 Insect Ecology
ENTM 6330 Integrated Pest Management
ENTM 6340 Urban Forest Insects
ENTM 6360/6366 Landscape Entomology
ENTM 6370 Urban Entomology
ENTM 7100 General Toxicology
ENTM 7130 Biological and Microbial Control of Insects
ENTM 7190 Plant and Animal Interactions
ENTM 7330 Medical-Veterinary Entomology
ENTM 7930 Journal Review for Entomology and Plant Pathology STAT 7000 Experimental Statistics
CSES 6010/6016 Analysis of Plant, Soil, and Animal Data

ABM: Master's in Plant Pathology
Example Curriculum for Student from CoA: CSES, Turfgrass Option
There are three tracks in CSES and only the Turfgrass option has the available electives or free electives to fit with an ABM in EPP. Student will begin the Graduate Course work in the Senior Year. In the Fall semester of the Junior Year they would complete the Gateway course PLPA 3000. In their Senior year, students would accumulate 7-8 hours in PLPA courses in both the Spring or Fall as Plant/Soil electives. With this model, students would bring 7-8 graduate hours from their undergraduate curriculum, conduct research
the first summer semester, conduct research the following fall and spring as well as complete the required coursework. The Master’s degree requires 30 hours with 21 of those in PLPA courses. With the following model, students will have 7-8 hours of graduate work in ENTM from their undergraduate curriculum, then achieve the remaining hours during the one years as a graduate student (fall and spring semesters) as well as the Summer semester between the Senior year as an undergraduate and the first summer as a graduate student.

### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
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<tbody>
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<td>BIOL 1030 Organismal Biology</td>
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<td>ENGL 1120 English Composition II</td>
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<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
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<td>BIOL 1031 Organismal Biology Laboratory</td>
<td>1</td>
<td>Core History I</td>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
<td>FLSP 1010 Elementary Spanish I</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
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<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<td>Free Electives</td>
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<tr>
<td>CSES 1000 Basic Crop Science</td>
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<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>CSES 2040 Basic Soil Science</td>
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<td>MATH 1130 Pre-Calculus Trigonometry</td>
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<td>CSES 1000 Basic Crop Science</td>
<td>4</td>
<td>CSES 2040 Basic Soil Science</td>
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### Sophomore

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<tbody>
<tr>
<td>Core Humanities (English Lit)</td>
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<td>BIOL 3100 Plant Biology or HORT 3000 Growth and Development of Horticultural Plants</td>
<td>3-4</td>
</tr>
<tr>
<td>CSES 3150 Turfgrass Management</td>
<td>4</td>
<td>CHEM 2030 Survey of Organic Chemistry</td>
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<tr>
<td>CSES 3120 Principles of Weed Science</td>
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<td>Core History II</td>
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<tr>
<td>CSES 3200 Applied Turf Management</td>
<td>3</td>
<td>ECON 2020 Principles of Microeconomics</td>
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### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Humanities</td>
<td>3</td>
<td>CSES 3920 Internship</td>
<td>3</td>
</tr>
<tr>
<td>PLPA 3000 General Plant Pathology (Gateway course)</td>
<td>4</td>
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<tr>
<td>CSES 5000 Soils &amp; Environmental Quality</td>
<td>3</td>
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<tr>
<td>BSEN 3560 Turf Systems Irrigation Design</td>
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<td>Humanities choice</td>
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### Senior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant/Soil Elective (could be ABM course)</td>
<td>4 CSES 5020 Nutrient Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ACCT 2810 Fundamentals Of Accounting</td>
<td>3 CSES 5160 Advanced Turfgrass Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>STAT 2510 Statistics for Biological and Health Sciences</td>
<td>3 CSES 5180 Sports Turf Management</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Core Humanities</td>
<td>3 Plant/Soil Elective (could be ABM course)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CSES 4950 Senior Seminar</td>
<td>2 ENTM 4020 Economic Entomology</td>
<td>4</td>
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</tr>
<tr>
<td>PLPA 4960 Special Problems in Plant Pathology</td>
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</tbody>
</table>

| Total Hours: 120-121                      |       |                                             |       |

#### GRADUATE

### Summer

<table>
<thead>
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<tbody>
<tr>
<td>PLPA 7990 Research and Thesis</td>
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</tr>
<tr>
<td>PLPA 7080, 5050, or statistics course</td>
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</tr>
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### Fall

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA course electives</td>
<td>3-7</td>
</tr>
<tr>
<td>PLPA 7990 Research and Thesis</td>
<td>1-5</td>
</tr>
</tbody>
</table>

### Spring

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA grad course electives</td>
<td>3-7</td>
</tr>
<tr>
<td>PLPA 7950 Seminar in Plant Pathology</td>
<td>1</td>
</tr>
<tr>
<td>PLPA 7990 Research and Thesis</td>
<td>1-5</td>
</tr>
</tbody>
</table>

### Plant Pathology Graduate Program Core Requirements

Each student must take PLPA 6200 plus any 2 other courses from the list: PLPA 6200 Mycology
PLPA 6300 Plant-bacterial interactions
PLPA 6400 Plant Virology
PLPA 6500 Plant Nematology
PLPA 7950 Seminar (required enrollment in the final semester for MS students)
Entomology - MS, MAg, PhD

Program Degrees:

- Entomology - MS (p. 1443)
- Entomology - MAg (p. 1443)
- Entomology - PhD (p. 1444)
- Entomology - Minor (p. 1540)

The Department of Entomology and Plant Pathology offers entomology degrees including a Master of Science (MS), Master of Agriculture (MAg) and Doctor of Philosophy (PhD). The Graduate program emphasizes basic and applied aspects of the science of entomology preparing students for careers in teaching, research and extension with a variety of academic, governmental, state, private and industrial opportunities. The educational goals and objectives of the MS degree program are to produce graduates who are fundamentally trained in the scientific principles and general knowledge of entomology and related sciences and who are able to apply these principles to successfully solve problems of an entomological nature or employ this knowledge at an advanced level of study.

The purpose of the PhD program in entomology is to produce graduates who are fundamentally trained in the scientific principles and general knowledge of entomology and related sciences and who are able to employ this knowledge at the advanced level of study and/or apply these principles to solve problems of an entomological nature.

Admission is based primarily on a combination of GPA and Graduate Record Examination (GRE) scores and (if an international student) TOEFL tests are also required.

Students holding baccalaureate degrees in agriculture or the biological sciences may find this degree program helpful to their professional development and career goals. For a major in entomology at the MS level, the student should have a baccalaureate degree from a recognized institution with pre-requisite training in zoology, botany, chemistry, physics, and mathematics. Qualified students lacking mandatory courses may be admitted but will be required by the student’s advisory committee to make up any deficiencies.

The MS program in entomology is available to qualified individuals who wish to pursue a master’s level program that requires a thesis. Importance is placed on both classroom and research training. The MS requires a minimum of 30 semester hours, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTM 6300</td>
<td>Systematic Entomology</td>
<td>5</td>
</tr>
<tr>
<td>ENTM 6440</td>
<td>Insect Morphology</td>
<td>5</td>
</tr>
<tr>
<td>ENTM 7200</td>
<td>Insect Physiology</td>
<td>4</td>
</tr>
<tr>
<td>ENTM 7950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>Thesis</td>
<td></td>
<td>1</td>
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</tbody>
</table>

Graduate Course Electives

- PLPA 6050 Plant Disease Diagnosis
- PLPA 6200/6206 Introductory Mycology
- PLPA 6400 Plant Virology
- PLPA 6500/6506 Plant Nematology
- PLPA 6920/ENTM 6920 Internship
- PLPA 7080 Field Survey of Plant Pathology
- PLPA 7300 Plant-Bacterial Interactions
- PLPA 7820 Research Proposal Writing
- PLPA 7860 Plant Disease Epidemiology
- PLPA 7861 Plant Disease Epidemiology Laboratory
- PLPA 7900/ENTM 7900 Directed Studies
- PLPA 7960/ENTM 7960 Special Problems
- PLPA 7930 Journal Review for Entomology and Plant Pathology
- STAT 7000 Experimental Statistics
- CSES 6010/6016 Analysis of Plant, Soil, and Animal Data
- BYMB Plant Physiology
- CSES 6100 Genetics
- CHEM 6180 Biochemistry
A graduate-level course in statistics is also required. A minimum of 21 semester hours must be taken in entomology and a specialty area of at least 10 semester hours may be selected from related subject matter fields. There is no language requirement for the MS degree.

The master of agriculture (MAg) program with a specialization in entomology is available to qualified applicants who wish to pursue a master's level program that does not require a thesis. The MAg with a specialization in entomology carries the same entrance requirements as the MS but is a non-thesis degree. The MAg requires a minimum of 32 semester hours, 21 of which must be in entomology, including:

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ENTM 6300</td>
<td>Systematic Entomology</td>
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<tr>
<td>ENTM 6440</td>
<td>Insect Morphology</td>
<td>5</td>
</tr>
<tr>
<td>ENTM 6920</td>
<td>Internship (strongly recommended)</td>
<td>3</td>
</tr>
<tr>
<td>ENTM 7200</td>
<td>Insect Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Course in Statistics (strongly recommended)

The remaining courses can be taken from a variety of subject areas determined in consultation with the student's advisory committee. A comprehensive examination is required after all courses are completed. There is no language requirement for the MAg degree.

The PhD program requires 60 semester hours of course work, including:

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>ENTM 7200</td>
<td>Insect Physiology</td>
<td>4</td>
</tr>
<tr>
<td>ENTM 8950</td>
<td>Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Dissertation based on the student’s original research

A graduate-level course in statistics is also required. Of the 60 semester hours, 30 must be graded graduate courses 6000 and above while registered in the PhD program. There is no language requirement for the PhD. Upon completion of the course work, PhD students must take a general written examination. Students must pass all parts of the written examination before scheduling the preliminary oral examinations (prelim). After satisfactory completing the prelim the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation. After completion of the dissertation the student must pass a final oral examination defending the dissertation.

**Entomology - MAg**

**MAg**

<table>
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<tr>
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</tr>
<tr>
<td>ENTM 6920</td>
<td>Internship (strongly recommended)</td>
<td>3</td>
</tr>
<tr>
<td>ENTM 7200</td>
<td>Insect Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Select 15 Credits in @ 6000-9999

Course in Statistics (strongly recommended)

**Total Hours** 32

**Entomology - MS**

**MS**

<table>
<thead>
<tr>
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<th>Credits</th>
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</thead>
<tbody>
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<tr>
<td>ENTM 7200</td>
<td>Insect Physiology</td>
<td>4</td>
</tr>
<tr>
<td>ENTM 7950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ENTM 7990</td>
<td>Research and Thesis</td>
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</table>

Select 11 Credits in @ 6000-9999 (Elective)

**Total Hours** 30
Entomology - PhD

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENTM 6300</td>
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<tr>
<td>ENTM 6440</td>
<td>Insect Morphology</td>
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</tr>
<tr>
<td>ENTM 7200</td>
<td>Insect Physiology</td>
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</tr>
<tr>
<td>ENTM 8950</td>
<td>Seminar</td>
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</tr>
<tr>
<td>ENTM 8990</td>
<td>Seminar</td>
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</table>

Select 34 Credits in @ 6000-8990

Dissertation based on the student’s original research

Total Hours: 60

Finance - MSBA, PHD

Degree Programs:
- Finance - MS (Thesis and non-thesis and on-campus and online options) (p. 1444)
- Finance - PhD (p. 1445)

The MSBA program offers specialized training to graduate students desiring a more intense background in the field relative to the general preparation provided by an MBA. The objective of the program is to prepare students for careers in their chosen profession or for further graduate work. The program has a thesis and non-thesis option (the non-thesis option requires additional course work). The program of study is determined by the student and the student’s advisory committee based on the student’s background and areas of interest. The program also offers a joint program leading to both the MSBA-Finance and MBA degrees.

The MBA/MSBA-Finance is a 54-hour program administered jointly by the Finance faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 3-credit hour internship. Students must apply separately to each program (MSBA-Finance and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The Ph.D. in Business with Concentration in Finance is a a research oriented degree that prepares students for careers in research and teaching. It provides the depth of knowledge and skills required to conduct first-rate research in the field and present those findings in world-class scholarly publications. Our faculty is supportive of our students and works closely with them. Students will typically work on a joint research project with one or more of their professors early in their program. Thus, students are quickly immersed in doing substantial research.

Ph.D. candidates must be full-time, year around students. The doctoral program requires the development of a sense of scientific curiosity that permeates the extensive coursework and inquiry that is required. The core coursework is an intensive study of the theory and empirical analysis of Finance, focused on Investments, Corporate Finance, and Financial Institutions and Markets. Most of the coursework can be completed in the first two years. Students without master's degrees or otherwise lacking an appropriate background may be required to take additional courses.

The preliminary exam is taken after the required coursework is completed. This will usually be at the beginning of the third year. After satisfactory completion of the exam, the last phase of the program is devoted to research, including the publication of articles and completion of the Ph.D. dissertation and its defense. The length of this phase of the program is expected to take two or more years.

Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

MSBA Finance

MSBA Finance Thesis (Option of MS in Business Administration, Management)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<tr>
<td>BUSI 7230</td>
<td>Cost Analysis and Systems</td>
<td>3</td>
</tr>
<tr>
<td>FINC 7650</td>
<td>Applied Financial Management</td>
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</tr>
<tr>
<td>FINC 7990</td>
<td>Research and Thesis</td>
<td>4</td>
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</tbody>
</table>
Select 12 Credits in FINC 6000-8990 (Electives) 12
Select 5 Credits in any approved @ 6000-8990 (Electives) 5
Total Hours 30

**MSBA Finance Non-Thesis (Option of MS in Business Administration, Management)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSI 7110</td>
<td>Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BUSI 7230</td>
<td>Cost Analysis and Systems</td>
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</tr>
<tr>
<td>FINC 7650</td>
<td>Applied Financial Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 12 Credits in FINC 6000-8990 (Electives) 12
Select 9 Credits in any approved @ 6000-8990 (Electives) 9
Total Hours 30

**MSBA Finance Thesis (Online) Option of MS in Business Administration, Management**

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<tr>
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<th>Credits</th>
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<td>Financial Analysis</td>
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</tr>
<tr>
<td>BUSI 7236</td>
<td>Cost Analysis and Systems</td>
<td>3</td>
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<tr>
<td>FINC 7656</td>
<td>Applied Financial Management</td>
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</table>

Select 12 Credits in FINC 6000-8990 (Electives) 12
Select 9 Credits in any approved @ 6000-8990 (Electives) 9
Total Hours 30

**MSBA Finance Non-Thesis (Online) Option of MS in Business Administration, Management**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>FINC 7656</td>
<td>Applied Financial Management</td>
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</table>

Select 12 Credits in FINC 6000-8990 (Electives) 12
Select 9 Credits in any approved @ 6000-8990 (Electives) 9
Total Hours 30

**Business - Finance Concentration (PhD)**

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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FINC 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
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</table>

Select 50 Credits in @ 6000-8999 50
Total Hours 60

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of FINC 8990. Enrollment in FINC 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.
Fisheries and Allied Aquacultures - MAq, MS, PhD

Degree Programs:
- Fisheries and Allied Aquacultures - MAq (p. 1447)
- Fisheries and Allied Aquacultures - MS (p. 1447)
- Fisheries and Allied Aquacultures - PhD (p. 1447)

The FAA graduate program prepares students for productive careers in academia and the private and public sectors in aquaculture, aquatic resource management and ecology, and fisheries biology and management. The Department offers graduate programs leading to the Master of Science (MS), Master of Aquaculture (MAq), and Doctor of Philosophy (PhD) degrees.

Students desiring admission for graduate study should have a degree from a recognized academic institution, adequate course work in biology, zoology, botany, chemistry, physics, and mathematics and submit GRE scores. Qualified students lacking an adequate background in these areas may be admitted but may be required to correct deficiencies after they enroll at Auburn. Applicants must also meet minimum requirements of the Graduate School including English language requirements. Evaluation of applicants includes academic records, GPA, GRE scores, letters of recommendation, and past professional history.

The MAq is a non-thesis degree that prepares a student for a career in aquaculture management or extension. The degree requires successful completion of a minimum of 40 semester hours beyond the bachelors’ degree and includes a 3 to 5 - month internship. Included in the 40 hours are:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FISH 6210</td>
<td>Principles of Aquaculture</td>
<td>3</td>
</tr>
<tr>
<td>FISH 6220</td>
<td>Water Science</td>
<td>3</td>
</tr>
<tr>
<td>FISH 6240</td>
<td>Hatchery Management</td>
<td>4</td>
</tr>
<tr>
<td>FISH 6250</td>
<td>Aquaculture Production</td>
<td>4</td>
</tr>
<tr>
<td>FISH 6410</td>
<td>Introduction to Fish Health</td>
<td>3</td>
</tr>
<tr>
<td>FISH 7640</td>
<td>Fish Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

Business-related courses 6-12

In addition, students must pass a comprehensive oral examination after completion of all course work and internship.

The Master of Science degree prepares the student for aquatic resource or aquaculture related careers as well as further studies toward a PhD degree. A minimum of 30 semester hours of 6000-level or above is required. A minimum of 21 semester hours (which includes FISH 7990) of 6000-level and above courses must be taken within the major area of concentration and at least an additional 9 hours taken in a separate but closely related area of concentration. A minimum of 4 semester hours of FISH 7990 (Research and Thesis) is required but no more than 6 semester hours may be counted toward the degree. In addition to the required course work, the student must complete research and a written thesis and pass a comprehensive examination on research and course work as defined by the student’s advisory committee.

Admission to the Doctor of Philosophy degree program usually requires that the student has a master’s degree from a recognized graduate program. The doctoral program emphasizes original scholarly research and includes significant advanced coursework. The PhD degree requires a minimum of 60 semester credit hours beyond the bachelor’s degree, of which a minimum of 31 hours must be taken through Auburn University, and a dissertation describing original research. A minimum of 30 hours must be graded graduate courses. The minimum and maximum number of hours of dissertation research (FISH 8990) is 10. Students must pass a general examination, often called the “preliminary examination,” typically taken after all graded course work is completed, to become a PhD candidate. The exam includes a written exam followed by an oral exam. The student becomes a candidate for the degree on successful completion of the general examination. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

All graduate students are expected to be engaged in service to the department’s research and education programs as deemed appropriate by the academic adviser and department head. All students receiving departmental assistantships must be registered for at least one course (any course of at least 1 credit hour carrying an Auburn University course number) during each academic term of the assistantship. International students must meet visa requirements for coursework load. All graduate students must present an exit seminar in the department for which credit will be given as either FISH 7950 for master’s or FISH 8950 for PhD’s.
### Fisheries and Allied Aquacultures - MAq

<table>
<thead>
<tr>
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<tr>
<td>FISH 6410</td>
<td>Introduction to Fish Health</td>
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<tr>
<td>FISH 7640</td>
<td>Fish Nutrition</td>
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<tr>
<td>FISH 7920</td>
<td>Internship in Fisheries and Aquaculture</td>
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<tr>
<td>FISH 7950</td>
<td>Graduate Research Seminar</td>
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Select 9-13 Credits in @ 6000-8999
Business-related courses
**Total Hours**: 40

### Fisheries, Aquaculture, and Aquatic Sciences - MS

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<tr>
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<tr>
<td>FISH 7990</td>
<td>Research and Thesis</td>
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Select 23-25 Credits in @ 6000-8999 (Electives)
See your advisor in order to determine the course that will be required for the area of concentration.
**Total Hours**: 30

### Fisheries, Aquaculture, and Aquatic Sciences - PhD

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<tr>
<td>FISH 8990</td>
<td>Research and Dissertation</td>
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Select 49 Credits in @ 6000-8999 (Electives)
**Total Hours**: 60

### Food Science - ABM

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<tr>
<td>Fall</td>
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<td>Fundamentals Chemistry I</td>
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<td>CHEM 1031</td>
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<td>ENGL 1100</td>
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<td>MATH 1610</td>
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<td>BIOL 1021 Principles of Biology</td>
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<td>Laboratory Core Fine Arts</td>
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<tr>
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<td>CHEM 1041</td>
<td>Fundamental Chemistry II Laboratory</td>
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<td>ENGL 1120</td>
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<td>NTRI 2000</td>
<td>Nutrition And Health</td>
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<td>BIOL 1020</td>
<td>Principles of Biology</td>
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**Total Hours**: 14 17
### Sophomore

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<tr>
<td>PHYS 1000 Foundations of Physics</td>
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<td>CHEM 2030 Survey of Organic Chemistry</td>
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<td>Core History 2</td>
<td>3</td>
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<td>Food Sciences Electives¹</td>
<td>3</td>
<td>ECON 2020 Principles of Microeconomics or 2030 Principles of Macroeconomics</td>
<td>3</td>
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<td></td>
<td></td>
<td>Free Elective or ROTC</td>
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### Junior

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<td>FDSC 5660 Food Microbiology</td>
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<td>POUL 5140 Poultry Further Processing and Products or ANSC 4700 Meat Processing</td>
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<td>FDSC 5450 Food Analysis and Quality Control</td>
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<td>BCHE 3200 Principles of Biochemistry or 3180 Nutritional Biochemistry</td>
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<td>FDSC 5730 Sensory Evaluation</td>
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### Senior

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<td>FDSC 6770 Food Plant Sanitation</td>
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<td>FDSC 5640 Food Product Development</td>
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<td>FDSC 4290 Professional Development in Food Science</td>
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<td>POUL 6160 Advanced Principles of Food Safety</td>
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<td>BSEN 5550 Principles of Food Engineering Technology</td>
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<td>Humanities Core (PHIL)</td>
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<td>STAT 2510 Statistics for Biological and Health Sciences</td>
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<td>Food Science Electives¹</td>
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<td>Food Science Elective or ROTC¹</td>
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<td>UNIV 4AA0 University Graduation</td>
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<td><strong>Total</strong></td>
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Total Hours: 124

¹ Must include one of the following: POUL 1000, CSES 1000, ANSC 1000, or ANSC 2720. For remaining food science electives, see advisor or DegreeWorks for approved list.

² POUL 5140 (3 credit, Spring semester) or ANSC 4700 (4 credit, Fall semester).
A graduate degree option in Food Science is offered through the Department of Poultry Science. Students pursuing graduate studies in Food Science can earn Master of Agriculture, Master of Science, and Doctor of Philosophy degrees. These degrees are designed to prepare outstanding students for careers in the food industry, government, and academia. Research training and experience can be acquired in the specialized areas of food safety/microbiology, food quality, food chemistry, or processing and product technology.

Applicants apply through the Department of Poultry Science and must indicate their desire to pursue graduate studies in Food Science. All applications are reviewed by the departmental Graduate Committee. Application materials include: official copies of all college transcripts, GRE scores, TOEFL scores (for international students), 3 letters of recommendation, a resume, and a statement of purpose. Transcripts and test scores are sent directly to the Graduate School. The letters of recommendation may either be submitted online (preferred) or mailed to the graduate program officer. The resume and statement of purpose are sent to the graduate program officer at the departmental address or via email attachment. To pursue MS or MAg degrees in food science, applicants must have a bachelor's degree in food science, nutrition, chemistry, biology, food engineering, or allied sciences from a recognized institution with a minimum GPA of 3.0 out of 4.0. Verbal and analytical GRE scores should each be near the 50th percentile. A MS degree in a relevant field is required to be considered for admission into the PhD program. The course of study, developed by the student and the advisory committee, may include additional courses to address specific needs or course work deficiencies.

Additional information about requirements, policies, and availability of financial support can be obtained from the graduate program officer for the Food Science Option in Poultry Science (bellleo@auburn.edu).

**MS/MAg Degree Requirements**

1. The Master of Science (MS degree) requires a research project with a formal written thesis while the Master of Agriculture (MAg) requires a research project with written report. The MS degree requires a minimum of 30 semester credit hours. The MAg degree requires 33 semester credit hours. Both MS and MAg degrees require a comprehensive final oral examination.

2. The Food Science Core Curriculum –
   - FDSC 6430 Food Chemistry 4
   - POUL 6160 Advanced Principles of Food Safety 3
   - STAT 7000 Experimental Statistics I 4
   - FDSC 7950 Graduate Seminar 1
   - FDSC 7980 Nonthesis Research (4 cr) 1-4
   or FDSC 7990 Research And Thesis

3. Food Science Electives – MS students must take 4 food science electives chosen in consultation with the major professor and advisory committee. MAg students must take 5 food science electives. Free electives may be used to acquire the required 30 semester hours (MS) or 33 semester hours (MAg).
PhD Degree Requirements

1. For the PhD degree, a minimum of 30 semester hours of graduate coursework beyond the MS (60 hours beyond the bachelor's degree) is required.

2. The Food Science Core Curriculum –
   - FDSC 6430 Food Chemistry 4
   - POUL 6160 Advanced Principles of Food Safety 3
   - FDSC 7950 Graduate Seminar (taken twice for 2 total credits) 1
   - STAT 7000 Experimental Statistics I 4
   - STAT 7010 Experimental Statistics II 3
   - FDSC 8990 Research and Dissertation (10 hours) 1-10

3. Food Science Electives – PhD students must take 5 food science electives chosen in consultation with the major professor and advisory committee. Free electives may be used to acquire the required 60 semester hours.

4. Examinations – Upon completion of course work, students must pass general written examinations administered by the advisory committee, followed by a comprehensive preliminary oral examination. After satisfactory completion of these exams, the student advances to candidacy. A dissertation based on an independent research project is required to earn a PhD degree. After completion of the dissertation, the student must pass a final Doctoral oral examination defending the dissertation.

Food Science - ABM

Freshman

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<tr>
<th>Fall</th>
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<th>Spring</th>
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<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
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<td>CHEM 1040 Fundamental Chemistry II</td>
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<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
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<td>ENGL 1100 English Composition I</td>
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<td>ENGL 1120 English Composition II</td>
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<td>MATH 1610 Calculus I</td>
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<td>NTRI 2000 Nutrition And Health</td>
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<td>FDSC 1000 Introductory Food Science</td>
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<td>BIOL 1020 Principles of Biology &amp; BIOL 1021 Principles of Biology Laboratory</td>
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<tr>
<td></td>
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| Total                | 14    | 17                       |

Sophomore

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<tr>
<td>PHYS 1000 Foundations of Physics</td>
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<td>CHEM 2030 Survey of Organic Chemistry</td>
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<tr>
<td>COMM 1000 Public Speaking</td>
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<td>BIOL 3200 General Microbiology &amp; BIOL 3201 General Microbiology Laboratory</td>
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<td>Core History 1</td>
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<td>Core History 2</td>
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<tr>
<td>Core Literature</td>
<td>3</td>
<td>ECON 2020 Principles of Microeconomics or 2030 Principles of Macroeconomics</td>
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<tr>
<td>Food Science Elective¹</td>
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<td>Free Elective or ROTC</td>
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| Total                | 16    | 16                       |

¹Excluding those chosen to complete the required 60 semester hours.
### Junior

<table>
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<td>POUL 5140 Poultry Further Processing and Products <em>or</em> ANSC 4700 Meat Processing</td>
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<td>BCHE 3200 Principles of Biochemistry <em>or</em> 3180 Nutritional Biochemistry</td>
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<td>Core Social Science</td>
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**Total:** 13-14

### Senior

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<td>FDSC 6770 Food Plant Sanitation</td>
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<tr>
<td>BSEN 5550 Principles of Food Engineering Technology</td>
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**Total:** 15-16

1. See advisor for list.
2. 124 credits required for the B.S. in Food Science

### Graduate Year 1

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### Spring

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<td>FDSC 7950 Graduate Seminar</td>
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<td>FDSC 7990 Research And Thesis</td>
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**Total Hours in M.S.:** 30

### Food Science - MAg

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<td>FDSC 7980 Nonthesis Research</td>
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<tr>
<td>POUL 6160 Advanced Principles of Food Safety</td>
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Food Science - MS

MS
FDSC 6430 Food Chemistry 4
FDSC 7990 Research And Thesis 4
POUL 6160 Advanced Principles of Food Safety 3
STAT 7000 Experimental Statistics I 4
FDSC 7950 Graduate Seminar 1
Select 17 Credits @ 6000-8999 (must include 5 food science electives - see advisor) 17
Total Hours 33

Food Science - PhD

PhD
FDSC 6430 Food Chemistry 4
POUL 6160 Advanced Principles of Food Safety 3
POUL 8990 Research and Dissertation 10
FDSC 7950 Graduate Seminar 2
STAT 7000 Experimental Statistics I 4
STAT 7010 Experimental Statistics II 3
Select 34 Credits @ 6000-8999 (must include 5 food science electives - see advisor) 34
Total Hours 60

1Taken twice for 1 credit each time.

Forest Finance & Investment - Graduate Certificate

Graduate Certificate in Forest Finance & Investment Requirements

This Graduate Certificate will prepare students to be more knowledgeable in operating their forest business and forest finance and investment decision-making. The program will stress critical thinking and problem-solving skills that are required by employers today and running a forest-based business. The Forest Finance and Investment Certificate is designed to (1) provide graduate-level education for those seeking advanced positions in forest business, and (2) to place students in a position so that they can continue their graduate education.

The certificate requires 15 credits of course work completed of the list of the courses below. Students with a Forestry Background will need to take FORY 7406, FORY 7516, FORY 7626, FINC 7626 and BUSI 7116. Students without a forestry background will be required to take FORY 7326 Forest Growth, Silviculture and Management and any 4 of the other courses for their 15 credits.

FORY 7326 Forest Growth, Silviculture, and Management 3
FORY 7406 Forest Valuation and Economics 3
FORY 7516 Forest Operations and Wood Supply Chain Management 3
FORY 7626 Forest Finance, Accounting and Taxation 3
FINC 7646 Advanced Investments 3
BUSI 7116 Financial Analysis 3

FORY 7326 Forest Growth, Silviculture, and Management will be required of students that do not have a Forestry Background.
Forestry - MNR, MS, PhD

Degree Programs:

• Forestry - MS (p. 1454)
• Forestry - PhD (p. 1454)
• Forestry - PhD Applied Economics (p. 1453)
• Forest Finance & Investment - Graduate Certificate

Graduate study in forestry leads to the Master of Natural Resources (MNR), Master of Science (MS), or Doctor of Philosophy (PhD) degrees. In addition to meeting Graduate School admission requirements, applicants are evaluated and recommended for admission by the graduate faculty of the School of Forestry and Wildlife Sciences based on an examination of scores on the TOEFL tests for international students, previous academic records, experience, and recommendations. While exceptions may be made, the faculty generally expect a minimum GPA of 3.0 in previous academic course work. Course deficiencies are identified by the student’s advisory committee and approved by the GPO with due consideration for the student’s previous training and experience.

Degrees offered:

• **Master of Natural Resources** - The MNR is a non-thesis degree.

  **Natural Resource Management** is available for individuals with a baccalaureate degree who are interested in careers in the natural resources arena. This degree can be completed in 3-4 semesters depending upon coursework selected and requires a minimum of 30 semester hours of graduate courses.

  **Professional Forester** track is for individuals with baccalaureate degrees in fields other than forestry and who are interested in becoming Registered Foresters in Alabama. This track is a two-year program which begins with a 10 week summer Field Practicum and requires a minimum of 64 semester hours (34 hours of specified undergraduate course work plus 30 hours of graduate course work).

• **Master of Science (MS)** A research proposal and thesis based on original research are required components for the MS degree. The program normally requires 2 – 3 years for completion, and can be tailored for students with interests in forest management, ecology and environmental sciences, economics, engineering, or business. The MS degree program requires a minimum of 30 hours beyond the bachelor degree at the graduate level, 21 hours of which must be in the major. A minimum of 4 but not more than 6 hours in Research and Thesis (FORY 7990) is required. All MS students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950).

• **Doctor of Philosophy (PhD)** may be tailored for any of the topical areas listed under the M.S. A research proposal and dissertation based on original research are required components for the PhD degree program. The degree requires 60 semester hours beyond the bachelor degree. There must be a minimum of 30 semester hours in graded coursework at the 7000-level or above. Of the remaining 30 semester hours, 10 hours must be Research and Dissertation (FORY 8990) and 20 hours of 6000-level or above. While some of these 60 hours can be from previous graduate work, such as a MS degree, the majority of hours of graded coursework at the 6000-level or above must be completed at Auburn. All PhD students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950). Oral and written preliminary exams are required for advancement to candidacy; The preliminary exams must be completed no less than two academic terms prior to graduation. The written and oral preliminary examinations for PhD students will normally consist of questions from each committee member regarding technical competency and other related issues.

An urban forestry minor, administered in cooperation with the Department of Horticulture, is available for MNR, MS, and PhD degrees.

PhD in Applied Economics

**PhD in Applied Economics** is administered jointly by the Department of Economics, the Department of Agricultural Economics and Rural Sociology, and the School of Forestry and Wildlife Sciences. Forestry students in this program will take core courses in microeconomics, macroeconomics, and econometrics in the Department of Economics and pass written preliminary exams given there. An additional oral examination is required in the SFWS for admission to candidacy. The minimum number of hours in this doctoral program is 60 semester hours earned through instruction beyond the bachelor’s degree, including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (7000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990 and must include at least 10 hours of 8990. As with all other PhD students in the SFWS, students are required to take Research Methods (FORY 7510) and Seminar (FOWS 7950).
Dissertation work under this degree program generally involves in-depth economic analysis of a forestry/natural resources/environment issue or problem.

### Allied Economics Forestry (PhD)

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<th>Course Title</th>
<th>Credits</th>
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<td>FOWS 7950</td>
<td>Graduate Seminar</td>
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<tr>
<td>FORY 8990</td>
<td>Research and Dissertation</td>
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<td>Select 37 Credits in @ 6000-8999 (Electives)</td>
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### Forestry - MS

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<td>FOWS 7950</td>
<td>Graduate Seminar</td>
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<td>FORY 7990</td>
<td>Research and Thesis</td>
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<td>Select 21-23 Credits in @ 6000-8999 (Electives)</td>
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### Forestry - PhD

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 7510</td>
<td>Research Methods</td>
<td>2</td>
</tr>
<tr>
<td>FOWS 7950</td>
<td>Graduate Seminar</td>
<td>1</td>
</tr>
<tr>
<td>FORY 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Select 47 Credits in @ 6000-8999 (Electives)</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Total Hours</td>
<td>60</td>
</tr>
</tbody>
</table>

### Geographic Information Science - Graduate Certificate

<table>
<thead>
<tr>
<th>Professional Year</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GEOG 6830 Geographic Information Systems</td>
<td>4</td>
<td>GEOG 6880 Advanced Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GEOG 6820 Aerial Photography and Remote Sensing</td>
<td>4</td>
<td>GEOG 6700 Quant Meth &amp; Spatial Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Hours: 17</td>
<td>8</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

### Geography - MS

Graduate study in geography is directed toward the master of science degree. The MS degree provides an advanced understanding of key geographical concepts of space, scale, and distance in human and physical processes along with training in advanced geospatial analysis in preparation for employment in industry and government or further academic pursuits. The curriculum is oriented toward a broad applied geographic training with opportunity for specialization through electives, directed studies, and thesis or capstone research.

Admission into the master's program requires a bachelor's degree in geography or related discipline from an accredited institution, an acceptable undergraduate GPA, satisfactory scores on the Graduate Record Examination general test, and three letters of
recommendation. Undergraduate course deficiencies may be required and can be made up during the student's first year in the degree program.

The thesis option MS degree requires a minimum of 30 semester hours and the successful completion of a thesis. The 30 hours include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 6800</td>
<td>Geographic Thought</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 6700</td>
<td>Quant Meth &amp; Spatial Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Graduate-level Geography Courses 6

Graduate Level Electives 1 18

Total Hours 30

1 12 hours must come from geography.

The non-thesis option requires a minimum of 39 semester hours and the successful completion of a comprehensive written and oral examination by the faculty committee. The 39 hours include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 6800</td>
<td>Geographic Thought</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 6700</td>
<td>Quant Meth &amp; Spatial Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Graduate Level Electives 1 33

Total Hours 39

1 18 hours must come from geography.

**Geography, ABM**

The Accelerated Bachelors/Masters of Geography degree program provides an opportunity for highly-motivated students to gain an in-depth understanding of materials related to geography beyond that of typical bachelor's level graduates and make them more competitive for the employment of graduate studies. The accelerated degree program also allows an opportunity for students involved in undergraduate research to build upon those efforts and develop them into a master's thesis. In addition, the ABM program in Geography allows students to complete both a bachelor's and master's degree in five calendar years by allowing undergraduates to enroll in graduate level classes during their senior year. Application and Matriculation requirements apply to interested students. Please see the Department of Geology and Geography website for additional information:

http://www.auburn.edu/cosam/departments/geosciences/index.htm

**Senior Year for Students in Accelerated Degree Program**

The courses indicated in boldface type would be used by students enrolled in the Accelerated Master's program to meet nine undergraduate hours in Geography Electives during their senior year and nine graduate credit hours (including two courses required of all MS Geography students and a graduate Geography Elective) during their first year of the graduate program. All courses at the 6000-level are also offered at the 5000-level; however, those at the graduate level have additional requirements and higher expectations.

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 5820/6820</td>
<td>Aerial Photography and Remote Sensing</td>
<td>4 GEOF 6XXX: GEOG Elective</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>GEOG 6700</td>
<td>Quant Meth &amp; Spatial Analysis</td>
<td>3 GEOF 6800 Geographic Thought</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GEOG Elective</td>
<td></td>
<td>3</td>
<td>Elective</td>
<td>8</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 27

**Accelerated Master of Science in Geography Curriculum Model**
First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 6700 Quant Meth &amp; Spatial Analysis</td>
<td>3</td>
<td>GEOG 6XXX: GEOG Elective&lt;sup&gt;*&lt;/sup&gt;</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GEOG 6800 Geographic Thought</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG Elective</td>
<td>6</td>
<td>GEOG Elective</td>
<td>3</td>
</tr>
<tr>
<td>GEOG Elective or approval external elective</td>
<td>3</td>
<td>GEOG Elective or approved external elective</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 7990 M.S. Research and Thesis</td>
<td>3</td>
<td>GEOG 7990 M.S. Research and Thesis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 30

The M.S. degree in Geography only has two required courses (GEOG 6700 and GEOG 6800) with the remainder of the coursework comprised of 18 graduate-level credit hours (12 of which must come from Geography). Students also complete 6 credit hours of research and thesis.

### Geology - ABM

#### Freshman

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100 English Composition I</td>
<td>3</td>
<td>ENGL 1120 English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 1100 Dynamic Earth</td>
<td>4</td>
<td>GEOL 1110 Earth and Life Through Time</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 1030 Fundamentals Chemistry I</td>
<td>3</td>
<td>CHEM 1040 Fundamental Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1031 Fundamental Chemistry I Laboratory</td>
<td>1</td>
<td>CHEM 1041 Fundamental Chemistry II Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>Core History I</td>
<td>3</td>
<td>Core History II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1020 Principles of Biology</td>
<td>3</td>
<td>BIOL 1030 Organismal Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 1021 Principles of Biology Laboratory</td>
<td>1</td>
<td>BIOL 1031 Organismal Biology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 2010 Mineralogy and Optical Crystallography</td>
<td>5</td>
<td>GEOL 2050 Igneous and Metamorphic Petrology</td>
<td>4</td>
</tr>
<tr>
<td>MATH 1610 Calculus I</td>
<td>4</td>
<td>MATH 1620 Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 2000 Professional Development</td>
<td>1</td>
<td>Core Literature I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>15</td>
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</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
<th>Summer</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1500 General Physics I</td>
<td>4</td>
<td>PHYS 1510 General Physics II</td>
<td>4</td>
<td>GEOL 3650 Field Camp</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Fall Hours</td>
<td>Spring Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------</td>
<td>--------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOL 3200 Introduction to Paleobiology</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Elective $^1$</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOL Elective $^1$</td>
<td>3</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Core Fine Arts</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**First Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 4010 Sedimentary Petrology</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>GEOL Elective: GEOL 6XXX $^*$</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 5830 Geographic Information Systems</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Core Humanities</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 7100 Geocommunication $^*$</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16</td>
<td>15</td>
</tr>
</tbody>
</table>

Total Hours: 124

**Second Year**

<table>
<thead>
<tr>
<th>Course</th>
<th>Fall Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 6XXX/7XXX</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>GEOL Elective: GEOL 6XXX</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 7990 Research and Thesis</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses in **BOLD** will be used to calculate GPA in major.
Options for courses labeled CORE are in the Auburn University Bulletin (www.auburn.edu/bulletin) under Core Curriculum.

$^1$ Approved Technical and Geology electives.

$^2$ GEOG 1010 Global Geography is suggested for majors.

**Geology Electives:** 12 hours required. Geology electives may be selected from the following groups of courses with **NO MORE THAN 4** hours coming from group B.

**GEOL Group A Electives:**
- GEOL 4210 (3) Economic Geology
- GEOL 4260 (3) Geochemistry
- GEOL 5060 (4) Invertebrate Paleontology
- GEOL 5100 (3) Hydrogeology
- GEOL 5300 (3) Basin Analysis
- GEOL 5600 (4) Applied Geophysics
- GEOG 5220 (3) Geomorphology

**GEOL Group B Electives:**
- GEOL 3060 (3) Lunar and Planetary Geology
- GEOL 4930 Actualistic Paleontology
- GEOL 4930 Ichnology
- GEOL 4930 (1) Carbonate Depositional Systems
- GEOL 4930 Unspecified Directed Study (no more than 2 hours)
- GEOL 4980 Unspecified Research Methods (no more than 2 hours)
Geology - MS

Graduate study in geology leads to the master of science. The graduate program is oriented toward providing a sound practical background in preparation for employment in industry or government service or further academic pursuits. The curriculum provides broad training in geology with the opportunity for specialization through electives, directed studies, and thesis or capstone research.

Admission into the master's program requires a bachelor's degree in geology (or related Earth science discipline) from an accredited institution with 40 semester hours in geology, an acceptable undergraduate GPA, satisfactory scores on the Graduate Record Examination general test, and three letters of recommendation. Undergraduate course deficiencies may be made up during the student's first year in the degree program.

The thesis option MS degree in geology requires a minimum of 30 semester hours and completion of a thesis. The 30 hours include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 7100</td>
<td>Geocommunication</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 7990</td>
<td>Research and Thesis</td>
<td>4-6</td>
</tr>
<tr>
<td>Graduate-level Geology Courses</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Approved 6000- or 7000-level Geology or Supportive Electives</td>
<td>5-3</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 30

1. No more than 3 hours of which can be GEOL 7930-Directed Study

Students electing the non-thesis option must complete a minimum of 40 semester hours and a capstone project. The 40 hours include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 7100</td>
<td>Geocommunication</td>
<td>3</td>
</tr>
<tr>
<td>Graduate-level Geology Courses</td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>Approved 6000- or 7000-level Geology or Approved Electives</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 40

1. All or a portion of which may be GEOL 7930-Directed Study or GEOL 7980- Capstone Project.

Both degree options require (1) satisfactory completion of a summer field course or comparable field experience prior to beginning the second year of residence and (2) demonstrated working knowledge of a computer language or computer-based geographic information system (G.I.S.) before graduation.

Health Equity Science - Graduate Certificate

The graduate Certificate in Health Equity Science (CHES) is administered through the College of Human Sciences (CHS) under the purview of the Center for Health Ecology and Equity Research (CHEER). The graduate CHES is part of the training mission of CHEER, which is aimed at cultivating scholarship on health ecology and equity, and developing leaders committed to address health inequities. This is achieved by helping students acquire a strong foundation of knowledge on health ecology and equity issues. In addition, the graduate CHES exposes students to a breadth of advanced topics in health ecology and equity and facilitates gaining depth of knowledge on specialized topics. Graduate students completing this certificate will have a strong understanding of the role of
social context in generating disease risks and disparities in health between groups; and also learn how this corpus of knowledge can be translated into health-promoting policies and community-level interventions. They also have the opportunity to gain skills in research on a specific health equity topic through thesis or dissertation research.

The graduate CHES requires 9 semester hours of which all must be at the 6000-level or higher. Completion of this certificate will appear on the official Auburn University transcript. Students earn the certificate by completing:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUSC 6930</td>
<td>Society and Health</td>
<td>3</td>
</tr>
<tr>
<td>HUSC 6950</td>
<td>Seminar on Health Ecology and Equity</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Four (4) additional semester hours through elective courses:</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 6300</td>
<td>HDFS and Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>HUSC 6950</td>
<td>Seminar on Health Ecology and Equity (can be repeated once)</td>
<td>2</td>
</tr>
</tbody>
</table>

Courses approved by the Director of the Center for Health Ecology and Equity Research.

Total Hours 9

**Pharmaceutical Sciences: Health Outcomes Research and Policy Option - MS**

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000 - 8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below.

**Scientific Communications (Three credits required)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 7950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Data Analyses and Interpretation (Three credits required)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7010</td>
<td>Pharmacokinetics</td>
<td></td>
</tr>
<tr>
<td>DRDD 7030</td>
<td>Drug Products and Biopharm</td>
<td></td>
</tr>
<tr>
<td>DRDD 7230</td>
<td>Advanced Medicinal Chemistry I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7340</td>
<td>Organ Systems Pharmacology I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7360</td>
<td>Cellular &amp; Molecular Pharmacology &amp; Toxicology I</td>
<td></td>
</tr>
<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
<td></td>
</tr>
</tbody>
</table>

**Experimental Design (Three credits required)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 7990</td>
<td>Research And Thesis (may be repeated multiple times for credit)</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7990</td>
<td>Research and Thesis (may be repeated multiple times for credit)</td>
<td>3</td>
</tr>
</tbody>
</table>

Option specific requirements for MS students pursuing the Health Outcomes Research and Policy option include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 7510</td>
<td>Health Services Delivery and Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>
### Pharmaceutical Sciences: Health Outcomes Research and Policy Option - PhD

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor’s degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000 - 8999), and 2) a minimum of 30 semester hours of additional graduate course work (6000 - 8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

#### Scientific Communications (Six credits required)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 8950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
<td>1</td>
</tr>
<tr>
<td>DRDD 8950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
<td>1</td>
</tr>
<tr>
<td>DRDD 7000</td>
<td>Introduction to Grant Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Data Analyses and Interpretation (Six credits required)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
<td>3</td>
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<td>MNST 8400</td>
<td>Advanced Quantitative Methods for Management I</td>
<td>3</td>
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<tr>
<td>DRDD 7010</td>
<td>Pharmacokinetics</td>
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<tr>
<td>DRDD 7030</td>
<td>Drug Products and Biopharm</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7230</td>
<td>ADVANCED MEDICINAL CHEMISTRY I</td>
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<tr>
<td>DRDD 7240</td>
<td>ADVANCED MEDICINAL CHEMISTRY II</td>
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<td>DRDD 7340</td>
<td>ORGAN SYSTEMS PHARMACOLOGY I</td>
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<td>DRDD 7350</td>
<td>ORGAN SYSTEMS PHARMACOLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7360</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
<td>3</td>
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</tbody>
</table>

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 30 hour degree requirement.
### History - MA, PhD, Graduate Certificates

**Degree Program:**
- History - MA (p. 1464)
- History - PhD (p. 1464)

**Graduate Certificate:**
- Archival Studies (p. 1464)
- Public History (p. 1464)

The Department of History offers two graduate programs: the Master of Arts in History and the PhD in History. Additionally, the department offers Graduate Certificates in Public History and in Archival Studies. The graduate programs prepare students for careers in teaching, public history, archival management, government, and research. More information is available at [http://cla.auburn.edu/history/students/graduate-students/](http://cla.auburn.edu/history/students/graduate-students/).

**MA in History**

**Admission Requirements**

For admission to the MA program, the student must have a bachelor’s degree from an accredited institution and a satisfactory score on the General Test of the GRE. For more information about the Department of History’s expectations for admission, see [http://cla.auburn.edu/history/students/graduate-students/admissions/](http://cla.auburn.edu/history/students/graduate-students/admissions/). Applications must be approved by the department’s graduate committee. Applicants lacking course requirements must make up deficiencies before or after admission to the degree program. The committee’s decisions are based on a review of all application materials. A minimum GRE score on its own does not guarantee acceptance.

Applicants will submit the following materials for consideration:

- Official transcripts from all undergraduate and graduate institutions
- Official scores from the General Test of the GRE sent from ETS
- A writing sample
- A statement of purpose
- An application for an assistantship (for those who wish to be considered for funding—note earlier application deadline for assistantships)
- Three confidential letters of recommendation
All materials for admission to the MA in History are due on March 15. January 15 is the due date for those wishing to be considered for assistantships.

MA Requirements
The MA requires a minimum of 31 hours and a thesis. Of the 31 hours, 21 must be in seminar courses, including HIST 7700 Seminar in Historical Methods and one research seminar. In addition to possible concentrations in United States history, European history, and the history of technology, the MA program offers specializations in archival studies and public history, including practical training (a 3-hour required internship). The Department does not admit students to pursue non-thesis MA degrees, but a MA degree (non-thesis) can be awarded to students in the doctoral program who have not previously earned the master’s upon passing the general examination for admission to candidacy for the PhD.

There is no language requirement for the MA degree.

PhD in History
Admission Requirements
For admission to the PhD program, the student must have a bachelor’s degree from an accredited institution and a satisfactory score on the General Test of the GRE. For more information about the Department of History’s expectations for admission, see http://cla.auburn.edu/history/students/graduate-students/admissions/. Applications must be approved by the department’s graduate committee. The committee’s decisions on admission are based on a review of all application materials. A minimum GRE score on its own does not guarantee acceptance.

Applicants will submit the following materials for consideration:
- Official transcripts from all undergraduate and graduate institutions
- Official scores from the General Test of the GRE sent from ETS
- A writing sample
- A statement of purpose
- An application for an assistantship (for those who wish to be considered for funding--note earlier application deadline for assistantships)
- Three confidential letters of recommendation

All materials for admission to the PhD in History are due on March 15. January 15 is the due date for those wishing to be considered for assistantships.

PhD Requirements
The program requires a minimum of 65 semester hours beyond the bachelor’s degree, written and oral examinations, a dissertation and oral defense, and reading knowledge of at least one foreign language. Of the 65 hours, 43 must be at the 7000- or 8000-level, including at least 3 hours and not more than 6 hours in research seminars. The 65 semester hours include 10 hours of Research and Dissertation credit.

Three courses are required:
- HIST 7700 Seminar in Historical Methods
- HIST 8700 Historiography and Theory of History
- HIST 8710 Introduction to the Teaching of History

Major fields in history include the following:
- United States to 1865
- United States since 1865
- Europe 1500-1789
- Europe since 1789
- History of Technology

In addition to the major field, students must construct two minor fields with a minimum of 9 hours of course work in each, and one breadth field with a minimum of 6 hours of course work. In each minor field at least one course must be a seminar, and no more than one independent readings course is allowed. Minor fields and specializations are offered in all of the preceding fields and additionally
in Latin American history, world history, public history, archival studies, and other fields as approved by the department graduate committee. Students must have World History as either the breadth field or one of the minor fields. As part of this requirement, they will take at least one seminar that addresses current debates in the field of World History, for example, HIST 7690 Seminar in Modern World History. Other courses may focus more narrowly on some aspect of non-European, non-United States history. With the approval of the GPO and committee members, a minor field or breadth field may be constructed in a discipline other than history.

To advance to candidacy, students must demonstrate excellence in their major field of history and competence in two minor fields of history on their general examinations through written and oral examinations. These examinations need to be successfully completed in the semester immediately following the completion of course work.

Within four months of successful completion of the oral examination, students present to the assembled dissertation committee a dissertation proposal for discussion and approval. Following a successful defense of the proposal, doctoral candidates have four years to present the written dissertation and defend it in an oral examination before their major professor and advisory committee. If the oral examination is judged unsatisfactory or not submitted in a timely manner, the general rules of the Graduate School on retests and extension will apply.

The PhD requires a reading knowledge of at least one foreign language as determined by the student’s doctoral committee. Language competency should be demonstrated before the student begins the fourth semester of the doctoral program.

Graduate Certificates in Archival Studies and Public History

In most circumstances, only students enrolled in a degree program in history or those who have completed an MA in History may enter the graduate certificate non-degree programs in history. However, applicants who have completed a master's degree in an allied field may be eligible for admission to the Graduate Certificate in Archival Studies or Public History.

Admission Requirements

If applicants are not simultaneously seeking to matriculate into the MA or PhD program, they must have a MA in History or a related field and a satisfactory score on the General Test of the GRE. Applications must be approved by the Archival Studies or Public History program officers and by the department's graduate committee.

Applicants will submit the following materials for consideration:

- Official transcripts from all undergraduate and graduate institutions
- Official scores from the General Test of the GRE sent from ETS
- A writing sample
- A statement of purpose
- An application for an assistantship (for those who wish to be considered for funding--note earlier application deadline for assistantships)
- Three confidential letters of recommendation

If applicants are not also seeking admission into the MA or PhD program, materials for admission to the Archival Studies or Public History Graduate Certificate programs may be submitted at any point during the academic year. The program officers and the department's graduate committee will determine the academic term of admission.

If applicants are also seeking admission to the MA or PhD program, applications for the graduate certificates should be received by March 15.

Graduate Certificate in Public History

Students who complete 12 required hours of public history course work, 3 hours of public history internship (HIST 7910 Public History Internship), and a course in historical methods (HIST 7700 Seminar in Historical Methods) or equivalent are eligible to receive the Graduate Certificate in Public History.

Graduate Certificate in Archival Studies

Students completing 12 required hours of archival studies coursework, 3 hours of archival internship (HIST 7920 Archival Internship), and a course in historical methods (HIST 7700 Seminar in Historical Methods) or equivalent are eligible to receive the Graduate Certificate in Archival Studies.
# Archival Studies

**Archival Studies - Graduate Certificate**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>HIST 6710</td>
<td>Fundamentals of Archival Theory and Practice</td>
<td>3</td>
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<td>HIST 7700</td>
<td>Seminar in Historical Methods</td>
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<tr>
<td>HIST 7920</td>
<td>Archival Internship</td>
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<td>Fundamentals of Public History</td>
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<tr>
<td>HIST 6820</td>
<td>Historic Preservation and Cultural Resource Management</td>
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<td>HIST 7720</td>
<td>Seminar in Archival Theory and Practice</td>
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<td>Seminar in the History of Records and Archives</td>
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<td>HIST 7740</td>
<td>Management of Archives and Related Organizations</td>
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<tr>
<td>HIST 7750</td>
<td>Advanced Appraisal of Archival Materials</td>
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<td>HIST 7760</td>
<td>Developing Digital Archives</td>
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<td>HIST 7770</td>
<td>Issues in Archival Studies</td>
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<td>HIST 7970</td>
<td>Special Topics in History</td>
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**History - MA**

**MA History Thesis**

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<tr>
<td>HIST 7990</td>
<td>Research and Thesis</td>
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**MA History Non-Thesis**

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<td>HIST 8700</td>
<td>Historiography and Theory of History</td>
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<td>Introduction to the Teaching of History</td>
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**PhD History**

**PhD History**

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<td>HIST 8700</td>
<td>Historiography and Theory of History</td>
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<td>HIST 8710</td>
<td>Introduction to the Teaching of History</td>
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<td>HIST 8990</td>
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**Public History**

**Public History - Graduate Certificate**

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</thead>
<tbody>
<tr>
<td>HIST 6810</td>
<td>Fundamentals of Public History</td>
<td>3</td>
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<tr>
<td>HIST 7700</td>
<td>Seminar in Historical Methods</td>
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HIST 7910  Public History Internship  3
Select 9 Credits in the Following:

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<th>Course Code</th>
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<tbody>
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<td>HIST 6710</td>
<td>Fundamentals of Archival Theory and Practice</td>
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<tr>
<td>HIST 6820</td>
<td>Historic Preservation and Cultural Resource Management</td>
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<td>HIST 7720</td>
<td>Seminar in Archival Theory and Practice</td>
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<td>Seminar in the History of Records and Archives</td>
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<tr>
<td>HIST 7970</td>
<td>Special Topics in History</td>
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</table>

Total Hours 18

Horticulture - MS, MAg, PhD

Program Degree:
- Horticulture - MS (p. 1466)
- Horticulture - MAg (p. 1466)
- Horticulture - PhD (p. 1466)

Graduate Certificate:
- Public Horticulture (p. 1466)

Graduate study in horticulture emphasizes the Master of Science and Doctor of Philosophy degrees. Graduates are prepared for careers in teaching, research, business, public horticulture or Cooperative Extension. Master-level programs are available to students with undergraduate degrees in horticulture and to those from other areas seeking opportunities in horticulture-related careers. For the MS program, students must have a bachelor's degree in horticulture or a related area from an accredited university and meet specific departmental academic standards. Applicants from related areas will be required to correct any undergraduate course deficiencies. GRE test scores, GPA, letters of intent and reference, as well as other support material, will be considered in evaluating applicants. A GRE Analytical Writing Score of 3.0 or above is recommended. For applicants scoring less than 3.0 on the essay portion of the GRE, ENGL 3040 Technical Writing will be considered a deficiency course. An absolute requirement for admission is a faculty member willing to serve as the applicant's advisor. The MS requires a minimum of 30 credit hours of graduate work, including at least 21 credit hours in the major field of study and six of which may be research & thesis hours (HORT 7990). The student’s plan of study is individually tailored by the student, the major professor and the advisory committee to meet the student’s career goals. A thesis based on research by the student is required. Students in the MS program in Horticulture who are on departmental funding cannot change to the Master of Agriculture program.

Admission requirements for the MAg program, a non-thesis degree, are the same as for the MS degree. The MAg requires successful completion of 32 credit hours, 21 of which must be in agricultural sciences. Credit for HORT 7990, Research and Thesis, cannot be counted toward graduation requirements for the MAg. Additional courses may be required for individual students as determined by the major professor and the advisory committee. There is no specific schedule of courses for MS or MAg students or a foreign language requirement for any graduate students in Horticulture. Students in this option must complete a research or special project and pass a comprehensive oral exam covering course work and the project.

Admission to the Doctor of Philosophy program requires the completion of a thesis-based degree and meeting the same requirements as for master-level programs. Doctoral candidates must follow all Graduate School and departmental requirements concerning course work. For the PhD, the Graduate School requires a minimum of 30 semester hours of graded (e.g. A, B, C) graduate course work (6000-level and above) beyond the bachelor’s degree, and at least 30 semester hours of additional graduate course work that may include un-graded courses, including 7990 and 8990. The advisory committee may require additional course work. Upon completion of all course work, PhD students may be required to take a general written examination by his/her committee. Students must pass all parts of the written examination before scheduling the required preliminary oral examination (referred to as the PhD prelim exam). After satisfactory completion of the prelim exam the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation through the guidance and direction of an advisory committee. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

Several minors are available for horticulture graduate students. Auburn University's Department of Horticulture and School of Forestry and Wildlife Sciences offer a minor in Urban Forestry. An interdisciplinary minor in Environmental Studies administered by the Crop, Soil and Environmental Sciences Department is also an option, as are minors in Ecology and Biochemistry and Cell/Molecular Biology. The department also offers a Graduate Certificate in Public Horticulture.
## Horticulture - MAg

**MAg Horticulture**

<table>
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<td>HORT 7010</td>
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<td>HORT 7950</td>
<td>Seminar</td>
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<td>STAT 7000</td>
<td>Experimental Statistics I</td>
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## Horticulture - MS

**MS Horticulture**

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<td>HORT 7950</td>
<td>Seminar (I)</td>
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<tr>
<td>HORT 7950</td>
<td>Seminar (II)</td>
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<tr>
<td>HORT 7990</td>
<td>Research and Thesis</td>
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## Horticulture - PhD

**PhD Horticulture**

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<td>HORT 7950</td>
<td>Seminar (II)</td>
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<td>HORT 7950</td>
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## Public Horticulture - Graduate Certificate

This Graduate Certificate Program is designed to provide opportunities for those wishing to gain the theoretical knowledge and practical skills to connect traditional horticulture and public outreach. Career fields include working in public gardens, arboreta, university extension services, hospitality industry (resorts), zoos, and community gardens. Career practices include public garden administration, teaching, horticultural therapy, garden design and event planning. The curriculum includes courses that give students practical experience with horticultural skills and garden management as well as exposure to top public gardens around the world through travel and internship experiences.

**Horticulture (Graduate Certificate)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<td>HORT 6150</td>
<td>Retail Garden Center Management</td>
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<tr>
<td>HORT 6240</td>
<td>Public Garden Management</td>
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<tr>
<td>HORT 6910</td>
<td>Horticulture Practicum</td>
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<tr>
<td>HORT 7050</td>
<td>Nutritional Requirements of Horticultural Plants</td>
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</tr>
<tr>
<td>HORT 7840</td>
<td>Graduate Study/Travel in Horticulture</td>
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<tr>
<td>HORT 7920</td>
<td>Graduate Internship</td>
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<td>Total Hours</td>
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</table>
Human Development and Family Studies - MS, PhD

Degree Program:
• Human Development and Family Studies - MS (p. 1468)
• Human Development & Family Studies – Marriage and Family Therapy Option - MS (p. 1468)
• Human Development and Family Studies - PhD (p. 1468)

Graduate Certificate:
• Advanced Research Methods for Developmental and Family Studies

The Department of Human Development and Family Studies offers graduate instruction leading to the Master of Science in Human Development and Family Studies or Marriage and Family Therapy and the Doctor of Philosophy in Human Development and Family Studies. The Department emphasizes the integration of knowledge from various fields to prepare students for careers in research, teaching, and human service provision as well as education, policy, and industry. To promote training and research, the Department operates the Auburn University Early Learning Center, Harris Early Learning Center of Birmingham, and the Center for Marriage and Family Therapy. The marriage and family therapy option is accredited by the American Association for Marriage and Family Therapy Commission on Accreditation for Marriage and Family Therapy Education. Both the Auburn University Early Learning Center and Harris Early Learning Center of Birmingham are accredited by the National Academy of Early Childhood Programs, a division of the National Association for the Education of Young Children.

For admission, a background in the social and behavioral sciences is highly desirable and should include course work in human development, family relations, psychology and/or sociology, and statistics. There is no language requirement for the MS or PhD degrees. For more information about admissions, see http://www.humsci.auburn.edu/hdfs/grad-admissions.php.

The department offers two MS concentrations (a) human development and family studies and (b) marriage and family therapy. The human development and family studies concentration requires a minimum of 30 semester hours and the concentration in marriage and family therapy requires 52 semester hours. Both require a thesis, and other fundamental work. For more detail about degree requirements including required courses and all departmental policies, see http://www.humsci.auburn.edu/hdfs/files/guidetogradprograms.pdf, and http://www.humsci.auburn.edu/hdfs/files/ms_web_procedural_guide.pdf.

The PhD program requires a minimum of 60 credit hours beyond the BS. This program requires course work with a theoretical and substantive emphasis in human development and relationships, a research and statistics component, and an empirical dissertation. For more detail about degree requirements including required courses and all departmental policies, see http://www.humsci.auburn.edu/hdfs/files/guidetogradprograms.pdf, and http://www.humsci.auburn.edu/hdfs/files/ms_web_procedural_guide.pdf.

Graduate research may focus on human development and relationships or the application of research to improve quality of life at any stage of the life cycle. Competitive graduate assistantships are available to students.

Advanced Research Methods for Developmental and Family Studies - Graduate Certificate

Advanced Research Methods for Developmental and Family Studies - GCRT

<table>
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<td>Research Methods for Human Development and Family Studies</td>
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<td>HDFS 7060</td>
<td>Research Methods for Human Development and Family Studies II</td>
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<td>HDFS 8050</td>
<td>Advanced Research Methods: Covariance Structure Analysis</td>
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<td>Multilevel Modeling</td>
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<td>HDFS 8070</td>
<td>Mediation and Moderation Analysis</td>
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<td>HDFS 8080</td>
<td>Survival Analysis (SA) and Latent Class Analysis (LCA)</td>
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<td>HDFS 8090</td>
<td>Qualitative Methods in the Social Sciences</td>
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</tbody>
</table>

Total Hours 18
## Human Development and Family Studies - MS

**MS Human Development & Family Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HDFS 6200</td>
<td>Applied Research and Evaluation Methods</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 6300</td>
<td>HDFS and Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7010</td>
<td>Child and Adolescent Development in Context</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7020</td>
<td>Adult Development in Context</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7040</td>
<td>Family Processes</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7050</td>
<td>Research Methods for Human Development and Family Studies</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7060</td>
<td>Research Methods for Human Development and Family Studies II</td>
<td>3</td>
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<tr>
<td>HDFS 7930</td>
<td>Seminar in Human Development and Family Studies</td>
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<tr>
<td>HDFS 7990</td>
<td>Research and Thesis</td>
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4 Credit hours in HDFS 6000-8999 (approved electives) 4

**Total Hours** 30

## Human Development and Family Studies - PhD

**PhD**

Select 3 credit hours in the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>HDFS 6200</td>
<td>Applied Research and Evaluation Methods</td>
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<td>HDFS 6300</td>
<td>HDFS and Social Policy</td>
<td>3</td>
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<td>Child and Adolescent Development in Context</td>
<td>3</td>
</tr>
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<td>HDFS 7020</td>
<td>Adult Development in Context</td>
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<td>HDFS 7040</td>
<td>Family Processes</td>
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</tr>
<tr>
<td>HDFS 7060</td>
<td>Research Methods for Human Development and Family Studies II</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7930</td>
<td>Seminar in Human Development and Family Studies</td>
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Select 3 credit hours in the following: 3

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<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HDFS 8010</td>
<td>Relationship Development and Process in Childhood and Adolescence</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 8020</td>
<td>Relationship Development and Process in Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 8050</td>
<td>Advanced Research Methods: Covariance Structure Analysis</td>
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<td>HDFS 8060</td>
<td>Multilevel Modeling</td>
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Select 6 credit hours in the following: 6

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<th>Credit Hours</th>
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<tbody>
<tr>
<td>HDFS 8970</td>
<td>Advanced Special Topics in Human Development and Family Studies</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 6970</td>
<td>Special Topics in Human Development and Family Studies</td>
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<tr>
<td>HDFS 7970</td>
<td>Special Topics in HDFS</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 8990</td>
<td>Research and Dissertation</td>
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</tr>
</tbody>
</table>

16 Credit hours in @ 6000-8999 (approved electives) 16

**Total Hours** 60

## Marriage and Family Therapy Option - MS

**MS Marriage and Family Therapy Option**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>COUN 7250</td>
<td>Advanced Assessment and Diagnosis in Counseling</td>
<td>3</td>
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<tr>
<td>HDFS 7010</td>
<td>Child and Adolescent Development in Context</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7020</td>
<td>Adult Development in Context</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 7050</td>
<td>Research Methods for Human Development and Family Studies</td>
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</tr>
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<td>HDFS 7060</td>
<td>Research Methods for Human Development and Family Studies II</td>
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<tr>
<td>HDFS 7600</td>
<td>Marriage and Family Therapy Theory I</td>
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<tr>
<td>HDFS 7601</td>
<td>Marriage and Family Therapy Theory Laboratory I</td>
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</tr>
</tbody>
</table>
**Industrial Design - MID**

The school offers the master of industrial design degree accredited by the National Association of Schools of Art and Design (NASAD.) Applicants must have a bachelor's degree in industrial design or equivalent from an institution of recognized standing. Applicants with a bachelor's degree in an industrial-design-related discipline, such as architecture, graphic design, interior design, and fashion design, etc. are eligible to apply through the regular application process. Acceptance to the MID program is heavily based on portfolio review. Unsuccessful applicants with an industrial-design-related degree, or applicants with a non-design degree, may choose to apply to the graduate program under the condition that a minimum of 43 post baccalaureate credit hours in industrial design be completed at the undergraduate level with a 3.0 GPA. These applicants are admitted during the summer semester and awarded a bachelor of science in industrial design studies (NASAD accredited) upon completion of the three semester post baccalaureate program. Upon admission to the master’s program successful completion of 35 graduate level credit hours, including a thesis is required. A 40-credit hour non-thesis option is available. Minimum (4) credit hours of INDD 7990 Design Thesis is required but may not exceed six hours. Course content beyond the 17-credit hour core curriculum will be structured to accommodate the student’s area of interest. Completion of an industry collaboration studio (INDD 7910 Industry Practicum) is required. There is no language requirement. An external terminal document draft review and a 3.0 overall graduate GPA are required. Participation in school sponsored international travel programs may be used as credit towards graduation. Students are admitted only in the fall semester. Applications to the graduate program must be complete by 1 February.

All courses are (3) credits except Special Problems INDD 6960 (1-5) credits, Thesis Design INDD 7990 (1-5) credits and Industry Practicum INDD 7910 (5) credits. Thesis requires (35) credits minimum, *four semesters*, with no more than (6) credits taken in INDD 7990. Non-Thesis requires (40) credits minimum, *four semesters* with (3) credits taken in INDD 7980. It is required that MID students take no more than 12 graduate credits per semester (9 is full-time) and enter the program during fall semester. All thesis, non-thesis documentation drafts for the MID must be completed and submitted for final graduation review by the respective graduate committee **the semester prior to** the intended semester of graduation. A 3.0 GPA or above is required to qualify for graduation. Select INDD 6960 classes may be offered during the summer semester. Graduate students transferring from other INDD graduate programs will be reviewed for admission on a case by case basis but must complete all AU/MID Required Core Courses. The **recommended enrollment in graduate classes is eight students.** No more than 15 credits in INDD 6960 may be used toward graduation.

**Master of Industrial Design Thesis**

**Master of Industrial Design Thesis (MIND)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INDD 6010</td>
<td>History of Industrial Design II</td>
<td>3</td>
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<tr>
<td>INDD 6120</td>
<td>Portfolio</td>
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<tr>
<td>INDD 7010</td>
<td>Design Orientation</td>
<td>3</td>
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<tr>
<td>INDD 7020</td>
<td>Computer/Industrial Design</td>
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<tr>
<td>INDD 7910</td>
<td>Industry Practicum</td>
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Select 4-6 Credits in INDD 7990

Select 12-14 Credits in @ 6000-8999

**Total Hours**

35
Master of Industrial Design Non-Thesis

Master of Industrial Design Non-Thesis (MINN)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INDD 6010</td>
<td>History of Industrial Design II</td>
<td>3</td>
</tr>
<tr>
<td>INDD 6120</td>
<td>Portfolio</td>
<td>3</td>
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<tr>
<td>INDD 7010</td>
<td>Design Orientation</td>
<td>3</td>
</tr>
<tr>
<td>INDD 7020</td>
<td>Computer/Industrial Design</td>
<td>3</td>
</tr>
<tr>
<td>INDD 7910</td>
<td>Industry Practicum</td>
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<tr>
<td>INDD 7980</td>
<td>Non-Thesis Design</td>
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Select 20 Credits in @ 6000-8999

Total Hours 20

Total Hours 40

Industrial and Systems Engineering - MISE, MISE/MBA, MS, PhD

Degree Programs:

- Industrial and Systems Engineering - MISE (p. 1471)
- Industrial and Systems Engineering - MS (p. 1471)
- Industrial and Systems Engineering - PhD (p. 1471)

Graduate Certificate:

- Automotive Manufacturing Systems (p. 1470)
- Occupational Safety & Ergonomics (p. 1472)

The department offers the master of industrial and systems engineering, a joint program leading to both MISE and MBA degrees, the master of science and the doctor of philosophy. These programs are for students with undergraduate degrees in industrial engineering, other engineering disciplines, mathematics and sciences.

All applicants must submit Graduate Record Examination scores for the General Test except MISE/MBA applicants who may instead submit Graduate Management Admission Test scores.

Both the MISE and MS programs require a total of 31 hours of course work, which includes a one semester hour seminar class. The MISE is oriented toward professional practice. MISE students must take 9 semester hours of core courses, 12 hours of INSY electives and 9 hours of INSY-related electives. The MS has the same course requirements and hours except that 4-6 hours of thesis may be substituted for the same hours of elective courses.

The MISE/MBA is a 55-hour program administered jointly by ISE and the MBA program. The program saves the student six hours of course work over completing both degrees separately. For the MISE portion of the dual degree, the program consists of 9 semester hours of core courses, 12 hours of INSY electives and 6 hours of INSY-related electives. One semester hour of INSY graduate seminar is also required. For the MBA portion of the dual degree, there are seven core (BUSI) classes for 21 semester hours and an additional 2 classes of BUSI or related electives for six hours. For the MBA, students without two years full time work experience are required to do a 3-credit hour internship in place of one of the 3-hour BUSI or related electives. Students must apply separately to each program (MISE and MBA), but only have to pay one application fee.

Research involvement is the dominant element in the doctoral program. It provides a quality educational experience for selected individuals whose records indicate excellent potential not only for superior performance in course work, but also for the research and ensuing dissertation which is an original and scholarly contribution to the field. The PhD program requires at least 60 semester hours of coursework beyond the bachelors, including 9 semester hours of core courses. A minimum of one hour of graduate seminar is also required. The student must demonstrate a high level of proficiency in a specific area of industrial and systems engineering as well as a competence in the entire field. The degree usually requires at least one calendar year of research.

Automotive Manufacturing Systems

Automotive Manufacturing Systems (Graduate Certificate)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>INSY 6330/6336</td>
<td>Data Based Decision Making Using Six Sigma</td>
<td>3</td>
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<tr>
<td>INSY 6800/6806</td>
<td>Lean Production</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>----------------</td>
<td>----------------------------------------------</td>
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<tr>
<td>INSY 6830/6836</td>
<td>Vehicle Technology and Trends</td>
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<td>Select 3 Credits of the following:</td>
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<tr>
<td>INSY 6840/6846</td>
<td>Control of the Manufacturing Floor and Processes</td>
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</tr>
<tr>
<td>INSY 6860/6866</td>
<td>Automotive Manufacturing Systems</td>
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**Industrial and Systems Engineering - MISE**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INSY 6600/6606</td>
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<td>3</td>
</tr>
<tr>
<td>INSY 7300/7306</td>
<td>Advanced Engineering Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>INSY 7420/7426</td>
<td>Linear Programming and Network Flows</td>
<td>3</td>
</tr>
<tr>
<td>INSY 7950/7956</td>
<td>Seminar</td>
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<tr>
<td>Select 12 Credits in INSY 6000-8999</td>
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<tr>
<td>Select 9 Credits in INSY 6000-8999 or INSY-related @6000-8999 (Electives)</td>
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<td><strong>Total Hours</strong></td>
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**Industrial and Systems Engineering (Distance) - MISE**

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<td>Manufacturing and Production Economics</td>
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<td>INSY 7300/7306</td>
<td>Advanced Engineering Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>INSY 7420/7426</td>
<td>Linear Programming and Network Flows</td>
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</tr>
<tr>
<td>INSY 7950/7956</td>
<td>Seminar</td>
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**Industrial and Systems Engineering - MS**

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<td>Advanced Engineering Statistics I</td>
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<td>Linear Programming and Network Flows</td>
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<td>INSY 7950</td>
<td>Seminar</td>
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<tr>
<td>INSY 7990</td>
<td>Research and Thesis</td>
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**Industrial and Systems Engineering - PhD**

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</tr>
<tr>
<td>INSY 7300</td>
<td>Advanced Engineering Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>INSY 7420</td>
<td>Linear Programming and Network Flows</td>
<td>3</td>
</tr>
<tr>
<td>INSY 7950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>INSY 8990</td>
<td>Research and Dissertation</td>
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<td>Select 1 credits in INSY 6000-8999</td>
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<td><strong>Total Hours</strong></td>
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</table>
Occupational Safety & Ergonomics

Occupational Safety & Ergonomics (Graduate Certificate)

Select 15 hours from the following:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>INSY 6010/6016</td>
<td>Safety Engineering I</td>
</tr>
<tr>
<td>INSY 7020/7026</td>
<td>Safety Engineering II</td>
</tr>
<tr>
<td>INSY 7060/7066</td>
<td>Ergonomics I</td>
</tr>
<tr>
<td>INSY 7070/7076</td>
<td>Ergonomics II</td>
</tr>
<tr>
<td>INSY 7050/7056</td>
<td>Industrial Hygiene and Environmental Hazards</td>
</tr>
<tr>
<td>INSY 7080/7086</td>
<td>Human Factors Engineering</td>
</tr>
<tr>
<td>INSY 8060/8066</td>
<td>Advanced Ergonomics</td>
</tr>
<tr>
<td>PSYC 7760</td>
<td>Occupational Health Psychology</td>
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<tr>
<td>PSYC 7700</td>
<td>Foundations in Industrial and Organizational Psychology</td>
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<tr>
<td>INSY 7940</td>
<td>Industrial and Systems Engineering Problems</td>
</tr>
<tr>
<td>INSY 8010</td>
<td>Advanced Safety Engineering</td>
</tr>
</tbody>
</table>

Total Hours 15

Information Systems Management

Degree Program:
- Information Systems Management - MS (on-campus/full-time and online)
- Information Systems Management - PhD

Graduate Certificate:
- Business Analytics
- Management Information Systems

The department offers graduate study leading to the master of science and the doctor of philosophy degrees in Information Systems Management. The program also offers a joint program leading to both the MSIS and MBA degrees. Applicants must hold a bachelor’s degree from a recognized institution. Graduates of business schools will likely have met this requirement; graduates of other programs may be required to complete additional courses to compensate for deficiencies.

Master of Science in Information Systems

The (MSIS) Program in Business is a non-thesis program that emphasizes practical application of management information systems to managerial problem solving and decision making. Students are required to complete a final project. The program is designed to provide students the opportunity to develop an expertise in a chosen area of management. Applicants to the master’s program must have completed an undergraduate degree. The MSIS program is offered as a traditional, on-campus program and as an online program. A twelve-hour graduate certificate is also available.

The MBA/MSIS is a 54-hour program administered jointly by the Aviation and Supply Chain faculty and the MBA program. The program saves the student fifteen hours of coursework over completing both degrees separately. For the MBA, students without two years full time work experience are required to do an additional 0-3-credit hour internship. Students must apply separately to each program (MISE and MBA), but only have to pay one application fee. Students can also opt to apply for the second degree program during their first year in the other program.

The PhD program in Business with Information Systems Management Concentration prepares graduates to conduct high-quality research in universities, colleges, government and business. Individual flexibility is provided in a program of study that develops the conceptual and methodological skills that graduates need to establish a leadership position in their chosen fields. Objectives of the program are accomplished through the completion of a formal program of study, successful completion of a statistics core, preparation and completion of two examination manuscripts, and dissertation research. Students with assistantships may also be required to teach. Students are expected to have a fulltime presence on campus. Applications to the PhD program must complete an Auburn University Graduate School application. For full consideration, applications must be received no later than February 1, prior to the Fall term.
Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

Interdisciplinary PhD Program in Earth System Science

The formal requirements for the PhD degree are the same as outlined in graduate school web page:http://bulletin.auburn.edu/thegraduateschool/doctoraldegrees/. This PhD program, due to its interdisciplinary nature, has specific course requirements as below:

Course Requirements: The interdisciplinary PhD degree, without previous graduate course work, requires successful completion of a minimum of 60 semester credit hours at the graduate level (6000-8000 level). The total 60 hours must include: 1) 7 hours of required core courses across earth system science disciplines, 2) a maximum of 10 hours of dissertation credit, and 3) additional elective course work to develop an academic focus with the approval of the faculty adviser and dissertation committee. Click here (http://www.auburn.edu/cosam/departments/geosciences/academics/curr-ess.htm) for recommended elective courses for students interested in a particular career path. The maximum number of directed-study credits that may be applied toward the degree is three (3) units. The total number of credit hours of previous graduate course or thesis work may be transferred toward the PhD degree must be less than 50 percent of the credit hours listed on the Plan of Study. A maximum of four hours of Master thesis credit may be transferred and counted toward PhD course requirement. Required core courses (7 hours) include:

1) Earth System Science and Global Change (3 hours)
2) Earth System Observation and Analysis (3 hours)
3) Earth System Science Seminar (1 hour)

Kinesiology - MS, PhD

Degree Programs

- Exercise Science (p. 1475)
- Physical Activity and Health (p. 1475)
- Physical Education/Teacher Education (p. 1475)
- Kinesiology (p. 1477)

Graduate Certificate

- Movement Skill Analysis (p. 1477)

Graduate Minor

- Sport Management (p. 1430)

The School of Kinesiology offers graduate degree programs leading to the master of science (non-thesis and thesis options) and doctor of philosophy. Offerings also include a graduate certificate and a graduate minor. The school’s advanced programs prepare students for careers in sport performance and health optimization, program management in clinical and corporate fitness settings, the fitness and sport-related industry, and teaching and research in educational settings.

Master’s Degree Programs (MS)

Master’s programs are offered in exercise science, physical activity and health, and physical education/teacher education. Specialized areas of study include athletic training (post-certification), biomechanics, exercise physiology, physical activity and health, motor neuroscience, and pedagogy.

Applicants to MS programs must satisfy the Graduate School’s admission requirements. School of Kinesiology admission requirements include a bachelor’s degree from an accredited college or university, academic good standing at the institution last attended, an undergraduate minimum GPA of 2.75, competitive GRE scores, letters of recommendation, and School approval. For admission to the MS in physical education/teacher education, the undergraduate GPA must be documented on the official transcript of the degree granting institution and must be the GPA that was used as the basis for granting the degree, not a GPA that includes post-degree courses; alternatively, a minimum GPA of 3.0 in a master's of higher degree program may be used for admission.

MS programs in physical education/teacher education include alternative certification and traditional certification programs. The alternative MS certification program offers qualified students who hold non-teaching baccalaureate degrees a route to initial teacher certification while simultaneously earning a master’s degree; the traditional MS certification program offers advanced study for
individuals who hold a valid bachelor’s-level professional educator certificate in physical education/teacher education. Applicants to the alternative MS certification program in physical education/teacher education must submit a clear background check and satisfy the State’s teaching field admission requirements; applicants to the traditional MS certification program in physical education/teacher education must submit a clear background check and hold a valid bachelor’s-level professional educator certificate in physical education. Both certification programs are approved by the Alabama State Board of Education (ALSBE). The College of Education is accredited by the National Council for Accreditation of Teacher Education (NCATE).

Degree requirements for all master’s programs include a minimum of 33 hours. All non-thesis master’s degrees require a written comprehensive exam. Additional degree requirements for the alternative MS certification program in physical education/teacher education are in compliance with regulations established by the Alabama State Board of Education. These requirements include a semester long, full-time internship and satisfactory completion of the State’s testing program which consists of a passing score on each of the Praxis Core Academic Skills for Educators (Reading, Writing, and Mathematics) and a passing score on the appropriate Praxis II subject assessments. In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.00 is required on all courses used to meet master’s-level certification program requirements. Effective for students unconditionally admitted July 1, 2017 and after, a minimum GPA of 3.25 will be required on all courses used to meet master’s-level certification program requirements.

Doctor of Philosophy Degree Program (PhD)

Applicants to the School of Kinesiology’s PhD program must satisfy the Graduate School's admission requirements. School of Kinesiology admission requirements include competitive GRE scores, current resume, statement of purpose (including research focus), letters of recommendation, and approval by the school.

The PhD program requires a minimum of 60 semester hours beyond the bachelor’s degree. Research methods and statistics are components of all doctoral programs. The remaining hours are divided between the area of specialization and approved support courses. After satisfactory completion of coursework and a general written and oral examination, the student advances to candidacy. Doctoral students must register for at least 10 semester hours of doctoral research while completing a dissertation.

Specialized areas of doctoral study include biomechanics, exercise physiology, motor neuroscience, motor development, sport and exercise psychology, motor learning and control, physical activity and health, and teaching and research in physical education.

Master’s- and Specialist-Level Certification

Individuals completing the State-approved MS certification programs in physical education/teacher education are eligible to apply for Alabama Class A certification. Effective September 1, 2018, the Alabama State Board for Education will require an acceptable score on the edTPA for initial certification in a teaching field. This state certification requirement applies to individuals completing alternative master’s programs. A State-approved specialist level non-degree program is available for PhD students who hold a valid master’s-level professional educator certificate in physical education/teacher education. Individuals completing this program are eligible to apply for Alabama Class AA certification. In accordance with State regulations, effective for students unconditionally admitted prior to July 1, 2017, a minimum GPA of 3.25 is required on all courses used to meet master’s-level certification program requirements. Effective for students unconditionally admitted July 1, 2017 and after, a minimum GPA of 3.50 will be required on all courses used to meet specialist-level certification program requirements.

Individuals seeking certification in states other than Alabama are responsible for contacting those state certification offices to obtain their application form and requirements. The State of Alabama signs the National Association of State Directors of Education and Certification (NASDTEC) Interstate Agreement which facilitates the applications of program graduates when they apply for certification in other states.

Graduate Minor and Graduate Certificate

The School of Kinesiology in collaboration with the Department of Educational Foundations, Leadership and Technology offers a graduate minor in sport management. In addition, the School of Kinesiology offers a graduate certificate in movement skill analysis.

Additional Information

Detailed admission requirements for the school's multiple areas of graduate study are available on the College of Education’s website, Academics (http://www.education.auburn.edu/academics).

The University schedule of courses is available on the University website.
Exercise Science - MS

Exercise Science - MS (http://www.education.auburn.edu/graduate-degree-cert/exercise-science-m-s)

Exercise Science - MS (non-thesis and thesis option)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 7010</td>
<td>Research Methods in Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7620</td>
<td>Principles of Biomechanics in Human Movement</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7680</td>
<td>Advanced Physiology of Exercise I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7990</td>
<td>Research and Thesis (required for thesis option)</td>
<td>6</td>
</tr>
</tbody>
</table>

Select one of the following: 3

- KINE 7650 Advanced Motor Learning and Performance
- KINE 7730 Neuromotor Control
- KINE 7740 Advanced Motor Development
- KINE 7750 Advanced Sport Psychology
- KINE 7780 Exercise Motivation and Adherence

15 Advisor Approved Credits in @ 6000-8999 15

Total Hours 33

Physical Activity and Health – MS

Physical Activity and Health – MS (http://www.education.auburn.edu/graduate-degree-cert/physical-activity-health-m-s)

Physical Activity and Health - MS (non-thesis and thesis option)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 6400</td>
<td>Exercise Prescription for Normal and Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7010</td>
<td>Research Methods in Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7680</td>
<td>Advanced Physiology of Exercise I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7990</td>
<td>Research and Thesis (required for thesis option)</td>
<td>6</td>
</tr>
<tr>
<td>KINE 7820/7826</td>
<td>Clinical/Non-Clinical Internship in Kinesiology</td>
<td>1-10</td>
</tr>
</tbody>
</table>

Select Advisor Approved 13-17 Credits in @ 6000-8999 13-17

Total Hours 33

Physical Education/Teacher Education – MS

Physical Education/Teacher Education – MS (http://www.education.auburn.edu/graduate-degree-cert/physical-education-teacher-masters)

Physical Education/Teacher Education – MS (Alternative Certification)

Alternative Class A Education Program Checklist

Teaching Field: 14 hours

At least 1/3 of the program shall be in teaching field courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>KINE 6350/6356</td>
<td>Assessment in Physical Education</td>
<td>1,3</td>
</tr>
<tr>
<td>KINE 7010</td>
<td>Research Methods in Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7910</td>
<td>Practicum</td>
<td>2</td>
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Advisor-approved KINE 6000 or 7000 electives 6

Professional Studies: 22 hours

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>KINE 7260</td>
<td>Individuals with Disabilities in Physical Education</td>
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</tr>
<tr>
<td>or RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
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<tr>
<td>CTRD 6000/6006</td>
<td>Language and Literacy in the Content Areas</td>
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<tr>
<td>KINE 7200</td>
<td>Curriculum and Teaching in Physical Education</td>
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</tr>
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</table>
KINE 7350 Organization and Analysis of Instruction in Physical Education 2 3
KINE 7920 Internship 1,3 10
Total Hours 36

1 Take KINE 6350/6 Assessment in Physical Education and KINE 7920/6 Internship concurrently.
2 Take KINE 7910 Practicum and KINE 7350 Analysis of Instruction concurrently.
3 Clearance for Clinical Residency includes completion of all other coursework except KINE 7920/6 Internship and KINE 6350/6 Assessment in Physical Education. Exceptions require approval using the Student Petition Form.
4 KINE 7260 OR RSED 6000/6 must be completed if survey of special education course was not completed prior to unconditional admission. If a survey of special education course was completed prior to unconditional admission, the state diversity course requirement is fulfilled with CTRD 6000/6 Language and Literacy and the 3-hour course requirement for RSED 6000/6 will be waived resulting in 19 hours in Professional Studies and 33 total program hours. KINE 7260 may count as an advisor-approved course in Teaching Field.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.
Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements.
All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.
Undergraduate courses may be required by your advisory committee for your plan of study. This coursework is in addition to the total graduate program hours noted above and must be completed prior to Internship.

Physical Education/Teacher Education – MS (Certification)
Class A Program Checklist for Teaching Field

Teaching Field: 12 hours
At least 1/3 of the program shall be teaching field courses.
Required: 3 hours
KINE 7350 Organization and Analysis of Instruction in Physical Education 3
Select 9 Credits of the following: 9
KINE 6350/6356 Assessment in Physical Education
KINE 7200 Curriculum and Teaching in Physical Education
KINE 7250 Evaluation of Programs in Physical Education
KINE 7300 Content and Pedagogy in Physical Education
KINE 7380 Integrating Classroom Concepts
KINE 7740 Advanced Motor Development
Other advisor-approved KINE courses

Survey of Special Education/Diversity Course
See KINE 7260, RSED 6000/6 and CTRD 6000/6 in Additional Courses 1

Additional Courses: 21 Hours
Required: 6 hours
CTRD 6000/6006 Language and Literacy in the Content Areas 1 3
KINE 7010 Research Methods in Physical Activity 3
Select 15 hours of the following: 15
KINE 7260 Individuals with Disabilities in Physical Education 1
KINE 7260 or RSED 6000/6006 Advanced Survey of Exceptionality
KINE 6200 Research Project in Physical Education
KINE 6250 Instructional Supervision for Physical Education
KINE 6300 Advocacy in Physical Education
KINE 7280 Naturalistic Inquiry in Physical Activity Settings
KINE 7750 Advanced Sport Psychology
KINE 7780 Exercise Motivation and Adherence
KINE 7790 Motor Behavior of Individuals with Disabilities
Kinesiology – PhD

Kinesiology – PhD (http://www.education.auburn.edu/graduate-degree-cert/kinesiology-ph-d)

Kinesiology - PhD
Select Advisor Approved 50 Credits in @ 6000-8999 50
KINE 8990 Research and Dissertation 10
Total Hours 60

Movement Skill Analysis - Graduate Certificate

Movement Skill Analysis - Graduate Certificate (http://www.education.auburn.edu/graduate-degree-cert/graduate-certificate-movement-skill-analysis)

Movement Skill Analysis - GCRT
KINE 7620/7626 Principles of Biomechanics in Human Movement 3
KINE 7400/7406 Advanced Anatomical Principles 3
KINE 7410/7416 Advanced Anatomical Principles Lab 1
KINE 7420/7426 Biomechanics of Skill Analysis: Dartfish I 3
KINE 7430/7436 Biomechanics of Skill Analysis: Dartfish II 3
Total Hours 13

Sport Management - Graduate Minor

Sport Management - Graduate Minor (http://www.education.auburn.edu/graduate-degree-cert/graduate-minor-sport-management)

KINE 6820 Sport Management 3
KINE 7750 Advanced Sport Psychology 3
or KINE 7970 Special Topics 3
HIED 7400 Sport Marketing and Public Relations 3
HIED 7410 Sport Ethics 3
Landscape Architecture - MLA

The School of Architecture, Planning and Landscape Architecture offers the Master of Landscape Architecture (MLA). This is a first professional degree program accredited by the American Society of Landscape Architects. The MLA consists of 96 credit hours delivered over six and a half semesters. Students with undergraduate degrees in disciplines other than landscape architecture enter in the Summer Mini-Semester II and graduate three years later. Students are encouraged to pursue internships during the remaining Summer Semesters. The program accepts and encourages applicants from a wide range of disciplines in the humanities, the sciences and the arts. Students who have an undergraduate degree in landscape architecture can complete the Master of Landscape Architecture in two years, by application, through Advanced Placement. Advanced Placement is not automatic, but based on portfolio and academic merit. Successful applicants for Advanced Placement enter in the Fall semester. Students who are currently in the Auburn University pre-landscape architecture programs [Bachelor of Horticulture and Bachelor of Environmental Design] complete their undergraduate degrees as the first year of the MLA. These applicants should contact the Program Chair or the Program Administrator for more information. Pre-landscape architecture students enter in the Summer Mini-Semester II.

Prospective students apply for admission online to the Graduate School. The Graduate Record Examination is not a requirement; however, the Admissions Committee will require the undergraduate record, three letters of recommendation, a 500 word statement of intent and, in the case of applicants for Advanced Placement, a portfolio of work.

The program is a studio design-based course of study that incorporates learning from across the disciplines of art, architecture, urban design, ecology, information technology and the natural sciences. The program studies regional and urban landscape systems through the relationships between human dwelling and natural systems. Graduates will be prepared to take action in rebuilding urban landscapes, reconnecting fractured ecosystems, and regenerating human and nonhuman habitats.

Each semester consists of 15 credit hours, including six credit hours of studio and fieldwork. In their final year of study students engage a comprehensive design studio that explores research by design. Students must also be prepared to undertake numerous field studies in a variety of locations that can involve interstate visits and several days away from Auburn University. All field trips and Study Abroad incur extra costs.

The Master of Landscape Architecture offers a limited number of Graduate Assistantships each year. GA positions are highly competitive, and applications exceed availability. The assistantships are awarded on the basis of merit. Students who wish to apply for an assistantship must do so when they send their materials to the Program Chair. When assessing the merit of applications for research assistantships, faculty review the following:

• Academic transcript
• GPA
• Portfolio
• Statement of intent

Applicants who can attend the Master of Landscape Architecture only if they receive an assistantship should make this clear to the Program Chair on application. As a rule Graduate Assistantships involve working with faculty on research projects. A wide range of tasks is expected to be performed to a high standard. Punctuality, timeliness and cordiality are strict requirements. Graduate Assistantships provide a partial tuition waiver and a monthly stipend. The tuition waiver applies to in-state and out-of-state students alike, and covers a portion of the tuition fee for each semester that the student is a GRA. Students who are appointed as GAs must pay the Professional Fee. Assistantships are awarded on a semester basis (and they are not available in the first summer) and there is no guarantee that recipients will receive a continuance of their assistantship. Reappointment will be made on the basis of students having:

• Maintained a high work standard
• Completed all their coursework and assignments satisfactorily
• Performed well for the faculty member to which they have been assigned.

Any questions about assistantships should be directed to the Program Chair. The Master of Landscape Architecture does not currently offer scholarships.
All students who enter the MLA must ensure that they have a their own laptop computer that conforms to the requirements set out on the Landscape Architecture page of the College of Architecture Design and Planning website.

MLAG

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>LAND 6030</td>
<td>Landscape Design Methods</td>
<td>3</td>
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<tr>
<td>LAND 6040</td>
<td>Landscape Issues &amp; Practices</td>
<td>3</td>
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<tr>
<td>LAND 6130</td>
<td>Studio I: Foundation Studio</td>
<td>5</td>
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<tr>
<td>LAND 6131</td>
<td>Fieldwork I</td>
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<tr>
<td>LAND 6140</td>
<td>History, Theory, and Practice I: Landscape Architecture and Contemporary Urbanism</td>
<td>3</td>
</tr>
<tr>
<td>LAND 6150</td>
<td>Construction I: Landform &amp; Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>LAND 6160</td>
<td>Graphic Studies I</td>
<td>3</td>
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<tr>
<td>LAND 6230</td>
<td>Studio II</td>
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<td>LAND 6231</td>
<td>Fieldwork II</td>
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<tr>
<td>LAND 6240</td>
<td>History, Theory, and Practice II: Landscape Architecture and Contemporary Culture</td>
<td>3</td>
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<tr>
<td>LAND 6250</td>
<td>Construction II: Materials &amp; Detailing</td>
<td>3</td>
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<tr>
<td>LAND 6290</td>
<td>Graphic Studies II</td>
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<tr>
<td>LAND 6330</td>
<td>Studio III</td>
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<td>LAND 6331</td>
<td>Field Studies III</td>
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<tr>
<td>LAND 6340</td>
<td>History, Theory, and Practice III: Pre-Modern Landscapes</td>
<td>3</td>
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<tr>
<td>LAND 6360</td>
<td>Dynamic Systems I: Urban Ecologies</td>
<td>3</td>
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<tr>
<td>LAND 6380</td>
<td>Plants I</td>
<td>3</td>
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<td>LAND 7130</td>
<td>Studio IV</td>
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<td>LAND 7131</td>
<td>Fieldwork IV</td>
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<tr>
<td>LAND 7170</td>
<td>Plant II</td>
<td>3</td>
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<tr>
<td>LAND 7190</td>
<td>Research by Design: Frameworks, Methods, and Strategies</td>
<td>3</td>
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<tr>
<td>LAND 7280</td>
<td>Dynamic Systems II: Regional Ecologies</td>
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<tr>
<td>LAND 7230</td>
<td>Studio V: Comprehensive Studio</td>
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<td>LAND 7231</td>
<td>Fieldwork V</td>
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<td>LAND 7270</td>
<td>Construction III: Regenerative Technologies</td>
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<td>LAND 7290</td>
<td>Graphic Studies III</td>
<td>3</td>
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<td>LAND 7330</td>
<td>Studio VI: Comprehensive Studio</td>
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<td>LAND 7331</td>
<td>Fieldwork VI</td>
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<tr>
<td>LAND 7340</td>
<td>Professional Practice</td>
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Select 9 Credits in the following:

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>LAND 6410</td>
<td>Seminar on Real Estate Development</td>
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<tr>
<td>LAND 7410</td>
<td>Seminar on History and Theory</td>
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<tr>
<td>LAND 7420</td>
<td>Seminar on Community Outreach</td>
</tr>
<tr>
<td>LAND 7430</td>
<td>Seminar on Hydrology</td>
</tr>
<tr>
<td>LAND 7440</td>
<td>Seminar on Landscape Communication</td>
</tr>
<tr>
<td>LAND 7450</td>
<td>Seminar on Landscape Research</td>
</tr>
<tr>
<td>LAND 7470</td>
<td>Landscape Architecture Internship</td>
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<tr>
<td>LAND 7900</td>
<td>Directed Studies</td>
</tr>
<tr>
<td>LAND 7960</td>
<td>Special Problems in Landscape Architecture</td>
</tr>
</tbody>
</table>

Management - PhD

Degree Programs:

- Business Management Concentration (PhD (p. 1480))
The Doctor of Philosophy in Business with a concentration in Management prepares students for careers in research and teaching. It provides the depth of knowledge and skills required to conduct first-rate research in the field, effectively analyze that research, and present those findings in world-class scholarly presentations and publications.

The Ph.D. in Business - Management, provides students with the opportunity to develop expertise in all phases of the process of change in organizations. The program emphasizes diagnosing organizational problems and implementing interventions to improve performance.

The Ph.D. in Business - Management is a four year, full-time program. The bulk of coursework is completed in the first two years. The third year is devoted to two required research papers. The fourth year is spent on dissertation research. Completion of the dissertation and its defense is the last requirement for completion of the degree. Students with assistantships may also be required to teach. Students are expected to have a full-time presence on campus.

Applicants to the program must hold a bachelor's degree from a recognized institution, complete a Graduate School application including submitting GMAT (preferred) or GRE scores. For full considerations, applications must be received no later than February 1, prior to the Fall term.

Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

**PhD in Business Management Concentration**

**Business - Management Concentration (PhD)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNGT 8990</td>
<td>Research and Dissertation</td>
</tr>
<tr>
<td>50 Credits</td>
<td>at 6000-8999</td>
</tr>
</tbody>
</table>

**Total Hours** 60

The PhD in Business requires 60 semester hours earned through instruction beyond the bachelor's degree, including 1) a minimum of 30 semester hours graded (e.g., A, B) graduate course work (6000-level and above); and 2) a minimum of 30 semester hours of additional graduate course work (6000-level and above) that may include ungraded courses, 7990 and 8990, and must include at least 10 hours of 8990. Up to 30 hours (if less than half of the total number of hours) of applicable master's level course work may be used to satisfy part of these requirements with advisor approval.

The total number of credit hours that may be transferred from another accredited institution toward a doctoral degree varies by program but must be less than 50 percent of the credit hours listed on the Plan of Study. Such transfer credit 1) must fall within the time limits of the degree; and 2) must be approved by the advisory committee and the dean of the Graduate School. A maximum of four hours of 7990 (Research and Thesis) from a completed master's program may be counted.

All doctoral students must complete a minimum of 10 hours of MNGT 8990. Enrollment in MNGT 8990 may take place at any time the student and the advisory committee deem appropriate. During any one semester, the number of hours of 8990 in which the student enrolls should reflect the amount of instructional time being spent on the dissertation and the degree to which university resources are being utilized. Students may enroll, during any one semester, for as few as one hour or as many as 16 hours of 8990. Dissertation students submitting their dissertation, awaiting committee review and approval, or taking their final examination must register for 8990 Research and Dissertation in the semester(s) when these steps in the process take place. The requisite 10 hours of 8990 should be included in the Plan of Study. No grade is assigned.

**Master of Accountancy (MAcc), Graduate Certificate**

**Degree Program:**
- MAcc (p. 1481)

**Graduate Certificate:**
- Accountancy (p. 1482)

**Master of Accountancy (Campus or Online Options)**
The Master of Accountancy (MAcc) is a professional non-thesis degree program requiring 30 semester hours and a two and one-half day campus residency. The program provides students additional technical skills, research and communication skills, as well as focused preparation on passing the Uniform CPA examination. During spring semester, campus students enroll in six hours of
coursework and the Auburn Becker CPA Exam Review. Before graduation, campus students sit for all four parts of the CPA Exam. For the past 13 years, the average pass rate across all four sections on the first sitting has been 85%.

The degree may be earned as a traditional, campus student or through the online option. Campus classes are recorded and streamed to online students. Therefore, online students receive the same lectures and AACSB accredited degree as their campus peers. The online option is identical to the campus option regarding rigor, standards, and student accountability. The campus option may be completed in three semesters while the online option may be completed in five semesters for students who are working full-time. Online students working full-time may take only two classes per semester.

Graduate Certificate in Accountancy (Online Option)
The online Graduate Certificate in Accountancy (GCA) is an 18 semester hour non-degree seeking program offering MAcc coursework to working professionals who desire to meet one or more of the following goals:

- Gain credentials to teach at collegiate level
- Matriculate to MAcc with only four courses remaining
- Enroll in graduate program without GMAT
- Enjoy flexibility and convenience of online program
- Take classes required for CPA Exam and certification
- Update and expand accounting knowledge and skills
- Enroll in a U.S. News & World Report top online graduate program

To be considered for admission to the GCA, a candidate’s academic credentials and work experience must be competitive for admission to the online MAcc, excluding the GMAT. We do not advertise minimum GPA requirements, because the Admissions Committee uses a holistic approach when reviewing a candidate's application package. The Committee places high emphasis on the quality of a candidate's academic background, overall and accounting grade point averages, and work experience. The GCA may be completed in three semesters for students who are working full-time. Students working full-time may take only two classes per semester. While enrolled in the last semester of the GCA, students who have performed well in the program may apply to the online MAcc and have only four additional courses remaining to complete the Master of Accountancy degree. Due to federal guidelines and regulations, Graduate Certificate programs do not qualify for financial aid.

For admission to the MAcc or GCA, students must have a four year accredited undergraduate business degree and a concentration in accounting. Criteria for admission and degree requirements are established by the School of Accountancy.

For more information, please visit www.harbert.auburn.edu. Questions about the campus MAcc should be directed to Ms. Amy Murphy, Director of Graduate & Online Programs in the School of Accountancy, at amy.murphy@auburn.edu or (334) 844-6118. Questions about the online MAcc or GCA should be directed to Mrs. Andee Hodo, Assistant Director of Graduate & Online Programs in the School of Accountancy, at andee.hodo@auburn.edu or (334) 844-6207.

Master of Accountancy (MAcc)

MAcc Program (On-Campus Option)

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<td>Advanced Auditing and Assurance Services</td>
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<td>ACCT 7110</td>
<td>Research in Accounting</td>
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<tr>
<td>ACCT 7410</td>
<td>Federal Tax Research</td>
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<td>ACCT 7510</td>
<td>Integrated Accounting Applications</td>
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<tr>
<td>Select 9 Credit Hours of ACCT or Business Electives 6000-7000</td>
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For a list of ACCT and Business electives, please visit http://harbert.auburn.edu/.

MAcc Program (Online Option)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ACCT 6316</td>
<td>Advanced Auditing and Assurance Services</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 7116</td>
<td>Research in Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 7416</td>
<td>Federal Tax Research</td>
<td>3</td>
</tr>
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Accountancy - Graduate Certificate

Graduate Certificate in Accountancy (Online) - Requires 18 Semester Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 7516</td>
<td>Integrated Accounting Applications</td>
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<tr>
<td>ACCT 7710</td>
<td>Graduation Requirement</td>
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</table>

Materials Engineering - MMtIE, MS, PhD

Degree Programs:

- Materials Engineering - MMtIE (p. 1483)
- Materials Engineering - MS (p. 1483)
- Materials Engineering - PhD (p. 1483)

Materials Engineering offers graduate programs of instruction and research leading to the degrees of master of materials engineering (MMtIE), master of science (MS) and doctor of philosophy (PhD). All applicants must submit GRE scores for the General Test. Students completing all degree programs are expected to have knowledge in the following areas: mechanical properties; materials structure; materials thermodynamics; kinetics; and electrical, optical and magnetic properties of materials. There are no foreign language or minor requirements for Materials Engineering graduate degrees. All students must submit an approved plan of study within one year of matriculating in the program.

The MMtIE is intended for those who expect to enter the engineering profession at an advanced level or are practicing engineers wishing to gain additional fundamental knowledge in the field of materials. Those students lacking the necessary background may be required to take additional course work. The requirements for the degree are 33 credit hours including a final engineering report. The topic of the report will be agreed upon by the student and the advisory committee. Applicants must have a baccalaureate degree in engineering or science from an institution of recognized standing. Students must pass a qualifying examination prior to taking the final general comprehensive examination required by the Graduate School.

The MS is intended for those who seek advanced knowledge in materials science or engineering for a career in research or other professional practice. The applicant must have a baccalaureate degree or its equivalent in an engineering or scientific discipline from an institution of recognized standing. Those lacking the necessary background will be required to take additional course work to ensure the continuity of their educational and professional experience. The MS program consists of 30 credit hours selected from areas of study appropriate to the objectives of the applicant and includes a thesis. Students must pass a qualifying examination prior to taking the final comprehensive examination required by the Graduate School. The PhD program requires that students pass qualifying examinations (oral and written) with a greater proficiency than master's students prior to taking the comprehensive examinations. The program is arranged on an individual basis with the student’s advisory committee and in accordance with Graduate School guidelines. Students admitted to the doctoral program are required to take the general comprehensive examination based on a research proposal developed.
by the student within two years after entering the program. The student should be prepared to be examined in all areas of materials engineering.

**Materials Engineering (MS)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>MATL 7990</td>
<td>Research and Thesis</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Select 21 Credits in MATL 6000-8999</td>
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**Materials Engineering (MS, non-thesis)**

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<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATL 7980</td>
<td>Master Materials Engineering Project</td>
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</tr>
<tr>
<td></td>
<td>Select 24 Credits in MATL 6000-8999</td>
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**Materials Engineering - MMtIE**

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<th>Course</th>
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<td>MATL 7980</td>
<td>Master Materials Engineering Project</td>
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</tr>
<tr>
<td></td>
<td>Select 30 Credits in @ 6000-8999 (Electives)</td>
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**Materials Engineering - Distance (MMtIE)**

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<tr>
<td>MATL 7986</td>
<td>Master Materials Engineering Project</td>
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<td>Select 30 Credits in @ 6000-8999 (Electives)</td>
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**Materials Engineering - PhD**

<table>
<thead>
<tr>
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<tr>
<td>MATL 8990</td>
<td>Research and Dissertation</td>
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<tr>
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<td>Select 21 Credits in MATL 6000-8999</td>
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<td></td>
<td>Select 29 Credits in @ 6000-8999 (Electives)</td>
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<td><strong>Total Hours</strong></td>
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</tbody>
</table>

**Mathematics and Statistics - MS, MAM, MPS, PhD**

**Degree Programs:**

- Applied Mathematics Non-Thesis - MAM (p. 1484)
- Mathematics Option Thesis - MS  (p. 1484)
- Mathematics - PhD (p. 1485)
- Statistical Option Thesis - MS (p. 1485)
- Probability and Statistics Non-Thesis - MProbS (p. 1485)

The Department of Mathematics and Statistics offers programs leading to the master of science and doctor of philosophy in both pure and applied mathematics and statistics, the non-thesis master of applied mathematics, and the master of probability and statistics (also see Statistics). In addition, the department regularly offers actuarial science courses that are approved by both the Society of Actuaries and the Casualty Actuarial Society; they are designed to provide the background and material covered in the first three actuarial exams.

The master of applied mathematics gives students a strong foundation in one of several fundamental areas of applied mathematics. It is a flexible degree with courses being chosen in conjunction with the advisory committee, some of which may be relevant courses offered by other departments. The master of probability and statistics and the master of science in statistics degrees provide a solid foundation
for careers involving applications of statistics. The master of science degree in mathematics develops both content knowledge of the student through coursework, and provides the opportunity to delve deeper into an area of mathematics through the writing of a thesis. The PhD is designed to give students a thorough understanding of a broad body of knowledge related to their field of study, as well as to develop their research capabilities. PhD students are required to pass one oral and three written preliminary examinations. A statistics concentration is available for the PhD degree (see Statistics).

The internationally known faculty of around 50 professors works in areas of algebra, analysis, applied mathematics, discrete mathematics, geometry, linear algebra, logic, numerical analysis, partial differential equations, probability, set theory, statistics and topology. Some professors maintain applied research programs associated with several government and industrial laboratories, and one holds the Associate of the Society of Actuaries designation.

Admission to the program is based on a student’s undergraduate record, three letters of recommendation from former teachers, GRE scores and graduate GPA (for doctoral students). The GRE subject test is not required. A bachelor’s degree in mathematics is not required, but students without such a background may be expected to take additional courses to make up deficiencies. The department follows the guidelines for graduate degrees set forth in this Bulletin. Doctoral students must satisfy the departmental preliminary examination requirement to continue their teaching assistantship. Course work in mathematics may be transferred from other institutions, subject to university limitations. (See http://www.math.auburn.edu/.)

Most students in the program are supported financially during their studies through Graduate Teaching Assistantships and through tuition waivers given to all teaching assistants (with some restrictions). The Baskervill, Fitzpatrick, and Haynesworth Fellowships (around $5,000 each) are awarded annually to qualified students in the Department of Mathematics and Statistics. The department occasionally has Graduate Research Assistantships available in conjunction with departmental contractual research programs. The department requires that all international GTAs who have responsibility for teaching a class be proficient in English, passing the test of spoken English.

**MS_MATH**

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**PhD_MATH**

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<td>MATH 8990</td>
<td>Research and Dissertation</td>
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<td>11 Credits in MATH 6000-8999</td>
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### Applied Mathematics Non-Thesis - MAM

**Applied Mathematics Non-Thesis - MAM**

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<th>Course Title</th>
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<tbody>
<tr>
<td>MATH 7980</td>
<td>Research and Special Project in Applied Mathematics</td>
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### Mathematics Option Thesis- MS

**Mathematics Option Thesis- MS**

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<td>Research and Thesis</td>
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<td>20 Credits in MATH 6000-8999</td>
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Mathematics - PhD

Mathematics - PhD

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<tbody>
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<td>Research and Dissertation</td>
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<tr>
<td></td>
<td>11 Credits in MATH 6000-8999</td>
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Statistics Option Thesis - MS

Statistics Option Thesis - MS

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
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<td>STAT 7990</td>
<td>Research and Thesis</td>
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</tr>
<tr>
<td></td>
<td>20 Credits in MATH/STAT 6000-8999</td>
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Probability and Statistics Non-Thesis - MProbS

Probability and Statistics

<table>
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<th>Course Title</th>
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<td><strong>Total Hours</strong></td>
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Mechanical Engineering - MS, PhD

Degree Programs:

- Mechanical Engineering - MS (p. 1486)
- Mechanical Engineering - PhD (p. 1486)

The Mechanical Engineering Department offers graduate programs of instruction and research leading to the degrees of master of science (thesis and non-thesis options), and doctor of philosophy. Educational and research facilities are available to support graduate study in solid mechanics, experimental mechanics, electronic packaging and reliability, fracture and failure mechanics, robotics, vibrations, controls, dynamical systems, engineering design, additive manufacturing, friction-lubrication-wear, computer-aided design, fluid dynamics, transportation systems, conventional and renewable energy systems, HVAC systems and nanotechnology applications. The applicant must hold a bachelor’s degree or its equivalent from an institution of recognized standing. If the applicant’s undergraduate degree is not closely related to mechanical engineering, an individualized plan of study will be developed to impart the critical skills inherent in the bachelor’s mechanical engineering program. This typically includes completing a prescribed number of core undergraduate mechanical engineering courses in addition to the graduate requirements. All applicants must submit Graduate Record Examination scores for the General Test and will be evaluated on an individual basis by the Mechanical Engineering Graduate Committee.

MS (Non-Thesis Option): This degree is intended for those applicants who expect to enter the engineering profession at an advanced level or those who are employed and seeking professional development. Requirements for the degree consist of completing 30 credit hours of 6000-7000 level courses. A minimum of 21 credit hours of graded course work should be in mechanical engineering. Substitution of courses from other engineering/science disciplines is permitted with prior approval when appropriate courses are unavailable in mechanical engineering. A committee of three faculty members including a major professor will supervise the plan of study of each student. There is no faculty supervised project requirement.

MS (Thesis Option): This degree is intended for those applicants who expect to enter the engineering profession at an advanced level with some creative research experience. The MS applicant must have a baccalaureate or its equivalent in an engineering or scientific discipline from an institute of recognized standing. The degree requires 30 credit hours of 6000-7000 level courses including 6 credit hours of MECH 7990 and 9 credits of graduate engineering/science technical elective courses. A minimum of 15 credit hours of graded course work should be in mechanical engineering courses. Substitution of courses from other engineering/science disciplines is permitted with prior approval when appropriate courses are unavailable in mechanical engineering. All candidates must pass an oral
defense of their written thesis including a comprehensive examination covering the major courses. A committee of at least three faculty members including the major professor will take part in evaluating the thesis.

Doctor of Philosophy (PhD): This degree provides for advanced coursework and emphasizes original, creative research. A dissertation embodying the results of this research represents a major portion of the requirements for this degree. The PhD program will consist of a minimum of 60 credit hours, including dissertation, beyond the BS degree. PhD students will select their major courses from those at the 7000-8000-level unless there are special requirements for more basic courses. A minimum of 21 credit hours of graded course work should be in mechanical engineering courses. This amount could include up to 4 credit hours of MECH 7990 or equivalent. Substitution of courses from other engineering/science disciplines is permitted when appropriate courses are unavailable in mechanical engineering. The PhD also requires a coordinated minor of at least 9 credit hours of graded coursework in a closely related field such as mathematics, physics, chemistry, or other engineering disciplines. A minimum of 10 credit hours of MECH 8990 Research & Dissertation is also required. There is no language requirement for the PhD.

The General Doctoral Examination (Preliminary Examination) must be taken by those seeking a PhD. This examination, administered by the major professor in coordination with members of a committee of at least four faculty (including the major professor) consists of two parts: (1) a written Qualifying Examination based upon knowledge acquired from coursework, taken four semesters from the date of entry, and (2) an oral examination which includes questions on knowledge acquired from coursework as well as a presentation and defense by the student of his/her proposed dissertation research. All PhD candidates must also pass a Final Examination consisting of an oral defense of their written dissertation. A maximum of two attempts each is allowed for passing the General Doctoral Examination and the Final Examination.

### Mechanical Engineering - MS

**Mechanical Engineering (MS)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MECH 7990</td>
<td>Research &amp; Thesis</td>
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<td>Select 21 Credits in MECH 6000-8999</td>
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</tr>
<tr>
<td>Select 5 Credits in @ 6000-8999 (Electives)</td>
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### Mechanical Engineering - PhD

**PhD**

<table>
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<tr>
<td>MECH 8990</td>
<td>Research &amp; Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>Select 21 Credits in MECH 7000-8999</td>
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<td>Select 9 Credits in @ 6000-8990</td>
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### Pharmaceutical Sciences: Medicinal Chemistry Option - MS

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000 - 8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or
awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below.

### Scientific Communications (Three credits required)

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>HOPR 7950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
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<tr>
<td>DRDD 7000</td>
<td>Introduction to Grant Writing</td>
</tr>
<tr>
<td>DRDD 7950</td>
<td>Seminar</td>
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### Data Analyses and Interpretation (Three credits required)

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<thead>
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<th>Course</th>
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<tr>
<td>ERMA 7300</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>or ERMA 7306</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>DRDD 7010</td>
<td>Pharmacokinetics</td>
</tr>
<tr>
<td>DRDD 7030</td>
<td>Drug Products and Biopharm</td>
</tr>
<tr>
<td>DRDD 7230</td>
<td>ADVANCED MEDICINAL CHEMISTRY I</td>
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<tr>
<td>DRDD 7340</td>
<td>ORGAN SYSTEMS PHARMACOLOGY I</td>
</tr>
<tr>
<td>DRDD 7360</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
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<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
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### Experimental Design (Three credits required)

<table>
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<th>Title</th>
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</thead>
<tbody>
<tr>
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<td>Research And Thesis (may be repeated multiple times for credit)</td>
</tr>
<tr>
<td>DRDD 7990</td>
<td>Research and Thesis (may be repeated multiple times for credit)</td>
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</table>

### Option specific requirements for MS students pursuing the Medicinal Chemistry option include:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 7200</td>
<td>Advanced Organic Chemistry I</td>
</tr>
<tr>
<td>CHEM 7220</td>
<td>Advanced Organic Chemistry III</td>
</tr>
<tr>
<td>DRDD 7230</td>
<td>ADVANCED MEDICINAL CHEMISTRY I</td>
</tr>
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<td>DRDD 7240</td>
<td>ADVANCED MEDICINAL CHEMISTRY II</td>
</tr>
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<td>DRDD 7260</td>
<td>Separation Science</td>
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<tr>
<td>DRDD 7950</td>
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<tr>
<td>DRDD 7990</td>
<td>Research and Thesis (total of 6 CR required)</td>
</tr>
</tbody>
</table>

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 30 hour degree requirement.

### Pharmaceutical Sciences: Medicinal Chemistry Option - PhD

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor’s degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000 - 8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000 - 8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination
must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

<table>
<thead>
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<th>Scientific Communications (Six credits required)</th>
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</thead>
<tbody>
<tr>
<td>DRDD 7000 Introduction to Grant Writing</td>
<td></td>
</tr>
<tr>
<td>DRDD 8950 Seminar (may be repeated multiple times for credit)</td>
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<tr>
<td>HORN 8950 Seminar (may be repeated multiple times for credit)</td>
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<tr>
<th>Data Analyses and Interpretation (Six credits required)</th>
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<tbody>
<tr>
<td>ERMA 7300/7306 Design and Analysis in Education I</td>
<td></td>
</tr>
<tr>
<td>ERMA 7310/7316 Design and Analysis in Education II</td>
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<tr>
<td>MNGT 8400 Advanced Quantitative Methods for Management I</td>
<td></td>
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<tr>
<td>DRDD 7010 Pharmacokinetics</td>
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<tr>
<td>DRDD 7030 Drug Products and Biopharm</td>
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<tr>
<td>DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II</td>
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</tr>
<tr>
<td>DRDD 7360 CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7370 CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY II</td>
<td></td>
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<tr>
<td>STAT 7000 Experimental Statistics I</td>
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<tr>
<td>STAT 7010 Experimental Statistics II</td>
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</table>

<table>
<thead>
<tr>
<th>Experimental Design (Six credits required)</th>
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<tbody>
<tr>
<td>HORP 8990 Research And Dissertation</td>
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</tr>
<tr>
<td>DRDD 8990 Research And Dissertation</td>
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</table>

Option specific requirements for PhD students pursuing the Medicinal Chemistry option include:

<table>
<thead>
<tr>
<th>CHEM 7200 Advanced Organic Chemistry I</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 7220 Advanced Organic Chemistry III</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7250 Drug Action and Design</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7260 Separation Science</td>
<td>4</td>
</tr>
<tr>
<td>DRDD 7270 MASS SPECTROMETRY OF ORGANIC COMPOUNDS</td>
<td>4</td>
</tr>
<tr>
<td>DRDD 7600 HETEROCYCLIC MEDICINAL CHEMISTRY</td>
<td>3</td>
</tr>
<tr>
<td>HORP 8950 Seminar (may be repeated multiple times for credit)</td>
<td>1</td>
</tr>
<tr>
<td>HORP 8990 Research And Dissertation (total of 10 CR required)</td>
<td>1-10</td>
</tr>
</tbody>
</table>

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 60 hour degree requirement.

### Natural Resources - MNR, MS

**Program Degrees:**

- Natural Resources - MNR
- Natural Resources - MS

Graduate study in natural resources leads to the Master of Natural Resources (MNR), or Master of Science (MS) degrees. In addition to meeting Graduate School admission requirements, applicants are evaluated and recommended for admission by the graduate faculty of the School of Forestry and Wildlife Sciences based on an examination of scores on the TOEFL tests for international students, previous academic records, experience, and recommendations. While exceptions may be made, the faculty generally expect a minimum GPA
of 3.0 in previous academic course work. Course deficiencies are identified by the student’s advisory committee and approved by the GPO with due consideration for the student’s previous training and experience.

Degrees offered:

• **Master of Natural Resources** - The MNR is a non-thesis degree.

  *Natural Resource Management* is available for individuals with a baccalaureate degree who are interested in careers in the natural resources arena. This degree can be completed in 3-4 semesters depending upon coursework selected and requires a minimum of 30 semester hours of graduate courses.

  *Professional Forester* track is for individuals with baccalaureate degrees in fields other than forestry and who are interested in becoming Registered Foresters in Alabama. This track is a two-year program which begins with a 10 week summer Field Practicum and requires a minimum of 64 semester hours (34 hours of specified undergraduate course work plus 30 hours of graduate course work).

• **Master of Science (MS)** A research proposal and thesis based on original research are required components of the MS degree. The program normally requires 2 – 3 years for completion. The MS degree program requires a minimum of 30 hours beyond the bachelor degree at the graduate level, 21 hours of which must be in the major. A minimum of 4 but not more than 6 hours in Research and Thesis (FORY 7990) is required. All MS students are required to take Research Methods (FORY 7510), Seminar (FOWS 7950), and Research and Thesis (FORY 7990).

**Natural Resources - MNR**

**Natural Resources (MNR)**

Select 30 Credits in @ 6000-8999 (Electives) 30

Total Hours 30

**Natural Resources - MS**

**Natural Resources (MS)**

FORY 7510 Research Methods 2
FOWS 7950 Graduate Seminar 1
FORY 7990 Research and Thesis 4-6

Select 21-23 Credits in @ 6000-8999 (Electives) 23-21

Total Hours 30

**Doctor of Nursing : Doctor of Nursing Practice**

**Semester I**

NURS 8416/8410 Theory Application for Advanced Practice 3
NURS 8516/8510 Foundation for Evidence-Based Practice 3
NURS 8716/8710 Transitional Skills for DNP Practice 2

**Semester II**

NURS 8326/8320 Informatics and Management of Health Outcomes 3
NURS 8426/8420 Population Health Outcomes 3
NURS 8726/8720 Health Innovations and Clinical Outcomes Improvements 3

**Semester III**

NURS 8336/8330 Quantitative Methods for Evidence-Based Practice 3
NURS 8436/8430 Financial Management for Advanced Practice 3
NURS 8936/8930 DNP Project Practicum I : Development (1 theory, 2 clinical) 3

**Semester IV**

NURS 8446/8440 Leadership for Advanced Health Policy 3
NURS 8546/8540 Advanced Practice Practicum 2
NURS 8946/8940 DNP Project Practicum II : Implementation (1 theory, 3 clinical) 4
Semester V
NURS 8956/8950 DNP Project Practicum III : Evaluation and Presentations  4
Total Hours  39

*Must be taken before DNP project hours

All DNP Programs are required to document evidence of 1000 practice hours by program completion. As a post certification program, there will be students who have a variance in hours completed, (e.g. NP’s will have more eligible clinical hours than a Nurse Educator.) Therefore, students will be evaluated based on this relevant to DNP clinical requirements. This may require additional hours in the practicum to achieve the goal. NURS 8546 is designed to provide the opportunity for any student that needs additional hours. A student may have to repeat NURS 8546 to achieve the required 1000 hours.

The Doctor of Nursing Practice Program will be a post master's program. Each student will have also achieved national certification prior to starting the DNP Program. This course of study will build on the student's MSN Program and provide additional specialized knowledge and skills to become a leader in healthcare. All courses and activities required for the program are designed to prepare nurses for the highest level of nursing practice. The goal of this program is to prepare advanced practice nurses who have enhanced leadership skills and transformational abilities to be responsible to the changing needs of healthcare delivery. The nurses will be able to recognize trends in healthcare and implement strategies that will promote improved patient outcomes and safety while maintaining quality and value. The minimum number of hours needed for graduation will be 39 hours.

Nursing - MSN

Program Degrees:
- Nursing - MSN (p. 1491)
- Primary Care Practitioner Option - MSN (p. 1492)
- Nursing Education Option - MSN  (p. 1491)
- Nursing Two Tracks: Primary Care Nurse Practitioner and Nurse Educator (http://bulletin.auburn.edu/theschoolgraduateschool/graduatedegreesoffered/nursingmsn_major/nursingtwotrack)

The School of Nursing offers a Masters in Science of Nursing (MSN). MSN graduates are ready to lead in educator and advanced practice nurse roles in health-related services to diverse populations. The MSN Program has two program options: Nurse Educator (33 credit/semester hours) and Primary Care Nurse Practitioner (43 credit/semester hours). All formal program options share a 24-credit/semester hour core and then courses specific to each program option. The program is offered via a hybrid format where a few on campus course meetings may be held over the semester. The program does not require a thesis. Students are required to complete a capstone paper, generally a plan for an evidence-based intervention either in the educational setting or in the primary care practice setting. Students enrolled in the MSN Program prior to May 2018 are in a joint program with Auburn University Montgomery. Upon graduation of these students, the joint program will be discontinued.

Admission to all formal program options is competitive and all qualified applicants may not be admitted. Schools of Nursing Admission Minimum Requirements include:
- A bachelor of science in nursing from an accredited college or university
- Good academic standing from the last university attended
- Overall GPA of 3.0
- Unencumbered RN License. Students completing a BSN Program during the semester of application must request a waiver from the admission committee in order for the application to be considered.
- Three Professional References
- 500-word Professional Goal Statement. This statement will include: reasons for pursuing this degree and program option, past experiences, career goals and past achievements.
- Successful completion of undergraduate statistics course.

Applicants may be asked by the School of Nursing for additional information and may be required to interview with the Director of the MSN Program, the MSN admission committee, and/or graduate faculty.

Full-time admission is available in the summer semester only and part-time admission is available, summer, fall, and spring if space it available. It is unlikely due to scheduling of courses and pre-requisites that students admitted part-time can move to full-time status. Courses are offered only one time per each academic year so changing programs of study from full to part-time may impact planned
graduation dates. Application deadlines are: (1) Summer Semester- March 1, (2) Fall Semester-June 1, and (3) Spring Semester- October 1. The application is completed online and may be found on the Auburn University Graduate School webpage.

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>NURS 7346</td>
<td>Advanced Theoretical Foundations of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7356</td>
<td>Quality, Safety, and Prevention Using Technology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7366</td>
<td>Evidence-Based Practice I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 7246</td>
<td>Advanced Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7256</td>
<td>Healthcare Policy and Ethics for the Nurse Leader</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7376</td>
<td>Evidence-Based Practice II</td>
<td>2</td>
</tr>
<tr>
<td>NURS 7236</td>
<td>Advanced Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7116</td>
<td>Advanced Physical Assessment/Applied Clinical Concepts I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7946</td>
<td>Evidence-Based Practice III</td>
<td>2</td>
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</table>

**Nurse Educator Specific Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>NURS 7326</td>
<td>Curriculum Development and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>HIED 8500</td>
<td>The Professoriate</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7816</td>
<td>Nursing Education Practicum</td>
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**Primary Care Nurse Practitioner Specific Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
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<tr>
<td>NURS 7226</td>
<td>Roles and Issues of the Primary Care Practitioner</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7336</td>
<td>Diagnostic Reasoning and Clinical Management</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7446</td>
<td>Primary Care I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7556</td>
<td>Primary Care II</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7926</td>
<td>Primary Care Practicum</td>
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**Nursing - MSN**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>NURS 7346</td>
<td>Advanced Theoretical Foundations of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7356</td>
<td>Quality, Safety, and Prevention Using Technology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7366</td>
<td>Evidence-Based Practice I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 7246</td>
<td>Advanced Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7256</td>
<td>Healthcare Policy and Ethics for the Nurse Leader</td>
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<td>NURS 7376</td>
<td>Evidence-Based Practice II</td>
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<tr>
<td>NURS 7236</td>
<td>Advanced Pathophysiology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7116</td>
<td>Advanced Physical Assessment/Applied Clinical Concepts I</td>
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<td>NURS 7946</td>
<td>Evidence-Based Practice</td>
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**Nursing Education Option**

**Nurse Educator Specific Courses**

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<th>Course Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>NURS 7326</td>
<td>Curriculum Development and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7266</td>
<td>Nurse Educator: Transition to a Faculty Role</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7816</td>
<td>Nursing Education Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Hours**

9

**Primary Care Nurse Practitioner - Graduate Certificate**

The Post Masters Primary Care Nurse Practitioner (PCNP) certificate program (19 credit/semester hours) is offered to graduates of other nursing master's programs. The goal of the PCNP graduate certificate is to give advanced practice nurses the opportunity to expand their practice by taking the clinical courses needed to qualify for the certification exam to be licensed as a PCNP. Students who
complete the certificate program will be ready to lead in advanced practice roles in health-related services to diverse populations. The PCNP certificate program is offered via a hybrid format where some courses are totally online and other courses require one to two on-campus class sessions per semester. These on-campus class sessions would be for program/course orientations, presentations, or proctored testing.

Admission to all formal program options is competitive and all qualified applicants may not be admitted. Primary Care Nurse Practitioner Certificate Program admission minimum requirements include:

1) completed application.

2) Master’s of Science in Nursing (MSN) or Master’s in Nursing (MN or MS) from a nursing program accredited by an accreditation agency (CCNE or NLNAC) approved by Department of Education.

3) a minimum cumulative grade average (GPA) of 3.0 on a 4-point scale in master’s program.

4) hold current active registered nurse license in the U.S. with no license encumbrances.

5) pass a nationwide background check and drug screen.

6) three online professional references.

7) a personal interview with graduate nursing faculty may be required.

8) successful completion with a "B" or higher in Advanced Pathophysiology, Advanced Pharmacology, and Advanced Physical Assessment in the last five years.

9) minimum one year clinical experience.

10) 500 word personal goal statement. This statement will include: reasons for pursuing this certificate, past experiences, and career goals.

**Primary Care Nurse Practitioner Specific Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 7226</td>
<td>Roles and Issues of the Primary Care Practitioner</td>
<td>3</td>
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<tr>
<td>NURS 7336</td>
<td>Diagnostic Reasoning and Clinical Management</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7446</td>
<td>Primary Care I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7556</td>
<td>Primary Care II</td>
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<tr>
<td>NURS 7926</td>
<td>Primary Care Practicum</td>
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Total Hours 19

**Primary Care Practitioner Option - MSN**

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>NURS 7226</td>
<td>Roles and Issues of the Primary Care Practitioner</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7336</td>
<td>Diagnostic Reasoning and Clinical Management</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7446</td>
<td>Primary Care I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7556</td>
<td>Primary Care II</td>
<td>3</td>
</tr>
<tr>
<td>NURS 7926</td>
<td>Primary Care Practicum</td>
<td>7</td>
</tr>
</tbody>
</table>

**Nutrition - MS, PhD**

- MS Nutrition (p. 1497)
- PhD Nutrition (p. 1499)
- MS Nutrition with an option in Hotel and Restaurant Management (p. 1498)
- PhD Nutrition with an option in Hotel and Restaurant Management (p. 1500)
The Department of Nutrition, Dietetics, and Hospitality Management offers graduate study leading to the Master of Science (MS) and the Doctor of Philosophy (PhD) degrees in nutrition or with an option in hotel and restaurant management. The combination of these areas within a single department facilitates integrative studies addressing normal and clinical nutrition, food and health issues, food service, as well as hospitality management. For the MS degree, the student may specialize in general, community, clinical or sports nutrition, food service management, or hotel and restaurant management. The department emphasizes the integration of knowledge from various fields for the purpose of understanding and developing professional skills for careers in higher education, government, and food, healthcare and hospitality industries.

For admission to the MS or PhD programs, the student must have a bachelor’s degree from an accredited institution, a satisfactory GPA, a satisfactory GRE score (a GMAT score may substitute for the GRE score for the hotel and restaurant management emphasis), and acceptable undergraduate academic preparation. The admission committee will evaluate all application items, including transcripts, GRE/GMAT scores, letters of recommendation, a statement of intent, and resume. International applicants are also required to submit satisfactory TOEFL scores. Applicants lacking background requirements in chemistry and anatomy and physiology for the nutrition program must make up deficiencies prior to starting the program.

The MS degree with a thesis track requires a minimum of 30 semester hours and a thesis. The MS degree with the nonthesis track requires a minimum of 33 semester hours and a scholarly research project.

Required courses for the thesis track in nutrition include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7500</td>
<td>Minerals</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7510</td>
<td>Vitamins</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7520</td>
<td>Macronutrients: Integration and Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 7530</td>
<td>Human Nutrient Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>ERMA 7300/7500</td>
<td>Design and Analysis in Education I</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
<td></td>
</tr>
<tr>
<td>NTRI 7050</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7850</td>
<td>Research Seminar for Master's Program</td>
<td>1</td>
</tr>
<tr>
<td>NTRI 7990</td>
<td>Research And Thesis (minimum of 5 hours)</td>
<td>1-10</td>
</tr>
<tr>
<td>Elective Graduate Level Courses</td>
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</table>

The non-thesis track in Nutrition is available through both distance education and on campus. Required courses for the non-thesis track in nutrition include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7500/7506</td>
<td>Minerals</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7510/7516</td>
<td>Vitamins</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7520/7526</td>
<td>Macronutrients: Integration and Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 7530/7536</td>
<td>Human Nutrient Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3-4</td>
</tr>
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<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
<td></td>
</tr>
<tr>
<td>NTRI 7050/7056</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7850/7856</td>
<td>Research Seminar for Master's Program</td>
<td>1</td>
</tr>
<tr>
<td>NTRI 7980/7986</td>
<td>Nonthesis Research (minimum of 5 hours)</td>
<td>1-6</td>
</tr>
<tr>
<td>Elective Graduate Level Courses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The M.S. in Nutrition (Non-Thesis) with ISPP Experience offers a minimum of 1200 hours of supervised field experience in conjunction with the M.S. degree to enable baccalaureate degree graduates of Didactic Programs in Dietetics (DPDs) the opportunity to fulfill the experiential requirements to sit for the Registration Examination for Dietitians. The ISPP Experience is offered to students who applied but were not matched to a dietetic internship. Students complete 9-credit hours of field experience taking NTRI 7016 Advanced Practicum in Dietetics as the elective courses for the non-thesis option. Academic coursework is completed over the first year, followed by the field experience. Supervised practice will occur in various settings, including acute and critical care, outpatient, long-term care, wellness, public health, community, school foodservice, and other professional settings. The Auburn University ISPP Experience emphasis is in Clinical Nutrition. The supervised practice is completed regionally in Alabama and Georgia (within an approximate 60 mile radius) or may be arranged via distance at student-coordinated sites subject to approval by the ISPP coordinator. Graduates who
successfully complete the Auburn University M.S. in Nutrition with ISPP Experience will be eligible to take the Registration Examination for Dietitians.

Examples of elective courses for the MS in nutrition may include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 6820/6826</td>
<td>Nutrition In The Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 6560</td>
<td>Nutrition and Food Service Management</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 6020</td>
<td>Medical Nutrition I</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 6030</td>
<td>Medical Nutrition II</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 6620</td>
<td>Sports Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7680</td>
<td>Advanced Physiology of Exercise I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7700</td>
<td>Advanced Physiology of Exercise II</td>
<td>3</td>
</tr>
<tr>
<td>KINE 8780</td>
<td>Biochemistry of Exercise</td>
<td>3</td>
</tr>
<tr>
<td>KINE 6500</td>
<td>Exercise Technology I: Principles of Exercise Testing and Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>KINE 6550</td>
<td>Exercise Technology II: Applied Exercise Testing and Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>KINE 6400</td>
<td>Exercise Prescription for Normal and Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7750</td>
<td>Advanced Sport Psychology</td>
<td>3</td>
</tr>
<tr>
<td>VBMS 7070</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 6220</td>
<td>Introductory Molecular Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 6190</td>
<td>Cell and Molecular Signal Transduction</td>
<td>3</td>
</tr>
<tr>
<td>BCHE 7220</td>
<td>Principles of Cellular and Molecular Enzymology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 6500</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BCHE 7280</td>
<td>Topics in Biochemistry</td>
<td>3</td>
</tr>
<tr>
<td>BCHE 7910</td>
<td>Practicum in Nutrition and Dietetics</td>
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<tr>
<td>ADED 7600</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7060</td>
<td>Curriculum and Program Planning in Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7930/7936</td>
<td>Advanced Independent Study</td>
<td>1-6</td>
</tr>
<tr>
<td>NTRI 7016</td>
<td>Advanced Practicum in Dietetics</td>
<td>1-9</td>
</tr>
</tbody>
</table>

Required courses for the thesis track with an option in hotel and restaurant management include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7050</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7850</td>
<td>Research Seminar for Master's Program</td>
<td>1</td>
</tr>
<tr>
<td>NTRI 7990</td>
<td>Research And Thesis</td>
<td>Minimum of 5</td>
</tr>
<tr>
<td>HOSP 6530</td>
<td>Science of Quality Service in Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 6570</td>
<td>Global Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7000</td>
<td>Hospitality Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7010</td>
<td>Advanced Tourism Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 8860</td>
<td>Current Issues in Hospitality Management</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7300</td>
<td>Design and Analysis in Education I</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Courses Minimum of 4

The non-thesis track in the hotel and restaurant management option is available through both distance education and on campus. Required courses for the non-thesis track with an option in hotel and restaurant management include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7050/7056</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7980/7986</td>
<td>Nonthesis Research</td>
<td>Minimum of 5</td>
</tr>
<tr>
<td>HOSP 6530/6536</td>
<td>Science of Quality Service in Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 6570/6570</td>
<td>Global Hospitality</td>
<td>3</td>
</tr>
</tbody>
</table>
### PhD Degree

The PhD degree requires a minimum of 60 semester hours beyond the bachelor's degree, a general doctoral examination with written and oral components, and a dissertation describing original research in the area of nutrition or hotel and restaurant management.

The student becomes a candidate for the degree on successful completion of the general examinations. Course requirements for the PhD degree in nutrition are the same as for the corresponding Master's degree or an equivalent course from another institution plus NTRI 8970, NTRI 8850, and NTRI 7280. Laboratories are available for human, animal, chemical, and physical research. Supporting courses to strengthen the nutrition major may be in, but not limited to, biochemistry, physiology, chemistry, animal science, kinesiology, education, and biostatistics.

Course requirements for the PhD degree in nutrition include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7500/7506</td>
<td>Minerals</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7510</td>
<td>Vitamins</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7520/7526</td>
<td>Macronutrients: Integration and Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 7530/7536</td>
<td>Human Nutrient Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 7280</td>
<td>Laboratory Methods in Food Science and Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
<td></td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 7010</td>
<td>Experimental Statistics II</td>
<td></td>
</tr>
<tr>
<td>NTRI 7050/7056</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 8850</td>
<td>Research Seminar for Doctoral Program</td>
<td>1-2</td>
</tr>
<tr>
<td>NTRI 8970/8976</td>
<td>Advanced Topics in Nutrition, Dietetics and Hospitality Management</td>
<td>1-6</td>
</tr>
<tr>
<td>NTRI 8990</td>
<td>Research And Dissertation</td>
<td>1-10</td>
</tr>
</tbody>
</table>

#### Elective Graduate Level Courses

Examples of elective courses for the PhD degree in nutrition may include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 6020</td>
<td>Medical Nutrition I</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 6030</td>
<td>Medical Nutrition II</td>
<td>4</td>
</tr>
</tbody>
</table>
Course requirements for the PhD degree with an option in hotel and restaurant management include:

- HRMT specialization: a minimum of 34 credit hours, including:
  - HOSP 6530 Science of Quality Service in Hospitality 3
  - HOSP 7006 Hospitality Enterprise 3
  - HOSP 7010 Advanced Tourism Analysis 3
  - HOSP 8860 Current Issues in Hospitality Management 3
  - HOSP 8870 Advanced Hospitality Management Research and Applications 3
  - HOSP 8880 Theoretical Developments for Hospitality 3
  Graduate-level HRMT and/or related courses. At least 16

- Research support: a minimum of 16 credit hours, including:
  - NTRI 7050 Methods Of Research 2
  - NTRI 8850 Research Seminar for Doctoral Program 2
  - ERMA 7300 Design and Analysis in Education I 3
  - ERMA 7310 Design and Analysis in Education II 3
  Graduate-level research/statistics courses. At least 6

- Dissertation: a minimum of 10 credit hours of NTRI 8990.

Examples of HRMT Specialization Elective Courses:

- HOSP 6460 Catering And Event Management 1
- HOSP 6461 Catering And Event Management 2
- HOSP 6550 Club Management 3
- HOSP 6540 Conference Coordination 3
The hotel and restaurant management option may take supporting courses in such areas as management, marketing, economics, and education. Course requirements for becoming a registered dietitian may be met during the graduate program by enrolling in additional required courses. Teaching, research, and extension assistantships are awarded competitively to qualified students.

**MS Nutrition**

**MS Nutrition Thesis**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7500</td>
<td>Minerals</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7510</td>
<td>Vitamins</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7520</td>
<td>Macronutrients: Integration and Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 7530</td>
<td>Human Nutrient Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>ERMA 7300</td>
<td>Design and Analysis in Education I</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
<td></td>
</tr>
<tr>
<td>NTRI 7050</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7850</td>
<td>Research Seminar for Master's Program</td>
<td>1</td>
</tr>
<tr>
<td>NTRI 7990</td>
<td>Research And Thesis (minimum of 5 hours)</td>
<td>5</td>
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</table>

**Elective Graduate Level Courses**

The non-thesis track in Nutrition is available through both distance education and on campus. Required courses for the non-thesis track in nutrition include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7500/7506</td>
<td>Minerals</td>
<td>3</td>
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<tr>
<td>NTRI 7510/7516</td>
<td>Vitamins</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7520/7526</td>
<td>Macronutrients: Integration and Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 7530/7536</td>
<td>Human Nutrient Metabolism</td>
<td>4</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
<td></td>
</tr>
<tr>
<td>NTRI 7050/7056</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7850/7856</td>
<td>Research Seminar for Master's Program</td>
<td>1</td>
</tr>
<tr>
<td>NTRI 7980/7986</td>
<td>Nonthesis Research (minimum of 5 hours)</td>
<td>1-6</td>
</tr>
</tbody>
</table>

**Elective Graduate Level Courses**

Examples of elective courses for the MS in nutrition may include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ADED 7060</td>
<td>Curriculum and Program Planning in Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>ADED 7600</td>
<td>Nature of Adult Education</td>
<td>3</td>
</tr>
<tr>
<td>BCHE 7220</td>
<td>Principles of Cellular and Molecular Enzymology</td>
<td>3</td>
</tr>
<tr>
<td>BCHE 7280</td>
<td>Topics in Biochemistry</td>
<td>1-3</td>
</tr>
<tr>
<td>BIOL 6190</td>
<td>Cell and Molecular Signal Transduction</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 6220</td>
<td>Introductory Molecular Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 6500</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>KINE 6400</td>
<td>Exercise Prescription for Normal and Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>KINE 6500</td>
<td>Exercise Technology I: Principles of Exercise Testing and Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>KINE 6550</td>
<td>Exercise Technology II: Applied Exercise Testing and Interpretation</td>
<td>4</td>
</tr>
<tr>
<td>KINE 7680</td>
<td>Advanced Physiology of Exercise I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7700</td>
<td>Advanced Physiology of Exercise II</td>
<td>3</td>
</tr>
<tr>
<td>KINE 7750</td>
<td>Advanced Sport Psychology</td>
<td>3</td>
</tr>
<tr>
<td>KINE 8780</td>
<td>Biochemistry of Exercise</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 6020</td>
<td>Medical Nutrition I</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 6030</td>
<td>Medical Nutrition II</td>
<td>4</td>
</tr>
<tr>
<td>NTRI 6560</td>
<td>Nutrition and Food Service Management</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 6620</td>
<td>Sports Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 6820/6826</td>
<td>Nutrition In The Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7016</td>
<td>Advanced Practicum in Dietetics</td>
<td>1-9</td>
</tr>
<tr>
<td>NTRI 7910</td>
<td>Practicum in Nutrition and Dietetics</td>
<td>1-12</td>
</tr>
<tr>
<td>NTRI 7930/7936</td>
<td>Advanced Independent Study</td>
<td>1-6</td>
</tr>
<tr>
<td>VBMS 7070</td>
<td>Endocrinology</td>
<td>4</td>
</tr>
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</table>

**MS Nutrition with an option in Hotel and Restaurant Management**

Required courses for the thesis track with an option in hotel and restaurant management include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSP 6530</td>
<td>Science of Quality Service in Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 6570</td>
<td>Global Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7000</td>
<td>Hospitality Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7010</td>
<td>Advanced Tourism Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 8860</td>
<td>Current Issues in Hospitality Management</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7300</td>
<td>Design and Analysis in Education I</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7850</td>
<td>Research Seminar for Master's Program</td>
<td>1</td>
</tr>
<tr>
<td>NTRI 7990</td>
<td>Research And Thesis</td>
<td>Minimum of 5</td>
</tr>
<tr>
<td>NTRI 7050</td>
<td>Methods Of Research</td>
<td>2</td>
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</table>

**Elective Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>NTRI 7050/7056</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7980/7986</td>
<td>Nonthesis Research</td>
<td>Minimum of 5</td>
</tr>
</tbody>
</table>

The non-thesis track in the hotel and restaurant management option is available through both distance education and on campus. Required courses for the non-thesis track with an option in hotel and restaurant management include:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTRI 7050/7056</td>
<td>Methods Of Research</td>
<td>2</td>
</tr>
<tr>
<td>NTRI 7980/7986</td>
<td>Nonthesis Research</td>
<td>Minimum of 5</td>
</tr>
<tr>
<td>HOSP 6530/6536</td>
<td>Science of Quality Service in Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 6570/6576</td>
<td>Global Hospitality</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7000/7006</td>
<td>Hospitality Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 7010/7016</td>
<td>Advanced Tourism Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HOSP 8860/8866</td>
<td>Current Issues in Hospitality Management</td>
<td>3</td>
</tr>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
<td>3</td>
</tr>
<tr>
<td>NTRI 7850/7856</td>
<td>Research Seminar for Master's Program</td>
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**Elective Courses**

<table>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSP 6460</td>
<td>Catering And Event Management (Fall-1 hr. and Spring Semester-2 hrs.)</td>
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</tr>
<tr>
<td>HOSP 6461</td>
<td>Catering And Event Management</td>
<td>2</td>
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</tbody>
</table>

Examples of elective courses for the MS with an option in hotel and restaurant management may include:
HOSP 6550 Club Management 3
HOSP 6540 Conference Coordination 3
NTRI 6380 Study/Travel in Nutrition, Dietetics and Hospitality Management 1-6
HOSP 7920 Professional Internship In Hospitality Management 3
HOSP 7106 The Business of Brewing 3
HOSP 7116 Brewing Materials 3
HOSP 7126 Science of Brewing I 3
HOSP 7136 Science of Brewing 2 3
HOSP 7146 Facilities and Operations 3
HOSP 7916 Practicum in Brewing Science 1-3

PhD Nutrition

PhD Nutrition
NTRI 7500/7506 Minerals 3
NTRI 7510 Vitamins 3
NTRI 7520/7526 Macronutrients: Integration and Metabolism 4
NTRI 7530/7536 Human Nutrient Metabolism 4
NTRI 7280 Laboratory Methods in Food Science and Nutrition 3
ERMA 7300/7306 Design and Analysis in Education I 3-4
or STAT 7000 Experimental Statistics I
ERMA 7310/7316 Design and Analysis in Education II 3
or STAT 7010 Experimental Statistics II
NTRI 7050/7056 Methods Of Research 2
NTRI 8850 Research Seminar for Doctoral Program 1-2
NTRI 8970/8976 Advanced Topics in Nutrition, Dietetics and Hospitality Management 1-6
NTRI 8990 Research And Dissertation 1-10

Elective Graduate Level Courses

Examples of elective courses for the PhD degree in nutrition may include:

ADED 7060 Curriculum and Program Planning in Adult Education 3
ADED 7600 Nature of Adult Education 3
BCHE 7220 Principles of Cellular and Molecular Enzymology 3
BCHE 7280 Topics in Biochemistry 1-3
BIOL 6190 Cell and Molecular Signal Transduction 3
BIOL 6220 Introductory Molecular Genetics 3
BIOL 6500 Immunology 3
KINE 6400 Exercise Prescription for Normal and Special Populations 3
KINE 6500 Exercise Technology I: Principles of Exercise Testing and Interpretation 3
KINE 6550 Exercise Technology II: Applied Exercise Testing and Interpretation 4
KINE 7680 Advanced Physiology of Exercise I 3
KINE 7700 Advanced Physiology of Exercise II 3
KINE 7750 Advanced Sport Psychology 3
KINE 8780 Biochemistry of Exercise 3
NTRI 6020 Medical Nutrition I 4
NTRI 6030 Medical Nutrition II 4
NTRI 6560 Nutrition and Food Service Management 3
NTRI 6620 Sports Nutrition 3
NTRI 6820 Nutrition In The Life Cycle 3
PhD Nutrition with an option in Hotel and Restaurant Management

Course requirements for the PhD degree with an option in hotel and restaurant management include:

- **HRMT specialization**: a minimum of 34 credit hours, including:
  - HOSP 6530 Science of Quality Service in Hospitality 3
  - HOSP 7000 Hospitality Enterprise 3
  - HOSP 7010 Advanced Tourism Analysis 3
  - HOSP 8860 Current Issues in Hospitality Management 3
  - HOSP 8870 Advanced Hospitality Management Research and Applications 3
  - HOSP 8880 Theoretical Developments for Hospitality 3

Graduate-level HRMT and/or related courses.

- **Research support**: a minimum of 16 credit hours, including:
  - NTRI 7050 Methods Of Research 2
  - NTRI 8850 Research Seminar for Doctoral Program 2
  - ERMA 7300 Design and Analysis in Education I 3
  - ERMA 7310 Design and Analysis in Education II 3

Graduate-level research/statistics courses.

- **Dissertation**: a minimum of 10 credit hours of NTRI 8990.

Examples of HRMT Specialization Elective Courses:

- HOSP 6460 Catering And Event Management (Fall-1 hr. and Spring Semester-2 hrs.) 1
- HOSP 6461 Catering And Event Management 2
- HOSP 6550 Club Management 3
- HOSP 6540 Conference Coordination 3
- NTRI 6380 Study/Travel in Nutrition, Dietetics and Hospitality Management 1-6
- HOSP 7920 Professional Internship In Hospitality Management 3

The hotel and restaurant management option may take supporting courses in such areas as management, marketing, economics, and education. Course requirements for becoming a registered dietitian may be met during the graduate program by enrolling in additional required courses. Teaching, research, and extension assistantships are awarded competitively to qualified students.

Pharmaceutical Sciences - MS, PhD

**Degrees:**

- Pharmaceutical Sciences - Health Outcomes Research and Policy Option - MS & MS (Non-Thesis) (p. 1459)
- Pharmaceutical Sciences - Health Outcomes Research and Policy Option - PhD (p. 1501)
- Pharmaceutical Sciences - Medicinal Chemistry Option - MS & MS (Non-Thesis) (p. 1486)
- Pharmaceutical Sciences - Medicinal Chemistry Option - PhD (p. 1487)
- Pharmaceutical Sciences - Pharmaceutics Option - MS & MS (Non-Thesis) (p. 1503)
- Pharmaceutical Sciences - Pharmaceutics Option - PhD (p. 1501)
Pharmaceutical Sciences: Pharmaceutics Option - PhD

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor's degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000 - 8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000 - 8999) that may include ungraded courses, and must include at least 10 hours of research and dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

<table>
<thead>
<tr>
<th>Scientific Communications (Six credits required)</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 8950 Seminar (may be repeated multiple times for credit)</td>
<td></td>
</tr>
<tr>
<td>DRDD 8950 Seminar (may be repeated multiple times for credit)</td>
<td></td>
</tr>
<tr>
<td>DRDD 7000 Introduction to Grant Writing</td>
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</tr>
<tr>
<td>Data Analyses and Interpretation (Six credits required)</td>
<td>6</td>
</tr>
<tr>
<td>ERMA 7300/7306 Design and Analysis in Education I</td>
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<tr>
<td>ERMA 7310/7316 Design and Analysis in Education II</td>
<td></td>
</tr>
<tr>
<td>MNGT 8400 Advanced Quantitative Methods for Management I</td>
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<tr>
<td>DRDD 7010 Pharmacokinetics</td>
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</tr>
<tr>
<td>DRDD 7030 Drug Products and Biopharm</td>
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</tr>
<tr>
<td>DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I</td>
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</tr>
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<td>DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II</td>
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</tr>
<tr>
<td>DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II</td>
<td></td>
</tr>
<tr>
<td>DRDD 7360 CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7370 CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY II</td>
<td></td>
</tr>
<tr>
<td>STAT 7000 Experimental Statistics I</td>
<td></td>
</tr>
<tr>
<td>STAT 7010 Experimental Statistics II</td>
<td></td>
</tr>
<tr>
<td>Experimental Design (Six credits required)</td>
<td>6</td>
</tr>
<tr>
<td>HORP 8990 Research And Dissertation</td>
<td></td>
</tr>
<tr>
<td>DRDD 8990 Research And Dissertation</td>
<td></td>
</tr>
<tr>
<td>Option specific requirements for PhD students pursuing the Pharmaceutics option include:</td>
<td></td>
</tr>
<tr>
<td>DRDD 7010 Pharmacokinetics</td>
<td>4</td>
</tr>
<tr>
<td>DRDD 7030 Drug Products and Biopharm</td>
<td>4</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td>DRDD 8950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
</tr>
<tr>
<td>DRDD 8990</td>
<td>Research And Dissertation (total of 10 CR required)</td>
</tr>
</tbody>
</table>

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 60 hour degree requirement.
Pharmaceutical Sciences: Pharmaceutics Option - MS

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000 - 8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below.

| Scientific Communications (Three credits required) | HORP 7950 Seminar (may be repeated multiple times for credit) |
| DRDD 7000 Introduction to Grant Writing |
| DRDD 7950 Seminar (may be repeated multiple times for credit) |
| Data Analyses and Interpretation (Three credits required) | ERMA 7300 Design and Analysis in Education I |
| or ERMA 7306 Design and Analysis in Education I |
| DRDD 7010 Pharmacokinetics |
| DRDD 7030 Drug Products and Biopharm |
| DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I |
| DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I |
| DRDD 7360 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY I |
| STAT 7000 Experimental Statistics I |

| Experimental Design (Three credits required) | DRDD 7990 Research and Thesis (may be repeated multiple times for credit) |
| HOPR 7990 Research And Thesis (may be repeated multiple times for credit) |

Option specific requirements for MS students pursuing the Pharmaceutics option (20 credits) include:

| DRDD 7010 Pharmacokinetics |
| DRDD 7030 Drug Products and Biopharm |
| DRDD 7950 Seminar (may be repeated multiple times for credit) |
| DRDD 7990 Research and Thesis (total of 6 CR required) |

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 30 hour degree requirement.
Non-Thesis in Pharmaceutical Sciences (Pharmacology Option)

Pharmaceutical Sciences Non-Thesis Masters Degree Program – Pharmacology Option

A. Program Administration

Admission to the program will be accompanied by assignment to a specific Pharmacology faculty member, who will serve as the research mentor for the student. Thus, admission to the program will be offered only upon approval of that faculty member. Upon acceptance of admission, the student will work with the faculty member to formulate an advisory committee. This advisory committee will consist of no fewer than three members and a majority of members must come from the Department of Drug Discovery and Development. This committee will assist the faculty mentor in the selection of coursework and in oversight of the student’s research activity. In particular, the committee will assist the faculty member in evaluating the student’s performance in the non-thesis research course (DRDD 7980).

B. Program Curriculum

1. Curricular Overview

The required courses of this curriculum are aligned with the three core competencies of the graduate program: Scientific Communications, Data Analyses and Interpretation, and Experimental Design. The Scientific Communications requirement (3 credits) is to be fulfilled by DRDD 7950 (1 credit per semester). The Data Analyses and Interpretation requirement (3 credits) is to be fulfilled by DRDD 7030 (3 credits). The Experimental Design requirement (3 credits) is to be fulfilled by DRDD 7980 (1-3 credits per semester).

Additional required courses for this option are listed below. DRDD 7950 (1 credit per semester) is required for each Fall and Spring semester enrolled in the program. Six credits of DRDD 7980 (1-3 credits per semester) are required for graduation; furthermore, DRDD 7980 is required for each semester enrolled in the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRDD 7330</td>
<td>Pharmacology Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7340</td>
<td>ORGAN SYSTEMS PHARMACOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7350</td>
<td>ORGAN SYSTEMS PHARMACOLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7360</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7370</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY II</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7950</td>
<td>Seminar</td>
<td>3</td>
</tr>
<tr>
<td>DRDD 7980</td>
<td>Non-Thesis Research</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Restricted Electives</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Restricted Advisor Approved Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 30

1. Students must take DRDD 7950 each fall and spring semester. A total of at least 3 credit hours is required.
2. Students must take 1-3 hours of DRDD 7980 each semester. A total of at least 6 credit hours is required.
3. At least 3 credit hours of restricted electives are required from the following list: STAT 7000, STAT 7010, DRDD 6800, DRDD 7300, DRDD 7310, DRDD 7960, VBMS 7140, VBMS, 7180.
4. At least 3 credit hours of restricted advisor approved electives are required.

Pharmaceutical Sciences: Pharmacology Option - MS

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

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The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The MS degree is offered under the thesis option. Students must earn a minimum of 30 semester hours of graduate courses (6000 - 8999). Thesis students register for Research and Thesis in semester(s) when working on the thesis, when submitting, defending or awaiting final approval of the thesis, and when taking final examinations. Candidates for the MS degree are required to prepare a thesis proposal and complete a proposal defense.

For the MS Program, students must complete a Core Curriculum outlined below.

<table>
<thead>
<tr>
<th>Scientific Communications (Three credits required)</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 7950 Seminar (may be repeated multiple times for credit)</td>
<td></td>
</tr>
<tr>
<td>DRDD 7000 Introduction to Grant Writing</td>
<td></td>
</tr>
<tr>
<td>DRDD 7950 Seminar (may be repeated multiple times for credit)</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data Analyses and Interpretation (Three credits required)</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7300/7306 Design and Analysis in Education I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7010 Pharmacokinetics</td>
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</tr>
<tr>
<td>DRDD 7030 Drug Products and Biopharm</td>
<td></td>
</tr>
<tr>
<td>DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I</td>
<td></td>
</tr>
<tr>
<td>DRDD 7360 CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
<td></td>
</tr>
<tr>
<td>STAT 7000 Experimental Statistics I</td>
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</table>

<table>
<thead>
<tr>
<th>Experimental Design (Three credits required)</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORP 7990 Research And Thesis (may be repeated multiple times for credit)</td>
<td></td>
</tr>
<tr>
<td>DRDD 7990 Research and Thesis (may be repeated multiple times for credit)</td>
<td></td>
</tr>
</tbody>
</table>

Option specific requirements for MS students pursuing the Pharmacology option include:

| DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I | 3 |
| DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II | 3 |
| DRDD 7360 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY I | 3 |
| DRDD 7370 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY II | 3 |
| DRDD 7950 Seminar (may be repeated multiple times for credit) | 1 |
| DRDD 7990 Research and Thesis (total of 6 CR required) | 6 |

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 30 hour degree requirement.

Pharmaceutical Sciences: Pharmacology Option - PhD

The Auburn University Harrison School of Pharmacy offers interdisciplinary MS and PhD degree programs in Pharmaceutical Sciences. Those pursuing one of these degrees must select one of four curricular options: 1) Medicinal Chemistry, 2) Pharmaceutics, 3) Pharmacology, or 4) Health Outcomes Research and Policy.

The Medicinal Chemistry, Pharmaceutics and Pharmacology options are designed for students interested in the drug discovery or development processes, and are affiliated with the Department of Drug Discovery and Development. Areas of interest include neurodegenerative diseases, cardiovascular diseases, infectious diseases, cancer, diabetes and other metabolic diseases, synthetic organic chemistry, forensic analytical chemistry and drug delivery, disposition and formulation.

The Health Outcomes Research and Policy option is designed for students interested in studying healthcare delivery, medication use and outcomes. This option is affiliated with the Department of Health Outcomes Research and Policy.

Note that courses used to fulfill program core requirements may also be used to fulfill option specific requirements.

The PhD program requires a minimum of 60 semester hours earned through instruction beyond the bachelor’s degree including 1) a minimum of 30 semester hours graded (e.g. A, B) graduate course work (6000 - 8999); and 2) a minimum of 30 semester hours of additional graduate course work (6000 - 8999) that may include ungraded courses, and must include at least 10 hours of research and
dissertation. A general examination, often called the preliminary examination, is required of all applicants for the degree of doctor of philosophy. It consists of written and oral testing. The student becomes a candidate for the degree upon successful completion of the general examination. Students working on the dissertation, submitting their dissertation or awaiting approval of their final examination must register for Research and Dissertation in the semester(s) when these steps occur. Candidates for the PhD degree must complete a dissertation proposal and successfully defend their proposal during the final examination.

For the PhD program, students must complete a core curriculum outlined below.

**Scientific Communications (Six credits required)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRDD 7000</td>
<td>Introduction to Grant Writing</td>
</tr>
<tr>
<td>DRDD 8950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
</tr>
<tr>
<td>HORP 8950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
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</table>

**Data Analyses and Interpretation (Six credits required)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERMA 7300/7306</td>
<td>Design and Analysis in Education I</td>
</tr>
<tr>
<td>ERMA 7310/7316</td>
<td>Design and Analysis in Education II</td>
</tr>
<tr>
<td>MNGT 8400</td>
<td>Advanced Quantitative Methods for Management I</td>
</tr>
<tr>
<td>DRDD 7010</td>
<td>Pharmacokinetics</td>
</tr>
<tr>
<td>DRDD 7030</td>
<td>Drug Products and Biopharm</td>
</tr>
<tr>
<td>DRDD 7230</td>
<td>ADVANCED MEDICINAL CHEMISTRY I</td>
</tr>
<tr>
<td>DRDD 7240</td>
<td>ADVANCED MEDICINAL CHEMISTRY II</td>
</tr>
<tr>
<td>DRDD 7340</td>
<td>ORGAN SYSTEMS PHARMACOLOGY I</td>
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<tr>
<td>DRDD 7350</td>
<td>ORGAN SYSTEMS PHARMACOLOGY II</td>
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<td>DRDD 7360</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
</tr>
<tr>
<td>DRDD 7370</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY II</td>
</tr>
<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
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<tr>
<td>STAT 7010</td>
<td>Experimental Statistics II</td>
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</table>

**Experimental Design (Six credits required)**

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<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>HORP 8990</td>
<td>Research And Dissertation</td>
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<tr>
<td>DRDD 8990</td>
<td>Research And Dissertation</td>
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</tbody>
</table>

Option specific requirements for PhD students pursuing the Pharmacology option include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>DRDD 7340</td>
<td>ORGAN SYSTEMS PHARMACOLOGY I</td>
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<td>ORGAN SYSTEMS PHARMACOLOGY II</td>
</tr>
<tr>
<td>DRDD 7360</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY I</td>
</tr>
<tr>
<td>DRDD 7370</td>
<td>CELLULAR &amp; MOLECULAR PHARMACOLOGY &amp; TOXICOLOGY II</td>
</tr>
<tr>
<td>DRDD 8950</td>
<td>Seminar (may be repeated multiple times for credit)</td>
</tr>
<tr>
<td>DRDD 8990</td>
<td>Research And Dissertation (total of 10 CR required)</td>
</tr>
</tbody>
</table>

In addition to the specific core and option course requirements listed above, students must complete instructor approved graduate electives (6000-8999) to reach the 60 hour degree requirement.

**Physics - MS, PhD**

**Degree Program:**

- Physics - MS (p. 1507)
- Physics - PhD (p. 1507)

The Department of Physics offers the doctor of philosophy degree to students who have achieved a mastery of the fundamental laws of nature and demonstrated the ability to complete a research project that results in new knowledge in physics. All students complete the basic graduate level courses in Classical Mechanics, Electricity and Magnetism, Quantum Mechanics and Statistical Physics. They demonstrate their mastery of these subjects by passing a General Doctoral Examination that has both a written and an oral component. To increase their knowledge of a broad range of advanced physics topics and to develop expertise in their chosen area of focus, students complete at least 12 additional hours of graded course work with a minimum of nine at the 8000-level. The research project
is usually undertaken in one of the research focuses of the Department - plasma physics, condensed matter and surface physics, atomic and molecular physics, space physics, and computational physics. It is completed with the defense of the student’s dissertation. Students are also expected to publish their research in a refereed journal and/or present it at an appropriate professional meeting.

The master of science is also offered. Successful students complete the same basic graduate level courses as PhD students. Students electing the non-thesis option complete an additional 12 hours of graduate level course work. Students electing the thesis option complete at least an additional 6 hours of graduate level course work and at least 4 hours of thesis work. In addition to defending their thesis, they are encouraged to publish their results in a refereed journal or present them at a scientific meeting.

**MS Physics**

<table>
<thead>
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<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>PHYS 7100</td>
<td>Classical Mechanics</td>
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<tr>
<td>PHYS 7200</td>
<td>Electricity and Magnetism I</td>
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<tr>
<td>PHYS 7250</td>
<td>Electricity and Magnetism II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7300</td>
<td>Quantum Mechanics I</td>
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</tr>
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<td>PHYS 7350</td>
<td>Quantum Mechanics II</td>
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</tr>
<tr>
<td>PHYS 7400</td>
<td>Statistical Physics</td>
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<td>PHYS 7950</td>
<td>Physics Colloquium</td>
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<tr>
<td>PHYS 7950</td>
<td>Physics Colloquium</td>
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<td>PHYS 7990</td>
<td>Research and Thesis</td>
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<td><strong>Total Hours</strong></td>
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**MS Physics Non-Thesis**

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<tr>
<td>PHYS 7100</td>
<td>Classical Mechanics</td>
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<tr>
<td>PHYS 7200</td>
<td>Electricity and Magnetism I</td>
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<td>PHYS 7250</td>
<td>Electricity and Magnetism II</td>
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<tr>
<td>PHYS 7300</td>
<td>Quantum Mechanics I</td>
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<td>PHYS 7350</td>
<td>Quantum Mechanics II</td>
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<td>PHYS 7400</td>
<td>Statistical Physics</td>
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<td>Physics Colloquium</td>
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<td>8 Credits in @ 6000-8000 (approved electives)</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
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<td><strong>30</strong></td>
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</tbody>
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**PhD Physics**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 7100</td>
<td>Classical Mechanics</td>
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</tr>
<tr>
<td>PHYS 7200</td>
<td>Electricity and Magnetism I</td>
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<td>Electricity and Magnetism II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7300</td>
<td>Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 7350</td>
<td>Quantum Mechanics II</td>
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<td>Physics Colloquium</td>
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</tbody>
</table>
The Department of Entomology and Plant Pathology offers plant pathology degrees including a Master of Science (MS), Master of Agriculture (MAg) and Doctor of Philosophy (PhD). The Graduate program emphasizes basic and applied aspects of the science of plant pathology preparing students for careers in teaching, research and extension with a variety of academic, governmental, state, private and industrial opportunities. The educational goals and objectives of the MS degree program are to produce graduates who are fundamentally trained in the scientific principles and general knowledge of plant pathology and related sciences and who are able to apply these principles to successfully solve problems and employ this knowledge at an advanced level of study. The purpose of the PhD program in plant pathology is to produce graduates who are fundamentally trained in the scientific principles and general knowledge of plant pathology and related sciences and who are able to employ this knowledge at the advanced level of study and apply these principles to solve problems involving plant diseases and associated pathogens.

Admission is based primarily on a combination of Grade Point Average (GPA) and Graduate Record Examination (GRE) scores and (if an international student) TOEFL tests are also required.

Students holding baccalaureate degrees in agriculture or the biological sciences may find this degree program helpful to their professional development and career goals. For a major in plant pathology at the MS level, the student should have a baccalaureate degree from a recognized institution with pre-requisite training in agriculture, biology, botany, microbiology and related fields such as chemistry, physics, and mathematics. Qualified students lacking mandatory courses may be admitted but will be required by the student’s advisory committee to make up any deficiencies.

The MS program in plant pathology is available to qualified individuals who wish to pursue a master’s level program that requires a thesis. Importance is placed on both classroom and research training. The MS requires a minimum of 30 semester hours, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 6200/6206</td>
<td>Mycology</td>
<td>4</td>
</tr>
<tr>
<td>PLPA 7950</td>
<td>Seminar in Plant Pathology</td>
<td>1</td>
</tr>
<tr>
<td>PLPA 7990</td>
<td>Research and Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Select two of the following: 7-8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 6300</td>
<td>Plant-Bacterial Interactions</td>
</tr>
<tr>
<td>PLPA 6400</td>
<td>Plant Virology</td>
</tr>
<tr>
<td>PLPA 6500/6506</td>
<td>Plant Nematology</td>
</tr>
<tr>
<td>CSES 7080</td>
<td>Experimental Methods</td>
</tr>
<tr>
<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
</tr>
</tbody>
</table>

Select 7-9 Credits in @ 6000-8990 (Electives) 9-7

Total Hours 30

A graduate-level course in statistics is also required. A minimum of 21 semester hours must be taken in plant pathology and a specialty area may be selected from related subject matter fields. There is no language requirement for the MS degree. In addition to the required course work, the student must complete research, a written thesis and a thesis defense examination as defined by the student’s advisory committee.

The master of agriculture (MAg) program with a specialization in plant pathology is available to qualified applicants who wish to pursue a master’s level program that does not require a thesis. The MAg with a specialization in plant pathology carries the same entrance
requirements as the MS but is a non-thesis degree. The MAg requires a minimum of 32 semester hours, 21 of which must be in plant pathology, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 6200/6206</td>
<td>Mycology</td>
<td>4</td>
</tr>
<tr>
<td>Select two of the following:</td>
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<td>7-8</td>
</tr>
<tr>
<td>PLPA 6300</td>
<td>Plant-Bacterial Interactions</td>
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</tr>
<tr>
<td>PLPA 6400</td>
<td>Plant Virology</td>
<td></td>
</tr>
<tr>
<td>PLPA 6500/6506</td>
<td>Plant Nematology</td>
<td></td>
</tr>
<tr>
<td>Select 20-21 Credits in @ 6000-8999 (Electives)</td>
<td></td>
<td>21-20</td>
</tr>
<tr>
<td>PLPA 7950</td>
<td>Seminar in Plant Pathology (strongly recommended)</td>
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</tr>
</tbody>
</table>

Total Hours: 32

The remainder of credit hours can be taken from a variety of subject areas determined in consultation with the student’s advisory committee. A comprehensive examination is required after all courses are completed. There is no language requirement for the MAg degree.

The PhD program requires 60 semester hours of course work, including:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLPA 6200/6206</td>
<td>Mycology</td>
<td>4</td>
</tr>
<tr>
<td>PLPA 6300</td>
<td>Plant-Bacterial Interactions</td>
<td>4</td>
</tr>
<tr>
<td>PLPA 6400</td>
<td>Plant Virology</td>
<td>3</td>
</tr>
<tr>
<td>PLPA 6500/6506</td>
<td>Plant Nematology</td>
<td>4</td>
</tr>
<tr>
<td>PLPA 8950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PLPA 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
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<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
<td>3-4</td>
</tr>
<tr>
<td>or CSES 7080</td>
<td>Experimental Methods</td>
<td></td>
</tr>
<tr>
<td>Select 30-31 Credits in @ 6000-8999 (Electives)</td>
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<td>31-30</td>
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</table>

Total Hours: 60

Of the 60 semester hours, 30 must be graded graduate courses 6000-level and taken at Auburn University. There is no language requirement for the PhD. Upon completion of the course work, PhD students must take a general written examination. Students must pass all parts of the written examination before scheduling the preliminary oral examination (referred to as the PhD prelim exam). After satisfactory completion of the prelim exam the student advances to candidacy. The PhD student will conduct independent research and prepare a dissertation through the guidance and direction of an advisory committee. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

### Plant Pathology - MAg

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<td>PLPA 6200/6206</td>
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<td>7-8</td>
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<tr>
<td>PLPA 6300</td>
<td>Plant-Bacterial Interactions</td>
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</tr>
<tr>
<td>PLPA 6400</td>
<td>Plant Virology</td>
<td></td>
</tr>
<tr>
<td>PLPA 6500/6506</td>
<td>Plant Nematology</td>
<td></td>
</tr>
<tr>
<td>Select 20-21 Credits in @ 6000-8999 (Electives)</td>
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Total Hours: 32

### Plant Pathology - MS

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<tbody>
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<td>PLPA 6200/6206</td>
<td>Mycology</td>
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</tr>
<tr>
<td>PLPA 7950</td>
<td>Seminar</td>
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</table>
Plant Pathology - PhD

Select two of the following: 7-8

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>PLPA 6300</td>
<td>Plant-Bacterial Interactions</td>
<td></td>
</tr>
<tr>
<td>PLPA 6400</td>
<td>Plant Virology</td>
<td></td>
</tr>
<tr>
<td>PLPA 6500/6506</td>
<td>Plant Nematology</td>
<td></td>
</tr>
<tr>
<td>CSES 7080</td>
<td>Experimental Methods</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 7000</td>
<td>Experimental Statistics I</td>
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</table>

Select 7-9 Credits in @ 6000-8990 (Electives) 9-7

Total Hours 30

**Plant Pathology - PhD**

**PhD**

<table>
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<th>Course</th>
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<tr>
<td>PLPA 6200/6206</td>
<td>Mycology</td>
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<tr>
<td>PLPA 6300</td>
<td>Plant-Bacterial Interactions</td>
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<tr>
<td>PLPA 6400</td>
<td>Plant Virology</td>
<td>3</td>
</tr>
<tr>
<td>PLPA 6500/6506</td>
<td>Plant Nematology</td>
<td>4</td>
</tr>
<tr>
<td>PLPA 8950</td>
<td>Seminar</td>
<td>1</td>
</tr>
<tr>
<td>PLPA 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
<td>3-4</td>
</tr>
<tr>
<td>or CSES 7080</td>
<td>Experimental Methods</td>
<td></td>
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</tbody>
</table>

Select 30-31 Credits in @ 6000-8999 (Electives) 31-30

Total Hours 60

Poultry Science - MAg, MS, PhD

**Program Degrees:**

- Poultry Sciences - MAg (p. 1511)
- Poultry Sciences - MS (p. 1511)
- Poultry Sciences - PhD (p. 1511)

The Department of Poultry Science offers graduate programs in Poultry Science, leading to Master of Agriculture, Master of Science, and Doctor of Philosophy degrees. These degrees are designed to prepare outstanding students for careers in the commercial poultry industry, allied industries, government, and academia. Research training and experience can be acquired in the specialized areas of poultry management, poultry nutrition, poultry health (parasitology, pathology, virology), poultry physiology, processing and product technology, and food safety.

Applicants must indicate which graduate degree they wish to pursue in Poultry Science. All applications are reviewed by the departmental Graduate Committee. Application materials include: official copies of all college transcripts, GRE scores, TOEFL scores (for international students), 3 letters of recommendation, a resume, and a statement of purpose. Transcripts and test scores are sent directly to the Graduate School. The letters of recommendation may either be submitted online (preferred) or mailed to the graduate program officer. The resume and statement of purpose are sent to the graduate program officer at the departmental address or via email attachment. For graduate studies leading to MS or MAg degrees, applicants must have a bachelor’s degree in poultry science, animal science, or the biological sciences from a recognized institution with a minimum GPA of 3.0 out of 4.0. Verbal and analytical GRE scores should each be near the 50th percentile. To be considered for the PhD program, applicants must have a MS degree in an appropriate field. The course of study, developed by the student and the advisory committee, may include additional courses to address specific needs or course work deficiencies.

Additional information about the departmental requirements, policies and availability of financial support can be obtained by contacting the graduate program officer (bellleo@auburn.edu).
MS/MAg Degree Requirements

1. The Master of Science (MS degree) requires a research project with a formal written thesis while the Master of Agriculture (MAg) requires a research project with a written report. The MS degree requires a minimum of 30 semester credit hours while the MAg requires a minimum of 33 semester credit hours. Both degrees require a comprehensive final oral examination.

2. Curriculum – Courses are selected in conjunction with the major professor and advisory committee to address the area of emphasis. All students are required to take 2 credits of POUL 7950, a course in statistics, and 4 credits of POUL 7990 or POUL 7980.

PhD Degree Requirements

1. For the PhD degree, a minimum of 30 semester hours of graduate coursework beyond the MS (60 hours beyond the bachelor’s degree) is required.

2. Curriculum – Courses are selected in conjunction with the major professor and advisory committee to address the area of emphasis. All students are required to take 3 credits of POUL 7950, a minimum of one course in statistics, and at least 10 credits of POUL 8990.

3. Examinations – Upon completion of course work, students must pass general written examinations administered by the advisory committee, followed by a comprehensive preliminary oral examination. After satisfactory completion of these exams, the student advances to candidacy. A dissertation based on an independent research project is required to earn a PhD degree. After completion of the dissertation, the student must pass a final Doctoral oral examination defending the dissertation.

Poultry Sciences - MAg

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>POUL 7950</td>
<td>1</td>
</tr>
<tr>
<td>POUL 7980</td>
<td>4</td>
</tr>
<tr>
<td>Select 27 Credits @ 6000-8999 (must include minimum of 1 Statistics course)</td>
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<tr>
<td>Total Hours</td>
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Poultry Sciences - MS

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POUL 7950</td>
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</tr>
<tr>
<td>POUL 7950</td>
<td>1</td>
</tr>
<tr>
<td>POUL 7990</td>
<td>4</td>
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<tr>
<td>Select 24 Credits @ 6000-8999 (must include a minimum of 1 Statistics course)</td>
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</table>

Poultry Sciences - PhD

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</thead>
<tbody>
<tr>
<td>POUL 7950</td>
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</tr>
<tr>
<td>POUL 7950</td>
<td>1</td>
</tr>
<tr>
<td>POUL 7950</td>
<td>1</td>
</tr>
<tr>
<td>POUL 8990</td>
<td>10</td>
</tr>
<tr>
<td>Select 47 Credits @ 6000-8999 (must include a minimum of 1 Statistics course)</td>
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</tr>
<tr>
<td>Total Hours</td>
<td>60</td>
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</tbody>
</table>

Psychology - MS, PhD

Degree Programs:

- Applied Behavior Analysis in Developmental Disabilities Non-Thesis - MS (p. 1517)
- Psychology (Industrial and Organizational) - ABM (p. 1515)
- Industrial & Organizational Psychology Non-Thesis - MS (p. 1514)
• Clinical Psychology - PhD (p. 1513)
• Cognitive and Behavioral Sciences - PhD (p. 1514)
• Industrial & Organizational Psychology - PhD (p. 1514)

The Department of Psychology offers two terminal master's degrees - a Master of Science (Non-Thesis) in Applied Behavior Analysis in Developmental Disabilities (ABA) and a Master of Science (Non-Thesis) in Industrial & Organizational Psychology (I-O) - and doctoral degrees in three areas—a PhD in Clinical Psychology, a PhD in Cognitive and Behavioral Sciences (CaBS), and a PhD in Industrial & Organizational Psychology (I-O). The doctoral programs do not offer terminal master's degrees.

For the most accurate and up-to-date information about program requirements, applicants should consult the department's webpage on graduate studies. Please email bryangt@auburn.edu or call (334) 844-6471 for application and general program information.

Graduate degrees in Counseling, Counseling Psychology, Educational Psychology, and School Psychology are offered through the College of Education.

Admission Requirements for the MS and the PhD

Holders of the bachelor's degree in any discipline from an accredited institution will be considered for graduate work in psychology. Students admitted to the PhD programs earn a thesis-based MS degree after completing intermediate program requirements. All programs commence in the fall semester. Spring or summer semester admission is not available.

To be considered for admission, potential applicants must submit an online application and related materials. Required materials and deadlines are subject to change, so it is imperative that applicants consult the application instructions on the Department of Psychology's web page for up-to-date directions. See the PhD program instructions, ABA MS instructions or I-O MS instructions, depending on your program preference.

To ensure consideration, the application process should be completed by December 1 for the Clinical Psychology PhD program, January 15 for the CaBS PhD, I-O PhD and ABA-MS programs, and March 15 for the MS in I-O program.

MS in Applied Behavior Analysis in Developmental Disabilities

In the ABA program, students are trained to provide clinical and educational services to individuals with mental retardation and autism spectrum disorders, to typically developing children in school settings, and to families. Degree requirements focus on integrating course work with practicum training, and both components are approved by the Behavior Analyst Certification Board, Inc.

General Requirements

The MS in ABA is a full-time non-thesis program requiring five consecutive semesters of full-time coursework (24 semester hours) and practicum training (18 semester hours). All students complete a professional portfolio with an oral defense of the portfolio as a capstone project. Course and credit-hour requirements for the program total 42 hours.

Required Courses

See the Applied Behavior Analysis in Developmental Disabilities Non-Thesis - MS (p. 1517)

MS in Industrial and Organizational (I-O) Psychology

The non-thesis M.S. in I-O Psychology program is designed to train students with the skills and knowledge to enable students to become Industrial - Organizational practitioners in an applied setting. I-O Psychology focuses on understanding, predicting, and modifying behavior in organizational settings, typically, but not limited to, work environments.

General Requirements

The M.S. in I-O Psychology program provides students with a well-rounded foundation in Industrial and Organizational Psychology. This degree does not require research or a thesis, and students participate in applied opportunities and internships.

Required Courses

See the Industrial & Organizational Psychology Non-Thesis - MS (p. 1514)

PhD in Clinical Psychology

The Clinical Psychology PhD program uses a scientist-practitioner training model that blends basic and applied research with clinical practice.
General Requirements
Typically, the program requires five years at Auburn in course work, individualized research, and practicum experiences. In addition, a one-year full-time internship at an APA-approved program is required. 89 credit hours total are required.

Students enrolled in the Clinical Psychology PhD program complete a sequence of departmental core courses providing a foundation in psychology on which specialization is based. In doctoral study, students are expected to write and defend an empirically based master’s thesis. Admission to doctoral candidacy is contingent upon the successful completion of the general doctoral examination. Students must also write and defend a research dissertation.

Required Courses
See the Clinical Psychology - PhD (p. 1513)

PhD in Cognitive and Behavioral Sciences

The CaBS program provides a firm foundation in cognitive and behavioral sciences. Electives allow students in the CaBS PhD program flexibility in developing their own areas of specialization.

General Requirements
CaBS students are required to complete a series of core courses, write and defend an empirically based master’s thesis, and successfully complete a general doctoral examination before being admitted to doctoral candidacy. They must also write and defend a research dissertation. 60 credit hours total are required.

Required Courses
See the Cognitive and Behavioral Sciences - PhD (p. 1514)

PhD in Industrial and Organizational (I-O) Psychology

Students enrolled in the I-O Psychology doctoral program will be trained in scientific methods applied to the industrial and organizational environment. Graduates of the program will be prepared to work in academic, research, and/or applied settings.

General Requirements
The I-O Psychology doctoral program provides doctoral students with a well-rounded foundation in Industrial Psychology, Organizational Psychology, and quantitative coursework. Students are required to complete a research-based thesis and a general doctoral exam before advancing to doctoral candidacy. The last milestone is a doctoral dissertation. The degree requires a total of 73 semester hours of credit.

Required Courses
See the Industrial & Organizational Psychology - PhD (p. 1514)

Clinical Psychology - PhD

<table>
<thead>
<tr>
<th>PhD in Clinical Psychology</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUN 7330</td>
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<tr>
<td>PSYC 7100</td>
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<tr>
<td>PSYC 7110</td>
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</tbody>
</table>

In addition, a one-year full-time internship at an APA-approved program is required.

**MS in Industrial/Organizational Psychology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PSYC 6690</td>
<td>Advanced Analytics for Social and Behavioral Sciences</td>
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<td>PSYC 7700</td>
<td>Foundations in Industrial and Organizational Psychology</td>
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<tr>
<td>PSYC 7710</td>
<td>Training and Development in Organizations</td>
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</tr>
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<td>PSYC 7720</td>
<td>Personnel Selection</td>
<td>3</td>
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<tr>
<td>PSYC 7730</td>
<td>Research Methods in Industrial/Organizational Psychology</td>
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<tr>
<td>PSYC 7750</td>
<td>Ethics and Professional Issues in Industrial/Organizational Psychology</td>
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<td>PSYC 7910</td>
<td>Practicum in Applied Psychology</td>
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**PhD in Cognitive and Behavioral Sciences**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
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<td>Ethics and Problems of Scientific and Professional Psychology</td>
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<td>PSYC 7120</td>
<td>Teaching of Psychology</td>
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<td>PSYC 7140</td>
<td>Learning and Conditioning</td>
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<td>PSYC 7150</td>
<td>Biological Psychology</td>
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</tr>
<tr>
<td>PSYC 7190</td>
<td>Cognitive Psychology</td>
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<td>PSYC 7270</td>
<td>Experimental Design in Psychology</td>
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<td>PSYC 7280</td>
<td>Experimental Design in Psychology II</td>
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<td>PSYC 7400</td>
<td>Cognitive Neuroscience</td>
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<tr>
<td>PSYC 8500</td>
<td>Cognitive and Behavioral Sciences Seminar</td>
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<td>PSYC 7990</td>
<td>Research and Thesis</td>
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<td>PSYC 8990</td>
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<td></td>
<td>1 graduate-level PSYC course in Statistics or Methods approved by the student’s research committee</td>
<td>3</td>
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<tr>
<td></td>
<td>An additional 18 credit hours of graduate-level course work approved by the student's research committee is required.</td>
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**PhD in Industrial/Organizational Psychology**

**Required Coursework**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PSYC 7270</td>
<td>Experimental Design in Psychology (Experimental Design in Psychology I)</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 7280</td>
<td>Experimental Design in Psychology II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 7990</td>
<td>Research and Thesis</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 8990</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>PSYC 7750</td>
<td>Ethics and Professional Issues in Industrial/Organizational Psychology (Ethics and Professional Issues in I/O)</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Hours</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>PSYC 7700</td>
<td>Foundations in Industrial and Organizational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7720</td>
<td>Personnel Selection</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7730</td>
<td>Research Methods in Industrial/Organizational Psychology (Research Methods in I/O)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 8740</td>
<td>Leadership and Motivation Seminar</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>GENERAL PSYCHOLOGY ELECTIVES: SELECT 2 or graduate level course 6000 or above (pending major professor &amp; I/O Director approval)</strong></td>
<td>6</td>
</tr>
<tr>
<td>PSYC 7150</td>
<td>Biological Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 7160</td>
<td>Human Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 7170</td>
<td>Theories of Personality</td>
<td></td>
</tr>
<tr>
<td>PSYC 7180</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 7190</td>
<td>Cognitive Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 7400</td>
<td>Cognitive Neuroscience</td>
<td></td>
</tr>
<tr>
<td>PSYC 7140</td>
<td>Learning and Conditioning</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>QUANTITATIVE ELECTIVES- SELECT 2 or graduate level course 6000 or above (pending major professor &amp; I/O Director approval)</strong></td>
<td>6</td>
</tr>
<tr>
<td>PSYC 7230</td>
<td>Psychometric Theory</td>
<td></td>
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<tr>
<td>PSYC 8250</td>
<td>Multivariate Methods</td>
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<td>PSYC 8270</td>
<td>Factor Analysis</td>
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<tr>
<td>PSYC 8280</td>
<td>Meta-Analysis</td>
<td></td>
</tr>
<tr>
<td>PSYC 8350</td>
<td>Applied Psychometric Principles</td>
<td></td>
</tr>
<tr>
<td>PSYC 8970</td>
<td>Special Topics (SEM FOR APPLIED RESEARCHERS)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>I-O ELECTIVES: SELECT 24 HOURS or graduate level course 6000 or above (pending major professor &amp; I/O Director approval)</strong></td>
<td>24</td>
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<tr>
<td>PSYC 7970</td>
<td>Research in Special Topics</td>
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<tr>
<td>PSYC 8180</td>
<td>Advanced Social Psychology</td>
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<tr>
<td>PSYC 8700</td>
<td>Advanced Industrial Psychology</td>
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<tr>
<td>PSYC 8710</td>
<td>Advanced Organizational Psychology</td>
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</tr>
<tr>
<td>PSYC 8730</td>
<td>Performance Appraisal</td>
<td></td>
</tr>
<tr>
<td>PSYC 8760</td>
<td>Decision Making in the Workplace and Organizations</td>
<td></td>
</tr>
<tr>
<td>PSYC 8770</td>
<td>Organizational Change</td>
<td></td>
</tr>
<tr>
<td>PSYC 8780</td>
<td>Work and Family</td>
<td></td>
</tr>
<tr>
<td>PSYC 8970</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>PSYC 8930</td>
<td>Directed Studies in Psychology</td>
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</tr>
<tr>
<td>PSYC 7120</td>
<td>Teaching of Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 7710</td>
<td>Training and Development in Organizations</td>
<td></td>
</tr>
<tr>
<td>PSYC 7740</td>
<td>Organizational Culture</td>
<td></td>
</tr>
<tr>
<td>PSYC 7760</td>
<td>Occupational Health Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 7910</td>
<td>Practicum in Applied Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 7930</td>
<td>Directed Studies</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours: 73

**Psychology (Industrial and Organizational) - ABM**

### Freshman

#### Fall

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1100</td>
<td>English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language I (College Core)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective¹</td>
<td></td>
<td></td>
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</table>

#### Spring

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1120</td>
<td>English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language II (College Core)</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Core History</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

¹Elective can be chosen from Psychology courses or other approved electives.
<table>
<thead>
<tr>
<th>Core Mathematics</th>
<th>PSYC 2010/2013/2017 Introduction to Psychology</th>
<th>Electives$^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### Sophomore

#### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Literature</td>
<td>3 Core History to complete sequence</td>
</tr>
<tr>
<td>PSYC 2020 Orientation to Psychology Major</td>
<td>1 Core Social Science</td>
</tr>
<tr>
<td>PSYC 2130 Analytics for Social and Behavioral Sciences or 2133 Analytics for Social and Behavioral Sciences</td>
<td>3 Core Science II</td>
</tr>
</tbody>
</table>

Select one of the following:

- 3 PSYC 2140/2143 Research Methods in Psychology
- SOCY 1000 Sociology: Global Perspective
- ANTH 1000 Introduction to Anthropology
- GEOG 1010 Global Geography

Core Science I | 4

### Junior

#### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Humanities$^2$</td>
<td>3 Core Fine Arts</td>
</tr>
<tr>
<td>Groups A and B Psychology Electives$^1$</td>
<td>6 Groups A and B Psychology Electives$^1$</td>
</tr>
<tr>
<td>Electives$^1$</td>
<td>6 Electives$^1$</td>
</tr>
</tbody>
</table>

### Senior

#### Fall

<table>
<thead>
<tr>
<th>Hours</th>
<th>Spring Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 1000 Public Speaking$^3$</td>
<td>3 PSYC 7720 Personnel Selection</td>
</tr>
<tr>
<td>PSYC 7700 Foundations in Industrial and Organizational Psychology</td>
<td>3 PSYC 7730 Research Methods in Industrial/Organizational Psychology</td>
</tr>
<tr>
<td>PSYC 7750 Ethics and Professional Issues in Industrial/Organizational Psychology</td>
<td>3 Electives</td>
</tr>
</tbody>
</table>

Electives | 6 UNIV 4AA0 University Graduation |

### Total Hours: 120

Graduate PSYC Electives: Students may select elective courses offered in the Department of Psychology at the 7000 level and above. Students should consult with the Program Director to make certain that the elective course is suitable for the Master of Science in Industrial and Organizational Psychology degree.

### First Year Graduate/2nd Year in ABM program

<table>
<thead>
<tr>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 6690</td>
<td>Advanced Analytics for Social and Behavioral Sciences</td>
</tr>
<tr>
<td>Graduate PSYC Electives</td>
<td>6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 7710</td>
<td>Training and Development in Organizations</td>
</tr>
<tr>
<td>Graduate PSYC Electives</td>
<td>6</td>
</tr>
</tbody>
</table>
Auburn University

PSYC 7910 Practicum in Applied Psychology 6
Total Hours 24

1 Graduate PSYC Electives: Students may select elective courses offered in the Department of Psychology at the 7000 level and above. Students should consult with the Program Director to make certain that the elective course is suitable for the Master of Science in Industrial and Organizational Psychology degree.

Psychology Non-Thesis - MS in Applied Behavior Analysis in Developmental Disabilities

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 7220</td>
<td>Behavioral Principles</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7320</td>
<td>Clinical Psychopharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7240</td>
<td>Methods for Studying Individual Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7260</td>
<td>Ethical and Professional Issues in Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7310</td>
<td>Autism and Intellectual Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 7910</td>
<td>Practicum Applied Psychology</td>
<td>12</td>
</tr>
<tr>
<td>PSYC 7980</td>
<td>Applied Behavior Analysis Capstone Project</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 8540</td>
<td>Behaviorism</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 8550</td>
<td>Applied Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 8570</td>
<td>Applied Behavior Analysis 2</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 42

Public Administration and Public Policy - MPA, PhD, Graduate Certificates

Degree Program:
- Public Administration - MPA (p. 1522)
- Public Administration and Public Policy - PhD (p. 1522)

Graduate Certificates:
- Election Administration (p. 1521)
- NonProfit Organizations and Community Governance (p. 1522)

The Department of Political Science offers the Master of Public Administration (MPA), and the PhD in Public Administration and Public Policy is offered jointly by the Auburn University Department of Political Science and the Auburn University at Montgomery Department of Political Science and Public Administration. Graduates from the MPA program are employed as managers, planners, and directors in city, state, and local government agencies and federal government programs; they also serve as program officers, development directors, executive directors, and senior administrators in local and national nonprofit organizations. The Department of Political Science also offers two graduate certificates: Graduate Certificate in NonProfit Organizations and Community Governance and Graduate Certificate in Elections Administration.

For more information about the MPA program, see http://www.cla.auburn.edu/polisci/graduate-programs/mpa/.

For more information about the PhD program, see http://www.cla.auburn.edu/polisci/graduate-programs/phd-in-public-administration-and-public-policy/.

Master of Public Administration

The Department of Political Science offers the MPA. It is a professional degree program for leadership in public service at all levels of government as well as in nonprofit organizations. The program is accredited by the National Association of Schools of Public Affairs and Administration. Highly qualified students may pursue concurrently the Master of Community Planning.
Application Process
Applicants for the MPA must have a bachelor’s degree or its equivalent from an accredited college or university. The General Test of the Graduate Record Examination is required. The admissions committee will evaluate the undergraduate transcripts, GRE scores, letters of recommendation, a writing sample, and any public sector experience in government agencies or nonprofit organizations. The program is not limited to political science majors, but successful applicants who have little background in public sector institutions and processes may be required to take additional courses.

Applicants should ensure these materials are sent to the Graduate School web application:

- Official scores from the General Test of the GRE
- Official transcripts from every institution attended
- Other information listed in the application

Web applications are located at: https://web.auburn.edu/GWAAP/default.aspx.

Applicants should ensure these materials are sent to the graduate program officer for the MPA program in the Department of Political Science:

- Personal statement of purpose in pursuing the MPA degree
- Three letters of professional or academic recommendation
- Writing sample

Send materials to:

MPA Program Administrator
Masters of Public Administration Program
Department of Political Science
8030 Haley Center
Auburn University, AL 36849
Telephone inquiries, call 334.844.5371

Degree Requirements
Students have to comply with four prerequisites to be considered for the MPA program. Once they are admitted, the program requires 42 semester hours and a portfolio. Eight core courses for a total of 24 hours credit are required of all students. Students take an additional 12 hours of electives in either public administration, broadly conceived, or an approved concentration in a related administrative field or policy area. The final 6 credit hours consist of either an administrative internship in a governmental agency or nonprofit organization or participation in a research project pertaining to the public sector. Students without substantial public sector experience will complete an internship, while those who have prior experience will likely complete a research project and paper.

Details about the requirements are provided below.

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Measure</th>
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</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
<td>Verbal GRE of at least 150, writing sample, or a course in advanced composition</td>
</tr>
<tr>
<td><strong>Math</strong></td>
<td>Quantitative GRE of at least 141 or course in college mathematics</td>
</tr>
<tr>
<td><strong>United States Government</strong></td>
<td>Undergraduate course or experience</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td>Undergraduate course</td>
</tr>
<tr>
<td><strong>Microcomputer applications</strong></td>
<td>Undergraduate course or demonstrated competence</td>
</tr>
</tbody>
</table>

Students who have not satisfied these competencies before they enter the program may take them concurrently with MPA courses. It is important to complete the prerequisites as soon as possible to gain full benefit of the regular MPA courses.

<table>
<thead>
<tr>
<th>Core Curriculum (24 Hours)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 7000 Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7140 Public Budgeting</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7150 Public Personnel Administration</td>
<td>3</td>
</tr>
</tbody>
</table>
POLI 7330  Seminar in Administrative Leadership, Responsibility, and Democratic Government 3
POLI 7350  Seminar in Public Administration 3
POLI 7360  Seminar in Policy and Administration 3

Practical Experience through Internship or Applied Research Project (6 hours)
The program requires a total of 6 credit hours of internship and/or applied research. Students without significant prior public sector experience take an internship (). Students with direct experience with government agencies or nonprofit organizations will likely complete an approved research project (POLI 7930 MPA Research Project), although they may take an internship with the approval of the MPA director. Students may also design a combined internship and research project with the approval of the MPA director.

Electives (12 hours)
The MPA requires 12 credits of electives. This requirement may be fulfilled in any one of the three following ways:

• By taking 12 credits of classes approved by the MPA director that support the generalist public administration curriculum
• By completing the Dual MPAMCP Degree with Community Planning
• By completing one of the following two formal specializations: Graduate Certificate in Elections Administration or Graduate Certificate in Non-Profit Organizations and Community Governance

Portfolio
Successful completion of the degree includes preparation and presentation of the MPA Portfolio to MPA core faculty. The MPA Portfolio demonstrates mastery of the competencies established by the National Association of Schools of Public Affairs and Administration.

The MPA Portfolio reviews are scheduled typically in the final semester of course work. Students who do not pass the MPA Portfolio review have one additional opportunity to present their material to MPA faculty in the following fall or spring semester.

PhD in Public Administration and Public Policy

PhD in Public Administration and Public Policy

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 8000</td>
<td>Doctoral Seminar in Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8010</td>
<td>Research Design and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8020</td>
<td>Doctoral Seminar in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8120</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8130</td>
<td>Quantitative Methods</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8990/8996</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>POLI 6000-8999</td>
<td>50 Hours of Advisor Approved Courses</td>
<td>50</td>
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</tbody>
</table>

Total Hours 75

The PhD in Public Administration and Public Policy is offered jointly by Auburn University’s Department of Political Science and Auburn University at Montgomery’s Department of Political Science and Public Administration. Only students with master’s degrees from accredited universities or colleges will be considered for the AU/AUM joint PhD program. Applicants having an insufficient background in public administration and public policy may be required to take additional prerequisite courses as determined by the admissions committee.

A minimum of 1/3 of the total course credits taken on both campuses toward the degree for the Joint AU/AUM Ph.D. in Public Administration and Public Policy must be from each campus (a minimum of 1/3 from Auburn University and a minimum of 1/3 from Auburn University at Montgomery).

Application Process

Applicants must submit transcripts, a CV or resume, a statement of purpose, letters of recommendation, and GRE scores. Normally, scores of approximately 150 on the verbal, 150 on the quantitative, and 4.5 on the writing sections of the GRE are expected for admission.

Applicants should ensure these materials are sent to the Graduate School web application:

• Official scores from the General Test of the GRE
• Official transcripts from every institution attended
Applicants should ensure these materials are sent to the PhD administrators in the Department of Political Science:

- CV or resume
- Three letters of recommendation
- Statement of purpose

For more information, see the website for the PhD in Public Administration.

**Requirements**

The PhD curriculum includes core courses, a research methodology sequence, the student’s choice of either the Public Administration or Public Policy track, and a series of electives where students develop expertise in chosen area of specialization. Details about the requirements for both tracks are given below.

**Core Courses**

All students in the program take the core courses in Public Administration and Public Policy.

**Research Methodology Courses**

Students will take a three-course methodology sequence covering a broad scope of political inquiry, research design, qualitative methods, and quantitative analysis. Students must earn a grade of A or B in each of the methodology courses before they can progress to the general comprehensive exams.

**Tracks**

The PhD program has two tracks, Public Administration and Public Policy. Students are required to take at least three courses within the track they choose. For the Public Administration track, required courses are as follows: public finance, human resource management, and organizational theory. For the Policy track, students should choose three of the following five courses: American politics and public policy, comparative politics and public policy, international relations and public policy, political theory and public policy, and public law and public policy.

**Electives**

The other five courses are chosen in consultation with the student’s advisory committee. These electives should help the student develop expertise in a particular area of specialization.

**Minimum Credit Requirements**

<table>
<thead>
<tr>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours of formal PhD course work</td>
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</tr>
<tr>
<td>Hours of dissertation credit</td>
<td></td>
</tr>
<tr>
<td>Total hours for PhD course work</td>
<td>49</td>
</tr>
<tr>
<td>Hours needed past bachelor's degree</td>
<td>75</td>
</tr>
</tbody>
</table>

**Comprehensive Exams, Oral Exams, and Dissertation Defense**

During the spring or fall semester after the course work is completed, students take comprehensive exams administered by the department. The exams will consist of sections testing core and track knowledge as well as one section focusing on students’ areas of specialization. Students will have two opportunities to pass the comprehensive exams and must pass each written examination before scheduling the oral examination. Upon successful completion of the comprehensive exams, students should prepare a prospectus to present to their dissertation committee during their oral examinations. Admission to doctoral candidacy is contingent upon successful completion of all elements of the written and oral doctoral exams. After completion of the dissertation, the students must pass a final oral examination defending their dissertation work before their committee and a University Reader approved by the Graduate School.

**Graduate Certificates**

Two graduate certificates are offered in public administration and public policy: Graduate Certificate in Elections Administration and Graduate Certificate in NonProfit Organizations and Community Governance.

**Application Process**

Applications for graduate certificates include the same items as applications for the MPA degree with the exception that GRE scores are not required.

Applicants should ensure these materials are sent to the Graduate School web application:
• Official transcripts from every institution attended
• Other information listed in the application

Graduate Certificate in Elections Administration

Required Classes
These courses are required for the Graduate Certificate in Elections Administration. Corresponding 5000-level classes taken as an undergraduate fulfill the graduate certificate requirement but do not count toward the 42 graduate credits needed for the MPA. Substitutions require permission of MPA Director.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 6150</td>
<td>Intergovernmental Relations and Federalism</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6170</td>
<td>Election Law</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6270</td>
<td>Election Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the list below: 6

- COMP 7970: Special Topics
- POLI 6180: Administrative Law
- POLI 6340: Theory and Practice of Mediation
- POLI 6370: Nonprofit Management
- POLI 7050: State Politics
- POLI 7330: Seminar in Administrative Leadership, Responsibility, and Democratic Government

Graduate Certificate in NonProfit Organizations and Community Governance

Required Classes
These courses are required for the Graduate Certificate in NonProfit Organizations and Community Governance. Corresponding 5000-level classes taken as an undergraduate fulfill the graduate certificate requirement but do not count toward the 42 graduate credits needed for the MPA. Substitutions require permission of MPA Director.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 6370</td>
<td>Nonprofit Management</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6550</td>
<td>Issues in Public Administration</td>
<td>1-3</td>
</tr>
<tr>
<td>POLI 7920</td>
<td>MPA Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>or POLI 7930</td>
<td>MPA Research Project</td>
<td></td>
</tr>
</tbody>
</table>

Select two courses from the list below: 6

- POLI 6180: Administrative Law
- POLI 6340: Theory and Practice of Mediation
- POLI 7050: State Politics
- POLI 7330: Seminar in Administrative Leadership, Responsibility, and Democratic Government
- POLI 7520: Program Evaluation

Election Administration

Elections Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 6150</td>
<td>Intergovernmental Relations and Federalism</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6170</td>
<td>Election Law</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6270</td>
<td>Election Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the list below: 6

- COMP 7970: Special Topics
- POLI 6180: Administrative Law
- POLI 6340: Theory and Practice of Mediation
- POLI 6370: Nonprofit Management
- POLI 7050: State Politics
- POLI 7330: Seminar in Administrative Leadership, Responsibility, and Democratic Government

Total Hours 15
NonProfit Organizations and Community Governance

Graduate Certificate in NonProfit Organizations and Community Governance

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 6370</td>
<td>Nonprofit Management</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6550</td>
<td>Issues in Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7920</td>
<td>MPA Internship</td>
<td>3</td>
</tr>
<tr>
<td>or POLI 7930</td>
<td>MPA Research Project</td>
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</table>

Select two courses from the list below: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 6180</td>
<td>Administrative Law</td>
<td>3</td>
</tr>
<tr>
<td>POLI 6340</td>
<td>Theory and Practice of Mediation</td>
<td></td>
</tr>
<tr>
<td>POLI 7050</td>
<td>State Politics</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7330</td>
<td>Seminar in Administrative Leadership, Responsibility, and Democratic Government</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7520</td>
<td>Program Evaluation</td>
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</table>

Total Hours 15

Public Administration

Public Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>POLI 7000</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7140</td>
<td>Public Budgeting</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7150</td>
<td>Public Personnel Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7330</td>
<td>Seminar in Administrative Leadership, Responsibility, and Democratic Government</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7350</td>
<td>Seminar in Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7360</td>
<td>Seminar in Policy and Administration</td>
<td>3</td>
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</table>

Select 6 Credits in the following Internship/Research Project: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 7920/7926</td>
<td>MPA Internship</td>
<td>3</td>
</tr>
<tr>
<td>POLI 7930</td>
<td>MPA Research Project</td>
<td>3</td>
</tr>
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</table>

18 Credits in @ 6000-8999 (Electives) 18

Total Hours 42

Public Administration and Public Policy

PhD in Public Administration and Public Policy

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>POLI 8000</td>
<td>Doctoral Seminar in Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8010</td>
<td>Research Design and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8020</td>
<td>Doctoral Seminar in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8120</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8130</td>
<td>Quantitative Methods</td>
<td>3</td>
</tr>
<tr>
<td>POLI 8990/8996</td>
<td>Research and Dissertation</td>
<td>10</td>
</tr>
<tr>
<td>POLI 6000-8999</td>
<td>50 Hours of Advisor Approved Courses</td>
<td>50</td>
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</tbody>
</table>

Total Hours 75

Real Estate Development - MRED

The Auburn University Executive Master of Real Estate Development (AUMRED) program is an executive graduate degree offered jointly by the College of Architecture, Design and Construction and the College of Business. The program emphasizes best development practices related to environmental sustainability, economic resilience, social responsibility, financial feasibility and design excellence. It provides a targeted understanding of multiple disciplines that puts students at an advantage in their real estate development careers. The program is entrepreneurially and industry focused, designed for practicing professionals with a minimum of three to five years in real estate development or related fields (real estate or mortgage brokerage, architecture, landscape architecture, community planning and building construction, for example). It combines short, intense on-campus residencies with distance modules...
and four-day field trips to nationally and internationally significant cities and development projects each semester. The curriculum consists of 39 credit hours that are delivered over a two-year/six semester period.

Information concerning specific program requirements may be obtained by visiting www.harbert.auburn.edu.

### First Year

<table>
<thead>
<tr>
<th>Summer</th>
<th>Hours</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDEV 7126 Field Studies</td>
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<td>RDEV 7126 Field Studies</td>
<td>1</td>
<td>RDEV 7126 Field Studies</td>
<td>1</td>
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<tr>
<td>RDEV 7136 Principles of Real Estate Development</td>
<td>3</td>
<td>RDEV 7236 Real Estate Market Analysis</td>
<td>3</td>
<td>RDEV 7346 Site Planning and Infrastructure Development</td>
<td>3</td>
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<tr>
<td>RDEV 7146 Real Property Analysis</td>
<td>3</td>
<td>RDEV 7246 Building Design and Construction Principles</td>
<td>3</td>
<td>RDEV 7356 Real Estate Investment Analysis</td>
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**Total Hours: 7**

### Second Year

<table>
<thead>
<tr>
<th>Summer</th>
<th>Hours</th>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDEV 7126 Field Studies</td>
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<td>RDEV 7126 Field Studies</td>
<td>1</td>
<td>RDEV 7126 Field Studies</td>
<td>1</td>
</tr>
<tr>
<td>RDEV 7436 Real Estate Project Management</td>
<td>3</td>
<td>RDEV 7536 Real Estate Securitization</td>
<td>3</td>
<td>RDEV 7636 Real Estate Development Capstone Project</td>
<td>5</td>
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<tr>
<td>RDEV 7446 Real Estate Contract Negotiations</td>
<td>1</td>
<td>RDEV 7546 Real Estate Development Law</td>
<td>3</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Hours: 39**

### Graduate Executive Programs

The Graduate Executive Programs comprise the Executive MBA, the Physicians Executive MBA, and the Masters of Real Estate Development Executive programs. These programs are designed to be taken as a cohort with one start in the Fall of each year, an exact sequence of courses taken each term and with graduation in the Spring – five semesters later.

**Non-Standard Calendar:**

Due to the hybrid nature of these Graduate Executive programs, which use a format that combines on-campus residency with online learning, the residencies typically occur during breaks on campus. See the relevant program website for the exact calendar dates per term for each executive program.

**Full-Time Credit Hour Requirements:**

Students in the Graduate Executive Programs are restricted to the exact courses which are offered to that cohort in any one semester.

The course load varies from term to term – from a minimum of 5 hours to a maximum of 9 hours.

The course load is thus considered to be full time as they cannot take more hours or less as they follow the mandated and approved curriculum.

**Tuition Costs Excluded VA Benefit Coverage:**

VA benefits will not cover costs for lodging, meals, travel, books, supplies or memberships to organizations. As many of these costs are included in the Graduate Executive Programs’ tuition, those costs have been broken out and will be billed separately. See the relevant program website for the exact amounts per term.

### Restoration Ecology

Offered entirely via distance education by School of Forestry and Wildlife Science Faculty, this certificate is designed to help those interested in natural resource management with training in restoration ecology, giving them the tools to better manage our natural resources while advancing their careers. The Restoration Ecology Graduate Certificate courses are designed to 1) provide graduate-
level education for those seeking advanced positions in natural resource fields, or 2) placing students in a position so that they can continue their graduate education in the certificate focus area.

**Restoration Ecology - Graduate Certificate**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOWS 7216</td>
<td>Restoration Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 4 Electives from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>FOWS 7226</td>
<td>Forest History of Alabama and the Southeastern United States</td>
</tr>
<tr>
<td>FOWS 7236</td>
<td>Forest Stand Dynamics</td>
</tr>
<tr>
<td>FOWS 7246</td>
<td>Fire Ecology</td>
</tr>
<tr>
<td>FOWS 7256</td>
<td>Longleaf Pine Ecology, Management, and Restoration</td>
</tr>
<tr>
<td>WILD 6416</td>
<td>Human-Wildlife Conflicts</td>
</tr>
</tbody>
</table>

Total Hours 15

---

**Interdepartmental Graduate Program in Sociology: Rural Sociology MS Thesis & MS Nonthesis**

**Degree Programs:**

- Rural Sociology - MS (p. 1534)
- Sociology - MA, MS (p. 1531)
- Agricultural Economics - MS, MAg (p. 1333)

The master's program in rural sociology is part of the Interdepartmental Graduate Program in Sociology (IDGPS). The Program is administered by co-directors representing the Departments of Sociology, Anthropology & Social Work (College of Liberal Arts) and Agricultural Economics & Rural Sociology (College of Agriculture).

IDGPS offers study and research leading to the degrees of Master of Science in Rural Sociology and Master of Arts or Master of Science in Sociology. Anthropologists, social work faculty, rural sociologists, and sociologists make up the faculty. For additional information, please visit [http://www.cla.auburn.edu/sociology/sociology-program/graduates/the-interdepartmental-masters-program/](http://www.cla.auburn.edu/sociology/sociology-program/graduates/the-interdepartmental-masters-program/).

**Admission Requirements**

Applicants are required to have a bachelor's degree from an accredited institution, and they are generally required to have a minimum GRE score of 290 (150 V and 140 Q) and a GPA of 3.0 on all completed coursework. The applicant's statement of interest and letters of recommendation are also considered in making a decision on admission.

Applicants should ensure the following materials are submitted to the Graduate School web-based application system:

- Official scores from the General Test of the GRE
- Official transcripts from every college and university attended
- If an international student, the official score from the TOEFL exam
- Three recommendations

Rural sociology applicants should ensure that the following is submitted to the Co-Director for Rural Sociology in the Department of Agricultural Economics & Rural Sociology.

- Statement of interest

Applications to the Program are reviewed, year round, by the Co-Directors who will evaluate each dossier.

**Thesis and Non-Thesis Options**

Thesis and non-thesis options are available for the MS degree in Rural Sociology. These two degree options are designed to serve the needs of differing types of students. The thesis option is recommended for students who are interested in gaining research experience or who might be interested in pursuing advanced graduate work. The non-thesis option is designed for individuals who are in mid-career, who wish to learn new skills in order to be more productive professionally, and who do not plan to pursue a more advanced graduate degree.
The thesis option requires a minimum of 30 semester hours, with 6 semester hours of this total being for research and thesis (RSOC 7990 Research and Thesis). The non-thesis option requires 36 semester hours of course credit and the completing of a capstone paper.

**Required Core Courses**

All IDGPS students take three core graduate courses:

- SOCY 7000 Advanced Sociological Theory
- SOCY 7100 Statistical Analysis of Survey, Aggregate, and Large Data Sources
- RSOC 7700 Methods of Social Research

Students without undergraduate coursework in these core areas may be required to take additional courses. Additional courses at the 6000-level and above are taken with the advice of the student’s graduate advisory committee.

**Financial Aid**

A variable number of graduate teaching assistantships (GTA) and graduate research assistantships (GRA) are available on a competitive basis to support graduate students in the program. Strong preference is given to funding students pursuing the thesis option.

Admission to the program is determined by the program’s Co-Directors after consultation with faculty, but funding decisions are made by the individual departments. To be considered for funding, applicants should have a completed application and have submitted the following:

- Application for Graduate Assistantships form.

Most graduate assistantships require the commitment of 13-15 hours of work per week. Given these responsibilities, graduate students holding assistantships are expected to take no more than 9 hours of graduate credit coursework per semester.

Graduate Teaching Assistantships (GTAs) are associated primarily with students in the Department of Sociology, Anthropology & Social Work. GTAs work with faculty teaching in the undergraduate core curriculum. In contrast, Graduate Research Assistantships (GRAs) are associated primarily with students in Agricultural Economics & Rural Sociology. GRAs require working with faculty conducting research on a variety of topics dealing with, but not limited to, environment and natural resources, food and agriculture, and community and rural development. While funding from grants may become available throughout the year, GRAs are generally made available in February or March for the following academic year. Please contact the Co-Director in Rural Sociology for further information.

**Special Education, Rehabilitation, and Counseling - MEd, MS, EdS, PhD**

**Degree Programs**

- Clinical Mental Health Counseling (p. 509)
- Clinical Rehabilitation Counseling (p. 1526)
- Counselor Education (p. 512)
- Counseling Psychology (p. 510)
- Collaborative Teacher Special Education, K-12 (p. 1526)
- Early Childhood/Elementary Special Education, P-6 (p. 1528)
- Rehabilitation and Special Education (p. 1531)
- School Counseling (p. 516)

**Graduate Certificates**

- Transition Specialist (p. 1531)
- Intervention for Students with Autism and Developmental Disabilities (p. 1530)
- Rehabilitation Leadership and Management (p. 1531)
## Clinical Rehabilitation Counseling – MEd/MS

Clinical Rehabilitation Counseling – MEd/MS ([http://www.education.auburn.edu/academic-program/clinical-rehabilitation-counseling](http://www.education.auburn.edu/academic-program/clinical-rehabilitation-counseling))

**Rehabilitation Counseling – MEd/MS (Online Option Available)**

<table>
<thead>
<tr>
<th>45 Credits in @ 6000-8999</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hours</td>
<td>45</td>
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</tbody>
</table>

## Collaborative Teacher Special Education, K-12 - MEd/MS, EdS

Collaborative Teacher Special Education, K-12 - MEd/MS ([http://www.education.auburn.edu/graduate-degree-cert/collaborative-teacher-special-education-m-ed-m-s](http://www.education.auburn.edu/graduate-degree-cert/collaborative-teacher-special-education-m-ed-m-s)), EdS ([http://www.education.auburn.edu/graduate-degree-cert/special-education-ed-s](http://www.education.auburn.edu/graduate-degree-cert/special-education-ed-s))

Collaborative Teacher Special Education, K-12 - MEd ([Alternative Certification, Online Option Available])

### Alternative Class A Education Program Checklist

#### Teaching Field: 21 hours

At least 1/3 of the program shall be in teaching field courses.

**Required:** 18 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7120/7126</td>
<td>Advanced Assessment in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7220/7226</td>
<td>Advanced Teaching Methods in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7230/7236</td>
<td>Advanced Behavior Management in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7400/7406</td>
<td>Curriculum and Teaching in Specialization (Learning Strategies)</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7410/7410</td>
<td>Program Implementation in Specialization (Leadership)</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7460/7460</td>
<td>Positive Behavior Supports</td>
<td>3</td>
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</table>

Select 3 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>RSED 7420/7426</td>
<td>Research in Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7430/7436</td>
<td>Research Into Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level or above in the Teaching Field

#### Professional Studies: 33 hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6150/6156</td>
<td>Teaching Methods in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6230/6236</td>
<td>Rehabilitation Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7910/7916</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7920/7926</td>
<td>Clinical Residency</td>
<td>9</td>
</tr>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6140/6146</td>
<td>Curriculum in Severe Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6160/6166</td>
<td>Framework for Collaboration in K-12</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6170/6176</td>
<td>Transition from Birth to Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6190/6196</td>
<td>Community-based Instruction and Related Services</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 54

1. The state diversity course requirement is fulfilled with RSED 7400/6 Curriculum and Teaching: Learning Strategies, RSED 7410/6 Program Implementation: Leadership, and RSED 7460/6 Positive Behavior Supports.
2. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
3. If equivalents of the following courses were completed at an undergraduate level, the credit hours will be waived and the total program hours reduced appropriately: RSED 6000/6006, RSED 6140/6146, RSED 6160/6166, RSED 6170/6176, RSED 6190/6196.
In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet admission requirements cannot be used again to meet Alternative Class A program requirements. All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Collaborative Teacher Special Education, K-12 - MEd/MS (Certification, Online Option Available)

Class A Program Checklist for Teaching Field

Teaching Field: 33 hours

At least 1/3 of the program shall be in teaching field courses.

Required: 6 hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7910/7916 Practicum</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6230/6236 Rehabilitation Assistive Technology</td>
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</table>

Select 27 hours from the following: 27

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RSED 7120/7126 Advanced Assessment in Special Education</td>
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</tr>
<tr>
<td>RSED 7220/7226 Advanced Teaching Methods in Special Education</td>
<td></td>
</tr>
<tr>
<td>RSED 7230/7236 Advanced Behavior Management in Special Education</td>
<td></td>
</tr>
<tr>
<td>RSED 7400/7406 Curriculum and Teaching in Specialization (Learning Strategies)</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7410/7416 Program Implementation in Specialization (Leadership)</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7420/7426 Research in Specialization</td>
<td></td>
</tr>
<tr>
<td>RSED 7430/7436 Research Into Practice</td>
<td></td>
</tr>
<tr>
<td>RSED 7460/7466 Positive Behavior Supports</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7990 Research and Thesis (required for MS degree)</td>
<td></td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level or above in the Teaching Field

Survey of Special Education/Diversity Course

See RSED 6000/6 in Additional Courses AND RSED 7400/6, RSED 7410/6, or RSED 7460/6 in Teaching Field

Additional Courses: 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006 Advanced Survey of Exceptionality</td>
<td>1,2</td>
</tr>
<tr>
<td>RSED 6140/6146 Curriculum in Severe Disabilities</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6150/6156 Teaching Methods in Special Education</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6160/6166 Framework for Collaboration in K-12</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6170/6176 Transition from Birth to Adulthood</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6190/6196 Community-based Instruction and Related Services</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Hours 33

1. RSED 6000/RSED 6006 Advanced Survey of Exceptionality must be completed if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement must be fulfilled with RSED 7400/RSED 7406 Curriculum & Teaching: Learning Strategies, RSED 7410/6 Program Implementation: Leadership, or RSED 7460/RSED 7466 Positive Behavior Supports.

2. The following courses or equivalents are required if not previously completed—particularly for candidates whose prior certification was NOT in special education: RSED 6000/RSED 6006, RSED 6140/RSED 6146, RSED 6150/RSED 6156, RSED 6160/RSED 6166, RSED 6170/RSED 6176, RSED 6190/RSED 6196. These credit hours are in addition to the 33 total program hours.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

Coursework used to meet Class B certification requirements may not be used to meet requirements for Class A certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

Special Education Collaborative Teacher, EdS (Certification, Online Option Available)

Teaching Field: 15 hours

At least 1/3 of the program shall be teaching field courses.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7420/7426</td>
<td>Research in Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7430/7436</td>
<td>Research Into Practice</td>
<td>3</td>
</tr>
<tr>
<td>RSED 8030/8036</td>
<td>Disabilities and Professional Issues</td>
<td>3</td>
</tr>
<tr>
<td>RSED 8050/8056</td>
<td>Disabilities and the Law</td>
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<tr>
<td>RSED 8950/8956</td>
<td>Seminar (Supervision &amp; Administration)</td>
<td>3</td>
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</table>

**Survey of Special Education/Diversity Course**

See RSED 6000/6 in Additional Courses AND RSED 8030/6 in Teaching Field

**Additional Courses: 15 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6000/6006</td>
<td>Advanced Survey of Exceptionality</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7910/7916</td>
<td>Practicum</td>
<td>2</td>
</tr>
</tbody>
</table>

Other advisor-approved RSED courses 6000 level and above

Other advisor-approved supporting courses 6000 level and above

**Total Hours**

1. RSED 6000/RSED 6006 Advanced Survey of Exceptionality must be used to fulfill requirement if survey of special education course was not completed for prior level certification. If a survey of special education course was completed for prior level certification, the state diversity course requirement is fulfilled with RSED 8030/6 Disabilities and Professional Issues.

2. Successful completion of a practicum shall be required for certification in a new area of special education.

3. Supporting courses must be applicable to the area of certification (e.g., research, assessment/evaluation, classroom management, pedagogy, human behavior/development, foundations, technology, teaching field).

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.50 is required on all courses used to meet program requirements.

Coursework used to meet Class A certification requirements may not be used to meet requirements for Class AA certification.

All substitutions for required courses must be approved using the Course Substitution Form, including transfer work.

---

**Early Childhood/Elementary Special Education, P-6 - MEd/MS**

**Early Childhood/Elementary Special Education, P-6 - MEd/MS** (http://www.education.auburn.edu/graduate-degree-cert/earlyelementary-special-education-m-ed)

**Early Childhood/Elementary Special Education - MEd (Alternative Certification, Online Option Available)**

**Alternative Class A Education Program Checklist**

**Teaching Field: 21 hours**

- At least 1/3 of the program shall be in teaching field courses.

**Required: 18 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7120/7126</td>
<td>Advanced Assessment in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7230/7236</td>
<td>Advanced Behavior Management in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7400/7406</td>
<td>Curriculum and Teaching in Specialization (Learning Strategies)</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7410/7416</td>
<td>Program Implementation in Specialization (Leadership)</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7410/7416</td>
<td>Program Implementation in Specialization (B-5)</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7460/7466</td>
<td>Positive Behavior Supports</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 hours from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7420/7426</td>
<td>Research in Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7430/7436</td>
<td>Research Into Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Other advisor-approved courses 6000 level or above in the Teaching Field

**Professional Studies: 36 hours**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 6150/6156</td>
<td>Teaching Methods in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 6230/6236</td>
<td>Rehabilitation Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7220/7226</td>
<td>Advanced Teaching Methods in Special Education</td>
<td>3</td>
</tr>
</tbody>
</table>
### RSED 7910/7916 Practicum 3
### RSED 7920/7926 Clinical Residency 2 9
### RSED 6000/6006 Advanced Survey of Exceptionality 3 3
### RSED 6100/6106 Infants and Toddlers with Disabilities 3 3
### RSED 6110/6116 Curriculum in Early Childhood Special Education 3 3
### RSED 6140/6146 Curriculum in Severe Disabilities 3 3
### RSED 6160/6166 Framework for Collaboration in K-12 3 3

**Total Hours** 57

1. The state diversity course requirement is fulfilled with RSED 7400/6 Curriculum and Teaching: Learning Strategies, RSED 7410/6 Program Implementation: Leadership, and RSED 7460/6 Positive Behavior Supports.
2. Clearance for Clinical Residency includes completion of all other coursework. Exceptions require approval using the Student Petition Form.
3. If equivalents of the following courses were completed at an undergraduate level, the credit hours will be waived and the total program hours reduced appropriately: RSED 6000/6006, RSED 6100/6106, RSED 6110/6116, RSED 6140/6146, RSED 6160/6166.

In addition to the Graduate School requirement of a cumulative 3.0 GPA on all AU courses carrying graduate credit, a minimum cumulative GPA of 3.25 is required on all courses used to meet program requirements.

**Early Childhood/Elementary Special Education - MEd/MS (Certification, Online Option Available)**

**Class A Program Checklist for Teaching Field**

**Teaching Field: 33 hours**

At least 1/3 of the program shall be in teaching field courses.

**Required: 9 hours**

<table>
<thead>
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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>RSED 7910/7916 Practicum</td>
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</tr>
<tr>
<td>RSED 6230/6236 Rehabilitation Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7410/7410 Program Implementation in Specialization (B-5)</td>
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**Select 24 hours from the following:** 24

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>RSED 7120/7126 Advanced Assessment in Special Education</td>
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</tr>
<tr>
<td>RSED 7220/7226 Advanced Teaching Methods in Special Education</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7230/7236 Advanced Behavior Management in Special Education</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7400/7406 Curriculum and Teaching in Specialization (Learning Stratgies)</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7410/7410 Program Implementation in Specialization (Leadership)</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7420/7426 Research in Specialization</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7430/7436 Research Into Practice</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7460/7460 Positive Behavior Supports</td>
<td>1</td>
</tr>
<tr>
<td>RSED 7990 Research and Thesis (required for MS degree)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Other advisor-approved courses 6000 level or above in the Teaching Field**

**Survey of Special Education/Diversity Course**

See RSED 6000/6 in Additional Courses AND RSED 7400/6, RSED 7410/6, or RSED 7460/6 in Teaching Field 1

**Additional Courses:** 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>RSED 6000/6006 Advanced Survey of Exceptionality</td>
<td>1, 2</td>
</tr>
<tr>
<td>RSED 6100/6106 Infants and Toddlers with Disabilities</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6110/6116 Curriculum in Early Childhood Special Education</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6140/6146 Curriculum in Severe Disabilities</td>
<td>2</td>
</tr>
<tr>
<td>RSED 6150/6156 Teaching Methods in Special Education</td>
<td>2</td>
</tr>
</tbody>
</table>
Intervention for Students w/ Autism & Developmental Disabilities - Graduate Certificate

Intervention for Students w/ Autism & Developmental Disabilities - Graduate Certificate
(http://www.education.auburn.edu/graduate-degree-cert/graduate-certificate-intervention-students-autism-developmental-disabilities)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSED 7230/7236</td>
<td>Advanced Behavior Management in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7400/7406</td>
<td>Curriculum and Teaching in Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7410/7416</td>
<td>Program Implementation in Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7420/7426</td>
<td>Research in Specialization</td>
<td>3</td>
</tr>
<tr>
<td>RSED 7430/7436</td>
<td>Research Into Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 15

Social Work - MS

MSW Clinical Traditional Program

For students who qualify for admission to the MSW Traditional Program, classes shall be taken in the full-time format. Students typically take twelve (12) to sixteen (16) hours per semester (6 hours in summer). Students are required to complete two field experiences. The first internship is a generalist placement (consisting of 432 hours) focusing on the acquisition and development of generalist practice skills using a strengths perspective. The second internship is an advanced clinical placement (512 hours) focusing on the development of advanced clinical social work practice skills. Both the generalist and advanced clinical field placements are completed in a full-time format, each placement being performed during one full semester. It typically takes a student 5 semesters (about 2 years) to complete the 61 credit-hour program. The plan of study is attached.

MSW Clinical Advanced Standing Program

Students who have earned an undergraduate degree in Social Work from a program that is accredited by the Council on Social Work Education, qualify for admission to the MSW Advanced Standing Program. Classes shall be taken in the full-time format. Students typically take twelve (12) to fifteen (15) hours per semester (9 hours in summer). These students will complete one internship, an advanced clinical placement (512 hours) that focuses on the development of advanced clinical social work practice skills. This internship will be completed in a part-time format across two semesters. It typically takes a student 3 semesters (1 year) to complete the 39 credit-hour program. The plan of study is attached.

Electives

Students will choose from 3 (Traditional Program) to 5 (Advanced Standing) electives. The list of electives is attached.
Rehabilitation and Special Education - PhD

Rehabilitation and Special Education - PhD (http://www.education.auburn.edu/graduate-degree-cert/rehabilitation-special-education-ph-d)

Rehabilitation and Special Education - PhD
RSED 8990/8996 Research and Dissertation 10
71 Credits in @ 6000-8999 71
Total Hours 81

*This program is currently only admitting and preparing students in special education.

Rehabilitation Leadership and Management - Graduate Certificate

Rehabilitation Leadership and Management - Graduate Certificate (http://www.education.auburn.edu/graduate-degree-cert/rehabilitation-leadership-management-graduate-certificate)

Rehabilitation Leadership Management - GCRT
RSED 8110/8116 Organizational Leadership and Change Rehabilitation 3
RSED 8120/8126 Management of Public Sector Organizations 3
RSED 8050/8056 Disabilities and the Law 3
RSED 8950/8956 Seminar (I) 3
RSED 8950/8956 Seminar (II) 3
RSED 8950/8956 Seminar (III) 3
RSED 8980/8986 Non-Thesis Project 3
Total Hours 21

Transition Specialist - Graduate Certificate

Transition Specialist - Graduate Certificate (http://www.education.auburn.edu/graduate-degree-cert/transition-specialist-graduate-certificate)

Transition Specialist - GCRT
Required: 4 hours
RSED 7400/7406 Curriculum and Teaching in Specialization 3
RSED 7910/7916 Practicum 1
Select 12 hours of the following: 12
RSED 6170/6176 Transition from Birth to Adulthood 3
RSED 7010/7016 Rehabilitation Professions, Programs and Ethics 3
RSED 7400/7406 Curriculum and Teaching in Specialization 3
RSED 7410/7416 Program Implementation in Specialization 3
RSED 7420/7426 Research in Specialization 3
CTCT 7000/7006 Foundations of Career and Technical Education 3
COUN 7230 Career Development and Vocational Appraisal 3
Other advisor approved elective
Total Hours 16

Sociology - MA, MS

Degree Program:
- Sociology - MA (p. 1533)
- Sociology - MS (p. 1533)
The interdepartmental graduate program in sociology offers study and research leading to the degrees of Master of Arts or Master of Science in Sociology and in Rural Sociology. Anthropologists, social work faculty, rural sociologists, and sociologists make up the faculty. The program is administered by a two-member coordinating committee from the Department of Agricultural Economics and Rural Sociology and the Department of Sociology, Anthropology, and Social Work. Information about the two degrees is available at http://www.cla.auburn.edu/sociology/sociology-program/graduates/the-interdepartmental-masters-program/.

Admission Requirements
Admission to the program is administered by co-directors representing the Department of Sociology, Anthropology & Social Work and the Department of Agricultural Economics & Rural Sociology. Applicants are required to have a bachelor's degree from an accredited institution and generally are required to have a minimum GRE score of 290 (150 V and 140 Q) and a GPA of 3.0 on all completed coursework. The applicant's statement of interest and letters of recommendation also are considered in making a decision on admission.

Applicants should ensure the following materials are submitted to the Graduate School web application:

- Official scores from the General Test of the GRE
- Official transcripts from every college and university attended
- If an international student, the official score from the TOEFL exam
- Three letters of recommendation

Applicants should ensure that the following materials are submitted to the graduate program officer in the Department of Sociology, Anthropology, and Social Work:

- Statement of interest

Applications to the program are reviewed year round.

The program's coordinating committee will evaluate each applicant's dossier.

Thesis and Non-Thesis Options
Thesis and non-thesis options are available for both the MA and the MS. These two degree options are designed to serve the needs of differing types of students. The thesis option is recommended for students who might be interested in pursuing advanced graduate work and who are interested in gaining research experience. The non-thesis option is designed for individuals who are in mid-career, who wish to learn new skills in order to be more productive professionally, and who have no intent on pursuing a more advanced graduate degree.

The thesis option requires a minimum of 30 semester hours, with 6 semester hours of this total being for research and thesis (SOCY 7990 Research and Thesis or RSOC 7990 Research and Thesis). The non-thesis option requires 36 semester hours of course credit. Additionally, a capstone paper is required for the non-thesis option.

Required Core Courses
All students take core graduate courses in social theory, social research methods, and statistics:

- SOCY 7000 Advanced Sociological Theory
- SOCY 7100 Statistical Analysis of Survey, Aggregate, and Large Data Sources
- RSOC 7700 Methods of Social Research

Students without undergraduate course work in these areas may be required to take additional courses to prepare for the core graduate courses. Additional courses at the 6000-level and above are taken with the advice of the student's graduate advisory committee.

Financial Aid
A variable number of graduate teaching assistantships and graduate research assistantships are available on a competitive basis to support graduate students in the program. Strong preference is given to funding students pursuing the thesis option.
Admission to the program is determined collectively by the coordinating committee, but funding decisions are made by individual departments. To be considered for funding, applicants should send three letters of recommendation to the coordinating committee member in the appropriate department.

Most graduate teaching assistantships and graduate research assistantships require the commitment of 13-15 hours of work per week. Given these responsibilities, graduate students holding graduate teaching assistantships and graduate research assistantships are expected to take no more than 9 hours of graduate credit course work per semester. Experience indicates that a heavier course load leads to an erosion of performance both on the job and in the course work.

Graduate teaching positions are associated primarily with the Department of Sociology, Anthropology, and Social Work and involve working with faculty teaching in the undergraduate core curriculum. Students seeking graduate teaching assistantships should submit their completed applications by March 1 to be included in the review process regarding funding decisions for the following academic year. However, occasionally, funds for graduate teaching assistantships may become available later in the year, and applications are then reviewed accordingly.

Graduate research assistantships are associated primarily with the Department of Agricultural Economics and Rural Sociology and require working with faculty conducting research on a variety of topics dealing with rural development. Funding from grants becomes available at different times of the year. The funds for graduate research assistantships generally are made available in February or March. Please contact the coordinating committee member from the Department of Agricultural Economics and Rural Sociology for further information on funding.

### Sociology - MA

**MA Sociology Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY 7000</td>
<td>Advanced Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 7700</td>
<td>Methods of Social Research</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 7990</td>
<td>Research and Thesis</td>
<td>6</td>
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<tr>
<td>or SOCY 7990</td>
<td>Research and Thesis</td>
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</table>

Select 15 Credits in @6000-8999 15

Total Hours 30

**MA Sociology Non-Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY 7000</td>
<td>Advanced Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 7700</td>
<td>Methods of Social Research</td>
<td>3</td>
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</tbody>
</table>

Select 27 Credits in @6000-8999 27

Total Hours 36

### Sociology - MS

**MS Sociology Thesis**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SOCY 7000</td>
<td>Advanced Sociological Theory</td>
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</tr>
<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
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<td>RSOC 7700</td>
<td>Methods of Social Research</td>
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<tr>
<td>RSOC 7990</td>
<td>Research and Thesis</td>
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<tr>
<td>or SOCY 7990</td>
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Select 15 Credits in @6000-8999 15

Total Hours 30

**MS Sociology Non-Thesis**

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<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>RSOC 7700</td>
<td>Methods of Social Research</td>
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</tr>
<tr>
<td>SOCY 7000</td>
<td>Advanced Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
<td>3</td>
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</tbody>
</table>
Select 27 Credits in @6000-8999  
Total Hours  
36

**Rural Sociology - MS**

**MS Rural Sociology Thesis**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SOCY 7000</td>
<td>Advanced Sociological Theory</td>
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<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
<td>3</td>
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<tr>
<td>RSOC 7700</td>
<td>Methods of Social Research</td>
<td>3</td>
</tr>
<tr>
<td>RSOC 7990</td>
<td>Research and Thesis</td>
<td>6</td>
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<tr>
<td>or SOCY 7990</td>
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</table>

Select 15 Credits in @6000-8999  
Total Hours  
30

**MS Rural Sociology Non-Thesis**

<table>
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<td>SOCY 7000</td>
<td>Advanced Sociological Theory</td>
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<tr>
<td>SOCY 7100</td>
<td>Statistical Analysis of Survey, Aggregate, and Large Data Sources</td>
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</tr>
<tr>
<td>RSOC 7700</td>
<td>Methods of Social Research</td>
<td>3</td>
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</tbody>
</table>

Select 27 Credits in @6000-8999  
Total Hours  
36

**Spanish - MA, MHS**

**Degree Programs**

- Spanish - MA, MHS (p. 1535)

Graduate studies in Spanish lead to the Master of Arts (MA) in Spanish or the Master of Hispanic Studies (MHS). The Spanish graduate program is designed to prepare students for careers in teaching, business, government, world affairs, diplomacy, social service, and law enforcement and for doctoral studies in Spanish, with emphases such as literature, linguistics, or foreign language education. Students may begin their graduate studies at the beginning of any semester during the academic year.

Information about the MA and the MHS can be found at [http://www.cla.auburn.edu/forlang/spanish-graduate-program/](http://www.cla.auburn.edu/forlang/spanish-graduate-program/).

**Admission Requirements**

Candidates wishing to pursue the MA or the MHS must have a bachelor’s degree from an accredited institution, with at least 38 semester hours of undergraduate Spanish course work above the freshman level and satisfactory scores on the General Test of the GRE. International students must have acceptable scores on the TOEFL. Applicants lacking course requirements need to make up deficiencies before admission to the graduate program.

Applicants should ensure that the following materials are sent to the Graduate School via the Graduate Web Application and Admission Process (https://web.auburn.edu/GWAAP/default.aspx):

- Official transcripts from every undergraduate institution attended
- Official scores from the General Test of the GRE sent from ETS (for domestic students; not required for international students)
- Official scores from the TOEFL (for international students)
- Three letters of recommendation
- Graduate teaching assistantship application
- Writing sample. A writing sample in Spanish should be submitted to the Department of Foreign Languages and Literatures at the time of the application. The writing sample typically is a research paper completed for a course taken as an undergraduate, usually a paper written for a senior-level literature or civilization course. It should be a minimum of five pages, typed.

Applicants should also provide two speaking samples electronically via a OneDrive folder shared privately with each candidate once the formal application has been completed through the Apply Yourself online system:
• Speaking biographical sample: Candidates must provide a 2-3 minute extemporaneous autobiography on the candidate’s relevant background, including an explanation of the candidate’s interest in pursuing a graduate degree in Spanish, and his/her professional plans for the future.

• Reading sample: The second speaking sample should be a reading from a printed text, for example, a poem, a paragraph or two from a novel or short story, or a newspaper article. Applicants should identify the selection on the recording. This selection should be approximately 1-2 minutes in length.

• The speaking samples will be requested electronically through a OneDrive folder shared privately with each candidate once the formal application has been completed through the Apply Yourself online system.

• All materials should be received by February 15.

Courses and Other Graduation Requirements

The MA requires at least 30 semester hours including 4 credit hours for thesis.

Candidates for the MHS must earn a minimum of 36 semester hours in their major, but no thesis is required. A concentration consisting of 6 semester hours of graduate-level courses in a related field or fields may be earned as part of the MHS degree. These 6 hours do not have to be taken in the Department of Foreign Languages and Literatures.

Both degrees require satisfactory performance on the comprehensive examinations.

A reading knowledge of one other foreign language is required. This knowledge may be demonstrated by earning a passing score on the foreign language proficiency test or by completing the first-year sequence (or equivalent) of the foreign language with a grade of B or better.

Financial Aid

Graduate teaching assistantships are available to qualified students. For more information, please contact the department.

All MA-Spanish or MHS graduate students are required to take FLSP 7090 Introduction to College Level Spanish Instruction. For more information, check the student handbook available from the department.

Spanish - MA, MHS

MA Spanish Thesis

<table>
<thead>
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<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
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<td>FLSP 7090</td>
<td>Introduction to College Level Spanish Instruction</td>
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<tr>
<td>FLSP 7990</td>
<td>Research and Thesis</td>
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* 6 credit hours may be taken as non-FLSP 6000-8999.

MHS Hispanic Studies Non-Thesis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>FLSP 7090</td>
<td>Introduction to College Level Spanish Instruction</td>
<td>3</td>
</tr>
<tr>
<td>Select 33 Credits in FLSP 6000-8999 *</td>
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</tbody>
</table>

* 6 credit hours may be taken as non-FLSP 6000-8999.

Statistics - MS, MPS

Degree Programs:

• Statistical Option Thesis - MS (p. 1485)
• Probability and Statistics Non-Thesis - MProbS (p. 1485)

The Department of Mathematics and Statistics offers degree programs leading to a master of science in statistics and a non-thesis master of probability and statistics. The master of science is designed to provide a suitable mix of theoretical and applied background for students interested in a career in statistics. The curriculum provides students with the necessary technical, analytical and interpretive skills required of professional statisticians while concentrating on education in the fundamentals of statistics and its
interdisciplinary nature. Course offerings are structured to give students a variety of choices of specialization in order to pursue a career in academia, government or industry and/or further their pursuit of a PhD degree in statistics. For the MS degree the student must complete and defend a thesis and obtain a passing score on the related oral examination. The master of probability and statistics (MPS) is the non-thesis option in which students are required to complete a project that may involve statistical consulting, programming and/or data analysis. A PhD degree in mathematics with concentration in statistics is also available (see mathematics).

For those students whose graduate research includes a substantial amount of statistical methodology or data analysis, but who do not wish to pursue a degree, a graduate minor in statistics is available (see "Statistics" under "Graduate Minors").

**Veterinary Clinical Sciences**

**P1**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMED 9000 Orientation to Veterinary Medicine</td>
<td>0</td>
<td>VMED 9121 Veterinary Anatomy II</td>
<td>3</td>
</tr>
<tr>
<td>VMED 9200 Veterinary Parasitology I</td>
<td>3</td>
<td>VMED 9141 Organology of Domestic Animals</td>
<td>2</td>
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<tr>
<td>VMED 9010 Veterinary Medical Ethics &amp; Law</td>
<td>2</td>
<td>VMED 9150 Diagnostic Imaging</td>
<td>2</td>
</tr>
<tr>
<td>VMED 9062 Clinicopathology Conference Critical Thinking</td>
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<td>VMED 9151 Veterinary Neurosciences</td>
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<tr>
<td>VMED 9111 Veterinary Anatomy I (Small Animal)</td>
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<td>VMED 9210 Veterinary Parasitology II</td>
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<tr>
<td>VMED 9130 Genetic and Cellular Basis of Animal Disease</td>
<td>1</td>
<td>VMED 9301 Physical Diagnoses of Large and Small Animals</td>
<td>2</td>
</tr>
<tr>
<td>VMED 9110 Physiology I</td>
<td>5</td>
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<tr>
<td>VMED 9131 Basic Microanatomy/Domestics Animals</td>
<td>3</td>
<td>VMED 9120 Physiology II</td>
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<td>VMED 9180 Veterinary Ethology</td>
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<tr>
<td>VMED 9050 (Course proposal submitted. Title: Professional Development and Business Fundamentals.)</td>
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<td>VMED 9190 Introduction to Veterinary Pharmacology</td>
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**P2**

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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>VMED 9270 Introduction to Cytology</td>
<td>1</td>
<td>VMED 9510 Hemolymph/Integumentary System</td>
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<td>VMED 9260 Veterinary Pharmacology</td>
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<td>VMED 9040 Veterinary Food Safety</td>
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<tr>
<td>VMED 9250 Virology &amp; Prions</td>
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<tr>
<td>VMED 9280 Bacteriology &amp; Mycology</td>
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<tr>
<td>VMED 9230 Veterinary Clinical Pathology</td>
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<td>VMED 9020 Veterinary Medicine and the Law</td>
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<tr>
<td>VMED 9220 Principles of Veterinary Pathology</td>
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<td>Electives</td>
<td>1-3</td>
</tr>
<tr>
<td>Electives</td>
<td>1-3</td>
<td>VMED 9530 Respiratory System</td>
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<tr>
<td>VMED 9580 Nervous System</td>
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<td>VMED 9540 Small Animal Alimentary System</td>
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<tr>
<td>VMED 9380 Physical Diagnosis II</td>
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<td>VMED 9640 Large Animal Alimentary System</td>
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<td>VMED 9700 Introduction to Anesthesia</td>
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<td>VMED 9240 Principles of Veterinary Immunology</td>
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<td>VMED 9310 Introduction to Surgery</td>
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<td></td>
<td></td>
<td>VMED 9520 Cardiovascular System</td>
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### P3

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<thead>
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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>VMED 9410 Applied Clinical Imaging</td>
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<td>2 VMED 9350 Veterinary Toxicology</td>
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</tr>
<tr>
<td>VMED 9311 Surgical Practicum</td>
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<td>1 VMED 9380 Production Preventative Medicine</td>
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<tr>
<td>VMED 9550 Urinary System</td>
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<td>2 VMED 9370 Oncology</td>
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<td>2 VMED 9621 Clinical Rotations in Veterinary Medicine</td>
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<td>VMED 9570 Reproductive System</td>
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<td>4 VMED 9062 Clinicopathology Conference Critical Thinking</td>
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<tr>
<td>VMED 9580 Nervous System</td>
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<td>2 VMED 9320 Large Animal Nutrition</td>
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<tr>
<td>VMED 9330 Exotic Companion Animal Medicine</td>
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<td>2 VMED 9340 Emergency Medicine and Critical Care</td>
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<td>1 VMED 9621 Clinical Rotations in Veterinary Medicine</td>
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<tr>
<td>VMED 9590 Musculoskeletal System</td>
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<td>3 VMED 9621 Clinical Rotations in Veterinary Medicine</td>
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<td>VMED 9262 Clinical Pharmacology and Therapeutics</td>
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<td>Electives</td>
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<td>2 VMED 9621 Clinical Rotations in Veterinary Medicine</td>
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<tr>
<td>VMED 9310 Introduction to Surgery</td>
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<td>2 VMED 9670 Special Senses Systems</td>
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### SUMMER

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<th>Summer</th>
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<tbody>
<tr>
<td>VMED 9621 Clinical Rotations in Veterinary Medicine</td>
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<tr>
<td>(total of 12 hours of VMED 9621)</td>
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### P4

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<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMED 9621 Clinical Rotations in Veterinary Medicine</td>
<td>2</td>
<td>2 VMED 9621 Clinical Rotations in Veterinary Medicine (total 14 hours of VMED 9621)</td>
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<tr>
<td>(total 19 hours of VMED 9621)</td>
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<td>VMED 9801 Preceptorship</td>
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<tr>
<td></td>
<td></td>
<td>VMED 9950 Clinicopathologic Conference</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>UNIV 4AA0 University Graduation</td>
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</table>

### TOTAL HOURS - 173

Rotations will be set up in blocks of two 2-week rotations. There are 24 2-week rotations that each student must complete, 15 are required rotations and 9 are elective rotations that the student must select from an approved list.
Wildlife Sciences - MS, PhD

Degree Programs:

• Wildlife Sciences - MS (p. 1538)
• Wildlife Sciences - PhD (p. 1538)

Wildlife Sciences graduate programs are available for both MS and PhD degrees. Admission requirements parallel those for Forestry graduate programs. In addition to meeting Graduate School admission requirements, applicants are evaluated and recommended for admission by the graduate faculty of the School of Forestry and Wildlife Sciences based on examination of scores on the TOEFL tests for international students, previous academic records, experience, and recommendations. While exceptions may be made, the faculty generally expect a minimum GPA of 3.0 in previous academic course work.

Degrees offered:

• Master of Science (MS) which requires a minimum of 30 hours beyond the bachelor degree at the graduate level, 21 hours of which must be in the major. A minimum of 4 but not more than 6 hours in Research and Thesis (WILD 7990) is required. All MS students are required to take Research Methods (FORY 7510) and Graduate Seminar (WILD 7950). A research proposal and thesis based on original research are required components for the MS degree.

• Doctor of Philosophy (PhD) degree requires 60 semester hours beyond the bachelor degree. There must be a minimum of 30 semester hours in graded coursework at the 7000-level or above. Of the remaining 30 semester hours, 10 hours must be Research and Dissertation (WILD 8990) and 20 hours of 6000-level or above. While some of these 60 hours can be from previous graduate work, such as a MS degree, the majority of hours of graded coursework at the 6000-level or above must be completed at Auburn. All PhD students are required to take Research Methods (FORY 7510) and Graduate Seminar (WILD 7950). A research proposal and dissertation based on original research are required as major components of the PhD degree program. Oral and written preliminary exams are required for advancement to candidacy and must be completed no less than two academic terms prior to graduation. The written and oral preliminary examinations for PhD students will normally consist of questions from each committee member regarding technical competency and other related issues.

Wildlife Sciences - MS

<table>
<thead>
<tr>
<th>Wildlife Sciences (MS)</th>
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<tbody>
<tr>
<td>FORY 7510</td>
</tr>
<tr>
<td>FOWS 7950</td>
</tr>
<tr>
<td>WILD 7990</td>
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<tr>
<td>Select 23 Credits in @ 6000-8999 (Electives)</td>
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</table>

Wildlife Sciences - PhD

<table>
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<tr>
<th>Wildlife Sciences (PhD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FORY 7510</td>
</tr>
<tr>
<td>FOWS 7950</td>
</tr>
<tr>
<td>WILD 8990</td>
</tr>
<tr>
<td>Select 47 Credits in @ 6000-8999</td>
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<tr>
<td><strong>Total Hours</strong></td>
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</table>

Graduate Minors

• Agricultural Economics (GMAE)
• Biochemistry and Cell/Molecular Biology (p. 1539)
• Community Planning (p. 1539)
• Ecology (p. 1539)
• Economic Development (p. 1539)
• Entomology (p. 1540)
• Environmental Studies (p. 1540)
• Golf Course Design (p. 1540)
• Plant Pathology (p. 1540)
• Sport Management (p. 1541)
• Statistics (p. 1541)
• Urban Forestry (p. 1542)
• Women's Studies (p. 1542)

Agricultural Economics (GMAE)

A Graduate Minor in Agricultural Economics (GMAE) is offered for nonmajors wishing to obtain training in the application of economic principles to problems affecting rural communities and households. The GMAE requires 12 credit hours of graduate-level coursework in agricultural economics (6 hours must be at the 7000 level or above). The student's graduate committee must include a faculty member from the agricultural economics department, and the student must demonstrate competence in the application of economic principles to problems in research. The latter requirement is typically met via a chapter or section in the student’s thesis or dissertation.

Biochemistry and Cell/Molecular Biology

Auburn University offers a graduate minor in Cell and Molecular Biosciences, administered by the Graduate School with faculty from the Cell and Molecular Biosciences Program. The CMB minor requires a suitable background in biochemistry (BCHE 7200, BCHE 7210 or equivalent) and the successful completion of at least nine credits from the CMB graduate curriculum. The minor offers in-depth instruction in animal, microbial and plant and cell and molecular biology, and is specifically designed for MS/PhD students in life sciences and allied fields whose thesis or dissertation research will benefit from a broader perspective of cell and molecular biology and bioinformatics. See www.auburn.edu/cmb for more information.

Community Planning

The Community Planning minor is open to graduate students in any discipline. This minor affords students with interests in planning, development and urban design the opportunity to explore the discipline. Students must complete 9 credit hours of Community Planning coursework and notify the director of the community planning program that they are completing the Planning minor. The Community Planning minor is housed in the Department of Political Science.

Ecology

Ecology is an academic minor administered by the Graduate School in cooperation with faculty and departments that participate in the Auburn University Ecology Group (http://www.auburn.edu/academic/ecology). The Ecology minor is open to graduate students whose thesis or dissertation research will benefit from a broader and enriched perspective in the fundamentals and applications of the ecological sciences. For more information, students should contact any of the following coordinators.

<table>
<thead>
<tr>
<th>Coordinator</th>
<th>Contact Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics and Rural Sociology, Bo Nelson</td>
<td>Upchurch 108</td>
</tr>
<tr>
<td>Animal Sciences, Russ Muntifering</td>
<td>Funchess 331</td>
</tr>
<tr>
<td>Biological Sciences, Nanette Chadwick</td>
<td>Rouse 209</td>
</tr>
<tr>
<td>Entomology and Plant Pathology, Kira Bowen</td>
<td>Swingle 311</td>
</tr>
<tr>
<td>Fisheries, Aquaculture, and Aquatic Sciences, Dennis DeVries</td>
<td>F&amp;WS 4431</td>
</tr>
<tr>
<td>Forestry and Wildlife Sciences, Ed Loewenstein</td>
<td></td>
</tr>
<tr>
<td>Horticulture, Kathy Piefelice</td>
<td></td>
</tr>
<tr>
<td>Veterinary Medicine, Amy Wright</td>
<td></td>
</tr>
</tbody>
</table>

Economic Development

The economic development graduate minor provides a specialization in the theories and practice of economic development, primarily within the U.S and Alabama. It is an interdisciplinary minor offered by the faculty of participating departments (Agricultural Economics and Rural Sociology, Community Planning, Economics, and Political Science) and is administered by the Economic and Community Development Institute.
Students may attach the economic development graduate minor to their degrees in agricultural economics (MS and PhD), business administration (MBA), community planning (MCP), economics (MS), public administration (MPA), public administration and public policy (PhD), and rural sociology (MS). To earn the graduate minor, students must complete the program's basic course, Economic Development and Competition (POLI 7700), two elective courses selected from an approved list, and a one week non-credit economic development training course sponsored by the Economic and Community Development Institute. Contact the Economic and Community Development Institute for more information.

**Entomology Minor**

A Graduate Minor in Entomology (ENTM) is offered for non-majors wishing to obtain training in entomology for promoting public health, ensuring safer food, and creating healthier communities. The ENTM graduate minor requires 9 credit hours of graduate-level coursework in entomology (9 hours must be at the 6000 level or above). The student’s graduate committee must include a faculty member from the entomology department, and the student must demonstrate competence in the application of entomology principles and research problems. The latter requirement is typically met via a chapter or section in the student's thesis or dissertation.

**Environmental Studies**

This is an interdisciplinary academic minor administered by the Graduate School in cooperation with participating departments. It is open to any graduate student whose thesis or dissertation is in the environmental area. Participating departments include Aerospace Engineering, Agricultural Economics, Biosystems Engineering, Crop, Soil and Environmental Sciences, Animal Sciences, Architecture, Biological Sciences, Chemical Engineering, Civil Engineering, Entomology, Fisheries and Allied Aquacultures, Forestry, Geography, Geology, Horticulture, Landscape Architecture, Pathobiology, Physiology and Pharmacology, Plant Pathology, Psychology and Sociology.

Basic guidelines are:

1. The minor is open to any graduate student whose thesis or dissertation is environmentally oriented.
2. The student’s department retains primary control over the student’s program.
3. One committee member must be from outside the student’s department and this member must be involved in environmental research.
4. Each student must take BIOL 3060 or the equivalent, and RSOC 7650 (Natural Resources and the Environment) or an equivalent.
5. Each student must take at least three hours of environmental-related course work from outside the student’s “broad group discipline.”
6. Each student must take at least three hours of environmental-related course work from outside of the student’s home department but within the student’s “broad group discipline.”
7. Each student must meet the degree requirements of the student’s home department.
8. At the discretion of the student’s advisory committee, graduate-level courses required for this program also may be counted towards the completion of other degree requirements.

For more information, contact Dr. John Beasley, Department of Crop, Soil and Environmental Sciences, 202 Funchess Hall.

**Golf Course Design**

The graduate minor in Golf Course Design is open to graduate students in Landscape Architecture, Agronomy and Soils, and Landscape Horticulture, or others with permission. This minor provides students with additional coursework and field experience in landscape form and function for golf course construction. Specifically, the minor requires 19 credit hours in Landscape Architecture and Agronomy, including courses in Soil Resources and Conservation, Advanced Turfgrass Management, Landscape Construction, and Landscape Ecology. The minor is administered through the Department of Agronomy and Soils. For specific information students should contact Dr. Beth Guertal in Agronomy and Soils, eguertal@acesag.auburn.edu.

**Plant Pathology**

A Graduate Minor in Plant Pathology (PLPA) is offered for non-majors wishing to obtain training in a broad range of both basic and applied plant pathology course material promoting more plentiful food and fiber while protecting our natural ecosystems. The PLPA graduate minor requires 9 credit hours of graduate-level coursework in plant pathology (9 hours must be at the 6000 level or above). The student’s graduate committee must include a faculty member from the plant pathology department, and the student must
demonstrate competence in the application of plant pathology principles and research problems. The latter requirement is typically met via a chapter or section in the student’s thesis or dissertation.

**Sport Management**

The purpose of the sport management minor is to provide master’s degree students with the specialized knowledge of the sport industry and to prepare those students to work in sport organizations as administrators and managers. The minor is administered by the Graduate School. Participating units include the School of Kinesiology and the Department of Educational Foundations, Leadership and Technology. Students selecting the minor must satisfy the degree requirements for a master’s degree program in one of these units. For additional information, please contact the school director or department head of the participating units.

The Sport Management graduate minor requires completion of 15 hours of courses as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>KINE 6820</td>
<td>Sport Management</td>
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</tr>
<tr>
<td>KINE 7750</td>
<td>Advanced Sport Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or KINE 7970</td>
<td>Special Topics</td>
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</tr>
<tr>
<td>HIED 7400</td>
<td>Sport Marketing and Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>HIED 7410</td>
<td>Sport Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HIED 7910</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Hours</strong></td>
<td></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Degree seeking students who intend to add the graduate minor to their current degree program must notify the coordinator before completion of their degree program.

**Statistics**

Auburn University offers a graduate academic minor in Statistics administered by the Graduate School in cooperation with the Statistics Coordinating Committee and the Department of Mathematics and Statistics. The objective of the minor is to provide education and training for students whose graduate research includes a substantial amount of statistical methodology and/or data analysis. Students are required to complete 12 hours of graduate level statistics course work and demonstrate the ability to apply statistical methodology to problems in research.

**Statistics Course Work**

Select four of the following: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 6110</td>
<td>Sas Programming and Applications</td>
</tr>
<tr>
<td>STAT 6630</td>
<td>Sample Survey, Design and Analysis</td>
</tr>
<tr>
<td>STAT 7000</td>
<td>Experimental Statistics I</td>
</tr>
<tr>
<td>STAT 7010</td>
<td>Experimental Statistics II</td>
</tr>
<tr>
<td>STAT 7020</td>
<td>Regression Analysis</td>
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<td>STAT 7030</td>
<td>Categorical Data Analysis</td>
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<td>STAT 7040</td>
<td>Biostatistics</td>
</tr>
<tr>
<td>STAT 7600</td>
<td>Statistical Theory and Methods I</td>
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<td>STAT 7610</td>
<td>Statistical Theory and Methods II</td>
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<td>STAT 7620</td>
<td>Nonparametric Statistics</td>
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<td>STAT 7650</td>
<td>Computational Statistics</td>
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<td>STAT 7670</td>
<td>Applied Longitudinal Data Analysis</td>
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<td>STAT 7700</td>
<td>Generalized Linear Models</td>
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<td>STAT 7780</td>
<td>Survival Analysis</td>
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<td>STAT 7840</td>
<td>Applied Multivariate Statistical Analysis</td>
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<td>STAT 7850</td>
<td>Theory of Statistical Inference</td>
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<tr>
<td>STAT 7860</td>
<td>Applied Time Series Analysis</td>
</tr>
</tbody>
</table>

**Total Hours** 12
For other eligible graduate statistics (STAT) courses which are not on the list, contact Dr. Ash Abebe (abebeas@auburn.edu), Department of Mathematics and Statistics.

Urban Forestry

The Department of Horticulture (HORT) and the School of Forestry and Wildlife Sciences (SFWS) offer an Urban Forestry minor for graduate students. Urban Forestry is the design, establishment and maintenance of urban forests to enhance the economic value of cities and to provide a healthier environment for people. The minor promotes interdisciplinary studies and trains students for employment in the urban forestry arena. Auburn University, with its strengths in Horticulture, Forestry, Landscape Architecture, Community Planning and Agriculture and its proximity to major urban centers such as Atlanta, Birmingham, Columbus and Montgomery, offers a unique opportunity for urban forestry research and education.

To be eligible for the minor, students must be enrolled in the master of natural resources, master of agriculture, master of science or PhD degree program in HORT or SFWS. To complete the minor, students must:

1. Develop an advisory committee including faculty from both SFWS and HORT;
2. Complete a thesis/dissertation research project that pertains to urban forestry, or in the case of master of natural resources and master of agriculture degrees, complete an approved three-credit hour directed study in urban forestry;
3. Complete FORY 6650, HORT 7850 / FORY 7850 and at least one undergraduate or graduate course in tree identification.
4. Complete at least nine semester hours from a list of approved core courses, at least one of which must be outside of the home department or school.

For more information, contact the graduate program officer at the Department of Horticulture or the School of Forestry and Wildlife Sciences.

Women's Studies

Program Requirements

The Women's Studies Program offers an interdisciplinary graduate minor in Women's Studies, open to any graduate student. The minor provides students with specific coursework in women's and gender studies and a teaching practicum that helps prepare them to teach an introductory women's studies course. The minor is recommended for students who seek positions in women's and/or gender studies departments or joint positions for which part of the responsibility is to women's and/or gender studies.

Students are required to complete 10 hours of graduate-level coursework, including WMST 6980 (Feminist Theory; 3 hours) and WMST 7910 (Teaching Practicum; 1 hour). Students fulfill the remaining hours with graduate courses cross-listed with Women's Studies; these must be from outside of the student’s home department. See the Women's Studies Program website for a full listing of course offerings. http://www.cla.auburn.edu/womensstudies/womens-studies-minor/graduate-curriculum/

For more information, contact the Director of the Women's Studies Program.

Graduate Faculty

The following is a list of full-time teaching Graduate faculty at Auburn University. The date indicates the year of first appointment to any position in the institution.

A

ABEBE-GBREKIDAN, ASHEBER, Professor, 2007, PhD Western Michigan, BS Addis Ababa (MATH)
ABERNETHY, AVERY, Professor, 1988, PhD South Carolina, BSBA North Carolina (MKTG)
ADAMS, JENNIFER W., Director and Assoicate Professor, 2005, PhD, MA, South Carolina, BS, Ball State (CMJN)
ADAMS, GARRY, Associate Professor, 2003, PhD Florida State, MBA BS Southern Illinois (MNGT)
ADAMS, MARK L., Assistant Professor, 2014, PhD MS California Institute of Technology, BEE Auburn University (ELEC)
ADANUR, SABIT, Professor, 1992, PhD MS North Carolina State, BS Istanbul Tech (PFEN)
ADHIKARI, SUSHIL, Alumni Professor and Director, CBB, 2008, BS Tribhuvan, MS Asian Institute of Tech Thailand PhD Mississippi State (BSEN)

ADLER-BAEDER, FRANCESCA, Professor, 2001, PhD MS North Carolina-Greensboro BA Pembroke (HDFS)

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CARPENTER, LU ANN, Director, Student Program Assessment and Administration, 2003, PhD, Auburn University; MS BSIE Georgia Tech (INSY)
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CENTRALLO, CAROL B., Associate Professor, 1992, PhD Minnesota, BS North Alabama (CADS)
CHADWICK, NANETTE E., Associate Professor, 2004, PhD UC Berkeley, BA UC Santa Barbara (BIOL)
CHAMPION, CECILIA, Lecturer, 2001, PhD MS BA Auburn (MNGT)
CHANLEY, PHILIP L., Associate Professor, 1998, PhD Louisiana State, MA BS Arkansas (GEOL)
CHANG, KAI-HSIUNG, Professor, 1986, PhD MS Cincinnati, Dipl Taipei Institute of Technology (COMP)
CHAPMAN, RICHARD O., Associate Professor, 1993, PhD MS Cornell, BA Oxford (COMP)
CHAPPELKA III, ARTHUR H., Professor, 1987, PhD Virginia Tech, MS BS Florida (FOWS)
CHAPPELL, JESSE A., Associate Professor and Extension Specialist, 2002, PhD Auburn, MS BS Clemson (FISH)
<table>
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<tr>
<th>Name</th>
<th>Position</th>
<th>Start Year</th>
<th>Institution Details</th>
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<tr>
<td>CHATTARAMAN, VEENA</td>
<td>Human Sciences Professor</td>
<td>2006</td>
<td>PhD Ohio State, Master of Design Cincinnati, BBA Madras (CADS)</td>
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<tr>
<td>CHEN, MING</td>
<td>Assistant Professor</td>
<td></td>
<td>(CHEM)</td>
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<tr>
<td>CHEN, LI</td>
<td>Assistant Professor</td>
<td>2017</td>
<td>PhD Emory, MHS MSE Johns Hopkins, BS Harbin Medical (HORP)</td>
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<td>CHEN, PETER Y.</td>
<td>Professor</td>
<td>2014</td>
<td>(PSYC)</td>
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<td>CHENG, ZHONG YANG</td>
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<td>2002</td>
<td>PhD MS B.A Xian Jiaotong (MECH)</td>
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<td>CHIBA, LEE M.</td>
<td>Professor</td>
<td>1990</td>
<td>MS BS PhD U Nebraska (ANSC)</td>
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<tr>
<td>CHIN, BRYAN A.</td>
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<td>1981</td>
<td>MS Stanford, BS Auburn (MECH)</td>
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<td>CHOU, C. EDWARD</td>
<td>Associate Professor</td>
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<td>PhD Wisconsin, MS Michigan, MS BSPharm National Taiwan (HORP)</td>
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<tr>
<td>CHUNG, ALLISON M.</td>
<td>Associate Clinical Professor</td>
<td>2002</td>
<td>PharmD Missouri-Kansas City, BS California-San Diego (PYPP)</td>
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<td>CICCI, DAVID A.</td>
<td>Professor</td>
<td>1987</td>
<td>PhD Texas, MS Carnegie Mellon, BS West Virginia (AERO)</td>
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<td>CLARK, MARK</td>
<td>Management Scientist and</td>
<td>1998</td>
<td>PhD MS BS Auburn (AVSC)</td>
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<td>CLARK, MIRIAM M.</td>
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<td>1989</td>
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<td>CLARK, C. RANDALL</td>
<td>Professor</td>
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<td>PhD Mississippi, BS Berry (DRDD)</td>
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<td>CLARK, JAMES A.</td>
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<td>1982</td>
<td>Institutional Research and Assessment, PhD Yale, MA BA North Carolina (ENGL)</td>
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<td>CLEMENT, PRABHAKAR T.</td>
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<td>PhD Auburn, M. Tech Indian Inst of Tech, MSc Madurai, BSc Madras (CIVL)</td>
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<td>CLEMONS, CHRISTOPHER</td>
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<td>CLIFFORD, JANICE E.</td>
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<td>COBINE, PAUL A.</td>
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<td>COGLE, SARAH V.</td>
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<td>2015</td>
<td>PharmD Auburn (PYPP)</td>
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<td>COLEMAN, ELAINE S.</td>
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<td>PhD MS Auburn, DVM Ohio State (VMAP)</td>
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<td>COLQUITT, LEE</td>
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<td>CONEVA, ELINA D.</td>
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<td>COOK, MICHAEL</td>
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<td>CORDIE, LESLIE A.</td>
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<td>2014</td>
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<td>CORNISH, MARILYN</td>
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FRANCO-WATKINS, ANA, Professor and Department Chair, 2006, PhD Maryland, M A William and Mary, BA St. Mary’s (PSYC)

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GALLAGHER, THOMAS V., Professor, 2003, PhD MS Virginia Tech, BS Maine (FOWS)

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CHILTON RESEARCH AND EXTENSION CENTERNbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nbsp;nb
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DEPARTMENT HEADS
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*BEASLEY, JOHN, Department Head and Professor, Crop Soil & Env Science
*CONNER, DONALD E., Professor & Head, Poultry Science
*FIELDS, DEACUE, Department Chair and Professor, Agricultural Economics and Rural Sociology
*GREENE, WAYNE, Professor & Head, Animal & Dairy Sciences
*MASK, PAUL L., Asst Dean and Assistant Director, Agriculture, Forestry and Natural Resources
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*TOMASSO, JOSEPH R., Director & Professor, Fisheries & Allied Aquacultures

FORESTRY AND WILDLIFE SCIENCES
*ALAVALAPATI, JANAKI R.R., Dean, Forest and Wildlife Sciences

HUMAN SCIENCES

DEANS & DEPARTMENT HEADS
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*KERPELMAN, JENNIFER L., Associate Dean and Professor
*O'NEILL, MARTIN, Nutrition & Food Science, Department Head
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*WILEY, ANGELA, Professor and Head

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ACES BUSINESS OFFICE
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EXTENSION COMMUNICATIONS
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FREEMAN, GLENDRA R., Communications Editor III - Dept., 1999, BS Northeastern
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LEWIS, AIMEE A., Manager, Communications and Marketing, 2005, BS Auburn
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INFORMATION TECHNOLOGY

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HELMS, JAMES M., Spec II, Info Tech
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SHIN, JONE SEOB, Spec VI, Info Tech
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4-H and Youth Development State Office

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ANIMAL SCIENCES

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ENTOMOLOGY AND PLANT PATHOLOGY
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FISHERIES
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HORTICULTURE
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POULTRY SCIENCE
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CROP SOIL AND ENVIRONMENTAL SCIENCES
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FAMILY AND CONSUMER SCIENCES ADMINISTRATION
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SAND MOUNTAIN RESEARCH AND EXTENSION CENTER
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WIREGRASS RESEARCH AND EXTENSION CENTER
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COUNTY STAFF

AUTAUGA COUNTY - PRATTVILLE
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BALDWIN COUNTY - BAY MINETTE
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BARBOUR COUNTY - CLAYTON
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BIBB COUNTY - CENTREVILLE
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BLOUNT COUNTY - ONEONTA
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BUTLER COUNTY - GREENVILLE
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CHAMBERS COUNTY – LAFAYETTE
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CLAY COUNTY – ASHLAND
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CLEBURNE COUNTY – HEFLIN
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COFFEE COUNTY – NEW BROCKTON
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COLBERT COUNTY – TUSCUMBIA
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COVINGTON COUNTY – ANDALUSIA
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CRENSHAW COUNTY – LUVERNE
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CULLMAN COUNTY – CULLMAN
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SHANKLIN, DONNA R., Regional Extension Agent, 2007, BS MS Kentucky, MPH South Florida

DALE COUNTY – OZARK
AGEE, THOMAS, County Extension Coordinator, 1991, BS Alabama A&M, MS Troy St
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DALLAS COUNTY – SELMA
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ELMORE COUNTY – WETUMPKA
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ESCAMBIA COUNTY – BREWTON
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ETOWAH COUNTY – GADSDEN
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FAYETTE COUNTY – FAYETTE
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FRANKLIN COUNTY – RUSSELLVILLE
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GENEVA COUNTY – GENEVA
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GREENE COUNTY – EUTAW
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HALE COUNTY – GREENSBORO
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HENRY COUNTY – ABBEVILLE
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HOUSTON COUNTY – DOTHAN
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JACKSON COUNTY – SCOTTSBORO
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JEFFERSON COUNTY – BIRMINGHAM
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BARR, TARA M., County Extension Coordinator, 1997, BS Auburn
GRAVES, JORDAN D., Regional Extension Agent I, 2012, BS Tennessee
STEWART, DEBORAH H., 4-H Foundation Reg Ext Agent I, BS Auburn

LIMESTONE COUNTY – ATHENS
WILSON, CHLOE S., 4-H Foundation Reg Ext Agent I, 2015, BS Samford
BECKER, CHRISTOPHER, County Extension Coordinator

LOWNDES COUNTY – HAYNEVILLE
MANTS, KATANGA, County Extension Coordinator, 1997, BS Alabama A&M, MS Auburn

MACON COUNTY – TUSKEGEE
GOLDEN, WILBERT J., County Extension Coordinator, 2004, BS Central Texas, MBA Maryland
GRiffin, CIJI, Regional Extension Assistant
SULLEN, DANIEL, Regional Extension Agent, 2011, BS Fort Valley St., MS Tuskegee MS Auburn

MADISON COUNTY – HUNTSVILLE
BRITTON, RHONDA C., Urban Regional Extension Agent
CORNELISON, TARRAH N., 4-H Foundation Reg Ext Agent I, 2009, BS Athens
GULLATTE, DONNA L., Urban Regional Extension Agent, 1991, BS Alabama A&M
GARNER, MARCUS, Urban Regional Extension Agent
HARRIS, WALTER B., County Extension Coordinator, 1991, BS MS Alabama A&M
JONES, THERESA, Regional Extension Agent, 2004, BS MS Alabama A&M EdS Auburn
MILLER, SHONDA A., Regional Extension Agent I, 2010, BS MS Alabama and Mechanical
PREYER, PRINCE ANTHONY, Urban Regional Extension Agent, 2012, BS MS Alabama A&M
O’NEAL, TAYNETTA B., Urban Regional Extension Agent I, 2011, BS Alabama A&M
WOOD, SHEVIA, Urban Regional Extension Agent

MARENGO COUNTY – LINDEN
DANLEY, REBECCA G., 4-H Foundation Reg Ext Agent I, 1982, BA Samford
STENZ, PAMELA C., County Extension Coordinator, 2006, BA Alabama, MS West Alabama
AKINS, LEIGH T., Regional Extension Agent, 2009, BS Alabama, MSCE West Alabama
YATES, RUDY P., Regional Extension Agent, 1994, BS MS Auburn
YATES, Elizabeth E., 4-H Foundation Reg Ext Agent I, 1982, BS MS Samford
MOORE, ALICE M., Regional Extension Agent

MARION COUNTY – HAMILTON
MURPHY, LISA, County Extension Coordinator, 1981, BS N. Alabama, MS Mississippi St
DANLEY, REBECCA G., 4-H Foundation Regional Extension Agent
MARSHALL COUNTY – GUNTERSVILLE
McBRAYER, RANDY H., Urban Regional Extension Agent I, 2012, BS Alabama
CHRISTIAN, JUANA, Regional Extension Agent
WHEELER, EDDIE J., Urban Regional Extension Agent, 1978, BS MS Alabama A&M
ROBERSON, KRISTEN K., Regional Extension Agent, 2011, BS Athens St.

MOBILE COUNTY – MOBILE
BUTTERWORTH, SARAH F., 4-H Foundation Reg Ext Agent I, 2000, BS Tusculum
CATALENA, REBECCA J., Regional Extension Agent
MILES, JAMES D., Regional Extension Agent, 1999, BS Alabama A&M
HEUBACH, DENISE H., Regional Extension Agent
IRBY, PAMELA G., Regional Extension Agent
MITCHELL, AMELIA M., County Extension Coordinator, 2000, BS Alabama Agriculturial & Mechanical
PHILLIPS, JEANNE E., Regional Extension Agent
LeCROY, JACK, Urban Regional Extension Agent
WARE, EVAN, Urban Regional Extension Agent

MONROE COUNTY – MONROEVILLE
McQUEEN, GERALD J., Regional Extension Agent, 2004, BS MS Auburn
WILLIAMS, WILLIE, County Extension Coordinator, 1993, BS Miles, MS Alabama A&M
MONTGOMERY COUNTY – MONTGOMERY
ANDRESS, SHANNON S., Regional Extension Agent, 1998, BS MSED Auburn
BOWENS, YVONNE D., 4-H Foundation Regional Extension Agent, 1994, BS Troy St, MS Tuskegee
SMITHERMAN, JIMMY D., County Extension Coordinator, 1978, BS MS Auburn
ROBINSON, ROOSEVELT L., Regional Extension Agent
RUDOLPH, DANIELLE D., Regional Extension Agent
JONES, HELEN H., Regional Extension Agent III, 1978, BS MS Tuskegee

MORGAN COUNTY – HARTSELLE
BRADLEY, SPENSER E., Regional Extension Agent, 2012, BS Tennessee
FOUNTAIN, JAMES, Regional Extension Agent
GAMBLE, KENNETH W., Regional Extension Agent, 1990, BS MS Alabama A&M
REEVES, MICHAEL D., County Extension Coordinator, 2001, BS Auburn, MS Alabama A&M
HEARD, A.R., Regional Extension Agent

PERRY COUNTY – MARION
EASLEY, KATRINA, County Extension Coordinator, 2001, BS Concordia, MS Auburn
LEVERT, CHRISTINA W., Regional Extension Agent I, 2010, BA MA Alabama

PICKENS COUNTY – CARROLLTON
GLENN, TERA K., Regional Extension Agent, 2007, BS Alabama
PRESLEY-FULLER, PATTI, County Extension Coordinator, 1988, BS MS Mississippi St
GANN, CHELSEY R., 4-H Foundation Regional Extension Agent

PIKE COUNTY – TROY
ROLLING, EMILY B., 4-H Foundation Reg Ext Agent I, 2005, BS Troy
THOMAS, KATIE, County Extension Coordinator

RANDOLPH COUNTY – WEDOWEE
MOORE, TIFFANY N., County Extension Coordinator, 2003, BS Auburn, MEd West Alabama
STANDFORD, STEPHANIE, Regional Extension Agent

RUSSELL COUNTY – PHENIX CITY
DAVIDSON, JENNIFER W., County Extension Coordinator, 1999, BS MS Auburn
JOHNSON, JANET A., Regional Extension Agent, 1984, BS, MS Auburn
PAYNE, GENI, 4-H Foundation Reg Ext Agent I, 2012, BS Auburn

SHELBY COUNTY – COLUMBIANA
COLQUITT, RICKY, County Extension Coordinator, 2002, BS Auburn, MS Troy St
BATTLES, CHARITY A., 4-H Foundation Reg Ext Agent I, 2001, BS Auburn
TREADAWAY, ANGELA S., Regional Extension Agent, 1985, BS MAT Montevallo
WYNN, NELSON D., Regional Extension Agent, 1993, BS MS Alabama A&M

ST. CLAIR COUNTY – PELL CITY
CLARK, LEE ANN, County Extension Coordinator, 1999, BS MS Montevallo

SUMTER COUNTY – LIVINGSTON
LAMPLEY, WILLIE H., County Extension Coordinator, 1986, BS Tuskegee, MEd Alabama A&M

TALLADEGA COUNTY – TALLADEGA
DOROUGH, HENRY D., County Extension Coordinator
GOOD, KIMBERLY A., 4-H Foundation Regional Extension Agent

TALLAPOOSA COUNTY – TALLAPOOSA
HARRIS, ANTHONY S., County Extension Coordinator, 2002, BS Auburn

TUSCALOOSA COUNTY – TUSCALOOSA
GLADNEY, JONATHAN, Regional Extension Agent III, 1994, BS MS Auburn
HARGLE, PHILLIP, County Extension Agent, 2010, BS Mississippi St.
SHIRLEY, LAURA D., County Extension Coordinator, 1991, BS Auburn, MS Livingston
MYLES, CHANTE K., Urban Regional Extension Agent, 2013, BS Jacksonville St.

WALKER COUNTY – JASPER
CAIN, DANNY, County Extension Coordinator, 1992, BS MS Auburn
PERSONS, REBECCA, County Extension Agent, 2002, BA South Carolina
BARIL, ANDREW J., Regional Extension Agent, 2007, BS Auburn MS Midwest Baptist Seminary
HINES, EMILY A., Regional Extension Agent

WASHINGTON COUNTY – CHATOM
ODOM, MARGARET B., Regional Extension Agent, 2002, BS Auburn, MS Troy St, EdS Auburn
JOHNSON, SABRA E., County Extension Coordinator, 2013, BS Alabama

WILCOX COUNTY – CAMDEN
BLACKMON, LA’PAUL, 4-H Foundation Regional Extension Agent
DIAL, TAMIK A L., County Extension Coordinator

WINSTON COUNTY – DOUBLE SPRINGS
HENSHAW, MICHAEL D., County Extension Coordinator, 1983, BS MS Auburn
HILL, A. SUSAN, Regional Extension Agent, 2004, BS North Alabama
ROBERT, KERRI, Winston County – Double Springs
ADRIAN, ANNE M., Extension Specialist, 1985
Emeriti

A

ABARCA PIEDRAFITI, EVA M., Assistant Professor, 2013, DVM (CLINICAL SCIENCES)

ABELL, ELLEN E., Associate Professor and Extension Specialist Emerita, 1993, BA Illinois, MA PhD Washington State (HUMAN DEVELOPMENT AND FAMILY STUDIES)

ACEVEDO, CHANTEL, Professor Emeritus, 2006, MFA BA Miami (ENGLISH)

ADAMS III, OLIN L., Associate Professor, 2000, PhD Ohio, MBA Mount St. Mary’s, AB Centre (EDUCATIONAL FOUNDATIONS)

ADAMS JR, MURRAY C., Assoc. Professor Emeritus, January 2003, PhD Kentucky MA BA Mississippi. (SOCIOLOGY)

ADRIAN JR, JOHN L., Professor Emeritus, June 2011, PhD Tennessee, MS BAA Auburn (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

AGRAWAL, PRATHIMA, Professor Emeritus, 2003, PhD Southern California, M.S. Rochester, M.E. B.E. Indian Institute of Science (ELECTRICAL AND COMPUTER ENGINEERING)

AGRAWAL, VISHWANI D., James J. Danaher Professor Emeritus, 2016, PhD University of Illinois Urbana-Champaign, ME Indian Institute of Science, BE Indian Institute of Technology-Roorkee (ELECTRICAL AND COMPUTER ENGINEERING)

ALEXANDER, DAVID E., Associate Professor Emeritus, May 2005, MM BM Texas (MUSIC)

ALEXANDER, MILTON J., Professor Emeritus, June 1993, BS Illinois, MBA St. Louis, DBA Georgia St. (BUSINESS)

ALFORD, WILLIAM L., Professor Emeritus, September 1991, BA Vanderbilt, MS PhD Cal. Tech (PHYSICS)

ALLEN, WARD S., Hargis Professor Emeritus, June 1987, BA MA PhD Vanderbilt (ENGLISH)

ALVAREZ, NICOLAS E., Professor Emeritus, August 2004, BA Puerto Rico, MA PhD California-Berkeley (FOREIGN LANGUAGES AND LITERATURE)

ALVERSON JR, WILLIAM J., Assistant Dean Emeritus, August 2006, MEd BS Auburn (AGRICULTURE)

ANDERSON, GLENN A., Librarian III & Assistant Dean & Emeritus, August 2010, MLS Florida State, MA BA SUNY-Albany (UNIVERSITY LIBRARY)

APPEL, ARTHUR G., Assoc Dean Resch/Asst Dir AAES, 1985, A UCLA, MS PhD California-Riverside (ENTOMOLOGY AND PLANT PATHOLOGY)

ARMENAKIS, ACHILLES A., Professor Emeritus, July 2015, DBA Mississippi State, MBA BS Louisiana Tech (MANAGEMENT)

ARMSTRONG, LEE, General Counsel Emeritus, 2018 (OFFICE OF GENERAL COUNSEL)

ASKEW, RAYMOND F., Professor Emeritus, September 1995, BS Birmingham Southern, PhD Virginia (PHYSICS)

ATKINS, LEAH RAWLS, Director Emerita, September 1995, BS MA PhD Auburn (CENTER FOR ARTS AND HUMANITIES)

ATTLEBERGER, MARIE H., Professor Emerita, October 1986, DVM MS Auburn, PhD Alabama (MICROBIOLOGY)

AULL, JOHN L., Professor Emeritus, September 2005, PhD North Carolina St, AB North Carolina (CHEMISTRY AND BIOCHEMISTRY)

AULT, RICHARD W., Associate Professor Emeritus, August 2011, PhD Virginia, AB W. Virginia (ECONOMICS)

AVERY, ARTHUR W., Professor Emeritus, September 2011, PhD MS BA Penn State (HUMAN DEVELOPMENT AND FAMILY STUDIES)

B

BACKMAN, PAUL A., Professor Emeritus, February 1998, PhD California (PLANT PATHOLOGY)
BAGINSKI, THOMAS A., Professor Emeritus, 1984, PhD MSEE BSEE Penn State (ELECTRICAL AND COMPUTER ENGINEERING)

BAILEY JR, L. CONNER, Professor Emeritus, 1985, PhD Cornell, MA Ohio, BS Southern Oregon (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

BAIRD, SAMERA, Professor Emerita, September 2005, PhD Texas, MA BS Tennessee (REHABILITATION AND SPECIAL EDUCATION)

BAIRD, WILLIAM E., Professor Emeritus, June 2002, PhD Texas, MS BS Tennessee (CURRICULUM AND TEACHING)

BAKER, RICHARD A., Professor Emeritus, September 1995, BS MEd Auburn, EdD Oklahoma St. (VOCATIONAL AND ADULT EDUCATION)

BALCH, GEORGE T., Extension Specialist Emeritus, September 1995, BS MS Auburn, JD Jones (PESTICIDE EDUCATION)

BALINT, BRENDAN, Professor Emeritus, 2007, PhD Loyola University (ENGLISH)

BALL, DONALD M., Professor Emeritus, December 2010, PhD MS Auburn, BS Western Kentucky (AGRONOMY SOILS)

BANNON, JAMES S., Director Emeritus of the Outlying Units Alabama Agricultural Experiment Station (ALABAMA AGRICULTURAL EXPERIMENT STATION)

BARBAREE, JAMES M., Scharnagel Professor, 1991, PhD Georgia, MS BS Southern Mississippi (BIOLOGICAL SCIENCES)

BARKER, LEWIS M., Professor Emeritus, 2000, PhD MA Florida State, BA Occidental (PSYCHOLOGY)

BARKER, LARRY L., Professor Emeritus, September 1995, BA MA PhD Ohio (COMMUNICATION)

BARNES, PAT H., Vice President Emerita, September 1995, BS Texas Woman’s U, MEd EdD Auburn (STUDENT AFFAIRS)

BARNETT, ANDY, Professor Emeritus, September 2000, BA MA PhD Virginia (ECONOMICS)

BARRY, MARY E., Assoc. Professor Emerita, June 1999, BS MS EdD Temple (CONSUMER AFFAIRS)

BARTELS, JAN E., Professor & Head Emeritus, January 2001, BS Oregon St, MS Guelph, DVM Washington St. (RADIOLOGY)

BARTOL, FRANK, F., Associate Dean and Professor, 1983, PhD MS Florida, BS Virginia Tech (VETERINARY MEDICINE - ADMINISTRATION)

BAYNE, DAVID R., Professor Emeritus, September 2006, BA Tulane, MS PhD Auburn (FISHERIES AND ALLIED AQUACULTURE)

BEARD, ATHA A., Assoc. Professor Emerita, September 1995, BS MBA Auburn (ACCOUNTANCY)

BECK, DIANE E., Professor Emerita, April 2004, PharmD BS Pharm Florida (CLINICAL PHARMACY PRACTICE)

BECKER, THEODORE L., Professor Emeritus, 1988, Education PhD Northwestern, MA Marilyn, LLB Rutgers (POLITICAL SCIENCE)

BECKETT, SIDNEY D., Assoc. Dean Emeritus, April 1994, BS Mississippi St, DVM MS Auburn, PhD Missouri (RESEARCH AND GRADUATE STUDIES, VETERINARY MEDICINE)

BECKWITH, GUY V., Associate Professor, 1980, PhD California-Santa Barbara, BA California-Santa Cruz (HISTORY)

BEIL JR, RICHARD O., Associate Professor Emeritus, 1988, PhD Texas A&M, MS North Texas State, BBA Texas Tech (ECONOMICS)

BENEFIELD, LARRY O., Dean and Professor Emeritus, July 2012, PhD Virginia Tech, MS BCE Auburn (ENGINEERING)

BENGTSON, GEORGE W., Assoc. Dean & Professor Emeritus, July 2001, BS LSU, M.F. Duke, PhD Yale (FORESTRY AND WILDLIFE SCIENCES)

BENNETT JR, DANIEL D., Professor Emeritus, January 2011, MArch Rice, BArch Auburn (ARCHITECTURE)

BERGER, BRUCE A., Professor & Department Head Emeritus, September 2009, PhD MS BSpPharm Ohio State (PHARMACY CARE SYSTEM)

BEST, TROY L., Professor Emeritus, 1996, PhD MS Oklahoma, BS E. New Mexico (BIOLOGICAL SCIENCES)
BIGGS, LINDY B., Associate Professor Emerita, May 2012, PhD MIT, MA BS Missouri (HISTORY)

BILGILI, SACIT F., Professor Emeritus, 1985, PhD Auburn, MS Oregon State, V.M.D. Ankara (POULTRY SCIENCE)

BLACK, J TEMPLE, Professor Emeritus, September 1998, BS Lehigh, MS W. Virginia, PhD Illinois (INDUSTRIAL AND SYSTEMS ENGINEERING)

BLACKBURN, JACK E., Assoc. Provost Emeritus & Professor Emeritus, September 1994, BS Florida St, MA Peabody, EdD New York (EDUCATION)

BLACKWELL, GAINES T., Professor Emeritus, September 2001, MFA Georgia, AB Alabama (ARCHITECTURE)

BLAKE, JOHN P., Professor Emeritus, 1989, PhD Virginia Tech, MS Maine, BS Pennsylvania State (POULTRY SCIENCE)

BLAKNEY, WILLIAM G., Assoc. Professor Emeritus, June 1990, BS Nova Scotia Tech, MSc Ohio St. (INDUSTRIAL ENGINEERING)

BLASHFIELD, ROGER K., Professor Emeritus, October 2010, PhD AM Indiana, BS Ohio State (PSYCHOLOGY)

BLAYLOCK, ROBERT E., Professor Emeritus, December 2003, BS Nova Scotia Tech, MSc Ohio St. (ANIMAL SCIENCES)

BLAYLOCK, WALTER T., Assoc. Professor Emeritus, September 1995, BS Appalachian St, MS PhD North Carolina St. (MICROBIOLOGY)

BLUMSACK, JUDITH T., Associate Professor Emerita, 2014, PhD Florida State. (COMMUNICATION DISORDERS)

BOHANAN, DONNA J., Professor Emeritus, 1982, PhD MA Emory, BA Hendrix (HISTORY)

BOLAND III, JOSEPH S., Professor Emeritus, June 2007, BEE MS Auburn PhD Georgia Tech (ELECTRICAL ENGINEERING)

BOND, EVELYN B., Assoc. Professor Emerita, June 1992, BS Berry, MEd Auburn (VOCATIONAL AND ADULT EDUCATION)

BOOSINGER, MARCIA L., Associate Dean and Librarian IV Emerita, 1986, MLS Alabama, MA BA Purdue (LIBRARY)

BOOSINGER, TIMOTHY R., Professor and Provost Emeritus (College of Veterinary Medicine and Office of the Provost and Vice President for Academic Affairs)

BOUCHARDE, MARY K., Professor Emerita, 1986, PhD Cornell, DVM LSU (PATHO BIOLOGY)

BOWMAN, BRIAN L., Professor Emeritus, August 2010, PhD MS BS Wayne State (CIVIL ENGINEERING)

BOYD, CLAUDE E., Butler Cunningham Eminent Scholar and Professor Emeritus, 1971, PhD Auburn, MS BS Mississippi State (FISHERIES ALLIED AQUACULTURES)

BOYES, WILEY R., Professor Emeritus, September 1995, BS Chattanooga, PhD Tennessee (MANAGEMENT)

BOZACK, MICHAEL J., Professor, 1988, PhD Oregon, MA Western Baptist, MS Michigan State (PHYSICS)

BRADLEY, JAMES T., Professor Emeritus, September 2010, PhD Washington, BS Wisconsin (BIOLOGICAL SCIENCES)

BRADY, YOLANDA J., Associate Professor Emerita, 1984, PhD Auburn, MS Southern Mississippi BS Mississippi (FISHERIES ALLIED AQUACULTURES)

BRAMLETT, GENE A., Director Emeritus, September 1995, BS Murray St, MS PhD Kentucky (CENTER ON AGING)

BRANCH, CHARLES E., Professor Emeritus, December 2003, PhD BME Auburn (ANATOMY)

BRANDT, PAUL C., Professor Emeritus, January 1993, BS MS Illinois (BUILDING SCIENCE)

BRAN P, EVELYN L., Associate Professor Emeritus, BS, MS, Auburn; PhD, Tennessee (CONSUMER AFFAIRS)
BRANSBY, DAVID I., Professor Emeritus, 1987, PhD Natal, MS South Africa, MS Missouri (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

BRAUND, KYLE G., Professor Emeritus, January 1999, BVSc MVSc PhD Sydney (VETERINARY MEDICINE)

BRAWNER JR, WILLIAM R., Ware Distinguished Professor Emeritus, 1975, PhD DVM Auburn, MS Florida (CLINICAL SCIENCES)

BREWER, JESSE W., Professor Emeritus, July 2006, PhD Purdue, MA BS Central Michigan (ENTOMOLOGY AND PLANT PATHOLOGY)

BREWER, ROBERT N., Department Head & Professor Emeritus, January 2002, PhD Georgia, MS BS Auburn (POULTRY SCIENCE)

BRINKER, RICHARD W., Dean Emeritus, February 2011, PhD BS LSU, MBA Southern Mississippi (FORESTRY AND WILDLIFE SCIENCES)

BRINSON, SUSAN L., Professor Emerita, 1990, PhD MA Missouri, BA Cameron (COMMUNICATION AND JOURNALISM)

BROCK, KENNY V., Professor Emeritus, 1997, PhD Tennessee, MS DVM Auburn (PATHOBIOLOGY)

BROUGHTON JR, ROYALL M., Professor Emeritus, 2013, PhD MS BS North Carolina State (POLYMER AND FIBER ENGINEERING)

BROWER, H. TERRI, Professor Emerita, August 2000, BSN Teacher MA Columbia, EdD Nova (NURSING)

BROWN, MARY HELEN, Professor Emerita, 1983, PhD Texas, MA Kentucky, BA Centenary (COMMUNICATION AND JOURNALISM)

BROWN, ALFRED E., Professor Emeritus, May 2008, PhD UCLA, BS Cal. State-Long Beach (BIOLOGICAL SCIENCES)

BROWN, ELTON R., Professor Emeritus, July 2007, BS Mississippi State, MS Mississippi State, PhD Texas A&M (CIVIL ENGINEERING)

BROWN, JAMES E., Professor Emeritus, April 2010, BS Ft. Valley State, MS Tuskegee, PhD Illinois (HORTICULTURE)

BROWN, PHILLIP W., Extension Affirmative Action Officer Emeritus, December 2003, BS MEd EdS Tuskegee (ALABAMA COOPERATIVE EXTENSION SYSTEM)

BROWN, JACK B., Professor Emeritus, May 2006, PhD MA BA University of Texas (MATHEMATICS AND STATISTICS)

BROWN JR., CLARENCE D., Professor Emeritus, August 2004, PhD Georgia, MEd Auburn, BS Troy St. (REHABILITATION AND SPECIAL EDUCATION)

BROWNING, PHILIP L., Professor Emeritus, September 2008, PhD Wisconsin, MA Texas Tech, BA Howard Payne (REHABILITATION AND SPECIAL EDUCATION)

BRUNNER, CINDY J., Associate Professor Emeritus, July 2007, DVM PhD BS Minnesota (EXTENSION 4-H)

BUCK, DONALD C., Associate Professor Emeritus, June 2009, PhD MA BA Texas (FOREIGN LANGUAGES AND LITERATURE)

BUFORD Jr, JAMES A., Extension Management Scientist Emeritus, September 1995, BS MS Auburn, PhD Georgia (Coordinator Emeritus, Management Development)

BULFIN, ROBERT L., Professor Emeritus, May 2010, PhD MS BS Georgia Tech (INDUSTRIAL AND SYSTEMS ENGINEERING)

BURKHART, BETTYE B., Assoc. Provost and Vice President for Student Affairs and Professor Emerita, April 2000, BS MA EdD PhD Alabama (STUDENT AFFAIRS)

BURKHART, JOHN E., Professor Emeritus, PhD Texas, MSAE BAE Auburn (AEROSPACE ENGINEERING)

*BURKHART, BARRY R., Professor, 1974, PhD MS BA Florida State (PSYCHOLOGY)

BURLESON, JAMES D., Professor Emeritus, 1986, MTheo Austin Seminary, MArch Rice, BED Texas A&M (ARCHITECTURE)

BURMESTER, CHARLES H., Professor Emeritus, 1980, MS BS Auburn (AGRONOMY SOILS)

BURNNEY, SAMUEL M., Director Emeritus, July 2009 (OUTREACH PROGRAM OFFICE)
BURNS, MARK T., Associate Professor Emeritus, 1975, BA Lambuth, PhD AM Indiana (POLITICAL SCIENCE)

BUSCH, RUTH C., Assoc. Professor Emerita, September 1991, AB Cornell, MA Utah St, PhD Arizona (SOCIOLOGY)

BUSCHLE-DILLER, GISELA, Professor Emeriti, 1995, PhD MS BS Stuttgart (POLYMER AND FIBER ENGINEERING)

BUSKIST, WILLIAM F., Alumni Professor Emeritus, 1982, PhD BS Brigham Young (PSYCHOLOGY)

BUXTON, DONALD, Professor Emeritus, April 2002, DVM Auburn, PhD Florida (ANATOMY)

BYRD, TERRY A., Bray Professor Emeritus, 1992, PhD South Carolina, BSEE Mass-Amherst (AVIATION AND SUPPLY CHAIN MANAGEMENT)

C

CADENHEAD, A. KENNETH, Professor Emeritus, June 1992, BS MEd Georgia, EdD Auburn (CURRICULUM AND TEACHING)

CALLAN Jr, ALLIE W., Assoc. Professor Emeritus, June 1986, BS Maryland, MS George Washington (AEROSPACE ENGINEERING)

CAMPAGNA, KEITH D., Assoc. Professor Emeritus, April 2003, PharmD BS Pharmacy Duquesne (PHARMACY PRACTICE)

CAMPBELL, L. CAINE, Professor Emeritus, July 1992, BS Mississippi St, MA PhD Mississippi (HISTORY AND JOURNALISM)

CARINO, HONORIO F., Professor Emeritus, January 2012, PhD Minnesota, MS BS Philippines (FORESTRY AND WILDLIFE SCIENCES)

CARLISLE III, W. HOMER, Professor Emeritus, 1988, PhD MS BA Emory (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

CARR, HOUSTON H., Professor Emeritus, May 2012, PhD Texas-Arlington, MBA M. MS Texas Christian, BSEE Virginia Military Inst. (AVIATION AND SUPPLY CHAIN MANAGEMENT)

CARRINGTON, THOMAS J., Professor Emeritus, April 1994, BS MS Kentucky, PhD Virginia Tech (GEOLOGY)

CARSON JR, ROBERT L., Professor Emeritus, 1978, MS Georgia, DVM Auburn (CLINICAL SCIENCES)

CAUDILL, STEVEN B., Professor Emeritus, June 2009, PhD MA Florida, BA Ohio Wesleyan (ECONOMICS)

CAUSEY, M. KEITH, Professor Emeritus, August 2000, BS MS PhD LSU (FORESTRY AND WILDLIFE SCIENCES)

CAVENDER, A. RAY, Assoc. Director Emeritus, October 1993, BS MS Tennessee, PhD Wisconsin (ACES)

CAVENDER, DOROTHY H., Professor Emerita, June 2008, EdD Auburn, MS BS Kentucky (CONSUMER AFFAIRS)

CHAMBLISS, OYETTE L., Professor Emeritus, September 1995, BS MS Auburn, PhD Purdue (HORTICULTURE)

CHILDRESS, GEORGE B., Librarian Emeritus, January 2009, MLS MA Alabama, BA Virginia Commonwealth (AUBURN UNIVERSITY LIBRARIES)

CLARK, CARL H., Professor & Head Emeritus, January 1992, BS DVM Washington St, MS PhD Ohio St. (PHYSIOLOGY AND PHARMACOLOGY)

CLARK, WAYNE E., Professor Emeritus, December 2010, BS MS Brigham Young, PhD Texas A&M (ENTOMOLOGY AND PLANT PATHOLOGY)

CLARK, CALEB M., Professor Emeritus, 2012, BA Beloit, PhD Illinois (POLITICAL SCIENCE)

CLARK, RONALD L., Professor Emeritus (ACCOUNTANCY)

CLARK-LEWIS, SANDRA R., Professor Emerita, October 2010, AuD Florida, MComm BS Auburn (COMMUNICATION)

CLAYTON, HOWARD R., Professor Emeritus, 1999, PhD Georgia, BS Dipl West Indies, MAM Georgia (AVIATION AND SUPPLY CHAIN MANAGEMENT)

CLEM, MARY CATHERINE, Assoc. Professor Emerita, June 1998, BS MS Auburn (CONSUMER AFFAIRS)
CLONTS Jr, HOWARD A., Professor Emeritus, September 2000, BS MS Auburn, PhD Virginia Tech (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

COBIA, DEBRA C., Professor Emerita, May 2009, EdD Alabama, EdS MEd West Georgia (SPECIAL EDUCATION, REHABILITATION AND COUNSELING)

COCHRAN JR, JOHN E., Professor Emeritus, 2013, JD Jones Law, PhD Texas, MS BAE Auburn (AEROSPACE ENGINEERING)

CODY, REYNOLDS M., Assoc. Professor Emeritus, October 1991, BA Tennessee, MS PhD Mississippi St. (BOTANY AND MICROBIOLOGY)

COLEMAN, DALE A., Associate Professor Emeritus, 1984, PhD MS West Virginia, BS Colorado State (ANIMAL SCIENCES)

CONNELL, LENDA JO, Under Armour Professor Emerita, June 2012, EdD Auburn, MS LSU, BS Louisiana Tech (CONSUMER AFFAIRS)

CONNER, DIXIE F., Business Manager Emerita, June 1994, BA Auburn (ATHLETICS)

CONNER, PAUL C., Director Emeritus, November 1992, BS MEd Auburn (ATHLETICS)

COOK, ALAN R., Associate Professor Emeritus, May 2011, MArch BArch Nebraska (ARCHITECTURE)

COOK, JAMES P., Assistant Dean Emeritus, July 2012, MAc BS Auburn (BUSINESS)

COOK JR, ROBERT B., Professor Emeritus, July 2007, PhD MS Georgia, EM Colorado-Mines (GEOLOGY AND GEOGRAPHY)

COOPER, JOHN R., Assoc. Professor Emeritus, 1994, MS Ohio St, BEP PhD Auburn (PHYSICS)

COOPER, THOMAS E., Professor Emeritus, June 2002, PhD Auburn (BUILDING SCIENCE)

CORLEY, TOM E., Assoc. Dean Emeritus Assoc. Director Emeritus, October 1984, BS MS Auburn (AGRICULTURAL EXPERIMENT STATION)

COTTIER, JOHN W., Associate Professor Emeritus, 1976, PhD Missouri, MA Alabama, BS Auburn (SOCIOLOGY)

COX, NANCY R., Professor and Director Emerita, 1985, PhD Alabama-Birmingham, MS Auburn DVM BS Texas A&M (PATHOBIOLGY)

COX, J. GRADY, Professor Emeritus, June 1992, BS MS Auburn, PhD Purdue (INDUSTRIAL ENGINEERING)

CRAIG-SCHMIDT, MARGARET C., Professor Emerita, June 2012, BA Duke, PhD Wisconsin (NUTRITION, DIETETICS, AND HOSPITALITY MANAGEMENT)

CRAYTON, EVELYN F., Professor Emeritus, 1977, EdD Auburn, MS St. Louis, BS Grambling State (NUTRITION AND FOOD SCIENCE)

CRISS, ROBERT R., Assoc. Professor Emeritus, June 1993, BBA MBA LLB JD Mississippi, LLM Alabama (ACCOUNTANCY)

CROCKER, RUTH C., Professor Emerita, 1988, PhD MA Purdue, BA Oxford (HISTORY)

CROCKER, MALCOLM J., Professor Emeritus, August 2011, MS BS Southampton, PhD Liverpool (MECHANICAL ENGINEERING)

CRONENBERG JR., ALLEN T., Assoc. Professor Emeritus, February 2004, PhD Stanford, MA BA North Carolina (HISTORY)

CROWLEY, LARRY G., Emeritus Associate Professor, 1990, PhD BCSE Texas AM, MBA Texas Christian (CIVIL ENGINEERING)

CUMMINS, KEITH A., Professor Emeritus, 2014, PhD Virginia Tech, MS BS Washington State (ANIMAL SCIENCES)

CUNNINGHAM, DONALD H., Professor Emeritus, May 2005, PhD MA BA Missouri (ENGLISH)

CUPP, EDDIE W., Professor Emeritus, May 2006, PhD Illinois, BA Murray St. (ENTOMOLOGY AND PLANT PATHOLOGY)

CUPP, MARY S., Professor Emerita, May 2006, PhD Cornell, BS New Orleans (ENTOMOLOGY AND PLANT PATHOLOGY)

CURTIS, CHRISTINE W., Professor Emeritus, February 2007, PhD MS Florida St, BS Mercer (CHEMICAL ENGINEERING)
CURTIS, LARRY M., Extension Specialist & Professor Emeritus, December 2003, MS BS Auburn (BIOSYSTEMS ENGINEERING)

CUTCINS, MALCOLM F., Professor Emeritus, July 1999, BS MS PhD Virginia Tech (AEROSPACE ENGINEERING)

D

DANE, FENNECHIENA K., Professor Emeritus, 1985, PhD Colorado State, MS New Mexico State, BS Netherlands (HORTICULTURE)

DANE, JACOB H., Professor Emeritus, August 2008, PhD Colorado State, MS New Mexico State, BS Netherlands (AGRONOMY SOILS)

DARLING, CHARLES M., Professor and Associate Professor Emeritus, September 1995, BS PhD Mississippi (PHARMACAL SCIENCES)

DARON, CAROL F., Asst. Provost Emerita, July 1997, BA Huntingdon, MA Florida St, PhD Auburn (UNDERGRADUATE STUDIES)

DAVIES, WILLIAM D., Professor Emeritus, September 1996, BS Purdue, MS Ohio St, PhD North Carolina St. (FISHERIES AND ALLIED AQUACULTURE)

DAVIS, WILLIAM H., Professor Emeritus, 1966, PhD Rice, MA BA Abilene Christian (PHILOSOPHY)

DAVIS, NICHOLAS D., Professor Emeritus, September 1995, BA BArch Rice, MF Arch Princeton (ARCHITECTURE)

DAVIS JR, KERMIT R., Professor Emeritus, May 2008, PhD Georgia, MBA Mississippi State, BA Mississippi College (MANAGEMENT)

DAWSEY III, CYRUS B., Professor Emeritus, June 2008, PhD Florida, MA BS Florida State (GEOLOGY AND GEOGRAPHY)

DAY, WILLIAM B., Associate Professor Emeritus, April 1997, BEE MS PhD Rensselaer (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

DE MAINE, PAUL A.D., Professor Emeritus, January 1995, BS Witwatersrand, PhD British Columbia (COMPUTER SCIENCE AND SOFTWARE ENGINEERING)

DE SOUZA, GERALDO S., Professor Emeritus, June 2016, PhD State University of New York @ Albany, MA University of Rochester, MS Federal University of Pernambuco (MATHEMATICS AND STATISTICS)

DELANEY, DENNIS P., Extension Specialist, 1980, PhD Auburn, MS Clemson, BS Michigan State (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

DEUTSCH, WILLIAM, Professor Emeritus (FISHERIES AND ALLIED AQUACULTURE)

DICKENS, RAY, Professor Emeritus, September 1995, BS Arkansas, MS PhD Auburn (AGRONOMY SOILS)

DIENER, URBAN, Professor Emeritus, October 1987, BA Miami-Ohio, MA Harvard, PhD North Carolina St. (PLANT PATHOLOGY)

DILLON, ALLEN R., Professor Emeritus, 1973, MBA MS Auburn, DVM Texas A&M (CLINICAL SCIENCES)

DINIUS, SARA, Assoc. Professor Emeritus, June 1993, BS Northwestern, MS PhD Auburn (ACCOUNTANCY)

DIOARIO, DOROTHY M., Professor Emerita, June 1993, AB Bucknell, MA Middlebury, PhD North Carolina (FOREIGN LANGUAGES)

DOBIE, JAMES L., Professor Emeritus, October 1996, BS Centenar'y, MS PhD Tulane (ZOOLOGY AND WILD LIFE SCIENCES)

DONALD JR, JAMES O., Professor, Extension Specialist and Director, 1976, MS BS Georgia (BIOSYSTEMS ENGINEERING)

DOZIER, LESEL A., Extension 4-H Specialist Emeritus, September 1995, BS MEd PhD Auburn

DOZIER JR, WILLIAM A., Professor Emeritus, April 2012, PhD Virginia Tech, MS BS Auburn (HORTICULTURE)

DRAKE, JAMES B., Professor & Department Head Emeritus, September 1995, BS MEd EdD Auburn (VOCATIONAL AND ADULT EDUCATION)

DRAKE, DENNIS, Counselor Emeritus (DIVISION OF STUDENT AFFAIRS)

DUGAS, RAY, Professor Emeritus, 1974, BFA LSA, MFA Georgia St, (INDUSTRIAL AND GRAPHIC DESIGN)
EASTERDAY, KENNETH E., Professor Emeritus, June 1998, MAT Indiana, EdD Case Western (CURRICULUM AND TEACHING)

EAVES, RONALD, Professor Emeritus, May 2008, PhD Georgia, MEd Florida, BS Florida (REHABILITATION AND SPECIAL EDUCATION)

EBERT, ROBERT A., Extension Specialist Emeritus, 2014, MEd Auburn, BS Kansas State (ANIMAL SCIENCES)

EDMONDS, CHARLES III, Professor Emeritus, September 1995, BA MSA Auburn, PhD Arkansas (FINANCE)

EICK, CHARLES J., Associate Professor Emeritus, 1999, PhD Auburn, MEd Georgia State, BS Clemson (CURRICULUM AND TEACHING)

E KELUND Jr, ROBERT B., Lowder Eminent Scholar Emeritus, October 2003, PhD LSU, MA BSBA St. Mary’s (ECONOMICS)

ELDER, THOMAS J., Professor Emeritus, June 2003, BS SMU, MF Stephen F. Austin State, PhD Texas A&M ()

ELLIOTT, THOMAS R., Extension Chief Financial Officer Emeritus, May 2005, BS Austin Peay, MEd EdD Auburn (ALABAMA COOPERATIVE EXTENSION SYSTEM)

ELTON, DAVID J., Professor Emeritus, 1985, PhD Purdue, MS Utah State, BS Clarkson (CIVIL ENGINEERING)

ESSAH, PATIENCE, Professor Emeritus, 1990, PhD MA UCLA, BA Ghana (HISTORY)

EVANS, CLYDE E., Professor Emeritus, April 1992, BS Abilene Christian, MS Auburn, PhD North Carolina St. (AGRONOMY SOILS)

EVANS, DENNIS A., Extension Specialist Professor Emeritus (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

EVEREST, JOHN W., Extension Specialist & Professor Emeritus, December 2003, PhD MS Auburn, BS Alabama (AGRONOMY SOILS)

EWALD, SANDRA J., Professor Emerita, September 2008, PhD BA Texas (PATHOBIOLOGY)

F

FABEL, ROBIN F.A., Professor Emeritus, June 2001, BA MA Oxford, PhD Auburn (HISTORY)

FAUPEL, CHARLES E., Professor Emeritus, December 2010, PhD Delaware, MA Central Michigan, BA Asbury (SOCIOLOGY, ANTHROPOLOGY AND SOCIAL WORK)

FAUST, ROBERT L., Professor Emeritus, 1968, BArch Oklahoma (ARCHITECTURE)

FEILD, JR., HUBERT S., Professor Emeritus, June 2015, PhD Georgia, MS BS Mississippi State (MANAGEMENT)

FELKEY, BILL G., Professor Emeritus, February 2009, MS Indiana, BA Maine (PHARMACY CARE SYSTEM)

FELLERS, ROBIN B., Associate Professor Emerita, August 2012, PhD Florida, MS Kansas State, Dipl H Sc New Zealand (NUTRITION, DIETETICS, AND HOSPITALITY MANAGEMENT)

FIELDS, KENT T., Professor Emeritus, June 2001, BBA N. Texas, PhD Texas A&M (ACCOUNTANCY)
FINN, SCOTT, Associate Professor Emeritus, July 2018, Master of Architecture, Yale University, A.B. Architecture and Urban Planning, Princeton (ARCHITECTURE)

FISCHMAN, MARK G., Professor Emeritus, 1989, PhD Pennsylvania State University, MS James Madison University, BA The City University of New York (KINESIOLOGY)

FITCH, JAMES L., Professor Emeritus, July 2005, PhD MS Florida St, BS Illinois St. (COMMUNICATION)

FITCH-HAUSER, MARGARET E., Professor Emeritus, 2014, PhD Oklahoma, MA BA Stephen F. Austin (COMMUNICATION AND JOURNALISM)

FLANDERS, KATHY, Professor Emerita, 1995, PhD MS Minnesota, BS Cornell (ENTOMOLOGY AND PLANT PATHOLOGY)

FLEETING, BARRY, Associate Professor Emeritus, 1988, MFA Tennessee, BFA W. Kentucky (ART)

FLICK, WARREN A., Assoc. Professor Emeritus, February 1998, BS PhD SUNY (FORESTRY)

FLUKER, BILLIE, Assoc. Professor Emeritus, June 1987, BS MS Texas A&M, PhD Tulane (MECHANICAL ENGINEERING)

FLYNT, J. WAYNE, Professor Emeritus, October 2005, PhD MS Florida St, AB Howard (HISTORY)

FORD JR, F. NELSON, Associate Professor Emeritus, 1982, PhD MA BS Alabama (AVIATION AND SUPPLY CHAIN MANAGEMENT)

FORSYTHE, SANDRA M., Wrangler Professor Emerita, July 2016, University of Tennessee; M.S., Virginia Tech; B.S., Tennessee State (CONSUMER AFFAIRS)

FOSTER JR, WINFRED A., Professor Emeritus, 1974, PhD MS BAE Auburn (AEROSPACE ENGINEERING)

FRENCH, FRANCES C., Assoc. Professor Emerita, September 1992, BA MS LSU, JD Jones (SOCIOLOGY, ANTHROPOLOGY AND SOCIAL WORK)

FRIEDMAN, MICHAEL, Professor Emeritus, August 2007, BS Pennsylvania, MS Polytechnic Inst. of Brooklyn, PhD Cornell (CHEMISTRY AND BIOCHEMISTRY)

FROBISH, LOWELL, Director Emeritus, March 2005, BS Illinois, MS PhD Iowa St. (ALABAMA AGRICULTURAL EXPERIMENT STATION)

FUKAI, JUNICHIRO, Professor Emeritus, 2008, BEng Waseda, MS Denver, PhD Tennessee (PHYSICS)

FULLORD, SHERRI G., Executive Director Emerita, 2017 (GOVERNMENTAL AFFAIRS)

GALBRAITH, RUTH L., Dean Emerita, September 1985, BS PhD Purdue (HUMAN SCIENCES)

GARRETT, PHILLIP D., Assoc. Professor Emeritus, September 1995, BS DVM MS Missouri (ANATOMY)

GARRISON, ROGER W., Professor Emeritus, December 2011, PhD Virginia, MA Missouri-Kansas, BSEE Missouri State (ECONOMICS)

GAYLOR, MICHAEL J., Assoc. Professor Emeritus, September 1998, BS MS Auburn, PhD Texas A&M (ENTOMOLOGY)

GERBER, LARRY G., Professor Emeritus, July 2008, PhD MA BA California (HISTORY)

GIBBS, ROBERT C., Asst. University Librarian; Librarian III Emeritus, October 1992, AB Duke, MSLS North Carolina (LIBRARY)

GILES, WILLIAM F., Professor Emeritus, June 2011, PhD Tennessee, MA Georgia, BA Duke (MANAGEMENT)

GILLIAM, CHARLES H., Dozier Endowed Professor Emeritus, 1980, PhD MS Virginia Tech, BS Tennessee-Martin (HORTICULTURE)

GIMENEZ JR, DIEGO M., Associate Professor Emeritus, January 2009, PhD MS Florida (ANIMAL SCIENCES)

GJERSTAD, DEAN H., Professor Emeritus, December 2008, BS MS PhD Iowa St (FORESTRY AND WILDLIFE SCIENCES)
GLAZE, LINDA, Associate Provost Emerita for Undergraduate Studies and Associate Professor Emerita, September 2010, PhD MA Wisconsin, BA Marietta (FOREIGN LANGUAGES AND LITERATURE)

GLOVER, GLENN R., Professor Emeritus, April 2006, PhD Virginia Tech, MS BS Auburn (FORESTRY AND WILDLIFE SCIENCES)

GOETERS, HERMAN P., Professor, 1997, BA Southern Connecticut State, PhD MA Connecticut (MATHEMATICS AND STATISTICS)

GOFF, WILLIAM D., Professor Emeritus, 1982, PhD Clemson, MS BS Mississippi State (HORTICULTURE)

GOLDEN, MICHAEL S., Assoc. Professor Emeritus, September 2001, PhD Tennessee, MS Auburn, AB Trevecca (FORESTRY AND WILDLIFE SCIENCES)

GOODLING, JOHN S., Professor Emeritus, June 1996, BSE MSE PhD Florida (MECHANICAL ENGINEERING)

GOSSETT, JR., CLAUDE W., Professor Emeritus, June 1998, BS Lamar, MCM Southwest Baptist Theo. Sem, PhD Southern Mississippi (MUSIC)

GOWAYED, YASSER, Professor Emeritus (MECHANICAL ENGINEERING)

GRAF, EDWARD R., Professor Emeritus, January 1987, BEE MEE Auburn, PhD Stuttgart (ELECTRICAL ENGINEERING)

GRAVES, RICHARD L., Professor Emeritus, September 1995, BA Baylor, MEd Florida, PhD Florida St. (CURRICULUM AND TEACHING)

GRAVOIS, JAMES M., Librarian Emeritus, August 2008, MLIS South Carolina, MA Texas, BA New Orleans (RALPH BROWN DRAUGHON LIBRARY)

GREENE, MICHAEL E., Professor Emeritus, June 2007, PhD Rice MS BEE Ohio State (ELECTRICAL AND COMPUTER ENGINEERING)

GREENLEAF, ROBERT B., Professor Emeritus, October 2007, BM Florida State, MM D. Mus Arts Louisiana State (MUSIC)

GREENSHEILD, CHARLES M., Assoc. Professor Emeritus, June 1990, BA MA PhD Michigan St. (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

GRIGSBY, LEO L., Professor Emeritus, July 1999, BSEE MSEE Texas Tech, PhD Oklahoma St. (ELECTRICAL AND COMPUTER ENGINEERING)

GROCCIA, JAMES E., Professor Emeritus, 2003, EdD Tennessee MSEd Hofstra, BA Hartwick (EDUCATIONAL FOUNDATIONS)

GROPPIER, DANIEL, Professor Emeritus, 1988, PhD Florida State, BA Maryland (FINANCE)

GROPPIER, SAREEN S., Professor Emeritus, 1988, PhD MS Florida State, BS Maryland (NUTRITION AND FOOD SCIENCE)

GROSS, ROBERT S., Associate Professor Emeritus, 1988, PhD MS Clemson, BS Virginia Tech (AEROSPACE ENGINEERING)

GROSS, CHARLES A., Professor Emeritus, Sept. 1972, PhD MS Missouri-Rolla, BS Alabama (ELECTRICAL AND COMPUTER ENGINEERING)

GROTH Jr, AARON H., Professor Emeritus, January 1993, BS DVM Auburn, MS Iowa St. (PATHOBIOLOGY)

GROVER, JOHN H., Professor Emeritus, April 2002, PhD MS Iowa St, BS Utah (FISHERIES AND ALLIED AQUACULTURE)

GRUENHAGE, GARY F., Professor Emeritus, June 2014, PhD MS University of California at Davis, BA University of Nebraska (MATHEMATICS AND STATISTICS)

GRYSKI, GERARD S., Curtis O. Liles Emeritus Professor, 1982, PhD Massachusetts, BBA CCNY (POLITICAL SCIENCE)

GUDAUSKUS, ROBERT T., Professor Emeritus, October 1993, BS East Illinois, MS PhD Illinois (PLANT PATHOLOGY)

GUFEY, JR., HUGH J., Associate Professor Emeritus, June 2007, PhD MBA B.BA Georgia (MARKETING)

GUNDLACH, JAMES H., Professor Emeritus, September 2007, PhD MA Texas, B.A Oklahoma State (SOCIOLGY)
GUTHRIE, RICHARD, Dean, December 2003, PhD Cornell, MS BS Auburn (Director, & Professor Emeritus, College of Agriculture & Alabama Agricultural Experiment Station)

GUYER, CRAIG, Scharnagel Professor Emeritus, 1987, PhD Miami, MS Idaho State, BS Humboldt State (BIOLOGICAL SCIENCES)

GWIN, WILLIAM R., Professor Emeritus, September 1998, BArch Auburn, MArch Pennsylvania, MVA Georgia St. (ARCHITECTURE)

HAIRSTON, JAMES E., Professor Emeritus, September 2009, BS Berry, PhD Georgia (AGRICULTURE)

HAJEK, BENJAMIN F., Professor Emeritus, September 1995, BS Texas A&M, MS PhD Auburn (AGRONOMY SOILS)

HALE, DENNIS, Assoc. Professor Emeritus, June 1985, BS Middle Tennessee St, MA Peabody (ACCOUNTANCY)

HALL, DAVID M., Professor Emeritus, September 1995, BS Auburn, MS Clemson, PhD Victoria (TEXTILE ENGINEERING)

HALL, HINES H., Assoc. Professor Emeritus, July 2006, PhD Vanderbilt, MA Auburn, BA Duke (HISTORY)

HALPIN, GERALD, Professor Emeritus, May 2009, EdD MEd Georgia, BS Jacksonville State (ATITIONS LEADERSHIP AND TECHNOLOGY EDUCATION FOUND)

HALPIN, GLENNELLE, Professor Emerita, May 2009, PhD MA Georgia, BS Jacksonville State (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

HAMRICK, MAYNARD E., Professor Emeritus, June 2005, BS PhD MS Auburn (PHARMACAL SCIENCES)

HANKES, GERALD H., Professor Emeritus, September 2001, BS DVM Illinois, MS PhD Colorado St. (VETERINARY MEDICINE)

HANSEN, JAMES R., Professor Emeritus, 1986, PhD MA Ohio State, BA Indiana (HISTORY)

HARGIS, JAMES H., Professor Emeritus, August 2004, PhD Utah, BS Eastern New Mexico (CHEMISTRY)

HARRELL, DAVID E., Breeden Eminent Scholar Emeritus, October 2005, PhD MA Vanderbilt, BA Lipscomb (HISTORY)

HARRIS, GREG A., Associate Professor, 1992, PhD Utah, MS Montana St., BA California-Fullerton (MATHEMATICS AND STATISTICS)

HARRIS, JAMES R., Professor Emeritus, June 2007, PhD MBA Florida, B.BA Emory (MARKETING)

HARRIS, RALPH R., Professor & Head Emeritus, September 1995, BS MS Auburn, PhD Texas A&M (ANIMAL SCIENCES)

HARTSFIELD, NANCY M., Professor Emerita, January 2002, BVD MFA Auburn (ART)

HASELSCHWERDT, MEGAN L., Assistant Professor Emerita (HUMAN DEVELOPMENT AND FAMILY STUDIES)

HATCH, UPTON, Professor Emeritus, September 2006, PhD Minnesota, MS Georgia, BS Dartmouth (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

HAWSEY, LAWRENCE S., Extension Leader Emeritus, September 1995, BS MEd Auburn, EdS Mississippi St. (PROGRAMS AND EVENTS)

HAYES, VIRGINIA, Assoc. Dean Emerita, July 1998, BS Samford, MA EdD Alabama (EDUCATION)

HAYHURST, DONALD E., Professor Emeritus, September 1988, AB MLitt PhD Pittsburgh (POLITICAL SCIENCE)

HAYNES, WILLIAM O., Professor Emeritus, May 2008, PhD Bowling Green, MA BA N. Michigan (COMMUNICATION)

HEATH, JO W., Professor Emeritus, 2007, PhD MS Auburn, BS Southwest Louisiana (MATHEMATICS AND STATISTICS)

HEBERT, ROBERT F., Russell Foundation Professor Emeritus, June 2000, BS MS PhD LSU (ECONOMICS)

HEILMAN, JOHN G., Provost & Vice President for Academic Affairs Emeritus, January 2009, PhD MA N.Y.U., BA Lafayette (POLITICAL SCIENCE)

HEIN, MICHAEL F., Professor Emeritus, 1987, MS Princeton, BS Tulane (BUILDING SCIENCE)
HELMKE, HENRY C., Assoc. Professor Emeritus, June 1993, BA MA Duke, PhD Ohio St. (FOREIGN LANGUAGES)

HENDERSON, JOHN B., Professor Emeritus, January 1995, BS MS Auburn, PhD North Carolina St. (AGRONOMY SOILS)

HENDERSON J.R., RALPH A., Professor Emeritus, 1972, MS Auburn, DVM Missouri (CLINICAL SCIENCES)

HENDRICKS, CONSTANCE S., Professor Emerita, 2007, PhD Boston College, BSN MSN Alabama-Birmingham (NURSING)

HENDRIX, CHARLES M., Professor Emeritus, 1981, PhD MS Minnesota, DVM Georgia (PATHOBIOLOGY)

HENDRICKS, CONSTANCE S., Professor Emerita, 2007, PhD Boston College, BSN MSN Alabama-Birmingham (NURSING)

HENDERSON JR, RALPH A., Professor Emeritus, 1972, MS Auburn, DVM Missouri (CLINICAL SCIENCES)

HENDERSON JR, RALPH A., Professor Emeritus, 1972, MS Auburn, DVM Missouri (CLINICAL SCIENCES)

HENRY, JOHN F., Professor Emeritus, January 1986, BIM Auburn, MSIM Georgia Tech, PhD Alabama (MANAGEMENT)

HENSON, CURTIS T., Professor Emeritus, July 1993, BA MA Auburn, PhD Tulane (HISTORY)

HEPP, GARY R., Professor Emeritus, 1988, PhD North Carolina State, MS Clemson, BS Ohio State (FORESTRY WILDLIFE SCIENCES)

HIERS, CHARLES J., Professor Emeritus, June 1988, BAA MAA Auburn (ART)

HILL, DAVID T., Professor Emeritus, May 2010, PhD Clemson, MS BSAE Georgia (BIOSYSTEMS ENGINEERING)

HILL, PAUL D., Professor Emeritus, August 2000, BS MS PhD Auburn (MATHEMATICS)

HILL, WILLIAM E., Professor Emeritus, October 2005, PhD Strathclyde, MS BS Florida St. (CHEMISTRY AND BIOCHEMISTRY)

HILTBOLD, ARTHUR E., Professor Emeritus, July 1991, BS PhD Cornell, MS Iowa St. (AGRONOMY SOILS)

HINATA, SATOSHI, Professor Emeritus, 1980, BE Tokyo, MS PhD Illinois (PHYSICS)

HINRICHSEN, JOHN W., Assoc. Professor Emeritus, September 1998, BA MA PhD Texas (MATHEMATICS)

HINTON, WILBUR, Professor Emeritus, July 1984, BM MA EdD Alabama (MUSIC)

HIRTH, LEO J., Professor Emeritus, January 1990, BS CCNY, MS PhD Texas (CHEMICAL ENGINEERING)

HITCHOCK JR., WALTER B., Professor Emeritus, May 2008, PhD Duke, MA Oregon, BA Auburn (ENGLISH)

HITE, DIANE, Professor Emeritus, 2002, PhD MA Ohio State, BFA Rhode Island School of Design (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

HOBBS, MARLEAH K., Assoc. Professor Emerita, June 1988, BFA Colorado, MFA Mississippi (ART)

HOERR, FREDERIC J., Professor Emeritus, March 2012, PhD MS DVM Purdue (PATHOBIOLOGY)

HOLLANS, HARRIS, Professor Emeritus, 2005, PhD Georgia, MS BA Auburn (FINANCE)


HOLLEY, BETTY B., Extension Specialist Emerita, September 1995, BS Tennessee, MS Alabama, EdD Auburn (4-H PROGRAM)

HOLLEY Jr, WILLIAM H., Professor Emeritus, July 2001, BS MBA Mississippi St, PhD Alabama (MANAGEMENT)

HOLLOWAY, BOBBY E., Asst. Dean & Librarian III Emeritus, March 1998, BA Harding, MLS Kentucky

HOOL, JAMES N., Professor Emeritus, July 1998, BS MS PhD Purdue (INDUSTRIAL AND SYSTEMS ENGINEERING)

HORNE, ROBERT D., Professor Emeritus, September 1994, DVM MS Auburn (SMALL ANIMAL SURGERY)

HOWARD, MARY J., Associate Professor Emerita, June 2000, BM Westminster, MM Florida St. (MUSIC)

HUDDLESTON, NORMAN R., Assoc. Professor Emeritus, September 1990, BS Tennessee Tech, MS Tennessee, PhD Mississippi St. (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

HUDSON, JUDITH A., Professor Emerita, 1983, PhD Auburn, DVM Guelph (CLINICAL SCIENCES)
HUDSON, ROBERT S., Alumni Professor Emeritus, June 1988, DVM Oklahoma St, MS Auburn (LARGE ANIMAL SURGERY)

HUFFMAN, DALE L., Professor Emeritus, September 1995, BS Cornell, MS PhD Florida (ANIMAL SCIENCES)

HUMBURG, JAY M., Assoc. Professor Emeritus, August 2000, BS DVM Kansas St, MS Auburn (LARGE ANIMAL SURGERY)

ILLIES, ANDREAS J., Professor Emeritus, January 2010, BA New Hampshire, PhD Nebraska, MS Rochester Inst. Tech (CHEMISTRY AND BIOCHEMISTRY)

IRWIN, J. DAVID, Professor and Department Head Emeritus, 1969, PhD MS Tennessee, BEE Auburn (ELECTRICAL AND COMPUTER ENGINEERING)

JACKSON, JOHN D., Professor Emeritus, June 2012, PhD Claremont, BA MA Texas-Arlington (ECONOMICS)

JACOBSON, MARCIA A, Hargis Professor Emerita, English, July 1999, BA MA PhD California (ENGLISH)

JACOBSON, ALANA L., Assistant Professor, 2014, BS New Mexico St, MS Purdue, PhD North Carolina St (ENTOMOLOGY AND PLANT PATHOLOGY)

JAEGGER, RICHARD C., Professor Emeritus, 1979, PhD ME BSEE Florida (ELECTRICAL AND COMPUTER ENGINEERING)

JAKEMAN, ROBERT J., Professor Emeritus, May 2011, PhD Auburn, MA Valdosta State, BA South Florida (HISTORY)

JANER, ANN L., Assoc. Professor Emerita, January 2006, MS Temple, BPharm Philadelphia (PHARMACY PRACTICE)

JEMIAN, WARTAN A., Professor Emeritus, December 1993, BS Maryland, MS PhD Rensselaer Poly (MECHANICAL ENGINEERING)

JENKINS, RHONALD M., Assoc. Professor Emeritus, August 2004, PhD Purdue, MS Florida St. (AEROSPACE ENGINEERING)

JENKINS, STEPHEN R., Professor Emeritus, September 1995, BSCE Georgia Tech, MS PhD Harvard (CIVIL ENGINEERING)

JENSEN, JOHN W., Professor Emeritus, March 2007, PhD MS Auburn, BS Minnesota (FISHERIES AND ALLIED AQUACULTURE)

JOHNSON, RANDALL, Professor Emeritus, 2003, PhD Ohio, MBA BS Embry Riddle (AVIATION AND SUPPLY CHAIN MANAGEMENT)

JOHNSON, CLARENCE E., Professor Emeritus, September 1998, BS Oklahoma St, MS PhD Iowa St. (AGRICULTURAL ENGINEERING)

JOHNSON, FREDERIC A., Assoc. Professor Emeritus, June 1992, BS MS New Hampshire, PhD Wisconsin ()

JOHNSON, GERALD W., Professor Emeritus, September 1995, BA Marshall, MA PhD Tennessee (POLITICAL SCIENCE)

JOHNSON, JAMES LAVAUGHN, Professor & Department Head Emeritus, November 2001, MS BS Auburn (AGRICULTURE)

JOHNSON, MARTHA R., Asst. Professor Emeritus, January 2003, BS Georgia College MS Florida St. EdD North Carolina St.. (ALABAMA COOPERATIVE EXTENSION SYSTEM)

JOHNSON, PAUL M., Associate Professor Emeritus, June 2012, PhD MA Stanford, BA Rice (POLITICAL SCIENCE)

JOHNSON, ROBERT E., Assoc. Professor Emeritus, September 1995, BME MME Kansas, PhD Michigan (CURRICULUM AND TEACHING)

JOHNSON, R. WAYNE, Professor Emeritus, 1987, PhD Auburn, MS, BA Vanderbilt (ELECTRICAL AND COMPUTER ENGINEERING)

JOHNSTON, JAMES M., Professor Emeritus, August 2009, PhD MA Florida, BA Tennessee (PSYCHOLOGY)

JOLLY, CURTIS M., Professor Emeritus, 1980, PhD LSU, MS Auburn, BS Tuskegee (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

JONES, ALLEN W., Professor Emeritus, September 1991, BS MA Auburn, PhD Alabama (HISTORY)
JONES, ETHEL B., Professor Emerita, July 1996, AB Vassar, MA PhD Chicago (ECONOMICS)

JUDKINS, JOSEPH F., Professor Emeritus, July 2002, PhD BS MSSE Virginia Tech (CIVIL ENGINEERING)

K

KALLENBERG, OLAV H., Professor Emeritus, 1986, DTech Chalmers, MTech BCE Royal Tech (MATHEMATICS AND STATISTICS)

KAMINSKY, JAMES S., Mildred Cheshire Fraley Distinguished Professor Emeritus, 1989, PhD MA Michigan State, BA Minnesota (EDUCATIONAL FOUNDATIONS)

KANDHAL, PRITHVI S., Assoc. Director Emeritus, July 2001, BS Rajasthan India, MS Iowa St. (ASPHALT TECHNOLOGY CENTER)

KAPLAN, BARBARA C., Professor Emerita, June 1990, BA Agnes Scott, MA Eastman, MA S. Florida, PhD Florida St. (CURRICULUM AND TEACHING)

KATAINEN, V. LOUISE., Assoc. Professor Emerita, July 2002, PhD California (FOREIGN LANGUAGES AND LITERATURE)

KEEVER, GARY J., Professor Emeritus, 1982, PhD MS Cornell, BS Clemson (HORTICULTURE)

KEITH, ROBERT E., Professor Emeritus, August 2010, PhD Virginia Tech, MS BS Florida State (NUTRITION AND FOOD SCIENCE)

KELLEY, VIRGINIA C., Assoc. Professor Emerita, July 1994, AB LaGrange, MS PhD Auburn (BOTANY AND MICROBIOLOGY)

KELLEY, WALTER D., Professor Emeritus, April 1994, BS MS Auburn, PhD North Carolina St. (FORESTRY)

KEMPF, STEPHEN C., Associate Professor, 1985, PhD Hawaii, BS Case Institute of Technology (BIOLOGICAL SCIENCES)

KEMPPAINEN, BARBARA W., Professor Emerita, 1986, PhD Georgia, MS Ohio State, BS Ashland (ANATOMY)

KICKLIGHTER, JOSEPH A., Professor Emeritus, 1975, PhD MA Emory, BA University of the South (HISTORY)

KILLINGSWORTH JR, ROGER A., Associate Professor Emeritus, 1985, MS BS Texas A&M (BUILDING SCIENCE)

KINCAID, STEVEN A., Professor Emeritus, October 2011, PhD MS DVM Purdue (ANATOMY)

KING Jr, CHARLES C., Professor Emeritus, October 1986, BS MS Auburn, PhD North Carolina St. (AGRONOMY SOILS)

KITELEY, GARY W., Assoc. Professor Emeritus, June 1990, BS Minnesota, MS Purdue (AEROSPACE ENGINEERING)

KLING, EMMILY B., Extension Specialist Emerita, March 2010, BA Principia, MS Michigan, EdD Auburn (ALABAMA COOPERATIVE EXTENSION SYSTEM)

KNIPSCHILD, ANN K., Professor Emerita, 1985, DMA SUNY-Stony Brook, MM Yale, BM BS Missouri (MUSIC)

KNOWLTON, STEPHEN F., Professor Emeritus, 2012, BA MIT PhD Middlebury (PHYSICS)

KOCHAN, FRANCES K., Professor Emerita, 1994, PhD Florida State, MEd Guam, BS SUNY-Fredonia (EDUCATIONAL FOUNDATIONS)

KOUIDIS, VIRGINIA M., Associate Professor Emerita, Emeritus, May 2009, PhD MA Iowa, BA Michigan State (ENGLISH)

KOWALSKI, GREGORY S., Professor Emeritus, 1975, PhD Kentucky, MS North Dakota, BA BS Minnesota State (SOCIOLGY)

KOZLOWSKI, YVONNE, Librarian Emerita, April 2003, BA MA MLS Washington

KOZLOWSKI JR, GEORGE ALOYSIUS, Professor Emeritus, 2007, PhD Michigan, BA Wesleyan (MATHEMATICS AND STATISTICS)

KRASKA, MARIE F., Professor Emeritus, 1988, PhD Missouri, MS Wisconsin-Stout, BS Wisconsin-Stevens (EDUCATIONAL FOUNDATIONS)

KRISHNAGOPALAN, GOPAL A., Professor Emeritus, January 2010, PhD MS Maine, BCHE Bombay (CHEMICAL ENGINEERING)

KRISTA, LAVERNE M., Professor Emeritus, September 1998, MS South Dakota St, DVM PhD Minnesota (ANATOMY)

KRTIC, ZDENKO, Associate Professor Emeritus, 1992, MFA Cincinnati, BFA Zagreb (ART)
KUHLERS, DARYL L., Professor Emeritus, 1978, BS Iowa State, PhD MS Wisconsin (ANIMAL SCIENCES)

LABAND, DAVID, Professor Emeritus, August 2012, PhD MA BA Virginia Tech (ECONOMICS)

LAKWETE, ANGELA, Associate Professor Emeritus, 1999, PhD MA Delaware, MLS Wayne State, BA Goddard (HISTORY)

LAMKE, LEANNE K., Professor and Head Emerita, September 2011, BA North Dakota, MS PhD Texas Tech, BA North Dakota (HUMAN DEVELOPMENT AND FAMILY STUDIES)

LANFORD, BOBBY L., Assoc. Professor Emeritus, January 2002, BS MS Clemson, PhD SUNY (FORESTRY AND WILDLIFE SCIENCES)

LARSEN, HARRY S., Assoc. Professor Emeritus, July 1991, BS Rutgers, MS Michigan St, PhD Duke (FORESTRY)

LATIMER, DAN R., Professor Emeritus, December 2011, PhD MA Michigan, BA Texas (ENGLISH)

LATIMER, MARGARET K., Assoc. Professor Emerita, June 1992, BA Agnes Scott, MA Vanderbilt (POLITICAL SCIENCE)

LATIMER, RENATE S., Assoc. Professor Emerita, May 2008, PhD MA Michigan, BA Wayne State (FOREIGN LANGUAGES AND LITERATURE)

LAUFER, MARILYN, Director Emerita, 2018 (JULE COLLINS SMITH MUSEUM)

LAUMER JR., J. FORD, Professor Emeritus, April 2006, PhD Georgia, MBA BCE Auburn (MARKETING)

LECHNER, JUDITH V., Professor Emerita, May 2009, PhD UCLA, MEd Auburn, MLS Columbia, BS CCNY (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

LECHNER, NORBERT M., Professor Emeritus, July 2006, MS Columbia BS BArch CUNY; (AGRICULTURE)

LEDGETTER, WILLIAM N., Assoc. Professor Emeritus, June 1991, BSIE Alabama, MS Georgia Tech, PhD Oklahoma St. (MANAGEMENT)

LEE, YOON Y., Professor Emeritus, 1974, PhD Iowa State, MS South Carolina, BS Seoul National (CHEMICAL ENGINEERING)

LEISCHUCK, GERALD S., Executive Asst. to the President & Secretary to the Board of Trustees Emeritus, April 1997, AB MA N. Colorado, EdD Auburn

LEWIS, JEFFREY, Professor Emeritus, 1988, MFA MA Iowa, BA SUNY (ART)

LEWIS, PHILIP M., Professor Emeritus, November 2008, PhD MA Syracuse, AB Hamilton (PSYCHOLOGY)

LEY, TERRY C., Professor Emeritus, May 2001, PhD MA (CURRICULUM AND TEACHING)

LIEN, ROGER J., Professor Emeritus, 1989, PhD North Carolina State, MS BS Texas A&M (POULTRY SCIENCE)

LISHAK, ROBERT S., Associate Professor Emeritus, 1976, PhD Ohio State, BA Seton Hall (BIOLOGICAL SCIENCES)

LITTLETON, TAYLOR D., Mosley Professor Emeritus, September 1995, BS MS PhD Florida St. (ENGLISH)

LIU, ZHANJIANG, Professor Emeritus, 2008, PhD MS Minnesota, BS Northwestern Agricultural (FISHERIES ALLIED AQUACULTURES)

LIVANT, PETER D., Associate Professor Emeritus, 1977, BS CCNY, PhD Brown (CHEMISTRY AND BIOCHEMISTRY)

LLANES, JOSE R., Professor Emeritus, 2006, PhD BA Havana (EDUCATIONAL FOUNDATIONS)

LOCKABY, GRAEML B., Associate Dean of Research, 1986, PhD, Mississippi State; MS, BS, Clemson (FORESTRY WILDLIFE SCIENCES - ADMINISTRATION)

LOCKROW, A. LYNN, Professor Emeritus, December 2008, BS E. Tennessee St., MFA North Carolina-Greensboro (THEATRE)

LOCY, ROBERT D., Professor Emeritus, 1991, PhD Purdue, AB Defiance (BIOLOGICAL SCIENCES)
LOGUE Jr., HANCHEY E., Professor Emeritus, July 1993, BS MA Auburn (JOURNALISM)

LONG, JAMES E., Professor Emeritus, December 2010, PhD Florida State, MS Florida State, AB Erskine (ECONOMICS)

LOVELL, RICHARD T., Professor Emeritus, September 1998, BS MS Oklahoma St, PhD LSU (FISHERIES AND ALLIED AQUACULTURE)

LOVSHIN Jr., LEONARD L., Professor Emeritus, December 2003, PhD Auburn, MS Wisconsin, BS Miami (FISHERIES AND ALLIED AQUACULTURE)

LOWRY, JAMES L., Professor Emeritus, September 1995, BEE ME Auburn, PhD Florida (ELECTRICAL ENGINEERING)

M

MACDONALD, JOHN M., Professor Emeritus, 1980, DVM Cornell MEd BEd Plymouth State (CLINICAL SCIENCES)

MACEINA, MICHAEL J., Professor Emeritus, February 2010, PhD Texas A&M, MS BS Florida (FISHERIES)

MACEWAN, BONNIE J., Dean and Librarian Emerita, 2018, LIBRARIE()

MADRIGAL, JOSE A., Professor Emeritus, July 2008, PhD Kentucky, MA BA Michigan State (FOREIGN LANGUAGES AND LITERATURE)

MAGHSOODLOO, SAEED, Professor Emeritus, 1966, PhD MS BS Auburn (INDUSTRIAL AND SYSTEMS ENGINEERING)

MANSFIELD, PHILLIP D., Associate Professor Emeritus, April 2003, DVM Auburn (CLINICAL SCIENCES)

MAPLES, GLENNON, Professor Emeritus (CHEMICAL ENGINEERING)

MARCINKO, DOROTHY K., Librarian III Emerita, August 2002, EDS Auburn MLS Texas Woman’s AB Phillipines (RALPH BROWN DRAUGHON LIBRARY)

MARTIN, DAVID L., Professor Emeritus, January 1997, BA Redlands, MA PhD Claremont (POLITICAL SCIENCE)

MARTIN, JAMES E., President Emeritus, August 1993, BS Auburn, MS North Carolina St, PhD Iowa St. (

MARTIN, NEIL R., Professor Emeritus, June 2000, BS MS Auburn, PhD Illinois (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

MARTINSON, TOM L., Professor Emeritus, September 2007, PhD Kansas, BA Oregon (GEOLOGY AND GEOGRAPHY)

MAZHERI, JOHN H., Professor Emeritus, 1989, PhD Brown, MA Providence, MFA Beaux-Arts (FOREIGN LANGUAGES LITERATURES)

MCCALL, CYNTHIA ANN, Professor and Extension Specialist, 1989, BS Tennessee, PhD MS Texas A&M (ANIMAL SCIENCES)

MCCASKEY, THOMAS, Professor Emeritus, 2014, PhD MS Purdue, BS Ohio (ANIMAL SCIENCES)

MCDANIEL, RANDALL S., Wayne T. Smith Distinguished Professor Emeritus, December 2010, EdD Auburn, MRC BSOT Florida (SPECIAL EDUCATION, REHABILITATION AND COUNSELING)

MCGLYNN, FRANCIS D., Professor Emeritus, December 2010, PhD MA Missouri, AB Missouri Valley (PSYCHOLOGY)

MCKEE, MICHAEL L., Professor Emeritus, 1981, PhD Texas, BS Lamar (CHEMISTRY AND BIOCHEMISTRY)

MCNABB, KENNETH L., Professor Emeritus, 1989, PhD Florida, MS BS Southern Illinois (FORESTRY WILDLIFE SCIENCES)

MCVAY, TED, Associate Professor Emeritus, 2008, PhD Louisiana State, MA BA Auburn (FOREIGN LANGUAGES LITERATURES)

MEADOWS, MARK E., Professor & Department Head Emeritus, January 1995, BS Georgia Southern, MA Peabody, EdD Georgia (COUNSELING AND COUNSELING PSYCHOLOGY)
MEIR, AMNON J., Professor Emeritus, August 2015, PhD Carnegie Mellon, BS Technion (MATHEMATICS AND STATISTICS)

MELANCON, MICHAEL S., Professor Emeritus, May 2010, PhD MA Indiana, BA Loyola (HISTORY)

MELDAHL, RALPH S., Assoc. Professor Emeritus, September 2005, BS MS PhD Wisconsin (FORESTRY AND WILDLIFE SCIENCES)

MELIUS, PAUL, Professor Emeritus, June 1991, BS Bradley, MS Chicago, PhD Loyola (CHEMISTRY)

MELVILLE, JOEL G., Professor Emeritus, May 2009, PhD BS Penn State, MS Texas (CIVIL ENGINEERING)

MELVIN, EMILY A., Associate Professor Emerita, May 2006, EdD MEd Virginia, BS Old Dominion (EDUCATION)

MEYER, DARRELL C., Professor Emeritus, January 1997, BA California St, MRP Pennsylvania (ARCHITECTURE)

MILLER, RALPH E., Assoc. Professor Emeritus, June 2002, PhD Wayne St, MA Emporia St BS Kent St (THEATRE)

MILLER, THOMAS, Assoc. Professor Emeritus, June 1987, BS Berry, MS Stout St, EdD Indiana (EDUCATIONAL MEDIA)

MILLMAN, MARY M., Assoc. Professor Emerita, June 1994, AB Michigan, MA East Michigan, MA New York, EdD Georgia (FOREIGN LANGUAGES)

MILLMAN, RICHARD G., Professor Emeritus, October 1989, BArch MArch Michigan (ARCHITECTURE)

MILTON, JAMES L., Professor Emeritus, January 1995, DVM MS Auburn (SMALL ANIMAL SURGERY)

MIRARCHI, RALPH E., Professor Emeritus, February 2008, PhD MS Virginia Tech, BS Muhlenberg (FORESTRY AND WILDLIFE SCIENCES)

MITCHELL JR, CHARLES C., Professor Emeritus and Extension Specialist, 1984, PhD Florida, MS Auburn, BS Birmingham Southern (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

MITREVSKI, GEORGE, Associate Professor Emeritus, June 2009, PhD Ohio State (FOREIGN LANGUAGES AND LITERATURE)

MIZE, JACQUELYN, Professor Emeritus, December 2012, PhD Purdue, MS BA Georgia (CHILD DEVELOPMENT AND FAMILY STUDIES)

MOHAN, RAJ P., Professor Emeritus, 1973, PhD North Carolina State, MA BS Agra-India (SOCIOLOGY)

MOLTZ, FRED J., Professor Emeritus, September 1995, BS MSCE Drexel, PhD Stanford (CIVIL ENGINEERING)

MONTGOMERY, RONALD D., Professor Emeritus, 1990, MS DVM Auburn (CLINICAL SCIENCES)

MONTJOY, ROBERT S., Professor Emeritus, September 2004, PhD Indiana, MA Alabama, BA Mississippi (POLITICAL SCIENCE)

MOORE, JANE B., Professor Emerita, September 1996, BA Judson, MS Tennessee, EdD Alabama (HEALTH AND HUMAN PERFORMANCE)

MOORE, WAYNE T., Professor & Carillonneur Emeritus, September 1995, AB Elon, AM EdD Columbia (MUSIC)

MORACCO, JOHN C., Professor Emeritus, September 1995, BS SUNY, MA Arizona St, PhD Iowa (COUNSELING AND COUNSELING PSYCHOLOGY)

MORAN, MICHAEL J., Professor Emeritus, 1983, PhD Penn State, MA Wichita State, BS E. Stroudsburg State (COMMUNICATION DISORDERS)

MORAN, EDWIN T., Professor Emeritus, June 2011, BS Rutgers, MS PhD Washington State (POULTRY SCIENCE)

MORGAN, CHERYL E., Emeritus Professor, 1992, M Arch University of Illinois, BArch Auburn, BS Sociology Auburn (ARCHITECTURE)

MORGAN, JOHN, Professor Emeritus, 1981, MFA Syracuse, BFA Memphis School of Art (INDUSTRIAL AND GRAPHIC DESIGN)

MORGAN, ALICE S., Assoc. Professor Emerita, December 1986, BS Southern Mississippi, MA Alabama, EdD Auburn (VOCATIONAL AND ADULT EDUCATION)
MORGAN, JOE M., Professor Emeritus, August 2011, PhD MSSE Virginia Tech, BSCE Tennessee Tech (CIVIL ENGINEERING)

MORGAN, JULIA M., Assoc. Professor Emerita, June 1998, BM MM Alabama (MUSIC)

MORGAN, LAURENCE, Assoc. Professor Emeritus, June 1985, BM Alabama, MM Columbia (MUSIC)

MORGAN, WILLIAM W., Professor Emeritus, January 1982, BBA Georgia, MS Georgia Tech (INDUSTRIAL ENGINEERING)

MORGAN-JONES, GARETH, Professor Emeritus, April 2011, PhD MS Nottingham, DSc BSc Wales (ENTOMOLOGY AND PLANT PATHOLOGY)

MORRIS IV, DREWRY H., Associate Professor Emeritus, June 2009, PhD North Carolina, MA Yale, BA Davidson (FOREIGN LANGUAGES AND LITERATURE)

MORROW, PATRICK D., Professor Emeritus, May 2007, PhD MA Washington, AB Southern California (ENGLISH)

MOSJIDIS, JORGE A, Professor Emeritus, May 2012, PhD California-Riverside, BAg Chile (AGRonomy SOILs)

MOSS, BUELON R., Professor Emeritus, December 2003, PhD Tennessee, BS Berea (ANIMAL SCIENCES)

MOUNT, ROBERT H., Professor Emeritus, September 1986, BS MS Auburn, PhD Florida (ZOLOGY AND ENTOMOLOGY)

MOUTON, JOHN C., Professor Emeritus, 1992, M.B.C Florida, BS NE Louisiana (BUILDING SCIENCE)

MULLEN, GARY R, Professor Emeritus, February 2010, PhD MS Cornell, BA Northeastern (ENTOMOLOGY AND PLANT PATHOLOGY)

MYERS III, LAWRENCE J., Associate Professor Emeritus, 1982, PhD Oklahoma St. DVM Mississippi St. (ANATOMY)

McCORD, Sammy O., Assoc. Professor Emeritus, June 1998, BA MBA PhD Arkansas (FINANCE)

McCORD Jr, ROBERT WARREN, Extension St. Program Leader for Community Resource Development, October 2003, BS North Alabama, MS PhD Auburn (ALABAMA COOPERATIVE EXTENSION SYSTEM)

McCULLERS, GAIL H., Director Emerita, October 2002, BS MEd Auburn (HOUSING AND RESIDENCE)

McGINNIS, BOB, Vice President for Development Emeritus (OFFICE OF DEVELOPMENT)

McGUIRE, JOHN A., Professor Emeritus, October 1993, BS MS Mississippi St, PhD Auburn (BOTANY AND MICROBIOLOGY)

McKOWN, DELOS B., Professor & Head Emeritus, September 1995, BA Alma, BD Lexington Theo, MA Kentucky, PhD Florida St. (PHILOSOPHY)

NEELY, WILLIAM C., Professor Emeritus, 2010, PhD LSU, MS LSU BS Mississippi State (CHEMISTRY AND BIOCHEMISTRY)

NEUMAN, RONALD D., Professor Emeritus, 1985, PhD MS The Institute of Paper Chemistry, BS Washington (CHEMICAL ENGINEERING)

NEWTON, DAVID S., Assoc. Professor and Assistant Dean Emeritus, September 1995, BBA BS MBA PhD Mississippi (PHARMACY CARE SYSTEM)

NICHOLS, JAMES O., Assoc. Professor Emeritus, July 1993, BSAE MSE PhD Alabama (AEROSPACE ENGINEERING)

NIEBUHR, ROBERT E., Assoc. Professor Emeritus, August 2001, BS Cincinnati, PhD MS Ohio St. (MANAGEMENT)

NIST, JOAN S., Professor Emerita, June 1992, AB Lawrence, MA Indiana, EdD Auburn (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

NORRIS, DWIGHT R., Professor Emeritus, 2007, PhD MBA Georgia, BS Valdosta State (BUSINESS)

NOVAK, JAMES L., Professor Emeritus, 1985, PhD Clemson, MS BS New Hampshire (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)
NUNNALLY, THOMAS, Associate Professor Emeritus, June 2010, PhD MA Georgia, BA Alabama (ENGLISH)

NUNNELLY, SUSAN C., Director Emerita of Campus Recreation, January 2008 (STUDENT AFFAIRS)

NUSBAUM, KENNETH E., Professor Emeritus, December 2010, PhD MS Georgia, DVM Cornell (PATHOBIOLOGY)

ODOM, JOHN W., Professor Emeritus, 1977, PhD Purdue, MS BS Tennessee (AGRONOMY SOILS)

OKS, EVGUENI, Professor Emeritus, 1990, DS USSR Acad., PhD MS Moscow Tech (PHYSICS)

OLSON, DOUGLAS J., Professor Emeritus, August 2001, MFA Cincinnati, BFA Layton (ART)

ORGEN, A. TARIK., Professor Emeritus, 1981, MArch Virginia, BArch Academy Fine Arts Istanbul (ARCHITECTURE)

OWSLEY, W. FRANK, Professor Emeritus, 1990, PhD Texas Tech, MS BS Texas A&M (ANIMAL SCIENCES)

O'BRIEN, J. FRED, Director Emeritus, October 1992, BME MME Auburn (ENGINEERING EXTENSION)

O'LEARY, VIRGINIA E., Professor Emerita, July 2006, PhD MA Wayne State, BA Chatham (PSYCHOLOGY)

PAINE, PAMELA F., Associate Professor Emerita, 2012, PhD Florida, MA Auburn, BA Florida State (FOREIGN LANGUAGES LITERATURES)

PANANGALA, VICTOR S., Professor Emeritus, 1994, DVM E. Pakistan Ag, MS Guelph, PhD Cornell (PATHOBIOLOGY)

PARISH, EDWARD J., Professor, 1981, PhD Mississippi State, MA Sam Houston State, BS Southwest Texas State (CHEMISTRY AND BIOCHEMISTRY)

PARK-GATES, SHARI, Associate Professor Emeritus, 2007, PhD Virginia Tech, MS MBA Charleston, BID Interior Design Institute, BA West Virginia (CONSUMER AND DESIGN SCIENCES)

PARKER JR, FRAZIER, Professor Emeritus, May 2009, PhD MS Texas, BS Alabama (CIVIL ENGINEERING)

PARKS, PAUL F., Provost Emeritus & Professor Emeritus, September 1993, BS MS Auburn, PhD Texas A&M (ANIMAL SCIENCES)

PARSONS, DANIEL L., Professor Emeritus, 1982, PhD BSPharm Georgia (PHARMACAL SCIENCES)

PASCOE, DAVID D., Humana-Germany-Sherman Distinguished Professor and Assistant Head, 1990, PhD Ball State, MA Cal State-Sacramento (KINESIOLOGY)

PATTERSON, MICHAEL G., Professor and Extension Specialist Emeritus, PhD MS BS Auburn (AGRONOMY SOILS)

PATTERSON SR, GORDON D., Assistant Professor, 1971, PhD Maryland, MEd BS Auburn (CURRICULUM AND TEACHING)

PEARSON, ROBERT E., Professor & Asst. Dean Emeritus, October 2002, MS BSPharm Illinois (PHARMACY CARE SYSTEMS)

PENASKOVIC, RICHARD, Professor Emeritus, 1984, PhDMunich, MA BA Wuerzburg (PHILOSOPHY)

PERKINS, WARREN S., Professor Emeritus, June 1994, BS MS Clemson (TEXTILE ENGINEERING)

PERRICONE, CATHERINE, Professor Emerita, June 1989, BA Notre Dame, MA Oklahoma, PhD Tulane (FOREIGN LANGUAGES AND LITERATURE)

PETERS, CURT M., Professor Emeritus, July 1997, BS Moorehead St, PhD Oregon (BOTANY AND MICROBIOLOGY)

PETERS, JOSEPH G., Assoc. Professor Emeritus, July 1981, BS MS Auburn (CHEMISTRY)

PETTIT, GREGORY S., Professor Emeritus, 1989, PhD Indiana, MS BS Auburn (HUMAN DEVELOPMENT AND FAMILY STUDIES)

PHELPS, RONALD P., Professor Emeritus, 1975, PhD BS Auburn (FISHERIES ALLIED AQUACULTURES)
PHELPS, KEVIN T., Professor Emeritus, 1987, PhD MS Auburn, BA Brown (MATHEMATICS AND STATISTICS)

PHILLIPS, CHARLES L., Professor Emeritus, October 1987, BEE MSEE PhD Georgia Tech (ELECTRICAL ENGINEERING)

PHILLIPS, PHYLLIS P., Assoc. Professor Emerita, June 1983, BS ME EdD Auburn (SPEECH PATHOLOGY)

PINDZOLA, REBEKAH H., Professor Emerita, 2014, PhD Tennessee, MS BS East Carolina (COMMUNICATION DISORDERS)

PIPPES, RANDOLPH B., Professor Emerita, December 31, 2016, B. S.; 1968: Southeastern State College Department of Mathematics B.S. Department of Physics: Ph.D.: University of Texas at Austin, Department of Educational Psychology. (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

PITTMAN JR, JOE F., Professor and Head Emeritus, 1989, PhD MA BS Georgia (HUMAN DEVELOPMENT AND FAMILY STUDIES)

PLACEK, TIMOTHY D., Professor Emeritus, 1978, PhD Kentucky, MS BS Cleveland State (CHEMICAL ENGINEERING)

PLUMB, JOHN A., Professor Emeritus, September 1998, BA Bridgewater, MS Illinois, PhD Auburn (FISHERIES AND ALLIED AQUACULTURE)

PONDER, HARRY G., Professor Emeritus, 1978, PhD Michigan State, MS BS Auburn (HORTICULTURE)

POPMA, THOMAS J., Assoc. Professor Emeritus, October 2001, BS MS Michigan St, PhD Auburn (FISHERIES AND ALLIED AQUACULTURE)

POTTER, MARY ANN R., Associate Professor Emerita, May 2010, EdD Auburn, MHE Georgia, BS Georgia Southern (CONSUMER AFFAIRS)

POWELL, ARLIE A., Professor Emeritus, December 2003, BS MS PhD Florida (HORTICULTURE)

POWERS, ROBERT D., Professor Emeritus, September 1995, BS PhD Tennessee, DVM Auburn (PATHOBIOLOGY)

PRICE, CHARLES E., Professor Emeritus, 2007, PhD Georgia, MBA BBA Auburn (BUSINESS)

PRICE, MARK S., Professor Emeritus, June 2000, MFA BFA Illinois (ART)

PRITCHETT, JOHN F., Professor Emeritus, June 2004, PhD Iowa St MS BS Auburn (BIOLOGICAL SCIENCES)

PUCKETT, JOHN R., Professor Emeritus, September 1993, BS East Tennessee St, MS EdD Tennessee (HEALTH AND HUMAN PERFORMANCE)

PUGH, WILLIAM N., Assoc. Professor Emeritus, June 2004, PhD MS Florida St, BS Auburn (FINANCE)

PUROHIT, RAM C., Professor Emeritus, February 2006, PhD Auburn, MS Tuskegee DVM Rajasthan (CLINICAL SCIENCES)

RAJU, POLAPRAGADA K., Professor Emeritus, 1984, PhD Indian Inst., MS Madras, BS Sri Venkateswara (MECHANICAL ENGINEERING)

RAMEY, GEORGE E., Professor Emeritus, August 2007, BCE Auburn, MSCE Auburn, PhD Colorado (CIVIL ENGINEERING)

RANKINS JR, DARRELL L., Professor Emeritus, 1989, PhD MS New Mexico State, BS Illinois (ANIMAL SCIENCES)

RASCH, RONALD H., Professor Emeritus, December 2003, BS Kansas St, PhD Texas, MS Air Force Inst. Tech (ACCOUNTANCY)

RAVIS, WILLIAM R., Professor Emeritus, 1977, BSPharm Temple, PhD Houston (PHARMACAL SCIENCES)

REINKE, CARL M., Associate Professor Emeritus, May 2007, PharmD MS Michigan, BA Jamestown (PHARMACY PRACTICE)

RENEN, JOSEF A., Professor Emeritus, June 2001, PhD MS BS California-Davis (POULTRY SCIENCE)

RICHARDSON, DON R., Professor Emeritus, August 1991, BA Auburn, MA PhD Ohio St. (COMMUNICATION)

RIDDLE JR, M. GATZ, Professor Emeritus, June 2005, MS Auburn DVM Kansas St. (CLINICAL SCIENCES)

RIDGEWAY, LARRY D., Asst. Vice President Emeritus, September 1995, BS MA South Alabama (STUDENT AFFAIRS)
RILEY, RHETT E., Vice President Emeritus, July 1993, BS Auburn (BUSINESS)

ROBERTS, SHARON R., Associate Professor, 1996, PhD UC Davis, MPH UCLA, BA UC San Diego (BIOLOGICAL SCIENCES)

ROBERTSON, BENJAMIN THOMAS, Professor Emeritus, October 1993, BS Kentucky, DVM MS Auburn (VETERINARY MEDICINE)

ROBINSON, CECIL E., Assoc. Professor Emeritus, January 1991, BS Auburn, MA PhD Alabama (MATHEMATICS)

RODEN, REBECCA H., Asst. Dean Emerita, June 1997, BS Auburn (GRADUATE SCHOOL)

RODRIGUEZ-KABANA, RODRIGO, Professor Emeritus, 1965, PhD MS BS LSU (ENTOMOLOGY AND PLANT PATHOLOGY)

ROGERS, WILMER A., Professor Head Emeritus, September 1995, BS Southern Mississippi, MS PhD Auburn (FISHERIES AND ALLIED AQUACULTURE)

ROGERS JR, JACK W., Professor Emeritus, 2007, PhD MA Texas (MATHEMATICS AND STATISTICS)

ROLAND, DAVID A., Professor Emeritus, June 2010, BS PhD Georgia (POULTRY SCIENCE)

ROSEN, MELVIN, Assoc. Professor & Head Track Coach Emeritus, September 1991, BS MS Iowa (HEALTH AND HUMAN PERFORMANCE)

ROSENBLATT, DAVID J., Archivist II Emeritus, August 2001, BA MA Missouri (RALPH BROWN DRAUGHON LIBRARY)

ROSS, MARGARET E., Professor Emerita, 1997, PhD Kansas, MA Missouri-Kansas City, BSEd Northeast Missouri State (EDUCATIONAL FOUNDATIONS)

ROSS, CONRAD H., Professor Emeritus, October 1997, BFA Illinois, MFA Iowa (ART)

ROSSI, CHARLES R., Professor Emeritus, September 1993, BS DVM PhD Illinois, MS Ohio St. (VETERINARY MEDICINE)

ROUSE, DAVID B., Professor Emeritus, 1981, PhD Texas A M, MS BS Auburn (FISHERIES ALLIED AQUACULTURES)

ROWSEY, ROBERT E., Professor Emeritus, May 2005, EdD Auburn MS BS Marshall (CURRICULUM AND TEACHING)

RUFFIN, BURLSON G., Assoc. Professor Emeritus, September 1995, BS MS Mississippi St, PhD Auburn (ANIMAL SCIENCES)

RUMPH, PAUL F., Professor Emeritus, 1999, MS DVM Auburn (ANATOMY)

RYGIEL, DENNIS, Professor Emeritus, May 2008, PhD Cornell, MA BA Loyola (ENGLISH)

S

SABA, RICHARD P., Professor Emeritus, December 2011, PhD Texas A&M, MBA BA Dallas (ECONOMICS)

SABINO, ROBIN, Professor Emerita, 1991, PhD Pennsylvania, MA Virgin Islands, BA Adelphi (ENGLISH)

SALTS, CONNIE J., Professor Emerita, August 2004, PhD Florida St, MA Kent St, BS Ohio St. (HUMAN DEVELOPMENT AND FAMILY STUDIES)

SAMPSON, GARY M., Professor Emeritus, August 2011, PhD Syracuse, MA BA Temple (MATHEMATICS AND STATISTICS)

SANDERSON, BONNIE K., Professor Emeritus, 2009, PhD MA MSN Alabama-Birmingham, BSN Central Florida (NURSING)

SANKAR, CHETAN S., Professor Emeritus, 1989, PhD Pennsylvania, MBA Indian Inst., BS India (AVIATION AND SUPPLY CHAIN MANAGEMENT)

SARTIN, EVA A, Professor Emeritus, 1982, PhD Auburn, DVM MS Oklahoma State (PATHOBIOLOGY)

SARTIN JR, JAMES L., Professor Emeritus, August 2012, PhD Oklahoma St., MA MS Auburn (ANATOMY)

SAUSER, WILLIAM I., Professor Emeritus, 1977, PhD MS BS Georgia Tech (MANAGEMENT)

SAUSER, LANE D., Director Emerita, July 2012, BBA MBA DPA Alabama (AGRICULTURE)
SAYE JR, JOHN W., Alumni Professor, Mildred Chesire Fraley Distinguished Professor, 1994, EdD MA AB Georgia (CURRICULUM AND TEACHING)

SCHMIDT, STEPHEN P., Professor Emeritus, 1976, PhD MS Wisconsin, BSA Idaho (ANIMAL SCIENCES)

SCHMITTOU, HOMER R., Professor Emeritus, April 1991, BS Tennessee Tech, MS PhD Auburn (FISHERIES AND ALLIED AQUACULTURE)

SCHUESSLER, JENNIFER B., Emeriti Professor, 1990, DSN MSN Alabama-Birmingham, BSN Jacksonville State (NURSING)

SCHUMACHER, SHERI L., Associate Professor Emerita, 1986, MFA Cranbrook, BID Auburn (ARCHITECTURE)

SELMAN, JAMES W., Assoc. Professor Emeritus, September 1995, BSA MS EdD Florida St. (VOCATIONAL AND ADULT EDUCATION)

SEROKA, JAMES H., Professor Emeritus, 1998, PhD MA Michigan State, BA Michigan (POLITICAL SCIENCE)

SFORZINI, RICHARD H., Professor Emeritus, July 1985, BS West Point, ME MIT (AEROSPACE ENGINEERING)

SHELL, E. WAYNE, Professor Emeritus, February 1994, BS MS Auburn, PhD Cornell (FISHERIES AND ALLIED AQUACULTURE)

SHEPPARD, JUDITH E., Associate Professor Emerita, 1993, MA, BS, Auburn University (COMMUNICATION AND JOURNALISM)

SHEVLIN, PHILIP B., Professor Emeritus, June 2002, PhD MS Yale, BS LaFayette (CHEMISTRY)

SHUMACK, ROBERT I., Professor Emeritus, April 2010, BS MA Auburn, PhD Michigan State (HORTICULTURE)

SHUMACK, RONALD, Professor Emeritus, April 2010, BS MA Auburn, PhD Michigan State (HORTICULTURE)

SHUMPERT, THOMAS H., Professor Emeritus, September 2000, BSEE MSEE PhD Mississippi St. (ELECTRICAL AND COMPUTER ENGINEERING)

SILVERN, STEVEN B., Professor Emeritus, May 2008, BSE MEd Maryland, PhD Wisconsin (CURRICULUM AND TEACHING)

SIMMS, JOHN D., Professor Emeritus, September 1992, BS Auburn, MA LSU (JOURNALISM)

SIMON, MARLLIN L., Professor Emeritus, December 2010, BS Kansas State, MS Michigan State, PhD Missouri (PHYSICS)

SIMPSON, STEPHEN T., Professor Emeritus, November 2007, BS DVM Auburn, MS Purdue (CLINICAL SCIENCES)

SIMPSON III, EUGENE H., Associate Director, NPTC and Professor Emeritus, 1983, PhD BS Mississippi State (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

SINCLAIR, ANDREW J., Associate Professor Emeritus, 2005, PhD Texas A M, MS BS Florida (AEROSPACE ENGINEERING)

SINGH, NARENDRA K., Professor Emeritus (BIOLOGICAL SCIENCES)

SINHA, SUBHASH C., Alumni Professor Emeritus, 1987, PhD Wayne State, MS Indian Inst., BS Bihar (MECHANICAL ENGINEERING)

SKELTON, CHARLOTTE A., Professor & Dean Emerita, May 2005, BSN Alabama-Birmingham, MSN Med. College Georgia, EdD Auburn (NURSING)

SLAMINKA, EDWARD E., Professor Emeritus, August 2011, PhD MS Michigan, BS Case Western (MATHEMATICS AND STATISTICS)

SLATEN, BUSTER L., Professor Emeritus, June 2005, PhD Maryland, MS Arkansas, BS Arkansas A&M (CONSUMER AFFAIRS)

SLATON, CHRISTA D., Professor Emerita, July 2010, PhD MA Hawaii-Manoa, BS Tennessee-Nashville * (PLANT PATHOLOGY )

SMITH, BRUCE W., Associate Professor Emeritus, 2004, MS Indiana State, BS Kennesaw State (BUILDING SCIENCE)

SMITH, CURTIS R., Professor Emeritus, January 1991, BS MS PhD Southern Mississippi (COMMUNICATION)

SMITH, DAVID M., Librarian III & Head Emeritus, July 1998, AB Huntingdon, MLS Emory (CATALOGING, RALPH BROWN DRAUGHON LIBRARY)

SMITH, LEO A., Professor Emeritus, September 1995, BE M.E Georgia Tech, PhD Purdue (INDUSTRIAL ENGINEERING)
SMITH, PAUL C., Professor Emeritus, April 1996, DVM Auburn, MS Ohio St, PhD Iowa St. (PATHOBIOLOGY)

SMITH, ROBERT C., Professor Emeritus, September 1995, BS Elmhurst, PhD Illinois College of Medicine (ANIMAL SCIENCES)

SMITH, RONALD H., Professor Emeritus, December 2003, PhD MS BS Auburn (ENTOMOLOGY AND PLANT PATHOLOGY)

SMITH, THOMAS R., Professor Emeritus, May 2006, DMA Colorado, MA Iowa, BM Samford (MUSIC)

SMITH, W. GAINES, Extension Director Emeritus, September 2011, BS MA EdD Auburn (ALABAMA COOPERATIVE EXTENSION SYSTEM)

SNYDER, CHARLES A., Professor Emeritus, July 2006, PhD Nebraska, MS South Dakota St, MBA Ohio St. (MANAGEMENT)

SOLLIE, DONNA L., Assistant Provost for Women’s Initiatives and Professor Emerita, 1986, PhD Tennessee, MS Kentucky, BS Mississippi State (HUMAN DEVELOPMENT AND FAMILY STUDIES)

SOLOMON JR., HARRY M., Professor Emeritus, May 2007, PhD MA Duke, BA Stephen Austin (ENGLISH)

SOMERS, GREG L., Associate Professor Emeritus, 1987, PhD MS Virginia Tech, BS Oklahoma State (FORESTRY WILDLIFE SCIENCES)

SORJONEN, DONALD C., Professor Emeritus, January 2000, BS DVM Texas A&M, MS Auburn (SMALL ANIMAL SURGERY)

SOUTH, DAVID B., Professor Emeritus, December 2010, PhD Auburn, MS BS North Carolina State (FORESTRY AND WILDLIFE SCIENCES)

SPARROW IV, THOMAS W, Director Emeritus, June 2005, BS Auburn (BEARD-EAVES-MEMORIAL COLISEUM)

SPEAKE, DANIEL W., Professor Emeritus, January 1995, BS MS PhD Auburn (ZOOLOGY AND WILD LIFE SCIENCES)

SPENCER, SAMIA I., Professor Emerita, May 2012, PhD MA Illinois, Lic Alexandria (FOREIGN LANGUAGES AND LITERATURE)

SPENCER, WILLIAM A, Professor Emeritus, January 2008, BS Southern Illinois, MA PhD Illinois (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

SPRING, DONALD J., Assoc. Professor Emeritus, June 1998, BAE MAE Auburn, PhD Illinois (AEROSPACE ENGINEERING)

SQUILLACOTE, MICHAEL E., Associate Professor Emeritus, 1987, PhD California-Los Angeles, BS Chicago (CHEMISTRY AND BIOCHEMISTRY)

STALLINGS, JAMES L., Assoc. Professor Emeritus, July 1991, BS MS Purdue, PhD Michigan St. (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

STARKEY, THOMAS E., Research Fellow Emeritus, 2006, PhD, Penn State Univ; MS, Penn State Univ; BS, North Carolina State (FORESTRY WILDLIFE SCIENCES)

STARR, PAUL D., Professor Emeritus, May 2008, PhD MA Cal-Santa Barbara, AB Pacific (COMMUNICATION AND JOURNALISM)

STAUFFER, BONNIE B., Assoc. Director Emerita, September 2008, BA MS New Mexico, EdD Northern (OUTREACH PROGRAM OFFICE)

STEELE, H. ELLSWORTH, Professor Emeritus, April 1982, BA MA Nebraska, PhD Ohio St. (ECONOMICS)

STEISS, JANET E., Professor Emerita, June 2011, MSPT UAB PhD Georgia, DVM Guelph (ANATOMY)

STEVenson, R. Eugene, Editor Emeritus, January 1992, BS Auburn (RESEARCH INFORMATION, AGRICULTURAL EXPERIMENT STATION)

STRAITON JR, THOMAS H., Librarian III & Asst. Dean Emeritus, July 2005, MLS Alabama, BS Auburn (RALPH BROWN DRAUGHON LIBRARY)

STRAWN, HARRY B., Extension Specialist & Professor Emeritus, December 2003, PhD MS Tennessee, BS North Carolina St. (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

STREET, DONALD R., Professor Emeritus, June 1994, BS MS Auburn, PhD Penn St. (ECONOMICS)
STRINGFELLOW, DAVID A., Professor Emeritus, June 2008, MS Auburn, DVM Cornell (PATHOBIIOLOGY)

STROHER, GENE R., Assoc. Professor Emeritus, November 1998, BS MS PhD LSU (ENTOMOLOGY)

STROUD, CHARLES E., Professor Emeritus, 2003, PhD Illinois, MS BS Kentucky (ELECTRICAL AND COMPUTER ENGINEERING)

STUCKWISCH, STEPHEN E., Assoc. Professor Emeritus, June 2014, PhD, MA and BA State University of New York @ Binghamton (MATHEMATICS AND STATISTICS)

SUH, SUHYUN, Associate Professor Emeritus, Sept. 1, 2017, EdD Alabama, MS CUNY, MA BA Ewha Womans (SPECIAL EDUCATION, REHABILITATION, AND COUNSELING)

SULLINGER, PAULA A., Librarian III Emerita, 1992, MSLS North Carolina, BA Alabama-Birmingham (LIBRARY)

SUTTON, CHARLOTTE D., Associate Professor Emerita, April 2016, PhD Texas A M, MBA BA Baylor (MANAGEMENT)

SWAIM, STEVEN F., Professor Emeritus, March 2003, MS Auburn, DVM Kansas St. (CLINICAL SCIENCES)

SWAMIDASS, PAUL M., Professor Emeritus, 1992, PhD MBA Washington BE Osmania (AVIATION AND SUPPLY CHAIN MANAGEMENT)

SWANGO, LARRY, Professor Emeritus, March 2000, BS DVM Oklahoma St, PhD Purdue (LAB ANIMAL RESOURCES)

SWANSON, DONALD G., Professor Emeritus, September 2006, B.Theo Northwest Christian, MS PhD Cal Tech (PHYSICS)

SWIDLER, STEVEN, J. Stanley Mackin Professor Emeritus, 2001, PhD MS Brown, BA Oberlin (FINANCE)

SZECHI, DANIEL, Professor Emeritus, May 2007, PhD Oxford, BA Sheffield (HISTORY)

TABOR, RICHARD H., Professor Emeritus, June 2009, PhD Florida, MBA BS Tennessee (ACCOUNTANCY)

TAMBLYN, JOHN W., Professor Emeritus, January 1991, BS BS Auburn, MMus PhD Rochester (MUSIC)

TARRER, ARTHUR R., Professor Emeritus, June 2007, BS Auburn, MS Purdue, PhD Purdue (CHEMICAL ENGINEERING)

TAYLOR, C. ROBERT, Professor Emeritus, 1988, PhD Missouri, MS Kansas State, BS Oklahoma State (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

TAYLOR, JANET B., Professor Emerita, September 2002, PhD Florida St. BS MEd Francis Marion (CURRICULUM AND TEACHING)

TEEM, DAVID, Professor Emeritus, May 2007, BS MS PhD Auburn University (AGRONOMY SOILS)

TEIRLINCK, LUC M., Professor Emeritus, June 2011, PhD BS Vrije (MATHEMATICS AND STATISTICS)

THOMAS JR, ROBERT E., Professor Emeritus, December 2009, PhD MS Texas A M, BIE Georgia Tech (INDUSTRIAL AND SYSTEMS ENGINEERING)

THOMPSON, ANNE E., Assoc. Provost & Vice President Emerita, September 1994, BS Auburn, MA Maryland, EdD Oklahoma St. (UNIVERSITY OUTREACH)

THOMPSON, EMMETT F., Dean & Professor Emeritus, June 1998, BS Oklahoma St, MS North Carolina St, PhD Oregon St. (FORESTRY)


THOMPSON, HENRY, Professor Emeritus, 1987, PhD Houston (ECONOMICS)

THORNE, JACK F., Professor Emeritus, January 1990, BS Auburn, MA PhD Alabama (ACCOUNTANCY)

TILT, KENNETH M., Professor Emeritus, January 2012, PhD BS North Carolina State, MS East Carolina (HORTICULTURE)

TIN, CHIN-CHE, Professor Emeritus, 1987, BS MS London, PhD Alberta (PHYSICS)

TOLE, THOMAS M., Assoc. Professor Emeritus, June 1998, BCE MBA PhD Oklahoma (FINANCE)
TORREJON, ALFREDO., Associate Professor Emeritus, May 2007, PhD MA SUNY – Buffalo (SPANISH)

TOUCHTON, JOSEPH T., Department Head and Professor Emeritus, 1980, PhD Illinois,MS BSA Georgia (AGRONOMY SOILS)

TRENTHAM, GARY L., Alumni Professor Emeritus, September 1995, BS MA Murray St,MFA Indiana (CONSUMER AFFAIRS)

TRENTHAM, LANDA L., Professor Emerita, September 1995, BS Kentucky,MA Murray St,EdD Indiana (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

TRIMBLE, WILLIAM F., Professor eMERITUS, June 2014, PhD MA BA Colorado (HISTORY)

TROY, JUDY R., Professor and Alumni Writer-in-Residence Emerita, 1992, MA Indiana, BA Illinois (ENGLISH)

TU, MAOBING, Associate Professor Emeritus, 2008, PhD Univ British Columbia and East China Univ, MS Tianjin Univ, BS Anhui Ag Univ (FORESTRY WILDLIFE SCIENCES)

TUFTS, ROBERT A., Associate Professor Emeritus, 1979, JD Jones,PhD Virginia Tech,MS BS Louisiana State (FORESTRY WILDLIFE SCIENCES)

TURNQUIST, PAUL K., Professor & Head Emeritus, September 1998, BS Kansas St,MS PhD Oklahoma St. (AGRICULTURAL ENGINEERING)

TYSON, TED W., Professor Emeritus, January 2012, MS BSAE Georgia (BIOSYSTEMS ENGINEERING)

TZENG, YONHUA, Professor Emeritus, July 2007, PhD MS Texas Tech,BS National Taiwan (ELECTRICAL AND COMPUTER ENGINEERING)

U

UHLIG, FRANK, Professor Emeritus, December 2013 , PhD California Institute of Technology, MA Ball State University (MATHEMATICS AND STATISTICS)

UNGER, VERNON E., Professor Emeritus, September 1998, BES MSMS PhD Johns Hopkins (INDUSTRIAL AND SYSTEMS ENGINEERING)

UZUMERI, MUSTAFA V., Associate Professor Emeritus, August 2012, PhD Rensselaer,MBA York,BA Toronto (AVIATION AND SUPPLY CHAIN MANAGEMENT)

V

VAN SANTEN, EDZARD, Professor Emerita, 1988, PhD MSc Wisconsin (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

VAUGHAN, JOHN THOMAS, Dean Emeritus, September 1995, DVM MS Auburn (VETERINARY MEDICINE)

VECCELLIO, ROBERT L., Associate Professor Emeritus, September 2012, PhD MSCE BSCE Ohio State (CIVIL ENGINEERING)

VILLAUME, SUSAN K., Professor and Associate Dean Emeritus, 1988, PhD Ohio State, MS Tennessee, BA Carson Newman (CURRICULUM AND TEACHING)

VILLAUME, WILLIAM A., Professor Emeritus, August 2011, PhD Ohio State,MDiv Lthern Theol.BA Waterloo (PHARMACY CARE SYSTEM)

VINSON, JOHNNIE B., Professor Emeritus, November 2007, BS MS Auburn,D Arts Mississippi (MUSIC)

VIVES, DONALD L., Professor Emeritus, June 1987, BS MS Columbia (CHEMICAL ENGINEERING)

W

WADDELL, FRED E., Assoc. Professor Emeritus & Extension Family Resource Management Specialist, 2000, BS MS PhD Virginia Tech (HUMAN DEVELOPMENT AND FAMILY STUDIES)

WADE, LARKIN H., Professor Emeritus, July 1993, BS MS Auburn (FORESTRY)

WAGONER, GARY, Professor Emeritus, 1980, MFA Alfred New York,BFA Wichita State (ART)
WALDROP, HERBERT, Assoc. Professor Emeritus, June 2005, BS MS Auburn (HEALTH AND HUMAN PERFORMANCE)

WALKER, ROBERT H., Professor Emeritus, PhD MS BS Mississippi State (AGRONOMY SOILS)

WALKER, ROBERT P., Professor Emeritus, September 1994, BS Auburn, MS Inst. Textile Tech. (TEXTILE ENGINEERING)

WALLACE JR, RICHARD K., Professor & Director Emeritus, February 2008, PhD Auburn, MS Puerto Rico, BA Ohio Wesleyan (FISHERIES AND ALLIED AQUACULTURE)

WALLS, KIMBERLY C., Professor and Head Emerita, 1997, PhD Florida State, MEd BS Auburn (CURRICULUM AND TEACHING)

WALSH, WILLIAM K., Professor Emeritus, January 2001, BS South Carolina, PhD North Carolina St. (TEXTILE ENGINEERING)

WALTERS, KENNETH W., Professor Emeritus, July 2000, BA Roosevelt, MA PhD Northwestern (PHILOSOPHY)

WARBINGTON, THOMAS L., Assoc. Professor Emeritus, June 1992, BS MA Mississippi (FOREIGN LANGUAGES)

WARD, CHARLOTTE E., Assoc. Professor Emerita, June 1994, BS MS Kentucky, MS PhD Purdue (PHYSICS)

WARD, KEITH J., Director Emeritus, June 1998, BS MPA Brigham Young, PhD Tennessee (CENTER FOR GOVERNMENTAL SERVICES)

WARFIELD, CAROL L., Professor and Head Emerita, 1977, PhD MS Illinois, BS South Dakota State (CONSUMER AFFAIRS)

WATERS, GARY L., Senior Associate Athletics Director Emeritus, June 1, 2017 (ATHLETICS DEPARTMENT)

WATER'S JR, LUTHER, Professor Emeritus, May 2010, PhD Oregon State, MS BS Clemson (HORTICULTURE)

WEAVER, DAVID B., Professor Emeritus, 1981, PhD Purdue, MS BSA Georgia (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

WEAVER, ANDREW M., August 2007, EdD MA Tennessee, BS Tennessee Tech (Professor Emeritus, Curriculum & Teaching)

WEBB, THOMAS R., Associate Professor Emeritus, August 2007, BS Oregon State, PhD Iowa State (CHEMISTRY AND BIOCHEMISTRY)

WEBSTER, GWYNEDD, Associate Professor Emerita (MECHANICAL ENGINEERING)

WEEKS, JAMES R., Professor Emeritus, October 2007, BS MS Auburn (ENTOMOLOGY AND PLANT PATHOLOGY)

WEETE, JOHN D., Assoc. Dean & Professor Emeritus, September 1998, BS MS SF Austin St, PhD Houston (SCIENCES AND MATHEMATICS)

WEHTJE, GLENN R., Professor Emeritus, 1981, PhD Nebraska MS N. Dakota St, BS Washington State (CROP, SOIL AND ENVIRONMENTAL SCIENCES)

WEISS, PETER M., Associate Professor Emeritus, 1983, MA Cornell, BS Arizona, BA Iowa State (BUILDING SCIENCE)

WELLES, ELIZABETH G., Professor Emerita, 1990, BS North Carolina State, PhD Georgia, DVM Auburn (PATHOBIOLOGY)

WERSINGER, JEAN-MARIE P., Associate Professor Emeritus, 1979, BS PhD Ecole-Laussanne, (PHYSICS)

WHITE, STEPHEN, Associate Professor, 1985, PhD MA Georgia, BA Oglethorpe (PHILOSOPHY)

WHITE, BONNIE J., Professor Emerita, December 2010, EdD Tennessee, MA Eastern Kentucky, MS Florida State, BA Evangel (CURRICULUM AND TEACHING)

WHITE, CHARLES R., Assoc. Professor Emeritus, September 1994, BS MS PhD Purdue (INDUSTRIAL ENGINEERING)

WHITE, J. HERBERT, Executive Director Emeritus, October 1993, BS Auburn (UNIVERSITY RELATIONS)

WHITLEY, R. DAVID, Professor Emeritus, December 2008, MS DVM Auburn (VETERINARY MEDICINE)

WHITTEN, DAVID O., Professor Emeritus, Ph.D., Tulane; MA, South Carolina; BS, Charleston (ECONOMICS)

WHITTENBURG, BOBBY L., Extension Animal Scientist & Assoc. Professor Emeritus, April 1994, MS Tennessee (ANIMAL SCIENCES)

WHITE, STEPHEN, Associate Professor, 1985, PhD MA Georgia, BA Oglethorpe (PHILOSOPHY)

WHITE, BONNIE J., Professor Emerita, December 2010, EdD Tennessee, MA Eastern Kentucky, MS Florida State, BA Evangel (CURRICULUM AND TEACHING)

WHITE, CHARLES R., Assoc. Professor Emeritus, September 1994, BS MS PhD Purdue (INDUSTRIAL ENGINEERING)

WHITE, J. HERBERT, Executive Director Emeritus, October 1993, BS Auburn (UNIVERSITY RELATIONS)

WHITLEY, R. DAVID, Professor Emeritus, December 2008, MS DVM Auburn (VETERINARY MEDICINE)

WHITTEN, DAVID O., Professor Emeritus, Ph.D., Tulane; MA, South Carolina; BS, Charleston (ECONOMICS)

WHITTENBURG, BOBBY L., Extension Animal Scientist & Assoc. Professor Emeritus, April 1994, MS Tennessee (ANIMAL SCIENCES)
WHYTE, ALYSON I., Associate Professor, 2001, PhD BA Stanford (CURRICULUM AND TEACHING)

WIDELL, ROBERT W., Assoc. Professor Emeritus, July 2009, PhD Stanford, AB Duke (POLITICAL SCIENCE)

WIGGINS, LORNA A., Librarian III Emerita, September 1995, BA Agnes Scott, MLS Emory

WILBANKS, JAMES R., Director Emeritus, March 1994, BME MME Auburn (ENGINEERING EXTENSION)

WILBANKS, MARY ELIZABETH, Librarian III, May 1985, AB Montevallo, MA Emory, MSLS North Carolina (RALPH BROWN DRAUGHON LIBRARY)

WILKE, ARTHUR S., Professor Emeritus, January 2002, BS Wisconsin, MA PhD Minnesota (SOCIOLOGY)

WILLIAMS, JAMES S., Professor Emeritus, 1982, MS Clemson, BS Toledo (BUILDING SCIENCE)

WILLIAMS, DOUGLAS F., Assoc. Professor Emeritus, June 1990, BA N. Michigan, MA Michigan, PhD Texas (EDUCATION FOUNDATIONS LEADERSHIP AND TECHNOLOGY)

WILLIAMS, ELIZABETH G., Assoc. Professor Emerita, June 1987, BS MS Auburn (ACCOUNTANCY)

WILLIAMS, HUGH O., Alumni Professor Emeritus, June 1985, BAA Auburn, MA Columbia

WILLIAMS, JOHN R., Professor Emeritus, December 2011, BS North Georgia, PhD North Carolina State (PHYSICS)

WILLIAMS, MICHAEL L., Professor Emeritus, June 2012, PhD MS Virginia Tech, BS Arkansas St. (ENTOMOLOGY AND PLANT PATHOLOGY)

WILLIAMS JR, KING E., Professor Emeritus, 1983, MA BA Alabama (COMMUNICATION AND JOURNALISM)

WILMOTH, JAMES N., Professor Emeritus, September 1995, BS Marshall, MS PhD Wayne St. (VOCATIONAL AND ADULT EDUCATION)

WILSON, MARTHA W., Clinical Professor Emerita, 1990, AuD Penn. School of Optometry, MA Kent State, BS Miami (COMMUNICATION DISORDERS)

WILSON, ARLETTE C., Professor Emerita, June 2010, PhD Arkansas, MBA BBA Mississippi (ACCOUNTANCY)

WILSON, DENNIS, Professor Emeritus, December 2008, BS Union, MS EdD Tennessee (KINESIOLOGY)

WILT, GERALD R., Assoc. Professor Emeritus, January 1994, BS Western Kentucky, MS Clemson (PATHOBILOGY)

WINDLE, ROBERT T, Senior Associate Athletics Director and Chief Financial Officer Emeritus (ATHLETICS DEPARTMENT)

WIT, LAWRENCE C., Assoc. Dean and Professor Emeritus, October 2012, PhD Missouri, MS Western Illinois, BS Wheaton (BIOLOGICAL SCIENCES)

WITT, BARBARA, Dean and Professor Emerita, February 2010, EdD Columbia, MSN BSN Connecticut (NURSING)

WOLFE, DWIGHT F., Professor Emeritus, 1980, MS DVM Auburn, BS Tennessee (CLINICAL SCIENCES)

WOLFE, LAUREN G., Professor Emeritus & Head, October 2006, PhD MS DVM Ohio St. (PATHOBILOGY)

WOLTERS, ROGER S., Professor Emeritus, July 2008, BBA MAc North Florida, PhD Illinois (MANAGEMENT)

WOOD, C. Wesley, Professor Emeritus, 2014, PhD Colorado State, MS BS Mississippi State (AGRONOMY SOILS)

WORLEY, S. D., Professor Emeritus, September 2009, PhD Texas, BS Auburn (CHEMISTRY AND BIOCHEMISTRY)

WORTHINGTON, JAMES E., Assoc. Professor Emeritus. Accountancy, January 2000, BSBA Pittsburg St, MA PhD Missouri

WU, CHWAN-HWA, Professor Emeritus, 1987, PhD MS PolyTechnic-New York, BS National Chiao Tung (ELECTRICAL AND COMPUTER ENGINEERING)

WYLIE, ROY, Professor Emeritus, July 2007, BM SMU, MM Manhattan School of Music, D Mus Arts Texas (MUSIC)
YEAGER, JOSEPH H., Professor & Department Head Emeritus, January 1991, BS MS Auburn, PhD Purdue (AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY)

YEAGER, LELAND B., Ludwig Von Mises Distinguished Professor Emeritus, March 1995, BA Oberlin, MA PhD Columbia (ECONOMICS)

YOO, KYUNG HAK, Professor Emeritus, 2014, Professor Emeritus (BIOSYSTEMS ENGINEERING)

YOO, CHAI H., Professor Emeritus, June 2007, PhD MS Maryland, BSCE Seoul National (CIVIL ENGINEERING)

YOUNG, SAM W., Assoc. Professor Emeritus, June 1997, BA MS PhD Texas (MATHEMATICS)

ZEE, RALPH H., Associate Dean and Professor Emeritus, 1986, PhD MS BS Wisconsin (ENGINEERING - ADMINISTRATION)

ZENOR, PHILLIP L., Professor Emeritus, July 2009, BS MS PhD Houston (MATHEMATICS AND STATISTICS)

ZORR JR, PAUL A., Professor Emeritus, 2014, MArch BArch Illinois Inst (ARCHITECTURE)

ZUK, GARY, Professor Emeritus, July 2009, BA Canisius, MS PhD Florida State (POLITICAL SCIENCE)
Courses of Instruction

This section lists and describes all undergraduate and graduate courses taught by the departments of the university. The courses are presented by subject area and arranged in departmental order, alphabetically. The subject name (the heading in large type) is followed by the subject area code in parentheses.

Courses of Instruction

By Subject

Accounting - ACCT (p. 1624)
Adult Education - ADED (p. 1626)
Aerospace Engineering - AERO (p. 1628)
Aerospace Studies (AFROTC) - AIRF (p. 1633)
Africana Studies - AFRI (p. 1633)
Agric Economics - AGEC (p. 1634)
Agriculture - AGRI (p. 1637)
Animal Sciences - ANSC (p. 1637)
Anthropology - ANTH (p. 1641)
Applied Biotechnology - APBT (p. 1644)
Architecture - ARCH (p. 1644)
Art - ARTS (p. 1647)
Auburn Global - GLOB (p. 1651)
Aviation Management - AVMG (p. 1652)
Bio & Ag Technology Management - BATM (p. 1654)
Biochemistry - BCHE (p. 1655)
Biology - BIOL (p. 1656)
Biomaterials and Packaging - BIOP (p. 1667)
Biosystems Engineering - BSEN (p. 1668)
Building Science - BSCI (p. 1673)
Business Admin - BUSI (p. 1676)
Business Analytics - BUAL (p. 1678)
Career and Technical - CTCT (p. 1679)
Cell and Molecular Biology - CMBL (p. 1683)
Chemical Engineering - CHEN (p. 1685)
Chemistry - CHEM (p. 1691)
Civil Engineering - CIVL (p. 1695)
Clinical Pharmacy Practice - PYPP (p. 1704)
Communication - COMM (p. 1704)
Communication and Journalism - CMJN (p. 1709)
Communication Disorders - CMDS (p. 1709)
Community and Civic Engagement - CCEN (p. 1713)
Community Planning - CPLN (p. 1713)
Computer Sci & Software En - COMP (p. 1716)
Computer Science - CPSC (p. 1723)
Consumer and Design Sciences - CADS (p. 1725)
Cooperative Education - COOP (p. 1730)
Counselor Ed, Counseling Psych - COUN (p. 1730)
Crop, Soil, and Environmental Sciences - CSES (p. 1734)
Design Build - DBLD (p. 1739)
History - HIST (p. 1825)
Honor - HONR (p. 1834)
Horticulture - HORT (p. 1835)
Hospitality Management - HOSP (p. 1839)
Human Dev & Family Studies - HDFS (p. 1841)
Human Resource Mngt - HRMN (p. 1845)
Human Sciences, General - HUSC (p. 1846)
Industrial & Sys Eng - INSY (p. 1848)
Industrial Design - INDD (p. 1853)
Information Systems Management - ISMN (p. 1855)
Integrated Textile & Appar - ITAS (p. 1860)
Integrd Design & Construction - INDC (p. 1860)
Interdepartmental Education - EDUC (p. 1860)
Interdept Pharmacy - PYDI (p. 1861)
Interdisciplinary Studies - IDSC (p. 1863)
Interior Architecture - ARIA (p. 1864)
Intl Programs-Special Topics - INTL (p. 1864)
Journalism - JRNL (p. 1865)
Kinesiology - KINE (p. 1867)
Laboratory Science - LBSC (p. 1875)
Landscape Architecture - LAND (p. 1875)
Leadership - LEAD (p. 1880)
Liberal Arts, General - LBAR (p. 1880)
Management - MNGT (p. 1880)
Marketing - MKTG (p. 1883)
Materials Engineering - MATL (p. 1885)
Mathematics - MATH (p. 1889)
Mechanical Engineering - MECH (p. 1901)
Media Studies - MDIA (p. 1908)
Middle School Educ - CTMD (p. 1910)
Military Science (AROTC) - MILS (p. 1910)
Music - Applied - MUAP (p. 1911)
Music - MUSI (p. 1913)
Music Education - CTMU (p. 1919)
Music Ensemble - MUSE (p. 1921)
Natural Resources Management - NATR (p. 1929)
Naval Science (NROTC) - NAVS (p. 1930)
Nursing - NURS (p. 1931)
Nutrition - NTRI (p. 1936)
Pharmacy PharmD - PYPD (p. 1939)
Philosophy - PHIL (p. 1944)
Physical Education - PHED (p. 1946)
Physics - PHYS (p. 1950)
Plant Pathology - PLPA (p. 1953)
Political Science - POLI (p. 1955)
Polymer & Fiber Engineering - PFEN (p. 1962)
Poultry Science - POUL (p. 1964)
Psychology - PSYC (p. 1967)
Public Relations Commu - PRCM (p. 1973)
Reading Education - CTRD (p. 1974)
Real Estate Development - RDEV (p. 1976)
Rehabilitation & Spec Educ - RSED (p. 1976)
Religion - RELG (p. 1983)
Rural Sociology - RSOC (p. 1984)
Sciences & Math - SCMH (p. 1985)
Secondary Education - CTSE (p. 1986)
Social Work - SOWO (p. 1990)
Sociology - SOCY (p. 1992)
Statistics - STAT (p. 1995)
Supply Chain Management - SCMN (p. 1999)
Sustainability Studies - SUST (p. 2000)
Theatre - THEA (p. 2000)
Undergraduate Studies - UNDG (p. 2006)
University Courses UNIV (p. 2006)
Veterinary Medicine - VMED (p. 2008)
VM-Biomedical Sciences VBMS (p. 2012)
Wildlife Sciences - WILD (p. 2019)
Women’s Studies - WMST (p. 2021)

Course Numbering

The subject name (subject area) together with the course number constitutes the official designation for the course for purposes of registration and official records. The specific course title appears following the course number. The figures in parentheses denote the number of hours of semester credit for the course. Following the credit hours are listed contact hours, the estimate of the actual hours per week a student should expect to be in class. If none are listed, the course will meet each week the number of hours that equals the number of course credit hours. Next appear the pre-requisites (required courses to be taken prior to) and co-requisites (required courses to be taken simultaneously with), if applicable.

Courses are numbered according to the following system:

1XXX — Undergraduate courses primarily for freshmen.
2XXX — Undergraduate courses primarily for sophomores.
3XXX — Undergraduate courses primarily for juniors.
4XXX — Undergraduate courses primarily for seniors.
5XXX — Courses (1) for professional students in Architecture, Design and Construction, and (2) undergraduate courses taught in conjunction with graduate courses.
6XXX — Graduate courses that are paired with parallel 5000-level course.
7XXX — Graduate courses. Not available to undergraduates.
8XXX — Graduate courses. Not available to undergraduates.
9XXX — Graduate courses exclusively in the professional practice doctoral degree programs (Pharmacy and Veterinary Medicine). Certain courses at this level may be designated by the department and approved by the Graduate Council for graduate credit.

XXX1 — Undergraduate laboratory courses
XXX3 — Undergraduate online courses
XXX6 — Graduate online courses.
Accounting - ACCT

Courses

ACCT 2110/2113 PRINCIPLES OF FINANCIAL ACCOUNTING (3) LEC. 3. Basic accounting principles with focus on preparation and use of financial statements. Credit will not be given for both ACCT 2110 and ACCT 2810. Sophomore standing.


ACCT 2210 PRINCIPLES OF MANAGERIAL ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. Emphasis on cost accounting, budgeting, and decision making using managerial accounting information. Sophomore standing.


ACCT 2700/2703 BUSINESS LAW (3) LEC. 3. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2707 HONORS BUSINESS LAW (3) LEC. 3. Pr. Honors College. Introduction to contracts, sales, torts, ethics and the judicial system. Focus is on the business environment.

ACCT 2810 FUNDAMENTALS OF ACCOUNTING (3) LEC. 3. Principles of financial and managerial accounting. Not open to undergraduates majoring in Business. Credit will not be given for both ACCT 2110 and ACCT 2810.

ACCT 3110/3113 INTERMEDIATE ACCOUNTING I (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. Accounting principles and theory including accounting for current assets, liabilities, and investments. Junior standing applies to ACCT 3110. ACCT 3113 is limited to students accepted to online accounting program.

ACCT 3120/3123 INTERMEDIATE ACCOUNTING II (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Grade of C or better. Continuation of ACCT 3110, with emphasis on fixed assets, capital structure, and cash flows. Junior standing applies to ACCT 3120. ACCT 3123 is limited to students accepted to online accounting program.

ACCT 3210/3213 COST ACCOUNTING (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117. A study of how cost data for products, projects, or services are recorded, analyzed, and used for decision making. Junior standing applies to ACCT 3210. ACCT 3213 is limited to students accepted to online accounting program.

ACCT 3310/3313 BUSINESS PROCESSES AND INTERNAL CONTROLS (3) LEC. 3. Pr. P/C ACCT 3110 or P/C ACCT 3113. Developing knowledge of business processes, accounting for those business processes, and the internal controls surrounding such processes, both in a manual and computerized environment. Junior standing applies to ACCT 3310. ACCT 3313 is limited to students accepted to online accounting program.

ACCT 3510/3513 ACCOUNTING INFORMATION SYSTEMS (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Students will learn to analyze data and solve accounting based problems using advanced spreadsheet techniques, database management systems and other analysis tools. Junior standing applies to ACCT 3510. ACCT 3513 is limited to students accepted to online accounting program.

ACCT 3810 PROFESSIONAL DEVELOPMENT IN ACCOUNTANCY (1) LEC. 1. SU. Pr. (ACCT 3110 or ACCT 3113) and BUSI 2010. Career planning and preparation for transition from university student to accounting professional.

ACCT 4140/4143 SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. A study of current issues in accounting theory and practice. Topics include regulations and economic and technological developments. ACCT 4143 is limited to students accepted to online accounting program.

ACCT 4310/4313 AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123 and ACCT 3310 or ACCT 3313. Principles of auditing standards, ethics, controls, evidence, sampling, and audit reports. ACCT 4313 is limited to students accepted to online accounting program.

ACCT 4410/4413 INCOME TAX I (3) LEC. 3. Pr. ACCT 3110 or ACCT 3113. Principles of federal taxation as it applies to individuals and property transactions. ACCT 4413 is limited to students accepted to online accounting program.
ACCT 4900 DIRECTED STUDIES (1-3) IND. SU. Advanced individual research and study in accounting under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

ACCT 4920 ACCOUNTING INTERNSHIP (1-6) LEC. SU. Internship opportunity with an accounting firm, corporation, or governmental entity. Course may be repeated for a maximum of 6 credit hours.

ACCT 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

ACCT 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

ACCT 5130/5133 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics. ACCT 5133 is limited to students accepted to online accounting program.

ACCT 5310/5313 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Advanced topics in auditing and assurance services. Departmental Approval. ACCT 5313 is limited to students accepted to online accounting program.

ACCT 5420/5423 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413. Tax accounting for individuals, partnerships, corporations, estates, and trusts. Extensive use of a tax-service program. ACCT 5423 is limited to students accepted to online accounting program.

ACCT 5610/5613 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Accounting for governmental and not-for-profit entities. Focus on effective use of resources. ACCT 5613 is limited to students accepted to online accounting program.

ACCT 5700/5703 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments. ACCT 5703 is limited to students accepted to online accounting program.

ACCT 6130/6136 ADVANCED ACCOUNTING TOPICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Emphasis on advanced accounting topics including business combinations, foreign currency transactions, derivatives, and other advanced financial topics.

ACCT 6310/6316 ADVANCED AUDITING AND ASSURANCE SERVICES (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Advanced topics in auditing and assurance services.

ACCT 6420/6426 INCOME TAX II (3) LEC. 3. Pr. ACCT 4410 or ACCT 4413. Tax accounting for individuals, partnerships, corporations, estates and trusts. Extensive use of a tax-service program.

ACCT 6610/6616 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Accounting for governmental and not-for-profit entities. Focus on effective use of resources.

ACCT 6700/6706 ADVANCED BUSINESS LAW (3) LEC. 3. Pr. ACCT 2700. Legal principles concerning secured transactions, bankruptcy, trusts and estates, partnership law, property, corporations, accountant's legal liability, and negotiable instruments.

ACCT 7110/7116 RESEARCH IN ACCOUNTING (3) LEC. 3. Pr. ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136. Departmental approval. An evaluation, critique, and application of financial accounting theory to current reporting problems using current research tools and resources.

ACCT 7120/7126 INTERNATIONAL ACCOUNTING (3) LEC. 3. Pr. ACCT 5130 or ACCT 5133 or ACCT 6130 or ACCT 6136. Departmental approval. Accounting issues unique to international business activity.

ACCT 7130/7136 FINANCIAL ANALYSIS & VALUATION (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Financial analysis to support managerial, investor, and creditor decision-making, forecasting financial statements and earnings, and applying valuation models to accounting measurement and investment decisions.

ACCT 7210/7216 ACCOUNTING FOR DECISION MAKING AND CONTROL (3) LEC. 3. Pr. ACCT 3210 or ACCT 3213. Departmental approval. Relationship between management accounting and information systems and analysis of costs.

ACCT 7310/7316 RISK ANALYSIS AND CONTROL (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Departmental approval. Analysis of strategic and business process risks and design of effective financial controls.
ACCT 7320/7326 FAUD EXAMINATION (3) LEC. 3. Pr. ACCT 4310 or ACCT 4313. Learning how and why occupational fraud is committed and how fraudulent conduct is deterred, investigated, and resolved.

ACCT 7410/7416 FEDERAL TAX RESEARCH (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Departmental approval. Sources of authority used in federal tax research and survey of tax policy issues.

ACCT 7420/7426 CORPORATE AND PARTNERSHIP TAXATION (3) LEC. 3. Pr. (ACCT 5420 or ACCT 5423) or (ACCT 6420 or ACCT 6426). Tax issues involving corporations and partnership.

ACCT 7430/7436 TAXES AND DECISION MAKING (3) LEC. 3. Pr. ACCT 5420 or ACCT 5423 or ACCT 6420 or ACCT 6426. Departmental approval. Emphasis on identifying, understanding, and evaluating tax planning opportunities.

ACCT 7510/7516 INTEGRATED ACCOUNTING APPLICATIONS (3) LEC. 3. Pr. ACCT 3510 or ACCT 3513. Departmental approval. Design and analysis of accounting information systems and relational databases.


ACCT 7710 GRADUATION REQUIREMENT (0) IND. Last spring semester of program, or departmental approval. Program residency required for graduation.

ACCT 7810/7816 CORPORATE GOVERNANCE & ACCOUNTING ETHICS (3) LEC. 3. Pr. ACCT 3120 or ACCT 3123. Analyzing the impact of corporate governance and accounting ethics on business transactions.

ACCT 7970/7976 ADVANCED SPECIAL TOPICS IN ACCOUNTING (3) LEC. 3. Departmental Approval. Industry issues in accounting.

Adult Education - ADED

Courses

ADED 4010/4013 LEARNING RESOURCES IN AREA OF SPECIALIZATION (3) LEC. 3. Departmental approval. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching.

ADED 4050/4053 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education.

ADED 4600/4603 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing, and life-long learning.

ADED 4610 DIRECTED WORK EXPERIENCE (3) LEC. 3. SU. Departmental approval. In-service, supervised work experience individually designated for part-time or summer work experience.

ADED 4620 COMMUNITY CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Departmental approval. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources.

ADED 4650/4653 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Departmental approval. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities.


ADED 4900 INDEPENDENT STUDY (1-6) IND. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

ADED 4910/4913 PRACTICUM (1-6) PRA. SU. Departmental Approval. Experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 4920 PROFESSIONAL INTERNSHIP IN ADULT EDUCATION (9) INT. 9. SU. Departmental approval. Supervised internship experiences in a school or other appropriate setting. Evaluation and analysis of the internship experience. Or Minor.
ADED 4970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or special topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 7010/7016 LEARNING RESOURCES (3) LEC. 3. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. May count either ADED 7010 or ADED 7016.

ADED 7050/7056 METHODS OF TEACHING IN ADULT EDUCATION (3) LEC. 3. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within adult education. May count either ADED 7050 or ADED 7056.

ADED 7060/7066 CURRICULUM AND PROGRAM PLANNING IN ADULT EDUCATION (3) LEC. 3. Introduction to principles and practices involved in designing education programs in the area of specialization. May count either ADED 7060 or ADED 7066.

ADED 7600/7606 NATURE OF ADULT EDUCATION (3) LEC. 3. History and principles of adult education applied to the development and implementation of programs in remedial, occupational, continuing and life-long learning. May count either ADED 7600 or ADED 7606.

ADED 7620/7626 CONCEPTS, PROGRAMS, AND RESOURCES IN ADULT EDUCATION (3) LEC. 3. Processes by which adult education is merged with community organizations to maximize the effective use of physical and human resources. May count either ADED 7620 or ADED 7626.

ADED 7640/7646 WORKFORCE EDUCATION (3) LEC. 3. Identification and evaluation of basic skills problems in the workplace. Strategies for addressing workplace education issues. May count either ADED 7640 or ADED 7646.

ADED 7650/7656 TEACHING THE DISADVANTAGED ADULT (3) LEC. 3. Problems of the disadvantaged adult with emphasis on the unique sociological, psychological, and physiological factors that influence learning and participation in remedial learning activities. May count either ADED 7650 or ADED 7656.

ADED 7670/7676 ADULT EDUCATION IN COOPERATIVE EXTENSION (3) LEC. 3. Exploration of the unique relationship between adult education and the Cooperative Extension System. May count either ADED 7670 or ADED 7676.

ADED 7680/7686 LEARNING STYLES IN ADULT EDUCATION (3) LEC. 3. This course is designed to provide students with an understanding of the various learning styles perspectives in Adult Education. May count either ADED 7680 or ADED 7686.

ADED 7690/7696 MEETING DIVERSE NEEDS IN ADULT EDUCATION SETTINGS (3) LEC. 3. This course provides an innovative look at disability services in post-secondary institutions. Learners will study the history of disability services, legislation, campus accessibility, assessment of the accessibility of adult education settings and other topics of interest.

ADED 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 3 credit hours.

ADED 7910/7916 PRACTICUM (1-3) PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 3 credit hours.

ADED 7920/7926 INTERNSHIP (1-10) INT. SU. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. May count either ADED 7920 or ADED 7926. Course may be repeated for a maximum of 10 credit hours.

ADED 7950 SEMINAR (1-3) SEM. SU. Presentation of research projects, analysis of procedures, and findings. Course may be repeated for a maximum of 3 credit hours.

ADED 7960 READINGS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

ADED 7970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

ADED 7990/7996 RESEARCH AND THESIS (1-10) MST. Departmental approval. Individualized support and direction for students writing their thesis. Course may be repeated with change in topics.

ADED 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.
ADED 8910 PRACTICUM (1-6) PRA. SU. Departmental approval. Experiences closely relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

ADED 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college, or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

ADED 8950 SEMINAR (1-6) SEM. SU. Presentation by graduate students of research projects and/or analysis of procedures and findings. Course may be repeated for a maximum of 6 credit hours.

ADED 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research writings. Course may be repeated for a maximum of 6 credit hours.

ADED 8970 SPECIAL TOPICS (1-6) LEC. Departmental approval. Current or advanced topics within adult education. Course may be repeated for a maximum of 6 credit hours.

ADED 8980/8986 FIELD PROJECT (1-10) FLD. SU. Field project formulated, planned, conducted, evaluated, and reported in appropriate written form and oral formats under the direction of the student's major professor. Course may be repeated for a maximum of 10 credit hours.

ADED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours

**Aerospace Engineering - AERO**

**Courses**

**AERO 2200 AEROSPACE FUNDAMENTALS (2)** LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607). C or better in PHYS 16000. Introduction to the fundamental physical concepts required for the successful design of aircraft and spacecraft.

**AERO 3040 ELEMENTARY METEOROLOGY (3)** LEC. 3. Basic principles, causes, effects and phenomena of weather with fundamental techniques of forecasting.

**AERO 3110 AERODYNAMICS I (3)** LEC. 3. Pr. MATH 2650 and AERO 2200. C or better in AERO 2200. Properties of fluids, fluid statics, conservation of mass and momentum, atmospheric properties, two dimensional airfoils, three dimensional wings, drag, and flight performance.

**AERO 3120 AERODYNAMICS II (3)** LEC. 3. Pr. ENGR 2010 and MATH 2650 and AERO 2200. C or better in AERO 2200. Principles of compressible flow including flows with area changes, friction and heat transfer. Fundamental analysis of aerodynamics and potential flow theory. Correlation of potential flow theory with experimental data.

**AERO 3130 AERODYNAMICS LABORATORY (2)** LEC. 1. LAB. 3. Pr. P/C AERO 2200. C or better in AERO 2200. Application of fundamental aerodynamic principles to subsonic and supersonic wind tunnel experiments.

**AERO 3220 AEROSPACE SYSTEMS (3)** LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350. Modeling of system elements, classical feedback control techniques used in the analysis of linear systems, analysis of systems undergoing various motions connected with flight.

**AERO 3230 FLIGHT DYNAMICS (4)** LEC. 3. LAB. 3. Pr. AERO 3110 and ENGR 2350 and MATH 2650. C or better in ENGR 2350. Airplane performance and stability and control including analytical prediction of performance characteristics, experimental determination of static stability parameters, and analytical prediction of dynamic stability characteristics.

**AERO 3310 ORBITAL MECHANICS (3)** LEC. 3. Pr. ENGR 2350 and MATH 2650. C or better in ENGR 2350. Geometry of the solar system and orbital motion, mathematical integrals of motion, detailed analysis of two-body dynamics and introduction to artificial satellite orbits; Hohmann transfer and patched conics for lunar and interplanetary trajectories.

**AERO 3610 AEROSPACE STRUCTURES I (2)** LEC. 1. LAB. 3. Pr. ENGR 2070. Fundamental concepts employed in the mechanical testing of engineering materials and structures. Load, stress, and strain measurement techniques are utilized to determine material properties and structural response.

**AERO 3970 SPECIAL TOPICS (1-3)** AAB. SU. Departmental approval. Investigation of various topics in Aerospace Engineering. Course may be repeated for a maximum of 6 credit hours.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>AERO 4140</td>
<td>AERODYNAMICS III (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3110 and AERO 3120. Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relations to skin friction and heat transfer.</td>
</tr>
<tr>
<td>AERO 4510</td>
<td>AEROSPACE PROPULSION (4)</td>
<td>LEC. 3</td>
<td>LAB. 3. Pr. AERO 3120. Fundamental analysis of airbreathing jet propulsion. Introduction to chemical rocket propulsion.</td>
</tr>
<tr>
<td>AERO 4620</td>
<td>AEROSPACE STRUCTURES II (4)</td>
<td>LEC. 3</td>
<td>LAB. 3. Pr. AERO 3610 and MATH 2660. Aircraft and space vehicle structures. An introduction to the finite element method and its application to structural analysis. The laboratory will utilize state-of-the-art software numerical solution of aerospace structural systems.</td>
</tr>
<tr>
<td>AERO 4630</td>
<td>AEROSPACE STRUCTURAL DYNAMICS (4)</td>
<td>LEC. 3</td>
<td>LAB. 3. Pr. AERO 4620. Free, forced and damped vibration of single and multiple degree-of-freedom systems. The laboratory will utilize state-of-the-art software for the analysis of the vibration and dynamic response of structural systems.</td>
</tr>
<tr>
<td>AERO 4710</td>
<td>AEROSPACE DESIGN I (3)</td>
<td>LEC. 2</td>
<td>LAB. 3. Pr. AERO 3120. Introduction to the principles required to design aerospace vehicles.</td>
</tr>
<tr>
<td>AERO 4720</td>
<td>AEROSPACE DESIGN II (3)</td>
<td>LEC. 2</td>
<td>LAB. 3. Pr. AERO 4710. This course is continuation of AERO 4710.</td>
</tr>
<tr>
<td>AERO 4730</td>
<td>SPACE MISSION DESIGN I (3)</td>
<td>LEC. 2</td>
<td>LAB. 3. Pr. AERO 3120. And permission of the department. Introduction to the design of space systems including the identification of launch requirements, spacecraft system components, satellite tracking and orbital analysis to achieve a stated scientific objective.</td>
</tr>
<tr>
<td>AERO 4740</td>
<td>SPACE MISSION DESIGN II (3)</td>
<td>LEC. 2</td>
<td>LAB. 3. Pr. AERO 4730. A continuation of AERO 4730, Space Mission Design I.</td>
</tr>
<tr>
<td>AERO 4970</td>
<td>SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3)</td>
<td>AAB.</td>
<td>Departmental approval. Investigation of current state-of-the-art technologies in aerospace engineering. Course may be repeated for a maximum of 9 credit hours.</td>
</tr>
<tr>
<td>AERO 4997</td>
<td>HONORS THESIS (1-3)</td>
<td>IND.</td>
<td>Pr. Honors College. Departmental approval. Membership in the Honors College and departmental approval required; Directed research and writing of an honors thesis. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>AERO 4AA0</td>
<td>PROGRAM ASSESSMENT (0)</td>
<td>LAB. SU</td>
<td>Pr. P/C AERO 4710 or P/C AERO 4730. Academic program assessment covering the areas of aerodynamics, aerospace structures, orbital mechanics, propulsion and vehicle design.</td>
</tr>
<tr>
<td>AERO 5110</td>
<td>MISSILE AERODYNAMICS (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.</td>
</tr>
<tr>
<td>AERO 5120</td>
<td>ROTARY WING AERODYNAMICS (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.</td>
</tr>
<tr>
<td>AERO 5210</td>
<td>FLIGHT SIMULATION (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3230. Time domain simulation of nonlinear, six-degree-of-freedom motion of flight vehicles. Development of modular digital simulations including vehicle models for aerodynamics and propulsion, control, guidance subsystems.</td>
</tr>
<tr>
<td>AERO 5320</td>
<td>APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3)</td>
<td>LEC. 3</td>
<td>Departmental approval. Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing and position accuracy.</td>
</tr>
<tr>
<td>AERO 5330</td>
<td>APPLIED ORBITAL MECHANICS (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3310. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.</td>
</tr>
<tr>
<td>AERO 5340</td>
<td>SATELLITE APPLICATION (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3310. AERO 3310 or departmental approval; Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.</td>
</tr>
<tr>
<td>AERO 5410</td>
<td>AEROCOUSTICS (3)</td>
<td>LEC. 3</td>
<td>Pr. AERO 3120 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410 or AERO 6410.</td>
</tr>
</tbody>
</table>
AERO 5460 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660 or Departmental approval. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 5520 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 5530 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.


AERO 5630 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.

AERO 5750 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 6110/6116 MISSILE AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Coreq. AERO 4140. Aerodynamics of slender wing-body combinations, interference effects, linear and non-linear effects, applications to missile design and performance.

AERO 6120/6126 ROTARY WING AERODYNAMICS (3) LEC. 3. Pr. AERO 3110. Aerodynamics and flight characteristics of rotary-wing aircraft.


AERO 6320/6326 APPLICATIONS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Departmental approval. Operating principles of the control, space and user segments of the Global Positioning System. Implementation of post-processing and real-time positioning strategies and applications. Field work demonstrating the use of GPS receivers, data processing, and position accuracy.

AERO 6330/6336 APPLIED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 3310. Special perturbation techniques: N-body perturbations; general and restricted three-body problems; preliminary orbit determination; C-W equations, targeting and rendezvous; constellation design; mission planning.

AERO 6340/6346 SATELLITE APPLICATION (3) LEC. 3. Pr. AERO 3310. Departmental approval. Principles related to the application of satellites to remote sensing, telecommunications, navigation and trajectory determination. Principles of space policy applied to both the unmanned and manned space flight programs.

AERO 6410/6416 AEROACOUSTICS (3) LEC. 3. Pr. AERO 4140 or Departmental approval. Fundamental concepts in acoustics: decibel scales, sound propagation and measurement, plane and spherical waves, room acoustics, transmission and reflection, reverberant fields and noise assessment. May count either AERO 5410/5413 or AERO 6410/6416.

AERO 6460/6466 PERTURBATION METHODS (3) LEC. 3. Pr. MATH 2660. Departmental approval. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

AERO 6520/6526 ROCKET PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of the thermodynamics, gas dynamics and design of liquid and solid propellant rocket engines.

AERO 6530/6536 SPACE PROPULSION (3) LEC. 3. Pr. AERO 4510. Analysis of space propulsion systems. Dynamics of electromagnetic systems, ion engines, photon drives, laser propulsion.


AERO 6630/6636 AEROSPACE APPLICATIONS OF COMPOSITE MATERIALS (4) LEC. 3. LAB. 3. Pr. AERO 3610. Basic material and manufacturing information for laminated composite structures. Computational structural analysis of typical aerospace composite structures coupled with experimental verification of the structural response.
AERO 6750/6756 LEGAL ASPECTS OF ENGINEERING PRACTICE (3) LEC. 3. Pr. PHIL 1020 or PHIL 1023 or PHIL 1027. The role of the law in the manufacture of a product. Ethical issues that may confront designers and engineers.

AERO 7100/7106 ADVANCED SUPersonic AERODYNAMICS (3) LEC. 3. Pr. AERO 4140. A rigorous development of linearized and nonlinear fluid flow theories and application. Lifting surfaces, lifting bodies, duct flow, boundary layer effects, shock and expansion waves and method of characteristics.

AERO 7110/7116 AIRFOIL AERODYNAMICS (3) LEC. 3. Pr. AERO 3120. Thin airfoil theory, Joukowski transformations, Karman Trefftz transformations, thick airfoil theory, panel methods and comparison with experimental data.

AERO 7120/7126 DYNAMICS OF VISCous FLUIDS I (3) LEC. 3. Pr. AERO 7100 or AERO 7106. Exact solutions to the Navier Stokes equations. Exact and approximate solutions of the laminar boundary layer equations. Incompressible and compressible boundary layers in theory and experiment.

AERO 7130/7136 DYNAMICS OF VISCous FLUIDS II (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Turbulent flows, the Reynolds stresses and turbulence modeling. Computation of incompressible and compressible turbulent boundary layers. Stability theory and transition.

AERO 7140/7146 ADVANCED COMPUTATIONAL FLUID DYNAMICS (3) LEC. 3. Pr. AERO 5140 and AERO 6140. Advanced methods for solving problems in computational fluid dynamics. Topics include: discretization approaches, implicit solution techniques, curvilinear coordinate systems, and upwind schemes.


AERO 7160/7166 PHYSICAL FOUNDATIONS OF TURBULENCE (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to turbulence using classical descriptions with a focus on the physics of turbulence phenomena. May count either AERO 7160 or AERO 7166.


AERO 7210/7216 FLIGHT DYNAMICS OF HYPERVELOCITY VEHICLES (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of hypersonic flight vehicle motion. Stability concepts and analysis of the stability of steady-state motions of very high speed flight vehicles.


AERO 7230/7236 HELICOPTER DYNAMICS AND CONTROL (3) LEC. 3. Pr. AERO 7200 or AERO 7206. Departmental approval. Development of specialized concepts and methods in dynamics applicable to the modeling of helicopters. Analysis of helicopter stability and controllability.

AERO 7330/7336 ORBIT DETERMINATION (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of orbit determination; least squares, minimum norm, minimum variance solutions; batch, sequential and extended sequential filters.

AERO 7340/7346 ADVANCED ORBITAL MECHANICS (3) LEC. 3. Pr. AERO 6330 or AERO 6336 or AERO 6230 or AERO 6236. Elements of time measurements, earth orientation/coordinate system; f and g series; Lambert's Problem; linear orbit theory and circumlunar trajectories.

AERO 7350/7356 OPTIMAL CONTROL OF AEROSPACE VEHICLES (3) LEC. 3. Pr. AERO 3220. Principles of optimization; Pontryagin's principle; Linear quadratic regulator; Observers, state estimation, LQG problem. Optimal output feedback; Synthesis of flight control systems. AERO 3220 or equivalent.

AERO 7370/7376 FUNDAMENTALS OF THE GLOBAL POSITIONING SYSTEM (3) LEC. 3. Pr. AERO 7330 or AERO 7336 or AERO 7200 or AERO 7206. Departmental approval. Principles of the Global Positioning System: GPS overview and historical development; modeling of pseudo-range and carrier phase measurements; positioning solution strategies using kinematic, dynamic, and reduced dynamic techniques.
AERO 7390/7396 SATELLITE REMOTE SENSING (3) LEC. 3. Departmental approval. Topics in satellite remote sensing principles and techniques including active and passive instruments, data processing, and geophysical parameter recovery algorithms.

AERO 7410/7416 LIGHT-FIELD IMAGING (3) LEC. 3. Pr. AERO 7160 or AERO 7166. Departmental approval. An introduction to light-field imaging. Topics include light parameterization, light field cameras, computational photography and Fourier slice photography theorem. May count either AERO 7410 or AERO 7416.

AERO 7420/7426 PARTICLE IMAGE VELOCIMETRY (3) LEC. 3. Pr. AERO 7120 or AERO 7126. Departmental approval. An introduction to particle image velocimetry and its variations including conventional planar PIV, stereo PIV, stereo-PIV and torno-PIV. May count either AERO 7420 or AERO 7426.


AERO 7510/7516 THRUST GENERATION (3) LEC. 3. Pr. AERO 4510. Aerothermodynamics of propulsion. Selected topics in gas dynamics, thermodynamics, and heat transfer as applied to airbreathing and space propulsion.


AERO 7610/7616 ADVANCED AEROSTRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Development of the fundamental principles of the analysis of non-linear problems in solid mechanics. Structural problems involving non-linear deflections and/or material properties.

AERO 7620/7626 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STATIC STRUCTURES (3) LEC. 3. Pr. AERO 4620. Departmental approval. Advanced techniques for the numerical solution of static elastic and plastic problems, including two and three dimensional solutions.

AERO 7630/7636 AEROSPACE COMPUTATIONAL STRUCTURAL ANALYSIS: STRUCTURAL DYNAMICS (3) LEC. 3. Pr. AERO 4630. Departmental approval. Advanced techniques for the numerical solution to problems in structural dynamics, including steady state and transient response of two-and three-dimensional structures.

AERO 7640/7646 ADAPTIVE AERO-STRUCTURES (4) LEC. 3. LAB. 3. Departmental approval. Basic material and manufacturing information for materials employed in adaptive structures. Shape-memory, magnetostrictive, magnetorheological-electrorheological and piezoelectric materials are examined.

AERO 7660/7666 AEROLASTICITY (3) LEC. 3. Pr. AERO 4630. Introduction to the field of aeroelasticity and the interaction therein of structural mechanics and fluid mechanics with dynamics as the "interface adhesive" between them. Flutter, divergence, aileron reversal and related phenomena.

AERO 7670/7676 INTRODUCTION TO LARGE SPACE STRUCTURES (3) LEC. 3. Pr. AERO 4630. Large space structures and their unique concepts, novel on-earth testing requirements, variety of damping schemes and analysis techniques. Concepts and analysis related to shape control, active and passive damping, and structural dynamics/controls interaction.

AERO 7950 SEMINAR (0) SEM. 0. SU. Weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers. Course may be repeated for a maximum of 1 credit hours.

AERO 7970/7976 SPECIAL TOPICS IN AEROSPACE ENGINEERING (1-3) LEC. Course may be repeated for a maximum of 9 credit hours.

AERO 7980/7986 AEROSPACE ENGINEERING PROJECT (3) LEC. 3. SU. Departmental approval. Intended for students in the MAE program. On or off-campus project. The nature of the project is to be determined by the student's major professor. Approval of the project and its final written report by the student's advisory committee is required. Course may be repeated with change in topic.

AERO 7990/7996 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

AERO 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.
Aerospace Studies (AFROTC) - AIRF

Courses


AIRF 1011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 1010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


AIRF 1021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 1020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


AIRF 2011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 2010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.


AIRF 2021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 2020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 3010 AIR FORCE LEADERSHIP STUDIES (3) LEC. 3. Pr. AIRF 3020. Departmental approval. Coreq. AIRF 3011. For AFROTC senior cadets. The role of military officers in American society.

AIRF 3011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 3010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 3020 AIR FORCE LEADERSHIP STUDIES (3) LEC. 3. Pr. AIRF 3010. Departmental approval. Coreq. AIRF 3021. Advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and supervision concepts.

AIRF 3021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 3020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 4010 NATIONAL SECURITY AFFAIRS AND PREPARATION FOR ACTIVE DUTY (3) LEC. 3. Pr. AIRF 4011. For AFROTC senior cadets. The role of military officers in American society.

AIRF 4011 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 4010. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

AIRF 4020 NATIONAL SECURITY AFFAIRS AND PREPARATION FOR ACTIVE DUTY (3) LEC. 3. Pr. AIRF 4021. For AFROTC senior cadets. The roles of military officers in American society.

AIRF 4021 AFROTC LEADERSHIP LABORATORY (0) LAB. 2. SU. Departmental approval. Coreq. AIRF 4020. Required AFROTC Leadership Laboratory for students who are pursuing a commission in the US Air Force.

Africana Studies - AFRI

Courses

AFRI 2000 INTRODUCTION TO AFRICANA STUDIES (3) LEC. 3. Pr. (ENGL 1120 or ENGL 1127). An introduction to theory and method that offers an interdisciplinary perspective on Africa and the African Diaspora taught from different academic disciplines including education, the sciences, social sciences, and the liberal arts.
# Agric Economics - AGEC

## Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE 3010/3013</td>
<td>AGribusiness Marketing</td>
<td>3</td>
<td>Principles and problems of marketing farm and agribusiness products including marketing methods, channels, structures, and institutions. May count either AGE 3010 or AGE 3013.</td>
</tr>
<tr>
<td>AGE 3050</td>
<td>Farm Appraisal</td>
<td>2</td>
<td>Theory of land values; terminology, processes and procedures for alternative appraisal purposes; factors affecting value; and evaluation of appraisal methods.</td>
</tr>
<tr>
<td>AGE 3080</td>
<td>Futures and Options Marketing</td>
<td>2</td>
<td>Functions, institutions, economic performance, and practices and procedures involved in utilizing futures and options markets to manage market price risks.</td>
</tr>
<tr>
<td>AGE 3100</td>
<td>Computer Applications in Agricultural Economics</td>
<td>3</td>
<td>Analytical methods for agricultural economics: spreadsheet applications, optimization, regression, budgeting, and risk management.</td>
</tr>
<tr>
<td>AGE 3200</td>
<td>Quantitative Methods in Agricultural Economics</td>
<td>3</td>
<td>The course covers mathematical and econometric models for the quantitative analysis of problems in food, agricultural, development and resource/ environmental economics.</td>
</tr>
<tr>
<td>AGE 3300</td>
<td>Agricultural Policies and Trade</td>
<td>3</td>
<td>Public policies affecting agriculture. Theory and significance of international trade, distribution of production and trade, issues and policies, and influence of exchange rates.</td>
</tr>
<tr>
<td>AGE 3920</td>
<td>Agricultural Business and Economics Internship</td>
<td>1-3</td>
<td>Practical experience with agricultural business firms and agencies including finance, farm supply, production, marketing and sales and government. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>AGE 3950</td>
<td>Careers in Agricultural Business and Economics</td>
<td>1</td>
<td>To develop skills to find a job and learn about career opportunities in agricultural business and economics.</td>
</tr>
<tr>
<td>AGE 4000</td>
<td>Principles of Agribusiness Management</td>
<td>3</td>
<td>Economics and business principles applied to agriculture: business formation, composing and analyzing financial statements, financial analysis and decision-making functions of management, capital budgeting and investment decisions. (Credit will not be given to majors in AGEC, ECON, or business).</td>
</tr>
<tr>
<td>AGE 4040</td>
<td>Agribusiness Finance</td>
<td>3</td>
<td>Economic problems and policies in financing agriculture.</td>
</tr>
<tr>
<td>AGE 4070</td>
<td>Agricultural Law</td>
<td>3</td>
<td>Recognition of legal problems associated with property ownership, contracts, torts, financing, estate planning and environmental controls and restrictions.</td>
</tr>
<tr>
<td>AGE 4100</td>
<td>Agricultural Cooperatives</td>
<td>2</td>
<td>Principles and problems of organizing and operating farmers' cooperative buying and selling associations.</td>
</tr>
<tr>
<td>AGE 4120</td>
<td>Environmental and Natural Resource Economics</td>
<td>3</td>
<td>Economic principles related to common property, public goods, property rights, externalities and resource scarcity and allocation applied to current issues.</td>
</tr>
<tr>
<td>AGE 4960</td>
<td>Special Problems in Agricultural Economics</td>
<td>1-2</td>
<td>Departmental approval. Individual or group projects with a faculty member in agricultural economics or agribusiness. May include research, data analysis or a combination of these. Course may be repeated for a maximum of 4 credit hours.</td>
</tr>
<tr>
<td>AGE 4967</td>
<td>Honors Special Problems</td>
<td>1-3</td>
<td>Departmental approval. Membership in the Honors College required; Topics in agricultural economics. Course may be repeated for a maximum of 3 credit hours.</td>
</tr>
<tr>
<td>AGE 4970</td>
<td>Special Topics in Agricultural Economics</td>
<td>1-3</td>
<td>Departmental approval. May be repeated with change of topic. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
</tbody>
</table>
AGEC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

AGEC 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Directed research and writing of honors thesis. Course may be repeated for a maximum of 3 credit hours.

AGEC 5010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613) and (ECON 2020 or ECON 2023 or ECON 2027) and (STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610) and (ACCT 2110 or ACCT 2117 or ACCT 2810) and AGEC 3100. ECON 2020 or 2023 or 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 5030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (STAT 2010 or STAT 2510 or STAT 2610) and (MATH 1690 or MATH 1620 or MATH 1623 or MATH 1627) and ECON 3020. Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 5090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 5100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and AGEC 3100 and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 5210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 5100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 6010 FARM MANAGEMENT (3) LEC. 3. Pr. (MATH 1680 or MATH 1610) and (ECON 2020 or STAT 2510 or STAT 2610) and (ACCT 2110 or ACCT 2810) and AGEC 3100. ECON 2020/ECON 2027 minimum grade of C. Principles of economics applied to agriculture; uses of farm records to improve management of the farm; developing enterprise budgets and use in preparing a profit-maximizing farm plan.

AGEC 6030 AGRICULTURAL PRICES (3) LEC. 3. Pr. (MATH 1690 or MATH 1620) and (STAT 2010 or STAT 2510 or STAT 2610). Functions of prices and principles of supply and demand in price determination for agricultural products and markets. Statistical estimation of price and demand relationships. Spring. May count either AGEC 5030 or AGEC 6030.

AGEC 6090 ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS I (3) LEC. 3. Pr. ECON 3020. Supply, demand, future requirements and availability of environmental and natural resources plus institutional framework affecting and conditioning such use through property rights, zoning, taxation, etc. May count either AGEC 5090 or AGEC 6090.

AGEC 6100 AGRICULTURAL BUSINESS MANAGEMENT (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ACCT 2210 or ACCT 2217 or ACCT 2810) and P/C AGEC 4040. Principles and problems in acquiring or starting, organizing, and operating successful agribusiness; financial and operational efficiency; human resource and public relations; decision-making tools. May count either AGEC 5100 or AGEC 6100.

AGEC 6210 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 6200 ADVANCED AGRIBUSINESS MANAGEMENT (3) LEC. 3. Pr. AGEC 6100 and ECON 3020 and MATH 1690 and (STAT 2010 or STAT 2510 or STAT 2610). Case studies, managerial economics. May count either AGEC 5210 or AGEC 6210.

AGEC 7000 ADVANCED AGRICULTURAL AND ENVIRONMENTAL POLICY (3) LEC. 3. Pr. (AGEC 6090 and AGEC 3300) or AGEC 6030 or AGEC 4300. Food and farm problems and related governmental actions from historical, political and analytical viewpoints. Welfare economics and other procedures used to evaluate costs and benefits of existing and proposed governmental programs and actions affecting agriculture, environment and the consumer.

AGEC 7010 ADVANCED FARM MANAGEMENT (3) LEC. 3. Pr. AGEC 6010. Advanced theory and application of farm management principle principles and economic concepts to agriculture. Planning, implementation, and control of various types of farms for optimum utilization of available resources.

AGEC 7030 ADVANCED AGRICULTURAL PRICES (3) LEC. 3. Pr. AGEC 6030 and ECON 6020. Theory and measurement of farm supply, retail demand and marketing-margin relationships. Introduction to equilibrium-displacement modeling.
AGEC 7080 PRODUCTION ECONOMICS I (3) LEC. 3. Pr. ECON 6020. Resource allocation and efficiency of production in the firm, between firms, and between agriculture and other industries.

AGEC 7090 RESOURCE ECONOMICS II (3) LEC. 3. Pr. AGEC 6090. Analysis of institutional and economic factors affecting use of natural resources including economic feasibility/conservation, benefit-cost analysis, environmental controls and other interventions.

AGEC 7100 OPERATIONS RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Optimization techniques with emphasis on linear programming and its extensions applied to agriculture. General theoretical background and associated computational procedures are used for presentation of models and modeling techniques.

AGEC 7110 AGRICULTURAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Conceptual and empirical analysis of economic development with emphasis on the lesser developed areas and countries. Analysis of financial and technical aid to other countries case studies of development problems.

AGEC 7200 AQUACULTURAL ECONOMICS I (3) LEC. 3. Pr. ECON 2020 or ECON 2027 or ECON 2023. Application of economic theories and principles to production, marketing, and consumption of aquacultural enterprises and products. Role of aquaculture in economic development.

AGEC 7250 AQUACULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 7200. Application of advanced economic theory and principles of production, marketing, and consumption of aquacultural products. Analysis of comparative role and competitive position of aquaculture in economic development and resource allocation.

AGEC 7590 INTRODUCTION TO AGRICULTURAL ECONOMETRICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and STAT 2610. Regression analysis in economic research. Model specification and estimation plus introduction to detection and correction of violations of assumptions of OLS. Hypothesis testing, dummy variables, heteroscedasticity, autocorrelation and measurement errors.

AGEC 7690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS I (3) LEC. 3. Pr. AGEC 7590. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course.

AGEC 7700 RESEARCH METHODS IN AGRICULTURAL ECONOMICS (3) LEC. 3. Pr. ECON 7130 and AGEC 7590. Overview of the philosophy of science, detailed discussion of how various research tools are used to perform applied research in agricultural economics.

AGEC 7950 GRADUATE SEMINAR (1) SEM. 1. SU. A forum for sharing research information and interaction on topics and issues of current interest.

AGEC 7960 SPECIAL PROBLEMS IN AGRICULTURAL ECONOMICS (1-3) AAB. Departmental approval required; Individualized direction/instruction by faculty on research, teaching and/or outreach issues. Course may be repeated for a maximum of 6 credit hours.

AGEC 7970 SPECIAL TOPICS IN AGRIC ECON (3) LEC. 3. Departmental approval. New topics in agricultural and applied economics.

AGEC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

AGEC 8060 THEORY OF AGRICULTURAL MARKETS (3) LEC. 3. Pr. AGEC 7590 and ECON 6020. Theory and methods for estimating complete demand systems (e.g., LES, Translog, ALIDS, and Rotterdam) for food products. Introduction to imperfect competition models.

AGEC 8080 PRODUCTION ECONOMICS II (3) LEC. 3. Pr. AGEC 7080. Firm-level economics problems are extended. Consideration of the influence of risk on firm behavior; empirical analysis of theoretical problems; welfare analysis; technical change; impacts of research investments.

AGEC 8090 FOOD AND AGRICULTURAL POLICY (3) LEC. 3. Pr. ECON 6020 or ECON 7000 or ECON 7110. The course will cover current issues in the economics and policies associated with food, food production and marketing.

AGEC 8690 MICROECONOMETRICS IN AGRICULTURAL ECONOMICS II (3) LEC. 3. Pr. AGEC 8310. The focus will be on implementation and interpretation, as well as on the microeconomic foundations of the econometric models covered in the course. May count either AGEC 8310 or AGEC 8690.

AGEC 8890 TOPICS IN AGRICULTURAL MICROECONOMETRICS (3) LEC. 3. Pr. AGEC 8690. This course is meant to assimilate knowledge acquired throughout core coursework in the Agricultural Economics PHD program.
Auburn University

AGEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Agriculture - AGRI

Courses

AGRI 1000 INTRODUCTION TO AGRICULTURE (2) LEC. 1. LAB. 2. Provide information about the College of Agriculture and Alabama Agriculture. An emphasis will be placed on learning about the different departments in the college.

AGRI 1080 AGRICULTURAL COMMUNICATIONS (3) LEC. 3. Departmental approval. Introduction to agricultural communications and professional development as applied to the ag sector; overviews of common communication methods and possible careers.

AGRI 3000 AGRICULTURAL GENETICS (4) LEC. 3. LAB. 2. Pr. BIOL 1020 or BIOL 1027. Introductory understanding of the applications of genetics to agricultural and natural systems. Theoretical and practical knowledge of qualitative, quantitative, molecular, population, and biotechnological aspects of genetics will be developed.

AGRI 3800 AGRICULTURAL LEADERSHIP DEVELOPMENT (2) LEC. 1. LAB. 2. Programmed sessions and activities designed to enhance self-awareness of leadership skills and enable students to become effective leaders.

AGRI 4000 AGRICULTURE STUDY ABROAD (1-10) AAB/FLD. Departmental approval. Study abroad programs with emphasis on agricultural topics. Credit awarded in consultation with departmental chair. Course may be repeated for a maximum of 10 credit hours.

AGRI 4920 INTERNSHIP IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) INT. Departmental approval. Supervised, closely monitored work experience in agricultural communications or leadership. Course may be repeated for a maximum of 3 credit hours.

AGRI 4940 AGRICULTURAL COMMUNICATIONS CAPSTONE (3) LEC. 3. Pr. AGRI 1080. A capstone experience for the Agricultural Communications major that brings together the agricultural topics and communication techniques that have been developed throughout the course of the student's study.

AGRI 4970 SPECIAL TOPICS IN AGRICULTURAL COMMUNICATION AND LEADERSHIP (1-3) LEC. Departmental approval. Directed study in agricultural communications or leadership. Course may be repeated for a maximum of 3 credit hours.

AGRI 5840 ADVANCED AGRICULTURAL LEADERSHIP DEVELOPMENT (3) LEC. 2. LAB. 2. Pr. AGRI 3800. Critical analysis of theory and practice of contemporary leadership processes and principles of learning to lead through service.

Animal Sciences - ANSC

Courses

ANSC 1000 INTRODUCTION TO ANIMAL SCIENCES (4) LEC. 3. LAB. 2. The importance of livestock to agriculture and to the health and nutrition of a modern society. Livestock terminology, selection, reproduction, nutrition, management, marketing, and species characteristics of beef and dairy cattle, swine, sheep and horses.

ANSC 1100 ORIENTATION TO ANIMAL SCIENCES (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of the college experience. Breadth of career opportunities for animal science graduates.

ANSC 2000 COMPANION ANIMAL MANAGEMENT (3) LEC. 3. Practical aspects of behavior, nutrition, breeding, reproduction, health and management of dogs, cats and other animals generally considered to be human companions.

ANSC 2010 ANIMALS AND SOCIETY (3) LEC. 3. Ethical and scientific issues surrounding human-animal interactions and the role human-animal interactions play in modern society.

ANSC 2050 INTRODUCTION TO HORSE MANAGEMENT AND TRAINING (3) LEC. 1. LAB. 4. An introduction to the management, training, and enjoyment of horses.

ANSC 2150 SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. Departmental approval. Basic management and care of animals used in intercollegiate equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.
ANSC 2650 EQUINE BIOMECHANICS AND SHOEING (3) LEC. 2. LAB. 2. Pr. ANSC 1000 and BIOL 2500. Anatomy, function and care of the horse foot; mechanical forces and joint/tissues health; hoof traits, quality and correction through shoeing.

ANSC 2700 VALUE-BASED ANALYSIS OF MEAT ANIMALS (2) LAB. 4. Pr. ANSC 1000. Comparative evaluation of body composition and application of federal grading standards to determine relative value and price of live animals, carcasses, and wholesale cuts.

ANSC 2710 COMMERCIAL MEAT MANAGEMENT (4) LEC. 3. LAB. 2. The importance of meat in the food service industry, including food safety, purchasing, cooking and meat in the diet. For non-majors only.

ANSC 2720 THE MEAT WE EAT (3) LEC. 3. Foundation course on the global meat industry with emphasis on meat products, modern processing techniques, concepts of food safety, sanitation, inspection, grading and meeting consumer demands.

ANSC 2910 PRACTICUM IN LIVESTOCK WELFARE AND MANAGEMENT (2) LAB. 6. Pr. ANSC 1000. Departmental approval. Hands-on laboratory teaching applied management of livestock species, including horses, cattle, swine and small ruminants, using modern equipment and techniques.

ANSC 3000 HERD HEALTH MANAGEMENT (3) LEC. 3. Pr. ANSC 1000 and BIOL 3200. The prevention and control of the major diseases of farm animals and the development of health programs.

ANSC 3150 EQUINE MARKETING (3) LEC. 2. LAB. 2. Pr. ANSC 1000 and (ECON 2020 or ECON 2023 or ECON 2027). Practical concepts of equine marketing including evaluating the horse, assessing the market, targeting customers, and presenting the horse.

ANSC 3200 INTRODUCTORY LIVESTOCK EVALUATION AND MARKETING (2) LAB. 6. Pr. ANSC 1000. Comprehensive study of live animal and carcass evaluation techniques used in the selection and marketing of beef cattle, swine and sheep. The development of decision-making oral communication skills is emphasized.

ANSC 3310 INTRODUCTION TO MEAT SELECTION AND GRADING (2) LAB. 6. Pr. ANSC 1000. Development of grading standards and application of federal grades to beef, pork and lamb carcasses. Comparative evaluation of carcasses, primal, and sub-primal cuts.

ANSC 3330 INTRODUCTION TO DAIRY CATTLE JUDGING (2) LAB. 6. Pr. ANSC 1000. Theory and practice in the selection of dairy cattle based on visual appraisal, pedigree, and performance records. The development and presentation of oral reasons also is emphasized.

ANSC 3350 EQUESTRIAN COACHING (3) LEC. 1. LAB. 4. Principles and practices of instructing students on horseback, safety for horse and rider, lesson plans and class management, evaluation of riders, teaching riders with special needs.

ANSC 3400 ANIMAL NUTRITION (4) LEC. 3. LAB. 2. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037). Departmental approval. Principles and practice of animal nutrition, nutrient contents of feedstuff, and diet formulation.

ANSC 3410 ANIMAL METABOLISM AND NUTRITION (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2070 or CHEM 2077) and (BIOL 1030 or BIOL 1037 or POUL 3150). Principles of animal nutrition and nutrient metabolism and a study of nutrients and their utilization by animals.

ANSC 3420 APPLIED ANIMAL FEEDING AND NUTRITION (3) LEC. 2. LAB. 1. Pr. ANSC 3410 or ANSC 3410. Feedstuffs, diet formulation, and feeding practices applicable to the well-being and performance of economically important livestock and companion animals.

ANSC 3500 ANIMAL BREEDING (3) LEC. 3. Pr. ANSC 1000 and (STAT 2510 or STAT 2513 or BIOL 3000 or BIOL 3003 or AGRI 3000). Genetic and environmental effects of animal differences. Selection and mating systems used in the improvement of domestic animals with an emphasis on livestock.

ANSC 3600 REPRODUCTIVE PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and BIOL 2510. Comparative anatomy, physiology and endocrinology of animal reproduction; principles of reproductive biotechnologies used to enhance reproductive efficiency in mammalian systems.

ANSC 3610 ANIMAL GROWTH AND DEVELOPMENT (4) LEC. 3. LAB. 2. Pr. ANSC 1000 and (BIOL 1030 or BIOL 1037). Biology of prenatal and postnatal growth of meat animals, emphasizing muscle, adipose, and bone tissues from a molecular, cellular, endocrine perspective. Application of concepts to improve rate, efficiency, and composition of growth.

ANSC 3650 PHYSIOLOGY OF EQUINE ATHLETE (3) LEC. 3. Pr. ANSC 1000 and BIOL 2510 and ANSC 3410 or BCHE 3200. Selection and development of the horse for athletic performance; exercising, training, and fitness conditioning for performance horses.

ANSC 3760 VALUE BASED MARKETING OF LIVESTOCK (3) LEC. 2. LAB. 2. Livestock grading standards and their application to carcasses of meat producing animals, concepts and principles of marketing, advertising, promotion and sales of commercial livestock.

ANSC 3800 CAREERS IN ANIMAL SCIENCE (1) LEC. 1. SU. Career opportunities for animal science graduates. Identifying and investigating careers and presenting oneself professionally for employment or post-baccalaureate education.

ANSC 3840 STUDY/TRAVEL IN ANIMAL SCIENCE (1-10) AAB/FLD. Departmental approval. Concentrated study in animal production and management, equine science and the meats industry within the US or international locations. Course may be repeated for a maximum of 10 credit hours.

ANSC 4000 MODERN LIVESTOCK SYSTEMS (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of beef, dairy, swine and small ruminant production systems. Modern concepts, ideas, and methodology associated with the application of technology to reproduction, breeding, health, nutrition, waste nutrient utilization, and management.

ANSC 4010 BEEF PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Overview of the beef cattle industry. Modern concepts, ideas and methodology associated with the application of technology to reproduction, breeding, nutrition, management and the use of facilities in a modern beef cattle enterprise.

ANSC 4030 DAIRY CATTLE PRODUCTION (4) LEC. 3. LAB. 3. Pr. ANSC 3400 and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, reproduction, selection, herd health, economics, and management for efficient dairy production.

ANSC 4050 HORSE PRODUCTION (4) LEC. 3. LAB. 2. Pr. (ANSC 3400 or ANSC 3420) and ANSC 3500 and ANSC 3600. Practical application and integration of nutrition, breeding, and genetics, herd health, reproduction, economics, housing and management techniques for efficient swine production.

ANSC 4070 SWINE PRODUCTION (4) LEC. 3. LAB. 2. Pr. ANSC 1000. Application and integration of breeding and selection, nutrition, reproduction, health, and marketing to achieve optimum lamb and wool production in the southeastern U.S.

ANSC 4100 FARM ANIMAL BEHAVIOR (2) LEC. 2. Pr. ANSC 3600. Basic information on behavior, its purpose, and measurement. Examination of eating, locomotive, sexual, aggressive, territorial, maternal, and resting behaviors in cattle, horses, swine, and sheep.

ANSC 4150 ADVANCED SKILLS AND CONCEPTS OF EQUESTRIAN SPORTS (1) LAB. 4. Pr. ANSC 2150. Principles and skills utilized in intercollegiate equestrian and rodeo team competition and management. Issues affecting management, training, marketing, and promotion of animals used in equestrian and rodeo sports. Course may be repeated for a maximum of 2 credit hours.

ANSC 4300 ADVANCED LIVESTOCK JUDGING (1) LAB. 4. Pr. ANSC 3300. Advanced course in principles and techniques of livestock selection based on visual criteria, performance records, and other advanced technologies. Course may be repeated for a maximum of 2 credit hours.

ANSC 4310 ADVANCED MEAT JUDGING (1) LAB. 4. Pr. ANSC 3310. Practice in evaluation and grading of beef, pork, and lamb carcasses and cuts. Development of communication skills and exposure to animal agriculture through training and intercollegiate competition. Course may be repeated for a maximum of 2 credit hours.

ANSC 4320 ADVANCED ANIMAL EVALUATION AND MARKETING (1) LAB. 4. Pr. ANSC 4300 or ANSC 4310. Live animal and carcass evaluation techniques used in marketing cattle, swine, and sheep.

ANSC 4330 ADVANCED DAIRY CATTLE JUDGING (1) LAB. 4. Pr. ANSC 3330. Advanced course in the selection of dairy cattle and presentation of oral reasons. Course may be repeated for a maximum of 2 credit hours.

ANSC 4450 EQUINE NUTRITION (3) LEC. 3. Pr. ANSC 3400 or ANSC 3420. Principles of digestive physiology, nutrition, and metabolic disorders unique to the horse with special emphasis on nutritional needs of the equine athlete.
ANSC 4650 EQUINE REPRODUCTIVE TECHNIQUES (3) LEC. 1. LAB. 4. Pr. ANSC 3600. Reproductive management and application of modern technologies to enhance reproductive efficiency of the domestic horse.

ANSC 4700 MEAT PROCESSING (4) LEC. 3. LAB. 3. Pr. ANSC 3700. Integration of topics in meat and non-meat ingredient chemistry and their applications to muscle food processing. Physical, chemical, and sensory properties of fresh and processed meat products.

ANSC 4800 ISSUES IN ANIMAL AGRICULTURE (2) LAB. 4. Pr. COMM 1000 or COMM 1003. Issues affecting animal agriculture, dealing with concerns of consumers and activists, involvement in public debate, and the political process.

ANSC 4810 PROFESSIONAL DISCOURSE IN AGRICULTURE (1) LAB. 2. Pr. COMM 1000 or COMM 1003. Methods for enhancing effective discourse concerning issues facing the livestock industry.

ANSC 4920 INTERNSHIP IN ANIMAL SCIENCES (5-15) INT. SU. Course may be repeated for a maximum of 15 credit hours.

ANSC 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Students will work under the direction of staff members on specific problems. Course may be repeated for a maximum of 15 credit hours.

ANSC 4967 HONORS SPECIAL PROBLEMS (3-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 4970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-4) IND. Instruction and discussion of selected current topics in Animal Sciences. Course may be repeated for a maximum of 4 credit hours.

ANSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ANSC 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ANSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 5700, FDSC 5700, ANSC 6700 or FDSC 6700.

ANSC 5730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC 6730, POUL 5730, POUL 6730.

ANSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 3200 or BIOL 1037. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 6700, FDSC 6700, ANSC 5700, or FDSC 5700. May count either ANSC 6700 or FDSC 6700.

ANSC 6730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. Pr. STAT 2510 or STAT 2513. History and methods of sensory testing of food products, factors affecting results. May count only one of the following: ANSC 5730, ANSC 6730, POUL 5730, POUL 6730.

ANSC 7010 STOCKER PRODUCTION (3) LEC. 3. Application of principles of animal nutrition, breeding, physiology, health and marketing to the successful production of stocker cattle. Integrates agronomic principles related to grazing systems in terms of forage production and management, animal performance and economic returns.

ANSC 7400 RUMINANT NUTRITION (3) LEC. 3. Digestive physiology, mechanisms of rumen fermentation, postruminal nutritional biochemistry.

ANSC 7410 NONRUMINANT NUTRITION (3) LEC. 3. Departmental approval. Digestion, absorption, and utilization of macro and micro nutrients, nutrient interrelationship in swine and other non-ruminant species.

ANSC 7420 NUTRITIONAL TOXICOLOGY (3) LEC. 3. General principles of nutrition and toxicology applied toward understanding and managing livestock responses to toxicants in feeds and plants.

ANSC 7500 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7010. Research methods used in the animal sciences for the analysis and interpretation of data. Included are experimental designs and computing techniques.
ANSC 7510 QUANTITATIVE GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and STAT 7010. Departmental approval. Principles of population genetics; gene frequency, biometric relationships between relatives, additive, dominance and epistatic effects, estimation and use of repeatability, heritability, genetic correlations, and breeding values.

ANSC 7600 PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240. Physiological, endocrinological, cellular, and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

ANSC 7610 PHYSIOLOGY OF GROWTH (3) LEC. 3. Pr. BCHE 7210. Molecular and cellular basis of tissue differentiation, growth and development with emphasis on muscle, adipose and connective tissues and factors influencing gene expression controlling such events.

ANSC 7700 MUSCLE FOODS AND APPLIED MUSCLE BIOLOGY (4) LEC. 3. LAB. 2. Pr. ANSC 3700 and BCHE 7210. Investigations of muscle microanatomy, biochemistry of muscle proteins and lipids, biochemistry of skeletal muscle contraction, lipid/protein interactions, antemortem and postmortem factors affecting fresh and processed meat quality; discussion of classic and current scientific literature.

ANSC 7950 SEMINAR (1) LEC. 1. An intensive scientific literature study and subsequent seminar presentation of selected topics in some facet of animal sciences (Animal Genetics, Reproductive Biology, Growth and Development, Nutrition, Animal Production, Equine Studies, Meat Science and Food Animal related Biochemistry) by enrolled students. Course may be repeated for a maximum of 3 credit hours.

ANSC 7960 SPECIAL PROBLEMS (1-5) LEC. Conference problems, assigned reading, literature searches in one or more of the following major fields; (a) biochemistry, (b) nutrition, (c) animal breeding, (d) reproductive physiology, (e) growth physiology, (f) muscle foods, (g) microbiology, and (h) behavior. Course may be repeated for a maximum of 15 credit hours.

ANSC 7970 SPECIAL TOPICS IN ANIMAL SCIENCES (1-5) IND. Emerging topics in Animal Science and related industries. Course may be repeated for a maximum of 5 credit hours.

ANSC 7990 RESEARCH AND THESIS (1-15) MST. Research and thesis may be on technical laboratory problems or on problems directly related to beef and dairy cattle, sheep, swine, or laboratory animals. Course may be repeated with change in topics.


ANSC 8410 VITAMIN AND MINERAL METABOLISM (3) LEC. 3. Departmental approval. Vitamin and mineral nutrition with emphasis on chemical structures and characteristics, metabolic functions, deficiencies and toxicity syndromes, interrelationships and requirements of vitamins and minerals.

ANSC 8500 LINEAR MODEL APPLICATIONS IN ANIMAL BREEDING (4) LEC. 4. Pr. ANSC 7510 and STAT 7010. Selection index and mixed linear model genetic theory for estimation and prediction. Equivalent animal models, properties of solutions, and extension of methods to consider genetic relationships, multiple records, culling bias and multiple trait evaluation. Current literature will also be discussed.

ANSC 8610 MUSCLE PHYSIOLOGY AND BIOCHEMISTRY (3) LEC. 3. Pr. BCHE 7210 and BIOL 6600. Heterogeneity and plasticity of muscle as a tissue, ontogeny, differentiation, growth and regulation of metabolic and molecular properties of muscle fibers by innervation, usage, hormones, and artificial modulation. Evaluation of current literature.

ANSC 8990 DOCTORAL RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Anthropology - ANTH

Courses

ANTH 1000/1003 INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. Social Science I Core. Introduction to the study of human evolution, early civilizations, and globalization; linguistic and cultural problems using the four sub-fields of anthropology, including biological/physical anthropology, archaeology, cultural anthropology, and linguistics.
ANTH 1007 HONORS INTRODUCTION TO ANTHROPOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of human evolution, early civilizations, and globalization: linguistic and cultural problems using the four sub-fields of anthropology, including biological/physical anthropology, archaeology, cultural anthropology, and linguistics. Credit will not be given for both ANTH 1000 and ANTH 1007.

ANTH 2000 ETHNOGRAPHIC METHODS (3) LEC. 3. AAB/LEC. 0. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007) or (SOCY 1000 or SOCY 1007) or GEOG 1100. Approaches, techniques, and strategies for carrying out ethnographic research and analyzing qualitative data in the social sciences.

ANTH 2500 ANTHROPOLOGY OF GLOBAL STUDIES (3) LEC. 3. Any Social Science Core course. Broad-based study of processes and problems that transcend national boundaries, including global historical processes, politics, migrations, trade, disease, environmental change, and sustainability.

ANTH 2700 PEOPLES AND CULTURES OF ASIA (3) LEC. 3. Any Social Science Core course. Introduction to the traditions, religions, histories, and nation-states of the people of Asia, using a cultural approach.

ANTH 2800 ANTHROPOLOGY OF THE AFRICAN DIASPORA (3) LEC. 3. Any Social Science Core course. Anthropological perspectives on African Diasporas. Diaspora. Archaeological, ethnohistorical, and contemporary research exploring identity, symbols, power, and social relations in the lives of enslaved Africans and descendants in the Caribbean, Latin America and North America.

ANTH 2900 WORLD PREHISTORY (3) LEC. 3. Explore broad patterns in human prehistory over the past 10,000 years, including the origins of culture, religion, domestication and agriculture, writing, cities, and states.

ANTH 3000 CULTURE, MARRIAGE, AND THE FAMILY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Role and meaning of kinship and its universal and particularistic features in human society.

ANTH 3100 LANGUAGE AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Contemporary perspectives in cultural anthropology, emphasizing sociolinguistics, discourse, mythology, and folklore.

ANTH 3200 ANTHROPOLOGY OF GENDER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Gender relations and representations in different cultures, historical periods, and discourses.

ANTH 3300 BIOLOGICAL ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Overview of biological anthropology, including evolutionary theory and genetics, primatology, human origins, and biological variation of contemporary human populations. Concepts will be applied during in-class exercises and discussions.

ANTH 3310/3313 RACE AND RACISM: BIOCULTURAL HISTORY OF HUMAN VARIATION (3) LEC. 3. Core Social Science. Deconstructs the myths of biological races by examining human population variation from an anthropological and evolutionary perspective. Students will explore the social history of racism and contemporary issues related to race and human diversity. May count either ANTH 3310 or ANTH 2310.

ANTH 3400 ARCHAEOLOGICAL FIELD SCHOOL (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Field methods, including archaeological surveying and excavation procedures at selected locations. Course may be repeated for a maximum of 6 credit hours.

ANTH 3410 APPLIED & PRACTICING ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores application and practice of anthropology in settings such as cultural resource management, museums, social and environmental policy, and healthcare. This course emphasizes how careers in anthropology contribute to resolving contemporary social problems.

ANTH 3500 ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Archaeology is the study of human societies based on the material remains they left behind. This course explores the history, theories, methods, and applications of archaeology.

ANTH 3600 MEDICAL ANTHROPOLOGY (3) LEC. 3. Any Social Science Core course. Explores biological and cultural dimensions of global health from an anthropological perspective. Topics include the political economy of health, cross-cultural healing traditions, pluralistic medical systems, and evolutionary medicine.

ANTH 3610 FORENSIC ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores standards of practice in forensic anthropology and analysis of case studies. May count either ANTH 3610 or ANTH 2600.

ANTH 3700 POLITICAL ECOLOGY (3) LEC. 3. SSCI and junior standing. Problems in ethnoecology, cultural ecology, political ecology and environmentalism.
ANTH 3810 NORTH AMERICAN ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Explores archaeological evidence for the history of indigenous peoples in North America during the past 10,000 years.

ANTH 3850 MISSISSIPPIAN ARCHAEOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Diversity and complexity of late prehistoric cultures of the Southeastern and Midwestern United States.

ANTH 3900 BIOARCHAEOLOGY (3) LEC. 3. Pr. (ANTH 1000 or ANTH 1003 or ANTH 1007). Archaeologically-derived skeletal remains provide essential information for reconstructing broad patterns of human health and behavior over time. Students will learn to apply methods and theory in social bioarchaeology to understand demography, diet, disease, and physical activity in past populations.

ANTH 3950 CURATION (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. History, legislation, and ethical concerns associated with the accumulation and curation of archaeological collections.

ANTH 4310 ANTHROPOLOGICAL THEORY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Major thinkers in anthropology and their theoretical models considered in historical perspective.

ANTH 4910 LABORATORY PROBLEMS (3) LEC. 1. LAB. 2. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 and ANTH 2100. Investigation a specific archaeological problem or problems, involving students in laboratory techniques and research.

ANTH 4920 INTERNSHIP IN ANTHROPOLOGY (3) AAB/INT. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Internship for practical work or research on anthropological problems, including federal or state agencies, NGOs, NPOs, community and voluntary organizations, and industry (e.g., internships healthcare and medicine, advertising/media, architecture/design, high technology, archaeology and historic preservation, etc.). Course must be approved by the faculty advisor and department.

ANTH 4930 FIELD PROBLEMS (3) LEC. 2. LAB. 1. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Practical investigation of a specific field problem in anthropology.

ANTH 4940 LABORATORY PRACTICUM (3) LEC. 2. LAB. 1. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007 and ANTH 2100. Analysis, preservation, cataloging, and restoration of archaeological materials. May count either ANTH 4940 or ANTH 3910.

ANTH 4960 SPECIAL PROBLEMS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College. ANTH 1000. Departmental approval. Specific topics in anthropology not covered in other courses. Course may be repeated for a maximum of 3 credit hours.

ANTH 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ANTH 1000. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

ANTH 5100 NORTH AMERICAN INDIANS (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Comparative anthropological, cultural, and ethnohistorical overview of Native American cultures of North America, emphasizing change and contact situations.

ANTH 5200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Role of gender and culture in Third World development from an anthropological perspective.

ANTH 5600 CULTURE, MEDICINE, AND POWER (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. or junior standing. Power in the context of illness and healing at local, national, and international levels.

ANTH 5700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Pr. ANTH 3700. Meanings and structures of national and international development.

ANTH 5930 DIRECTED STUDIES (1-3) IND. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 5970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

ANTH 6100 NORTH AMERICAN INDIANS (3) LEC. 3. Advanced comparative cultural and ethnohistorical overview of the Native American cultures of North America, emphasizing change and contact situations.
ANTH 6200 GENDER DEVELOPMENT AND CULTURE (3) LEC. 3. Role of gender and culture in Third World economic development from an anthropological perspective.

ANTH 6600 CULTURE MEDICINE AND POWER (3) LEC. 3. Power in the context of illness and healing at local, national, and international levels.

ANTH 6700 CRITIQUE OF DEVELOPMENT (3) LEC. 3. Meanings and structures of national and international development in historical perspective, including cultural values, power, inequality, and resistance.

ANTH 6930 DIRECTED STUDY (1-3) IND. Directed study course in anthropology that allows students to explore concepts not covered in other courses. Course may be repeated for a maximum of 6 credit hours.

ANTH 6970 SPECIAL TOPICS IN ANTHROPOLOGY (3) LEC. 3. Pr. ANTH 1000 or ANTH 1003 or ANTH 1007. Examination of a specific problem in ethnographic methods, theory, and cultural analysis.

Applied Biotechnology - APBT

Courses

APBT 1000 INTRODUCTION TO APPLIED BIOTECHNOLOGY (1) LEC. 1. Introduction to the field of biotechnology including key concepts from biology, chemistry, and physics, and career opportunities.

APBT 3100 APPLIED BIOTECHNOLOGY I (4) LEC. 2. LAB. 5. Pr. BIOL 1030 and APBT 1000. This course provides an overview of the basic cellular processes harnessed by biotechnology and an introduction to recombinant DNA and its applications. It combines lectures with labs to provide hands-on experience with molecular techniques, DNA cloning, and heterologous protein expression.

APBT 4100 APPLIED BIOTECHNOLOGY II (4) LEC. 2. LAB. 4. Pr. BIOL 1030 and (BIOL 3000 or AGRI 3000) and APBT 3100. or instructor's approval. Principle and up-to-date advances of genetic modification of organisms; its practices and influences in a broad range of basic and applied sciences which have revolutionized "mean" of sustainable agriculture.

Architecture - ARCH

Courses

ARCH 1000 CAREERS IN DESIGN AND CONSTRUCTION (1) LEC. 1, LST. 1. Introduction to the environmental design and construction professions and the curricula in the chosen field.

ARCH 1010 INTRODUCTION TO ARCHITECTURE DESIGN I (5) LEC/STU. 12. Coreq. ARCH 1060. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1020 INTRODUCTION TO ARCHITECTURE DESIGN II (6) LEC. 1, LST. 12. Pr. ARCH 1010 and ARCH 1000 and ARCH 1060. Coreq. ARCH 1420. Principles of visual organization, research and design process skills, and the graphic communication of form and ideas.

ARCH 1060 VISUAL COMMUNICATION (2) LEC. 2, LEC/STU. 2. Introduction to graphic communication. Focus on developing graphic skills for the purpose of explaining form and communicating ideas via exercises in drafting, sketching, and diagramming.

ARCH 1420 INTRODUCTION TO DIGITAL MEDIA (3) LEC. 3, LST. 0. Pr. ARCH 1060. Introduction to the principles of 2-D and 3-D digital media and how these principles are utilized in architectural design.

ARCH 2010 STUDIO I (6) LEC. 2, LST. 10. Pr. ARCH 1020 and ARCH 1420. Basic issues of architectural design centered around the thoughtful creation of exterior and interior space. Studies of light, material, texture, proportion, scale, and site are integrated into each project.

ARCH 2020 STUDIO II (6) LEC. 2, LST. 10. Pr. ARCH 2010. Fundamental design process skills including observation, analysis, and synthesis.

ARCH 2110 HISTORY OF WORLD ARCHITECTURE I (3) LEC. 3. Pr. ARCH 1020. Examination of the social determinants that shape the public beliefs and practices that produce buildings.

ARCH 2117 HONORS ARCHITECTURAL HISTORY I: HISTORY OF THE BUILT ENVIRONMENT (3) LEC. 3. Pr. Honors College. ARCH 1010. Examination of the social determinants that shape the public beliefs and practices that produce buildings.
ARCH 2210 ENVIRONMENTAL CONTROLS I (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite for an architect in the design of environmentally responsive buildings.

ARCH 2220 ENVIRONMENTAL CONTROLS II (3) LEC. 3. Pr. ARCH 1020. This course provides the basic knowledge and skills requisite for an architect in the design of environmentally responsive buildings.

ARCH 2600 THE ART OF ARCHITECTURE, PLACE, AND CULTURE (3) LEC. 3. The interrelationship of art, architecture, place, and culture with emphasis on the art of architecture from a global multicultural perspective. Illustrated lecture, readings, and essays.

ARCH 3010 STUDIO III (6) LEC. 2, LST. 10. Pr. ARCH 2020 and ARCH 3110. Builds on ARCH 2010 and 2020. The process of making architecture through critical inquiry and investigation. The physical, social, ethical contexts that inform the design of every building.

ARCH 3020 STUDIO IV (6) LEC. 2, AAB/LST. 10. Pr. ARCH 3010 or ARIA 3020. Builds on ARCH 3010 and adds an emphasis on the integration of construction tectonics in the development of architectural form.

ARCH 3110 HISTORY OF WORLD ARCHITECTURE II (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117. Introduction to key European buildings and towns from the Bronze Age to the Enlightenment. Examines how societal beliefs and practices influence the making of architecture.

ARCH 3120 HISTORY OF MODERN ARCHITECTURE (3) LEC. 3. Pr. ARCH 3110. The history of architecture, 1850-present, with an emphasis on the rise of the modern movement in Europe and the U.S.

ARCH 3320 MATERIALS AND METHODS OF CONSTRUCTION I (3) LEC. 3. Pr. ARCH 1020. The properties and potential design function of materials used in contemporary construction, with an emphasis on foundation systems, wood, and masonry.

ARCH 3410 DESSEIN ELECTIVES (3) LEC. 3. Explorations in the art of representation. Complete descriptions of specific courses and their prerequisites are available from the School of Architecture, Planning and Landscape Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3500 SEMINAR IN METHODS AND PROCESSES (3) LEC. 3. Pr. ARCH 2020. The tools and techniques available to the design professional including specific design specializations, and design methodologies. Descriptions of specific seminars are available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3600 SEMINAR IN CONTEMPORARY ISSUES (3) LEC. 3. Pr. ARCH 2020. Investigation of significant topics that present opportunities and constraints to architectural thought and practice. Course may be repeated for a maximum of 9 credit hours.

ARCH 3700 SEMINAR IN HISTORY AND THEORY (3) LEC. 3. Pr. ARCH 2010. Investigation of theories, schools or periods to examine the potential and limitations of architecture. Descriptions of specific seminars available from School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 3710 SEMINAR IN HISTORICAL PERSPECTIVES (3) LEC. 3.

ARCH 3800 SEMINAR IN ASPECTS OF DESIGN (3) LEC. 3. Pr. ARCH 2020. Study of aspects of architectural design, such as form, space, style, meaning, perception, culture. Descriptions of specific seminars available from the School of Architecture. Course may be repeated for a maximum of 9 credit hours.

ARCH 4010 STUDIO V (6) LEC. 2, LST. 10. Pr. ARCH 3010 or ARIA 3020 and BSCI 3440. The comprehensive design of buildings, building complexes, and spaces in an urban context. Lectures emphasize urban issues, research methods. Programming and analysis will parallel studio projects of increasing complexity.

ARCH 4020 STUDIO VI (6) LEC. 2, AAB/LST. 10. Pr. ARCH 4010 or ARIA 4020. The design of buildings, building complexes, and spaces with emphasis on the integration of building systems and tectonic development.

ARCH 4110 HISTORY OF URBAN ARCHITECTURE (3) LEC. 3. Pr. ARCH 2110 or ARCH 2117 and ARCH 3110. The course surveys the history of the physical and formal manifestations of the urban environment from its inception to our days.

ARCH 4320 MATERIALS AND METHODS OF CONSTRUCTION II (3) LEC. 3. Pr. ARCH 3320. Properties and potential design applications of materials used in contemporary construction, with an emphasis on steel and concrete, roofing, glass and glazing, cladding, and interior finishes.
ARCH 4500 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. ARCH 3020 or ARIA 3020. Architects’ legal responsibilities, frameworks of professional practice, office organization, business planning, marketing, project delivery, internship and professional ethics and leadership.

ARCH 4900 DIRECTED STUDIES (1-6) AAB. Development of an area of special interest through independent study. Evaluation of the work may be by faculty jury. School approval. Course may be repeated for a maximum of 6 credit hours.

ARCH 4910 RURAL STUDIO COMPLETION (0) LEC. Completion of construction project for ARCH 4120 Elective Studio. This studio is based in the School’s remote facilities in Newbern, AL.

ARCH 4960 SPECIAL PROBLEMS (1-6) LEC. Special problems Course may be repeated for a maximum of 6 credit hours.

ARCH 4997 HONORS THESIS (1-6) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.


ARCH 5020 THESIS STUDIO (7) LEC. 3, AAB/LST. 10. Pr. ARCH 5010 and ARCH 5990. Exploration and development of an architectural project under the direction of a faculty member.

ARCH 5100 TEACHING METHODS (1) LEC. 1.

ARCH 5240 BEING THERE (1) LEC. 1. Course may be repeated for a maximum of 2 credit hours.

ARCH 5340 METHODS IN COMMUNITY BASED LEARNING (3) LEC. 3.

ARCH 5990 INTRODUCTION TO THESIS RESEARCH (2) LEC. 2. The tools, techniques, and strategies required to select, develop, refine, write, and present a thesis argument.

ARCH 5991 THESIS RESEARCH (1) LEC. 1. Pr. ARCH 5990. Expansion on the individual thesis argument and research begun in ARCH 5990 in parallel with the development of their thesis design project in ARCH 5020.

ARCH 7010 STUDIO I: PROJECT INITIATION (6) STU. 12. Coreq. ARCH 7210 and ARCH 7110. This is the first of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a schematic, client-driven architectural proposal.

ARCH 7020 STUDIO II: PROJECT DEVELOPMENT (6) STU. 12. Pr. ARCH 7010 and ARCH 7110 and ARCH 7210. Coreq. ARCH 7220 and ARCH 7120. This is the second of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7030 STUDIO III: PROJECT COMPLETION (6) STU. 12. Pr. ARCH 7020 and ARCH 7120 and ARCH 7210. Coreq. ARCH 7130. This is the third of three sequential design studios in which the aspects of community need, context, technical systems, and building materials are explored to develop a client-driven architectural proposal.

ARCH 7110 SEMINAR IN COLLABORATIVE DESIGN METHODS AND PROCESS (3) SEM. 3. Pr. ARCH 7010 and ARCH 7210. Coreq. ARCH 7210 and ARCH 7010. Introduction to the core theories of collaboration within interdisciplinary design and construction project teams teams and community-based client groups. Students develop an understanding of the fundamentals of collaborative process design, principles negotiation, communication across disciplines, and conflict resolution.

ARCH 7120 SEMINAR IN DESIGN TECTONICS (3) SEM. 3. Pr. ARCH 7010 and ARCH 7110 and ARCH 7210. Coreq. ARCH 7020 and ARCH 7220. Co-requisite adjunct to Project Development Studio. Taught as a series of workshops, this course provides the disciplinary framework necessary to apply technical research methods when evaluating options and reconciling the implications of design development decisions across systems and scales.

ARCH 7130 SEMINAR IN PROJECT COMMUNICATIONS (3) SEM. 3. Pr. ARCH 7020 and ARCH 7120 and ARCH 7220. Coreq. ARCH 7030. This course is delivered as a co-requisite adjunct to Project Completion Studio (Studio III). This course provides the disciplinary framework necessary to develop all project documentation required for project construction, delivery, record keeping, as well as future research and analysis.
ARCH 7210 EXECUTIVE ISSUES I (3) SEM. 3. Coreq. ARCH 7010 and ARCH 7110. Co-requisite adjunct to Project Initiation Studio (Studio I). Taught as a series “overlay” lectures and workshops. Provides the disciplinary framework to apply case study research methods when evaluating options and reconciling the implications of schematic design decisions across systems/scales.

ARCH 7220 EXECUTIVE ISSUES II (3) SEM. 3. Coreq. ARCH 7020 and ARCH 7120. Taught as a series "overlay" lectures and workshops. Provides the disciplinary framework necessary to apply case study research methods when evaluating options and reconciling the implications of design development decisions across systems/scales.

Art - ARTS

Courses

ARTS 1030 BASIC CERAMICS (3) STU. 6. Instruction in principles of three-dimensional design and sculpture. Clay is used to explore techniques of casting, constructing, modeling, and wheel throwing. Work with glazes and surface decoration. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1040 BASIC PAINTING (3) STU. 6. Instruction in painting concepts, materials, and techniques. Water-based paints and other media are used to explore a variety of approaches and subject matter. Not open to ARTF, ARTH, and ATLA majors.

ARTS 1110 DRAWING I (3) AAB/STU. 6. Basic drawing with emphasis on accurate observation, pictorial organization, and the depiction of space; development of drawing skills using various black and white media.

ARTS 1210 2-D DESIGN FOR STUDIO ART (3) STU. 6. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

ARTS 1220 3-D DESIGN FOR STUDIO ART (3) STU. 6. Elements and principles of basic three-dimensional design. Emphasis on spatial organization, color, media exploration and craftsmanship.

ARTS 1250 ORIENTATION TO STUDIO ART FOR THE MAJOR (2) LEC. 2. Studio Art Majors and Minors or Departmental Approval. Introduction to the visual arts, critique strategies, studio safety, portfolio development, writing, and careers in the arts.

ARTS 1510/1513 LOOKING AT ART: APPROACHES TO INTERPRETATION (3) LEC. 3. Introduces the fundamental structures of the art world and multiple approaches to looking at and responding to art.

ARTS 1610/1613 INTRODUCTION TO ART HISTORY (3) LEC. 3. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1617 HONORS INTRODUCTION TO ART HISTORY (3) LEC. 3. Pr. Honors College. This introduction to global art history teaches the basic concepts of visual analysis by discussing the historical, social, and political contexts of major themes in art history. Specific topics and emphases vary by instructor.

ARTS 1710 INTRODUCTION TO ART HISTORY I (3) LEC. 3. Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000.

ARTS 1717 HONORS INTRODUCTION INTO ART HISTORY I (3) LEC. 3. Pr. Honors College. Fine Arts Core. Introduction to major art traditions of the world, from Paleolithic times to AD/CE 1000. Credit will not be given for both ARTS 1710 and ARTS 1717.

ARTS 1720/1723 INTRODUCTION TO ART HISTORY II (3) LEC. 3. Fine Arts Core. Introduction to world art, c.1000 to c.1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same time period.

ARTS 1727 HONORS INTRO ART HISTORY II (3) LEC. 3. Pr. Honors College. Fine Arts Core. An introduction to world art, c. 1000 to c. 1700. Medieval, Renaissance, and Baroque Europe with Islamic and non-Western art of the same period. Credit will not be given for both ARTS 1720 and ARTS 1727.

ARTS 1730 INTRODUCTION TO ART HISTORY III (3) LEC. 3. Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships.

ARTS 1737 HONORS INTRODUCTION TO ART HISTORY III (3) LEC. 3. Pr. Honors College. Fine Arts Core. Major works of painting, sculpture, and architecture from the Rococo period through the 20th century. Emphasis on styles and social, political and cultural relationships. Credit will not be given for both ARTS 1730 and ARTS 1737.
ARTS 2100 FOUNDATIONS OF ART HISTORY I (3) LEC. 3. A history of art from ancient cultures to approximately 1300 CE, with an introduction to basic art historical research and writing skills.

ARTS 2150 FOUNDATIONS OF ART HISTORY II (3) LEC. 3. A history of art from approximately 1300 CE to the contemporary period, with an introduction to basic art historical research and writing skills.

ARTS 2210 INTRODUCTION TO PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Fine art photographic concepts and techniques including camera operation, tonal control of black and white prints, presentations of historical and contemporary photography.

ARTS 2310 PAINTING I (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Instruction in painting concepts, materials, and methods.

ARTS 2410 PRINTMAKING: RELIEF (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Instruction to relief printmaking. Studio work supplemented with lectures, critiques, and readings.

ARTS 2510 INTRODUCTION TO SCULPTURE (3) AAB/STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1220 or Departmental approval. Survey of the materials, processes, and issues involved in the production of contemporary object-oriented sculpture. Focus on problem solving and presentations of contemporary sculpture.

ARTS 2610 INTRODUCTION TO DIGITAL ART (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. An introduction to the skills and concepts of digital art forms such as imaging, time, and sound, using computer-based tools and techniques.

ARTS 2810 CERAMICS I (3) AAB/STU. 9. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1220 or Departmental approval. Introduction to handforming methods for sculpture and vessel forms in clay. Work with glazes and firing.

ARTS 2970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (3) LEC. 3. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 3100 INTERMEDIA (3) STU. 6. Pr. ARTS 2510 and (ARTS 2810 or ARTS 3820) and (ARTS 2210 and ARTS 2310 and ARTS 2410) and (ARTS 2100 and ARTS 2150). Introduction to concepts and visual problem solving in mixed media.

ARTS 3110 FIGURE DRAWING (3) STU. 6. Pr. ARTS 1110 and (ARTS 2100 or ARTS 2150) or Departmental approval. The human figure as form and as compositional element. Measuring and sighting for proportion. Drawing from casts, skeletons, and nude models.

ARTS 3140 ADVANCED DRAWING I (3) STU. 6. Pr. ARTS 3110. Concepts, materials and techniques with emphasis on the development of a personal vision and individual approach. Nude models may be used.

ARTS 3150 ADVANCED DRAWING II (3) STU. 6. Pr. ARTS 3140 and (ARTS 2100 and ARTS 2150). Medium and subject determined by student with approval of instructor. Emphasis on strengthening the student's aesthetic awareness and technical skills.

ARTS 3220 DIGITAL AND COLOR PHOTOGRAPHY (3) AAB/STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2210 or GDES 3210) or Departmental approval. Concepts and practices of contemporary art photography including digital production techniques and color photographic theory.

ARTS 3230 INTERMEDIATE PHOTOGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and (ARTS 2210 or GDES 3210) or Departmental approval. Intermediate study of photographic processes with emphasis on technique, classroom craftsmanship, medium and large camera formats, approaches to content and researching concepts to inform studio production.

ARTS 3320 PAINTING II (3) AAB/STU. 6. Pr. ARTS 2310 and ARTS 2100 and ARTS 2150 or Departmental approval. Instruction in painting concepts, materials, and techniques with emphasis on the development of technical skills and a personal vision and individual approach.

ARTS 3330 PAINTING III (3) AAB/STU. 6. Pr. ARTS 3140 and ARTS 3320 or Departmental approval. Medium and subject determined by student and instructor. Emphasis on strengthening aesthetic awareness and technical skills.

ARTS 3420 PRINTMAKING: INTAGLIO (3) STU. 6. Pr. (ARTS 2100 or ARTS 2150) and ARTS 1110 and ARTS 1210 or Departmental approval. Introduction to intaglio printmaking. Studio work with lectures, critiques, and readings.

ARTS 3430 PRINTMAKING: SERIGRAPHY (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) or (ARTS 2410 or ARTS 3420) or Departmental approval. Introduction to water based screen-printing. Studio work supplemented with lectures, critiques, and reading.
ARTS 3520 SCULPTURE AS OBJECT (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 2510 or Departmental approval. Continued research into the materials, processes and issues involved in the production of mixed media sculpture. Readings and discussions on recent developments in the field of sculpture.

ARTS 3530 SCULPTURE AS SPACE (3) STU. 6. Pr. (ARTS 2100 and ARTS 2150) and ARTS 2510 or Departmental approval. Survey of the methods, technologies (including sound and light), and issues involved in the production of contemporary sculptural installations, environments, and sites. Class discussion of student projects, with readings, presentations, and videos that address current art practice.

ARTS 3650 HISTORY OF PHOTOGRAPHY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the history and theory of photography from its 19th-century origins to contemporary global practices.

ARTS 3660 EIGHTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture in 18th-century Europe.

ARTS 3670 CONSTRUCTING RACE IN THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the role of visual imagery in inscribing and challenging racial hierarchies in the history of art.

ARTS 3680 20TH-CENTURY ART II: 1945-2000 (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. An introduction to the artists, movements, institutions, concepts, and themes of late 20th-century art.

ARTS 3690 ARTS OF AFRICA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to the art, artists, themes and issues in African art from the pre-colonial period to the contemporary era.

ARTS 3700 ART OF THE UNITED STATES (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of architecture, painting, and sculpture from colonial to recent times. Selected movements and works are considered in relationship both to European and to indigenous conditions and attitudes.

ARTS 3710 ANCIENT ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Examination of major art traditions of the ancient world, including for example: Egypt, Near East, Aegean, Greece, and Rome.

ARTS 3720 MEDIEVAL ART OF THE WEST (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major art traditions of the West from the fall of Rome to CE 1400, with a selective focus on the major art traditions, including Migration period, Carolingian, Ottonian, Romanesque, Gothic, and Italo-Byzantine.

ARTS 3730 RENAISSANCE ART IN ITALY (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of the 15th and 16th centuries in Italy.

ARTS 3740 SEVENTEENTH-CENTURY ART IN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the architecture, painting, and sculpture of 17th-century Europe.

ARTS 3750 19TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to major art movements from Neo-Classicism to Post-Impressionism and Art Nouveau.

ARTS 3760 20TH CENTURY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major developments in painting, sculpture, and architecture in Europe and the United States from 1900 to recent times.

ARTS 3770 ANCIENT AMERICAN ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of major art traditions of nuclear America, from Mexico to the Andes, from the beginnings to CE 1550.

ARTS 3780 RENAISSANCE ART OF NORTHERN EUROPE (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Study of the art of Northern Europe, CE 1300-1600. Major themes include cultural interchange, court and bourgeois patronage, rise of graphic arts, and the development of the art market.

ARTS 3790 ARTS OF ASIA (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to major art traditions of Asia from the beginnings to the present.

ARTS 3800 ISSUES AND CRITICISM IN CONTEMPORARY ART (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) and one 3000-level art history class or Departmental approval. Readings and discussions about contemporary art.
ARTS 3810 GENDER AND THE VISUAL ARTS (3) LEC. 3. Pr. (ARTS 2100 and ARTS 2150) or Departmental approval. Introduction to gender issues in the visual arts in historical and contemporary contexts. Examines the cultural notions of both masculine and feminine gender roles at play in works of art and explores key issues that have affected women's production of works of art in the past and present.

ARTS 3820 CERAMICS II (3) STU. 6. Pr. ARTS 1110 and ARTS 1220 and (ARTS 2100 or ARTS 2150) or Departmental approval. Introduction to wheel-thrown pottery. Presentation of historical and contemporary contexts for fine arts ceramics. Work with glazes and firing.

ARTS 3830 CERAMICS III (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 2810 and ARTS 3820 or Departmental approval. Individual approaches to ceramic sculpture and vessel forms, with emphasis on stylistic and conceptual concerns.

ARTS 3920 INTERNSHIP IN STUDIO ART/ART HISTORY (3) AAB/PRA. 15. SU. Junior standing. Junior standing and 3.0 GPA in major and completion of at least two 3000-level courses in ARTF, ARTH, or ATLA major. Internships appropriate to the major with a departmental-approved sponsor providing hands-on, practical learning experiences in a professional setting.

ARTS 4100 SEMINAR IN PRE-MODERN ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in art history from the ancient era until 1750 CE. Course may be repeated for a maximum of 6 credit hours.

ARTS 4150 SEMINAR IN MODERN AND CONTEMPORARY ART HISTORY (3) SEM. 3. 6 hours of 3000-level art history courses. Or departmental approval. Examination of varying topics in modern and contemporary art history, 1750 CE-present. Course may be repeated for a maximum of 6 credit hours.

ARTS 4240 ADVANCED PHOTOGRAPHY (3) STU. 6. Pr. ARTS 3220 and ARTS 3230 and (ARTS 2100 and ARTS 2150). Advanced investigations of theory, history, and methods to inform photographic practice. Emphasis on production of mature work and individual artistic identity. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4340 PAINTING IV (3) STU. 6. Pr. ARTS 3330 and (ARTS 2100 and ARTS 2150). Advanced painting with medium and subject idea determined by student with approval of the instructor. Emphasis on strengthening the student's awareness and technical skills as a maturing painter. Nude models may be used. Course may be repeated for a maximum of 9 credit hours.

ARTS 4440 ADVANCED PRINTMAKING (3) STU. 6. Pr. ARTS 2410 and ARTS 3420 and ARTS 3430 and (ARTS 2100 and ARTS 2150). Individual research in printmaking. Students focus on conceptual and technical development through continued research in relief, intaglio, or screen-printing. Course may be repeated for a maximum of 9 credit hours.

ARTS 4540 ADVANCED SCULPTURE (3) STU. 6. Pr. ARTS 3520 and ARTS 3530 and (ARTS 2100 and ARTS 2150). Advanced investigation of the history, theory and methods of sculptural practice. Individual instruction and supervision of research and reading. Frequent individual and group critiques. Course may be repeated for a maximum of 9 credit hours.

ARTS 4700 SENIOR CAPSTONE: ART HISTORY (3) SEM. 3. Declared ARTH major or minor and completion of 18 hours of 3000-level art history courses. Capstone course for ARTH majors.

ARTS 4840 CERAMICS IV (3) STU. 6. Pr. ARTS 2100 and ARTS 2150 and ARTS 2810 and ARTS 3820 and ARTS 3830. Continuation of ARTS 3830 with increased emphasis on individual stylistic and conceptual concerns. Course may be repeated for a maximum of 9 credit hours.

ARTS 4850 PROFESSIONAL STUDIO PRACTICES (2) LEC. 2. Instruction in portfolio preparation, professional practices, and information on studio art careers and graduate study. Must have completed nine credit hours in one concentration; taken concurrently with 4000-level studio in concentration prior to ARTS 4980 Senior Project in Studio Arts.

ARTS 4860 BFA CRITIQUE SEMINAR (1) LEC. 1. SU. Rigorous group critiques of artwork produced in media concentration courses, discussions and writing about art, art documentation, and exhibition practices. Course may be repeated for a maximum of 3 credit hours.

ARTS 4930 DIRECTED STUDIES (2-3) IND. Pr., Open only to ARTS students who have shown ability, initiative, and industry. Departmental approval and 3.0 minimum GPA in 3000-level ARTS courses in area of directed study. Directed studies are offered in painting, printmaking, sculpture, art history, photography, and ceramics. Course may be repeated for a maximum of 6 credit hours.

ARTS 4950 BA STUDIO ART CAPSTONE (1) LEC. 1. SU. Students must have Senior Standing and have completed a minimum of 39 hours in the Major. Professional skills development and career strategies for BA Studio Art Majors.
ARTS 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

ARTS 4970 SPECIAL TOPICS IN STUDIO ART AND ART HISTORY (2-3) AAB. Departmental approval. Topics in studio art and art history. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

ARTS 4980 SENIOR PROJECT FOR STUDIO ARTS (3) STU. 6. Pr. (ARTS 2210 and ARTS 2310) or (ARTS 2210 and ARTS 2410) or (ARTS 2310 and ARTS 2410) and ARTS 2510 and (ARTS 2810 or ARTS 3820). And three additional courses in a single studio art concentration. Must be taken in the student's final semester. Directed terminal studio project with faculty-approved choice of content and medium. Project will be exhibited.

ARTS 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

Auburn Global - GLOB

Courses

GLOB 0100 FOUNDATIONS OF AMERICAN UNIVERSITY LIFE (0) LEC. 1. International Students. This class orients and acclimates international students to Auburn University, the surrounding area, and American cultural contexts.

GLOB 0210 READING AND WRITING FOUNDATION (0) LEC. 10. SU. This course develops critical Reading and Writing skills for students learning English as a Second Language. The course seeks to bring students to the level of an Intermediate User (B1) as described by the Common European Framework and Reference (CEFR). Course may be repeated for a maximum of 30 credit hours.

GLOB 0220 LISTENING AND SPEAKING FOUNDATION (0) LEC. 10. SU. This course develops critical listening and speaking skills for students learning English as a Second Language. The course seeks to bring students to the level of an Intermediate User (B1) as described by the Common European Framework and Reference (CEFR). Course may be repeated for a maximum of 30 credit hours.

GLOB 0310 ENGLISH FOR ACADEMIC PURPOSES I: INTEGRATED SKILLS (0) LEC. 10. LAB. 0. This is an integrated-skills ESL course: listening, speaking, reading, and writing skills are combined and mutually reinforce each other. Students practice language and academic skills through exercises and types of technology associated with academic pursuits, including University-specific technologies (Canvas, databases).

GLOB 0410 ENGLISH FOR ACADEMIC PURPOSES II: ORAL PROFICIENCY FOR IAP STUDENTS (0) LEC. 3. LAB. 0. The purpose of this course is to help improve the students' listening and oral communication skills in English. The course will provide opportunities to work on language skills and pronunciation, make presentations and arguments, and discuss and debate academic topics.

GLOB 0420 ADVANCED ORAL PROFICIENCY (0) LEC. 3. Pr. GLOB 0410. International Accelerator. The course improves students' listening and oral communication skills in English on the advanced level; it provides opportunities to work on language skills and pronunciation, present, discuss and debate academic topics germane to the undergraduate experience at Auburn University. The focus is on academic language and advising, building on the suite of essential communication skills, speech acts, and conversational gambits which students learned in GLOB 0410.

GLOB 0430 ENGLISH SUPPLEMENT (0) LEC. 1. LAB. 0. SU. Pr., International students. The English Supplement explains in-depth the key themes and concepts of a specific course topic to facilitate comprehension. Its field-specific content also assists in development of study skills for international students to use throughout their academic career. Course may be repeated for a maximum of 5 credit hours.

GLOB 0440 INTRODUCTION TO ACADEMIC WRITING PROFICIENCY (0) LEC. 6. SU. International student. Develops critical academic writing skills necessary to successfully complete assignments related to academic coursework. Students will learn the fundamentals of effective academic writing including construction and flow management, as well.

GLOB 0450 ACADEMIC WRITING PROFICIENCY (0) LEC. 3. SU. Develops critical writing skills related to academic coursework. Students acquire key organizational concepts germane to academic writing including essay construction, patterns of organization, and a basic tool kit of attribution strategies and organizational concepts.

GLOB 0710 ENGLISH FOR PROFESSIONAL PURPOSES (0) LEC. 4. LAB. 0. SU. Students will develop professional English language skills, both written and spoken.
GLOB 0720 ENGLISH FOR SPECIFIC PURPOSES (0) LEC. 2. LAB. 0. Students will study and learn field-specific and academic vocabulary.

GLOB 0730 MAKING THE CASE: STRUCTURE. ARGUMENT, AND COMPOSITION IN RESEARCH CONTEXTS (0) LEC. 3. LAB. 0. SU. This course provides students practice in skills necessary for graduate level research writing.

GLOB 0740 THE ART OF PRESENTING. ADVANCED ORAL COMMUNICATIONS (0) LEC. 2. LAB. 0. SU. The purpose of this course is to help students improve oral communication skills in English. The course will provide students with activities designed to help them improve spoken English in presenting information, participating in discussions, and engaging in debates.

GLOB 0750 ENGLISH SUPPLEMENT: GRADUATE READING AND WRITING (0) LEC. 1. SU. The Graduate Reading and Writing course assists students to improve their academic reading and writing skills by using different reading and writing techniques.

GLOB 0810 PROFESSIONAL DEVELOPMENT SEQUENCE I (0) LEC. 1. SU. Understanding the workplace and enhancing the skills necessary to be an effective worker are the goals of this course. Expectations of employees in the American workplace and other cultures are explored. Students will participate in networking and a company visit.

GLOB 0820 PROFESSIONAL DEVELOPMENT SEQUENCE II (0) LEC. 1. SU. This course is designed to enhance the students' effectiveness in career planning. Resumes, cover letters and professional portfolios are developed and incorporated into classroom activities. Through the use of role plays and mock interviews, students demonstrate the professional skills introduced.

GLOB 0830 RESEARCH COLLOQUIUM AND METHODS 1 (0) LEC. 2. SU. Exploration of research methods and techniques, problem solving strategies, challenges graduate students face and how to successfully pursue graduate studies. Students interact with professors, advanced graduate students and professionals to learn from their expertise and observe different presentation styles. Course may be repeated for a maximum of 2 credit hours.

GLOB 0840 RESEARCH COLLOQUIUM AND METHODS 2 (0) LEC. 2. SU. Further exploration of research methods and techniques, problem solving strategies, challenges graduate students face and how to successfully pursue graduate studies. Students interact with professors, advanced graduate students and professionals to learn from their expertise and observe different presentation styles.

GLOB 0850 DATA MANAGEMENT: GATHERING, ANALYZING, AND INTERPRETING DATA (0) LEC. 3. SU. Pr., International graduate students. Introduction to the management of research data and the analysis and the interpretation of research data gathered in a number of settings including experiments and surveys. Students interact with professors and graduate students to understand data usage in research.

GLOB 0900 SPECIAL TOPICS (0) LEC. 1-9, LAB. 1-9. SU. International student only. The course prepares international students for the rigors of graduate study in a variety of academic courses of the MAP (Masters Accelerator Program) curriculum. It is repeatable with change in topic. Course may be repeated for a maximum of 9 credit hours.

GLOB 1010 COLLEGIATE ACADEMIC PERFORMANCE AND EXPECTATIONS (1) LEC. 1. International Students. The Collegiate Academic Performance and Expectations class assists students in the International Accelerator Program in developing collegiate academic skills in order to perform well in Auburn University classes and meet the rigorous expectations of Auburn University for graduation.

GLOB 1020 FROM UNIVERSITY TO PROFESSIONAL LIFE (1) LEC. 1. International Students. This class is designed to help students be prepared for life after university by helping them better understand professional development and career skills to transition their success in the classroom to their professional life.

GLOB 1100 ADVANCED ACADEMIC WRITING PROFICIENCY (1) LEC. 3. Develops advanced writing skills for Auburn Global Pathway students. Students acquire advanced concepts germane to academic writing including the use of a wide range of rhetorical devices, as well as advanced skills such as synthesis, critical analysis, and reflection.

Aviation Management - AVMG

Courses

AVMG 1010 INTRODUCTION TO AVIATION (3) LEC. 3. Orientation to aviation management career opportunities. The history of significant events and accomplishments in the attempt to move through the air and space.
AVMG 2050 INTRODUCTION TO UNMANNED AIRCRAFT SYSTEMS (UAS) (3) LEC. 3. Orientation to unmanned aircraft systems with emphasis on pilot and operating rules, National Airspace System (NAS) integration, safety, and commercial uses of Small UAS (sUAS).

AVMG 2600 HUMAN FACTORS IN AVIATION (3) LEC. 3. Principles of human cognitive and physical performance, and man/machine interface and design, in aviation. Study of information processing, workload management, situational awareness, and decision-making.

AVMG 3050 AVIATION WEATHER (3) LEC. 3. Pr. AVMG 1010. Meteorology as it applies to the operation of aircraft with emphasis on observation of weather elements and interpretation of flight planning weather information.

AVMG 3140 AIR TRANSPORT INDUSTRY DEVELOPMENT (3) LEC. 3. Pr. AVMG 1010. Principles and analysis of air transport industry development, its regulatory environment, and associated certification processes.


AVMG 3600 AIRCRAFT MAINTENANCE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Aircraft maintenance program fundamentals, procedures, and practices, with an emphasis on regulatory requirements.

AVMG 3810 PROFESSIONAL DEVELOPMENT IN AVIATION (1) LEC. 1. SU. AVMG, AVMF, AVMN, and AVPF majors only. Career planning and preparation for aviation internships and professional experience opportunities.

AVMG 4040 BUSINESS AVIATION MANAGEMENT (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Current principles and practices in commercial and business/corporate flight operations including organizational sources of revenue, functions, operation, and typical problems.


AVMG 4080 AIR TRANSPORT PLANNING (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 and AVMG 3600. Junior Standing or Departmental Approval. Management decision making involved in selection of equipment, routes and the establishment of rates by certified and non-certified air carriers.

AVMG 4130 AIRPORT MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Practices in management of a civil public airport, including organization, functions, operations, sources of revenue, funding, maintenance and administration.

AVMG 4140 AIRPORT PLANNING AND DESIGN (3) LEC. 3. Pr. AVMG 4130. Junior Standing or Departmental Approval. Principles and procedures pertaining to planning airport facilities required to meet the immediate and future air transportation of a community or region.

AVMG 4190 AIRSPACE MANAGEMENT (3) LEC. 3. Pr. AVMG 3050. Junior Standing or Departmental Approval. Air traffic control procedures, facilities, center, and operations. Theory of radar operation and air traffic separation.

AVMG 4200 AIR CARGO OPERATIONS (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. Domestic and international air cargo operations with emphasis on cargo economics, equipment, domestic and international regulatory activities, agents, operational techniques, systems and problems.

AVMG 4920 INTERNSHIP IN AVIATION MANAGEMENT (1-6) INT. Practical on-the-job training under supervision with aviation agencies. Written reports are required by designated faculty supervisors. Course may be repeated for a maximum of 6 credit hours.

AVMG 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Honors College. Special topics presented to Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Honors College. Thesis for Honors College students. Course may be repeated for a maximum of 3 credit hours.

AVMG 5090 AVIATION LAW AND POLICY (3) LEC. 3. Pr. AVMG 1010. Junior Standing or Departmental Approval. The legal structure of aviation including federal, local and state statutes, contracts, insurance and liability, regulatory statutes, and case law.
AVMG 5170 AIRLINE MANAGEMENT (3) LEC. 3. Pr. AVMG 1010 and AVMG 3050. Junior Standing or Departmental Approval. Airline manufacturing, economic, and operational/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 5180 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200. Junior Standing or Departmental Approval. The economic development of international air transportation from its beginnings to present day. Explores a wide range of international aviation issues such as bilateral and open skies agreements, airline mega alliances, and joint ventures.

AVMG 5970 SPECIAL TOPICS IN AVIATION MANAGEMENT (3) LEC. 3. Investigation of current issues in the aviation industry.

AVMG 6090/6096 AVIATION LAW AND POLICY (3) LEC. 3. Departmental approval. The legal structure of aviation including federal, local, and state statutes, contracts, insurance and liability, regulatory statutes and case law.

AVMG 6170/6176 AIRLINE MANAGEMENT (3) LEC. 3. Departmental approval. Airline manufacturing, economic, and operation/managerial issues, research and development and competition issues and a survey of the world's major airlines in terms of their management strategies and style.

AVMG 6180/6186 GLOBAL AIR TRANSPORTATION MANAGEMENT (3) LEC. 3. Pr. AVMG 3140 and AVMG 3200 or departmental approval. International foreign air carriers, influences of ICAO and IATA, national ownership, determinants of power, operational and management practices, routes and fares/ Junior standing

AVMG 6970/6976 SPECIAL TOPICS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Investigation of current issues in the aviation industry. Credit will not be given for both AVMG 5970 and AVMG 6970. Course may be repeated for a maximum of 9 credit hours.

AVMG 7930/7936 SPECIAL PROBLEMS AVIATION MNGT (1-3) LEC. 1-3. Departmental approval. Special problems and current status of the aviation and aerospace industries are analyzed through a problem solving exercise. Course may be repeated for a maximum of 6 credit hours.

Bio & Ag Technology Management - BATM

Courses

BATM 1110 INTRODUCTION TO TECHNOLOGY DESIGN (3) LEC. 2. LAB. 3. Introduction to the design process, 2D and 3D parametric solid modeling, and both manual and automated fabrication processes.

BATM 2110 SOLVING TECHNOLOGY PROBLEMS (3) LEC. 2. LAB. 3. Pr. BATM 1110. An introduction to creative and analytical methods to solve technological problems. Define the problem, explore strategies, select and implement solutions, and evaluate results.

BATM 3500 NATURAL RESOURCE SYSTEMS CONSERVATION (3) LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Natural resource conservation technologies including rainfall-runoff relationships, sediment transport capacity, runoff control structures, water supply development, surveying techniques including GPS methods.

BATM 3510 AGRICULTURAL POWER AND MACHINERY FUNDAMENTALS (3) LEC. 2. LAB. 3. Pr. MATH 1130 or MATH 1133. Power unit fundamentals with emphasis on diesel and small gasoline engines; mechanics of operation, safety, use, and adjustment of machines used for horticultural and agronomic crop production; and precision agriculture principles and technology.

BATM 3530 AGRICULTURAL PRODUCTION AND PROCESSING FACILITY TECHNOLOGY (3) LEC. 3. Pr. MATH 1130 or MATH 1133. Fundamental requirements for the design and operation of agricultural production and processing facilities.

BATM 4100 PROFESSIONAL PRACTICE IN TECHNOLOGY MANAGEMENT (2) LEC. 1. LAB. 3. Pr. BATM 5110. First in the two-course capstone experience. This course focuses on professional topics that prepare students for technical careers; teamwork, communication, standards and codes, economics, project and time management. Teams initiate the capstone design project.

BATM 4110 TECHNOLOGY CAPSTONE (3) LEC. 1. LAB. 6. Pr. BATM 4100. Development and evaluation of a team-based capstone project using tools from the technology curriculum; emphasizing communication, critical thinking, and technical and economic analyses.

BATM 5110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Pr. BATM 2110. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.
BATM 5120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 5110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

BATM 6110 AGRI-INDUSTRIAL ELECTRICAL APPLICATIONS (3) LEC. 2. LAB. 3. Departmental approval. An introduction to the fundamentals of electricity and electrical systems used in agricultural and industrial applications. Electricity basics include safety, AC (single and three phase) and DC power. Selecting and sizing components include wiring conductors, safety devices, motors, other loads.

BATM 6120 AGRI-INDUSTRIAL ELECTRONICS AND CONTROLS (3) LEC. 2. LAB. 3. Pr. BATM 6110. An introduction to the fundamentals of electronic control systems used in agricultural and industrial production and processing applications. Electronic control system components include programmable logic controllers (PLCs), switches, relays, sensors, and ladder logic.

**Biochemistry - BCHE**

**Courses**

**BCHE 3180 NUTRITIONAL BIOCHEMISTRY (3)** LEC. 3. Pr. CHEM 2030 or CHEM 2080 or CHEM 2087. Departmental approval. Fundamental pathways of carbohydrate, lipid, and amino acid metabolism in human beings. Credit will not be given for both BCHE 3180 and BCHE 3200.

**BCHE 3200 PRINCIPLES OF BIOCHEMISTRY (3)** LEC. 3. Pr. (BIOL 1010 or BIOL 1020 or BIOL 1030 or BIOL 1027 or BIOL 1037) and (CHEM 2030 or CHEM 2070 or CHEM 2077 or CHEM 2080 or CHEM 2087). Structure and function of biomolecules, enzyme catalysis, processing of genetic information, bioenergetics and metabolism, and regulatory mechanisms in cellular processes.

**BCHE 3201 PRINCIPLES OF BIOCHEMISTRY LABORATORY (1)** LAB. 2. Coreq. BCHE 3200. Fundamental theory and techniques used in the isolation, characterization, and study of biomolecules.

**BCHE 5180 BIOCHEMISTRY I (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways. Bioenergetics.

**BCHE 5181 BIOCHEMISTRY I LABORATORY (1)** LAB. 3. Pr. P/C BCHE 5180 or P/C CHEM 5180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

**BCHE 5190 BIOCHEMISTRY II (3)** LEC. 3. Pr. P/C BCHE 5180 or P/C BCHE 6180. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

**BCHE 5191 BIOCHEMISTRY II LABORATORY (1)** LAB. 3. Pr. P/C BCHE 5190 or P/C CHEM 5190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

**BCHE 6180 BIOCHEMISTRY I (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. Fundamentals of the classification, structure, and reactions of the major constituents of living matter and evaluation of binding phenomena and bioenergetics.

**BCHE 6181 BIOCHEMISTRY I LABORATORY (1)** LAB. 3. Pr. P/C BCHE 6180 or P/C CHEM 6180. Laboratory techniques required for identification and quantification of compounds of important biochemical classes.

**BCHE 6190 BIOCHEMISTRY II (3)** LEC. 3. Pr. BCHE 6180. Departmental approval. Fundamentals of metabolism, focusing on the design and regulation of the major catabolic and biosynthetic metabolic pathways.

**BCHE 6191 BIOCHEMISTRY II LABORATORY (1)** LAB. 3. Pr. P/C CHEM 6190. Laboratory techniques required for partial purification, kinetic studies, and characterization of enzymes and nucleotides from various plants, animals, and bacteria.

**BCHE 6250 PLANT METABOLIC PATHWAYS (3)** LEC. 3. Pr. CHEM 2080 or CHEM 2087. Fundamental processes of metabolism specific to plants.

**BCHE 6250 BIOCHEMISTRY II LABORATORY (1)** LAB. 3. Pr. CHEM 2080 or CHEM 2087. Fundamental processes of metabolism specific to plants.

**BCHE 7200 ADVANCED BIOCHEMISTRY I (3)** LEC. 3. Graduate credit will not be given for both BCHE 6190 and BCHE 7200.

**BCHE 7210 ADVANCED BIOCHEMISTRY II (3)** LEC. 3. Structure and function of macromolecules participating in the flow of molecular information. Graduate credit will not be given for both BCHE 6180 and BCHE 7210. Or equivalent.
BCHE 7220 PRINCIPLES OF CELLULAR AND MOLECULAR ENZYMEOLOGY (3) LEC. 3. Pr. BCHE 6190 or CHEM 6190 or BCHE 7200. Departmental approval. The principles of enzyme chemistry including the physical, chemical, and catalytic properties of enzymes.


BCHE 7250 BIOCHEMISTRY OF LIPIDS AND LIPOPROTEINS (3) LEC. 3. Pr. BCHE 7200. Departmental approval. The regulation of lipid and lipoprotein metabolism, role of lipid mediators in signaling pathways and protein modification, assembly and dynamics of lipoproteins and biomembranes.

BCHE 7260 BIOINFORMATICS (3) LEC. 3. Pr. BCHE 7210. Departmental approval. Advanced study of main concepts and tools of genomics and proteomics.

BCHE 7270 BIOCHEMICAL RESEARCH TECHNIQUES (3-6) LEC. Pr. BCHE 6190 or CHEM 6190. Departmental approval. Modern biochemical laboratory techniques. Course may be repeated for a maximum of 6 credit hours.

BCHE 7280 TOPICS IN BIOCHEMISTRY (1-3) LEC. Pr. BCHE 7210. Directed studies in biochemistry. Departmental approval and BCHE 7210 or equivalent. Course may be repeated for a maximum of 3 credit hours.

Biology - BIOL

Courses

BIOL 1000/1003 INTRODUCTION TO BIOLOGY (3) LEC. 3. Science Core. Introduction to biological principles relevant to human society. Designed for non-science majors. Credit will not be given for both BIOL 1000 and BIOL 1020 or BIOL 1027.

BIOL 1001 INTRODUCTION TO BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1000 or P/C BIOL 1003. Laboratory course for BIOL 1000 or BIOL 1003.

BIOL 1010 A SURVEY OF LIFE (3) LEC. 3. Pr. BIOL 1000 or BIOL 1003 or BIOL 1020 or BIOL 1027 or (SCMH 1010 or SCMH 1013 or SCMH 1017) or (SCMH 1020 or SCMH 1023 or SCMH 1027). Science Core. Emphasis on contrasting strategies employed by organisms to meet similar biological needs. Credit will not be given for both BIOL 1010 and BIOL 1030 or BIOL 1037.

BIOL 1011 A SURVEY OF LIFE LABORATORY (1) LAB. 2. Pr. P/C BIOL 1010. Laboratory course for BIOL 1010.

BIOL 1020 PRINCIPLES OF BIOLOGY (3) LEC. 3. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1020 and BIOL 1000 or BIOL 1027.

BIOL 1021 PRINCIPLES OF BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1020. Laboratory Course for BIOL 1020.

BIOL 1027 HONORS BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. Science Core. Introduction to the physical, chemical, and biological principles common to all organisms. Credit will not be given for both BIOL 1027 and BIOL 1000 or BIOL 1020.

BIOL 1030 ORGANISMAL BIOLOGY (3) LEC. 3. Pr. BIOL 1020 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1030 and BIOL 1010 or BIOL 1037.

BIOL 1031 ORGANISMAL BIOLOGY LABORATORY (1) LAB. 2. Pr. P/C BIOL 1030. Laboratory Course for BIOL 1030.

BIOL 1037 HONORS ORGANISMAL BIOLOGY (4) LEC. 3. LAB. 2. Pr. Honors College. BIOL 1020 or BIOL 1027. Science Core. Principles and fundamentals of biology at the organismal level. Credit will not be given for both BIOL 1037 and BIOL 1010 or BIOL 1030.

BIOL 2100 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Pr. BIOL 1030 or BIOL 1037. Introduction to career opportunities and student development options for majors in biological sciences. Students will investigate post-graduation academic and professional options, develop writing skills by creating resumes and ePortfolios, and explore course and research options with the department.

BIOL 2425 MARINE BIOLOGY (4) LEC. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. The invertebrates, vertebrates and marine plants as communities with emphasis on local examples. Taught only at Dauphin Island Sea Lab. (DISL).

BIOL 2500 HUMAN ANATOMY AND PHYSIOLOGY I (4) LEC. 4. Pr. BIOL 1000 or BIOL 1020 or BIOL 1027. Study of the structure and function of the human body. First half of two-part sequence with BIOL 2510, concentrating on tissues, muscle, and nervous system.


Biol 3000/3003 Genetics (3) Lec. 3. Pr. (Biol 1020 or Biol 1027). An overview of theoretical principles of transmission, cytological, molecular, and population genetics. Problem solving will be emphasized. May count either Biol 3000 or Biol 3003.

Biol 3001 General Genetics Laboratory (1) Lab. 2. Pr. Biol 1020 or Biol 1027 and (P/C Biol 3000 or P/C Biol 3003). Laboratory provides practical experience in the areas of transmission, cytological, molecular, and population genetics. Problem solving is emphasized though analysis of simulated and real genetics data sets.


Biol 3011 Comparative Anatomy Laboratory (1) Lec. 2. Pr. Biol 1030 or Biol 1037 and (P/C Biol 3010 or P/C Biol 3013). Coreq. Biol 3010 or Biol 3013. Laboratory to accompany Comparative Anatomy Lecture. This lab course will explore the diverse morphologies of vertebrates.

Biol 3020 Genomic Biology (4) Lec. 3. Lab. 2. Pr. Biol 1020 or Biol 1027. An overview of genes, genomes, and genomic and proteomic approaches and methodology. Application of principles of biology at the genomic level. Includes an introduction to bioinformatic approaches to genomic problems in a computer laboratory setting.

Biol 3030/3033 Evolution and Systematics (3) Lec. 3. Pr. Biol 1030 or Biol 1037. An introduction to evolutionary processes, classification, of organisms and scientific nomenclature.

Biol 3040 Biology of Marine Systems (3) Lec. 3. Pr. (Biol 1020 or Biol 1027) and (Biol 1030 or Biol 1037). Introduction to marine systems and biological investigations of coastal, near shore and open ocean organisms and processes.

Biol 3060 Ecology (4) Lec. 3. Lab. 3. Pr. Biol 1020 or Biol 1027 and Biol 1030 or Biol 1037. Departmental approval. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. 8 hours of Biology.

Biol 3075 Introduction to Oceanoigraphy (4) Lec. 4. Pr. (Math 1150 or Math 1153) and (Chem 1110 or Chem 1117 or Chem 1030 or Chem 1033) and Phys 1500. Departmental approval. The physics, chemistry, biology, and geology of the oceans. Taught only at Dauphin Island Sea Lab (DISL).

Biol 3100 Plant Biology (4) Lec. 4. Lab. 1. Pr. (Biol 1030 or Biol 1037) and Chem 1010 or Chem 1030 or Chem 1033 or Chem 1110 or Chem 1117. Introduction to the morphology, anatomy, physiology and classification of plants with laboratory.

Biol 3200 General Microbiology (3) Lec. 3. Pr. (Biol 1020 or Biol 1027) and Chem 1030 or Chem 1033 or Chem 1110 or Chem 1117. Introduction to the science of microbiology, emphasizing cell structure, systematics, growth, genetics, and the role in human affairs.

Biol 3201 General Microbiology Laboratory (1) Lec. 2. Pr. Biol 1020 or Biol 1027 and Chem 1030 or Chem 1033 or Chem 1110 or Chem 1117 and P/C Biol 3200. Coreq. Biol 3200. Fundamental laboratory techniques required to safely handle, enumerate, identify, and provide basic biochemical characterization of microorganisms.

Biol 3500 Perspectives in Immunology (3) Lec. 3. Pr. (P/C Biol 3000 or P/C Biol 3003 or P/C Fish 3000 or P/C Agri 3000 or P/C Biol 3020) and Biol 3200. Introduction to the cells and components of the immune response with an emphasis on host response to infection and medical immunology. May count either Biol 3500 or Biol 5500.

Biol 4000/4003 Histology (3) Lec. 3. Pr. (Biol 1030 or Biol 1037) and Biol 1031. Morphology and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.
Biol 4001 Histology Laboratory (1) Lab. 2.8. Pr. (Biol 1030 or Biol 1037) and (P/C Biol 4000 or P/C Biol 4003).
Laboratory investigation of the morphology and classification of tissues using prepared slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

Biol 4010 Invertebrate Biodiversity (4) Lec. 3. Lab. 3. Pr. Biol 1030 or Biol 1037. Survey of the phyla of invertebrates with emphasis on morphology, anatomy, ecology, evolution, and systematics.


Biol 4025 Ecology of the Florida Everglades (2) Lec. 15. Lab. 45. Pr. Biol 1020 or Biol 1027 and Biol 1030 or Biol 1037 and Biol 3040. Examines the natural history, ecology and evolution, and human impact on the Everglades. Includes intensive lectures and a more than 1-week long campsite based field trip in the Everglades. Multiple short trips to various locales within the Everglades.

Biol 4033 Histology Laboratory (1) Dsl. 3. Pr. (Biol 1030 or Biol 1037) and (P/C Biol 4000 or P/C Biol 4003).
Laboratory investigation of the morphology and classification of tissues using prepared digital slides to reveal the arrangement of tissues in organs and organ systems of vertebrate animals.

Biol 4035 Introduction to Marine Animal Neurobiology (3) Lec. 15. Lab. 60. Pr. Biol 1020 or Biol 1027 and Biol 1030 or Biol 1037. The neuroanatomy and neurophysiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses and neurotransmitters, muscle contraction, sensorimotor integration; neurophysiological bases of behavior; labs include computer simulation of cellular neurobiology.

Biol 4045 Marine Mammal Biology (4) Lec. 30. Lab. 60. Pr. Biol 1020 or Biol 1027 and Biol 1030 or Biol 1037 and Biol 3040. Introduction to the evolution, taxonomy and classification, anatomy, physiology, behavior, conservation and management issues of marine mammals, including cetaceans, pinnipeds, mustelids, sirenians and the polar bear. Lab and field research methods used to study marine mammals will be covered.

Biol 4065 Marine Conservation Biology (4) Lec. 45. Lab. 30. Pr. Biol 1020 or Biol 1027 and Biol 1030 or Biol 1037 and (Biol 3040 or Biol 3060). Study of major threats to marine biodiversity as and potential solutions to the threats. Students discuss current topics in marine conservation biology and critically debate marine conservation literature. Field trips to impacted and pristine sites will demonstrate principles.


Biol 4100/4103 Cell Biology (3) Lec. 3. Pr. Chem 2030 or (Chem 2070 or Chem 2077) and (Biol 3000 or Biol 3003 or Fish 3000 or Agri 3000) and (Biol 1030 or Biol 1037). Introduction to cellular structure and processes, including evolution, organization, physiology, molecular biology of cells, membranes, cytoplasm, and organelles as well as energy, transport, motility, cell division, signaling, transcription, and translation.

BIOL 4135 MARINE BEHAVIORAL ECOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. Animal behavior in the context of the marine environment. Students study the ecological and evolutionary significance of behavior in a marine setting. Topics include principles of marine behavioral ecology, techniques for observing behavior, conducting behavior experiments, and data collection.

BIOL 4150 HUMAN GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000 and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

BIOL 4410 VERTEBRATE DEVELOPMENT (5) LEC. 3. LAB. 4. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Morphogenesis and organogenesis of frog, chick, pig, and human from a descriptive and analytical viewpoint.

BIOL 4415 SHARK AND RAY BIOLOGY (2) LEC. 15. LAB. 45. Pr. BIOL 1020 or BIOL 1027 and BIOL 1030 or BIOL 1037 and BIOL 3040. An introduction to the biology of sharks and rays with special emphasis on regional shark fauna and field technique. Topics: chondrichthyan origin, systematics, sensory biology, trophic ecology, reproductive biology, life history, ecology, fisheries and conservation. Extensive lab and field work.

BIOL 4425 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Departmental approval. Fisheries management philosophy, objectives, problems, and principles involved in management decisions. Taught at Gulf Coast Research Laboratory.

BIOL 4435 SPECIAL TOPICS IN MARINE SCIENCE (1-6) LEC. Departmental approval. An opportunity for students to study in an area in which GCRL offers no formal course; not research oriented. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.

BIOL 4445 SPECIAL PROBLEMS IN MARINE SCIENCE (1-6) AAB/LEC. Departmental approval. Individualized research-oriented experience. Taught at Gulf Coast Research Laboratory. Course may be repeated for a maximum of 6 credit hours.


BIOL 4465 PARASITES OF MARINE ANIMALS (6) LEC. 3. LAB. 6. Pr. BIOL 5110. Departmental approval. A study of the parasites of marine estuarine animals with emphasis on morphology, taxonomy, life histories, and host-parasite relationships. Taught at Gulf Coast Research Laboratory.

BIOL 4475 MARINE ECOLOGY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1027. Prerequisites: BIOL1020 or marine biology. Departmental approval. Experimental ecological theory and its application to interactions of marine organisms with each other and the environment. Includes laboratory, extensive field trip experience. Taught at DISL.
Biology - BIOL

BIOL 4585 PLANKTON BIOLOGY (2) LEC. 15. LAB. 45. Pr. (BIOL 1020 and BIOL 1021 or BIOL 1027) and (BIOL 1030 and BIOL 1031 or BIOL 1037). Students will learn about the biology of all forms of plankton and the methods for their study including optical, chemical and molecular techniques. Students will understand the basic methods of study and be able to sight-identify major groups.

BIOL 4920 INTERNSHIP IN BIOLOGY (1-4) INT. SU. Application of biology concepts and skills in a professional experience. 12 credit hours in 3000-level or higher BIOL courses. Departmental approval. Student must be enrolled in a major offered by the Department of Biological Sciences. Course may be repeated for a maximum of 4 credit hours.

BIOL 4950 SENIOR SEMINAR (1) LEC. 1. Departmental approval. Oral presentation and discussion of recent scientific publications from a selected area of biological sciences. One hour is required for all majors. Course may be repeated for a maximum of 3 credit hours.

BIOL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Departmental approval and membership in the Honor College. Course may be repeated for a maximum of 3 credit hours.

BIOL 4970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in Biological Sciences. Course may be repeated for a maximum of 8 credit hours.

BIOL 4980 UNDERGRADUATE RESEARCH (2-4) AAB/IND. Departmental approval. Directed research in an area of specialty within the department. Course may be repeated for a maximum of 6 credit hours.

BIOL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Undergraduate research and thesis. Course may be repeated for a maximum of 3 credit hours.

BIOL 5020 DEVELOPMENTAL BIOLOGY (3) LEC. 3. Pr. BIOL 4100 and BIOL 4410. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 5090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.

BIOL 5110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 1030 or BIOL 1037 or BIOL 2500. Students must have Junior or Senior standing. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals and wildlife. May count either BIOL 5110 or LABT 4050.

BIOL 5120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 5130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 5131 ADVANCED PLANT PHYSIOLOGY LABORATORY (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or BIOL 5130). Laboratory exercises in plant physiology. Including water relations, metabolism and growth, and development.

BIOL 5140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 5150 COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Dynamics of ecological communities, including niches, species interactions, succession, island biogeography, biodiversity and food webs. May count BIOL 5150 or BIOL 6150.

BIOL 5160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Prereq. 15 hours of biology. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours.

BIOL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 5200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. BIOL 3200 and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.
BIOL 5210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3200 and BIOL 3200 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 5220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Principles of gene expression including replication, transcription, and translation; structure and regulation of genes; concepts and techniques in recombinant DNA.

BIOL 5230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 5240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or (CHEM 2030 or CHEM 2070 or CHEM 2077). General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 5250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 5260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Credit will not be given for both BIOL 5260 and BIOL 6260.

BIOL 5270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3200 and BIOL 3201 and (BIOL 5220 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and 6270.

BIOL 5280 GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 5300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 3. LAB. 4. Pr. BIOL 3100. Investigation of the various levels of plant organization from subcellular to organ through use of light and scanning electron microscopes.

BIOL 5320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 3100. Departmental approval. Genetic expression of genetic elements in plants from the recent literature.

BIOL 5330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or AGRI 3000 or FISH 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 5330 or BIOL 6330.

BIOL 5340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 5350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selection; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 5360 POPULATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060 and (MATH 1610 or MATH 1613 or MATH 1617). Departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.

BIOL 5370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3060. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 5380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 5425 MARINE BOTANY (4) LEC. 4. Pr. BIOL 1020 or BIOL 1027. Departmental approval. Pr. BIOL 1020 or equiv. Survey of microscopic and macroscopic algae, salt marsh vegetation, sea grasses, mangroves and maritime forests with regard to identification, distribution, structure, ecology and physiology. Field trips and laboratory work. Taught at DISL.
BIOL 5465 MARINE MICROBIOLOGY (5) LEC. 3. LAB. 2. Pr. BIOL 3200 and BIOL 3201. Departmental approval. The role of microorganisms in marine environments.

BIOL 5500 IMMUNOLOGY (3) LEC. 3. Pr. P/C BIOL 3200 and (BIOL 3000 or BIOL 3003 or BIOL 3020). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology. May count either BIOL 3500 or BIOL 5500.

BIOL 5501 IMMUNOLOGY LAB (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 3500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 5510 BIOGEOGRAPHY (3) LEC. 3. Patterns and processes associated with the distribution of living and fossil organisms.

BIOL 5521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or P/C BIOL 5260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 5525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Prereq. Vertebrate and Invertebrate Zoology. Taught at DISL.

BIOL 5535 MARINE CONSERVATION BIOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Major threats to marine biodiversity, current topics in marine conservation biology and critical examination of the literature. Pr. General or Marine Ecology course. Taught DISL.

BIOL 5600 MAMMALIAN PHYSIOLOGY (BIOMEDICAL PHYSIOLOGY) (5) LEC. 4.25. LAB. 2.75. Pr. (BIOL 1030 or BIOL 1037 or BIOL 2500) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation of the physiology of the major mammalian organ systems.

BIOL 5650 ETHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200 and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6600, or BIOL 6600.


BIOL 5750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Taxonomy, evolution, ecology, and behavior of birds.

BIOL 5760 MAMMALOGY (4) LEC. 3. LAB. 3. Departmental approval. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, field trips, data analysis, and report preparation.

BIOL 5800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510. Overview of computational approaches to biological data analysis. Additionally, students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 5850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. An active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 5860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging ‘omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 6020 DEVELOPMENTAL BIOLOGY (3) LEC. 3. Pr. BIOL 4100 and BIOL 4410. Consideration of induction, constancy of the genome, pathfinding by migrating cells, morphogenetic movements, and other developmental processes.

BIOL 6090 CONSERVATION BIOLOGY (3) LEC. 3. Pr. BIOL 3060. This course is an overview of ethical, economic and biological aspects of conservation biology at scales ranging from local to global. Credit will not be given for both BIOL 5090 and BIOL 6090.
BIOL 6110 PARASITOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or BIOL 2500. Development, identification, host-parasite relationships, and medical significance of parasitic protozoa, helminthes, and arthropods that infect humans, domestic animals, and wildlife.

BIOL 6120 SYSTEMATIC BOTANY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037). Classification, nomenclature, distribution, systematics, and evolution of vascular plants.

BIOL 6130 ADVANCED PLANT PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100 and (CHEM 2030 or CHEM 2080 or CHEM 2087). Physiological and biochemical processes affecting plant growth and development including water relations, photosynthesis, respiration, and hormones.

BIOL 6131 ADV PLANT PHYSIOLOGY LAB (1) LAB. 3. Pr. BIOL 3100 and (CHEM 2081 or CHEM 2088). Laboratory exercises in plant physiology. Including water relations, metabolism, and growth and development.

BIOL 6140 PLANT ECOLOGY (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Departmental approval. Exploration of ecological interactions between plants and their environment. Field trips emphasize Southeastern habitats/plant examples. Includes 3-day weekend field trip.

BIOL 6150 COMMUNITY ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Dynamics of ecological communities, including niches, species interactions, succession, island biogeography, biodiversity and food webs. May count BIOL 5150 or BIOL 6150.

BIOL 6160 FIELD BIOLOGY AND ECOLOGY (3-15) LEC. 3. Pr. At least 15 credits each with a minimum grade of C in BIOL 1000-8990. Intensive classroom and field studies of an area outside Alabama. Course may be repeated for a maximum of 15 credit hours. Departmental approval and 15 hours of biology.

BIOL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. BIOL 4100 and BIOL 5220 and (CHEM 2080 or CHEM 2087). Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic, and biochemical approaches.

BIOL 6200 CLINICAL MICROBIOLOGY (5) LEC. 3. LAB. 4. Pr. BIOL 3200 and BIOL 3201. Isolation, cultivation, identification, classification and pathogenesis of infectious agents with emphasis on bacteria; includes clinical materials, Eubacteria, Mycoplasmata, Rickettsiae and Spirochetes. May count either BIOL 5200 or BIOL 6200.

BIOL 6210 MICROBIAL PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3200 and (CHEM 2030 or CHEM 2080 or CHEM 2087). General physiology of microbial cells emphasizing fermentation, respiration, photosynthesis, nitrogen fixation, cell wall synthesis, membranes, and macromolecular synthesis.

BIOL 6220 INTRODUCTORY MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or AGRI 3000) and BIOL 3200. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both BIOL 6220 and CMBL 6220.

BIOL 6230 VIROLOGY (3) LEC. 3. Pr. (P/C BIOL 5220 or P/C BIOL 6220) or (P/C BIOL 5260 or P/C BIOL 6260). Biology of viruses, including structure, entry, replication, assembly and release, pathogenesis, and epidemiology of viral infections. May count BIOL 5230 or BIOL 6230.

BIOL 6240 ANIMAL PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 4100 or CHEM 2030 or CHEM 2070 or CHEM 2077. General overview of the function of the major systems in animals, including evolution and adaptation to specific environments.

BIOL 6250 MICROBIAL EVOLUTION AND DIVERSITY (4) LEC. 3. LAB. 2. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3200. Introduction to microbial evolutionary history and theory, and survey of microbial diversity. Credit will not be given for both BIOL 5250 and BIOL 6250.

BIOL 6260 PROKARYOTIC MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000) and BIOL 3200. Molecular principles of bacterial genetics including gene structure, genetic organization, regulation of gene expression, acquisition and loss of genes leading to microbial evolution. Course will not be given for both BIOL 5260 and BIOL 6260.

BIOL 6270 HOST-MICROBE INTERACTIONS (3) LEC. 3. Pr. BIOL 3200 and BIOL 3201 and (BIOL 5200 or BIOL 5260). This course will explore interactions between microbes and their hosts including plants, insects and animals. Credit will not be given for both BIOL 5270 and BIOL 6270.
BIOL 6280 GENETHICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Twenty-first century biotechnology and related ethical issues, including human cloning, stem cells, neuroenhancement, age retardation, genetic enhancement, and nanobiology. May count BIOL 5280 or 6280.

BIOL 6300 PLANT ANATOMY AND DEVELOPMENT (4) LEC. 2. LAB. 4. Pr. BIOL 6130. The study of the structure and ontogeny of plant cells, tissues, and organs. Fall.

BIOL 6320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL 6320 and CMBL 6320.

BIOL 6330 DEVELOPMENTAL GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Study of the genetics and genetic mechanisms behind developmental processes occurring in a range of species. May count either BIOL 6330 or BIOL 5330.

BIOL 6340 PROTOZOOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Life history, identification, cell biology, and evolution of free-living and parasitic protozoa of the major groups. Laboratory includes techniques for microscopy.

BIOL 6350 BEHAVIORAL ECOLOGY (3) LEC. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Evolution of behaviors via natural, sexual, and kin selections; evolutionary influences on social groups, mating systems, cooperative breeding, and other interactions.

BIOL 6360 POPULATION ECOLOGY (3) LEC. 3. Pr. BIOL 3060. Departmental approval. Quantitative study of populations, including life tables, Leslie matrices, exponential and logistic models, metapopulations, and life-history theory.

BIOL 6370 MOLECULAR ECOLOGY (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 6800. General overview of the concepts and techniques regarding the application of molecular variation in answering questions pertaining to populations and communities of organisms. Credit will not be given for both BIOL 5370 and BIOL 6370.

BIOL 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Survey of the biodiversity of world and local fishes with an overview of ecology, behavior, biology, and conservation of fishes.

BIOL 6425 MARINE BOTANY (4) LEC. 4. Departmental approval. Identification, distribution, structure, ecology and physiology of microscopic and macroscopic algae, sea grasses, salt marsh vegetation, mangroves and maritime forests. Experimental manipulation of these organisms. Taught at DISL.

BIOL 6465 MARINE MICROBIOLOGY (5) LEC. 3. LAB. 2. Pr. BIOL 3200 and BIOL 3201. Departmental approval. The role of microorganisms in marine environments.

BIOL 6500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003 or FISH 3000 or BIOL 3020) and P/C BIOL 6501. The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

BIOL 6501 IMMUNOLOGY LABORATORY (2) LAB. 4. Pr. P/C BIOL 5500 or P/C BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions, and antibody production.

BIOL 6510 BIOGEOGRAPHY (3) LEC. 3. Departmental approval. Patterns and processes associated with the distribution of living and fossil organisms.

BIOL 6521 GENE EXPRESSION AND RECOMBINANT DNA LABORATORY (2) LEC. 2. LAB. 4. Pr. P/C BIOL 5220 or BIOL 6220 or BIOL 5260 or BIOL 6260. Laboratory experiences demonstrating concepts and techniques in recombinant DNA.

BIOL 6525 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Study of animal behavior and the influence by and interaction with the environment and the ecological and evolutionary significance of these behaviors. Vertebrate and Invertebrate Zoology required. Taught at DISL.

BIOL 6535 MARINE BEHAVIORAL ECOLOGY (4) LEC. 3. LAB. 3. Departmental approval. Examination of conservation biology based on previous study of marine ecology. General or Marine Ecology course required. Taught at DISL.

BIOL 6600 MAMMALIAN PHYSIOLOGY (BIOMEDICAL PHYSIOLOGY) (5) LEC. 4.25. LAB. 2.75. Pr. (BIOL 1030 or BIOL 1037 or BIOL 2500) and (CHEM 2030 or CHEM 2070 or CHEM 2077). An in-depth investigation of the physiology of the major mammalian organ systems.
BIOL 6650 ETHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Animal behaviors, analysis of their adaptive value, development, and evolution.

BIOL 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200 and BIOL 3201. Introduction to basic and applied microbiology in food, including how bacteria, viruses, parasites, yeasts and mold affect and in turn are affected by foods both positively and negatively. May count either FDSC 5660, FDSC 6600, or BIOL 6600.


BIOL 6750 ORNITHOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 3030 or BIOL 3033) and BIOL 3060. Departmental approval. An intensive investigation of the current literature and relevant research dealing with birds.

BIOL 6760 MAMMALOGY (4) LEC. 3. LAB. 3. Departmental approval. Characteristics, origins, ecology, behavior, reproduction, physiology, and diversity of mammals. Labs include survey or current literature, fieldtrips, data analysis and report preparation.

BIOL 6800 INTRODUCTION TO COMPUTATIONAL BIOLOGY (3) LEC. 2. LAB. 1. Pr. STAT 2510. Overview of computational approaches to the analysis of biological data. Students will learn basic statistical and graphical analysis. May count either BIOL 5800 or BIOL 6800.

BIOL 6850 FUNCTIONAL GENOMICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 4100 and BIOL 5800. Active-learning course to study the functional aspects of the genome emphasizing gene regulation and functional genetic variation. May count either BIOL 5850 or BIOL 6850.

BIOL 6860 BIOINFORMATICS AND GENOME ANALYSIS (3) LEC. 2. LAB. 1. Pr. (BIOL 3000 or BIOL 3003 or BIOL 3020 or FISH 3000 or AGRI 3000) and BIOL 5800. Overview of informatic approaches to biological data analysis. Students will use the scientific method to investigate key questions in model organisms through emerging 'omics fields. May count either BIOL 5860 or BIOL 6860.

BIOL 7000 ADVANCED PARASITOLOGY (3) LEC. 3. Pr. BIOL 6110 or BIOL 5110. Departmental approval. Interactions of organisms with their environments and characteristics of populations, communities, and ecosystems. Eight hours of Biology.

BIOL 7010 FUNDAMENTALS OF TEACHING BIOLOGY (1) LEC. 1. SU. Course may be repeated for a maximum of 6 credit hours.

BIOL 7035 MARINE ANIMAL NEUROBIOLOGY (4) LEC. 30. LAB. 60. Pr. BIOL 1020 and BIOL 1021 and BIOL 1030 and BIOL 4100. Biophysical neurobiology of marine invertebrates and vertebrates. Lectures and labs on neurons, glia, resting and action potentials, synapses, neurotransmitters, muscle contraction, sensorimotor integration, computer simulation and extensive technical methods: extra-, intracellular, patch recording, molecular neuroimmunology, confocal fluorescence microscopy. Evening/Saturday classes.

BIOL 7060 ADVANCED MAMMALOGY (4) LEC. 3. LAB. 3. Pr. BIOL 6760. Current literature in mammalogy, collections management, and professional aspects of mammalogy. Labs include preparing specimens, curating research collections, fieldtrips, library work, data analysis, and report preparation.

BIOL 7075 INTRODUCTION TO OCEANOGRAPHY (4) LEC. 30. LAB. 60. Pr. MATH 1150 or MATH 1153 and CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117 and PHYS 1500 and BIOL 3040. An in-depth examination of the physics, chemistry, geology and biology of the oceans. Lectures cover the interrelationships of these components to each other. Field and lab work will introduce students to research on oceanographic processes of the Gulf of Mexico.

BIOL 7170 POPULATION GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000. Examination of the theories relating to maintenance of variation in natural populations of plants and animals.

BIOL 7180 SCRIPTING FOR BIOLOGISTS (3) LEC. 2. LAB. 1. Pr. BIOL 6800 and STAT 7000. or Instructor approval. A hands-on course to teach students concepts, applications, and best practices of utilizing computer scripting languages in the life sciences.

BIOL 7200 EVOLUTIONARY BIOLOGY (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 3200. Topics of current interest in evolution. Readings and presentation required.
BIOL 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. or equivalent; or permission of the instructor. Data from the life sciences and advanced statistical techniques for data analyses and computation are brought together through a cross-fertilization of graduate student students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects. May count either BIOL 7250 or STAT 7250.

BIOL 7280 PLANT HORMONES (2) LEC. 2. Pr. BIOL 6130. Synthesis, physiology, and mode of action of the major plant hormones including abscisic acid, auxins, cytokinins, ethylene, and gibberellins.

BIOL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or FISH 3000 or AGRI 3000 and BIOL 6170. Departmental approval. The role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both BIOL 7290 and CMBL 7290.

BIOL 7370 STREAM ECOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3060. Physical, chemical, and biological aspects of stream ecosystems emphasizing effects of natural environmental factors and human influences on stream biota, and quantitative methods used to study stream ecology.

BIOL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both BIOL 7440 and CMBL 7440.

BIOL 7470 GENOME EVOLUTION (3) LEC. 3. Provides a broad evolutionary perspective on the origin, composition, and architecture of eukaryotic genomes. Students will participate in a literature-driven discussion format and will complete weekly writing assignments.

BIOL 7485 ADVANCED MARINE ECOLOGY (4) LEC. 2. LAB. 2. Pr. BIOL 1020 and BIOL 1021 and BIOL 1030 and BIOL 1031 and (BIOL 3060 or BIOL 3040). An advanced course open only to MS or PhD students. Interactions between marine organisms and the environment. In-depth discussion of ecological theory with emphasis on the latest research, using extensive reference to the literature. Lecture, lab and overnight field trips.

BIOL 7490 PHYSIOLOGICAL ECOLOGY (3) LEC. 3. Pr. BIOL 3060. A study of the physiological adaptations that allow animals to survive in unusual environments. A course in ecology required.

BIOL 7500 STRESS PHYSIOLOGY (2) LEC. 2. Pr. (BIOL 4100 or BIOL 5240 or BIOL 5600). This course is a discussion-based course focusing on physiological stress responses at various levels of organization and communication among them, from molecules, cells, organ, to whole organism.

BIOL 7510 NATURAL HISTORY MUSEUM PRACTICUM (1) LAB. 3. Practical methods in natural history museum curation. Students will assist in curating collections at the Auburn University Museum of Natural History. Course may be repeated for a maximum of 4 credit hours.

BIOL 7525 MARINE INVERTEBRATES (4) LEC. 2. LAB. 2. Morphology, natural history, physiology, evolution and ecology. Students examine modern literature and develop an advanced presentation on invertebrate biology involving problem solving in an area such as sensory biology, molecular evolution or management. Term paper, classroom presentation and lecture.

BIOL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Morphological and molecular approaches to modern systematics of plants.

BIOL 7540 PROFESSIONAL ASPECTS OF BIOLOGY (3) LEC. 3. Departmental approval. Instruction on practical aspects of a career in biological sciences.

BIOL 7550 PHYSIOLOGICAL ECOLOGY OF REPRODUCTION (3) LEC. 3. This course focuses on physiological ecology of reproduction by identifying key physiological mechanisms linking the environmental change, reproductive constraints, and reproductive performance and describing how variation in reproductive performance are impacted by ecological and evolutionary processes.

BIOL 7560 PLANT/ANIMAL INTERACTIONS (3) LEC. 3. Pr. BIOL 3100 and BIOL 3060. Departmental approval. Overview of ecological and evolutionary interrelationships between animals and plants, including pollination biology, dispersal ecology, carnivory, and plant-herbivore interactions.

BIOL 7620 MICROBIOLOGY OF EPIDEMICS (3) LEC. 3. Departmental approval. Epidemics of communicable disease outbreaks are analyzed according to the hosts, modes of transmission, environment, and pathogenesis of the agents.
BIO 7705 TROPICAL BIOLOGY: ECOLOGICAL APPROACH (8) LEC. 4. LAB. 12. Pr. At least 15 credits each with a minimum grade of C in BIO 6000-8990. An in-depth introduction to the principles of ecology in the tropics. Orientation and introductory lecture in San Jose, Costa Rica, followed by field work during an 8 week period. 15 hours of graduate level biological science.

BIO 7720 PROKARYOTIC GENE REGULATION (3) LEC. 3. Pr. BIO 6210 or CHEM 6180. Discussion of gene expression in bacteria using the current literature.

BIO 7950 MASTERS THESIS SEMINAR (1) LEC. 1. SU. Departmental approval. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

BIO 7960 SPECIAL PROBLEMS (1-4) LEC. Pr. P/C BIO 6220. Oral presentation and discussion of recent scientific publications from a selected area molecular biology. Credit will not be given for both BIO 7960 and CMBL 7960. Course may be repeated for a maximum of 4 credit hours.

BIO 7970 SPECIAL TOPICS (1-4) AAB. Departmental approval. Instruction and discussion in a selected current topic in botany, microbiology, molecular biology, or zoology. A different topic for advanced study will be selected each semester this course is offered. Course may be repeated for a maximum of 8 credit hours.

BIO 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BIO 8950 DOCTORAL SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 3 credit hours.

BIO 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topic.

Biomaterials and Packaging - BIOP

Courses

BIOP 2120 FRONTIERS FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to the sustainability of biomaterials and resource efficiency to produce materials, food, energy and services, that decrease society's dependency on fossil fuels.

BIOP 3390 INTRODUCTION TO FOREST PRODUCTS AND PACKAGING (3) LEC. 3. LAB. 2. Pr. FORY 3020. Basic properties of wood and their impact on the manufacture of forest products. Identification of important products and woods.

BIOP 3391 FOREST AND MANUFACTURING OPERATIONS (1) LEC. 3, FLD/LEC. 32. Pr. FORY 3050. Introduction to basic field operations in Forestry including site preparation and planting, harvesting and primary manufacturing processes relative to specific geographic locations. Four-day continuous field trip prior to spring or fall semester.

BIOP 4050 BIOMASS PROCESSING CHEMISTRY (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bioenergy and bio-products.

BIOP 4060 ECONOMICS OF SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Pr. ECON 2020. The course will familiarize students with the economic theory of resource allocation in a market economy as applied to the specific sustainable biomaterials and packaging industry. This will include; production and consumption theory, engineering and financial decision making.

BIOP 4070 PERFORMANCE AND DURABILITY OF PRODUCTS AND PACKAGING (3) LEC. 3. Examines the performance and durability of products and packaging, including physics and mechanics properties of solid wood and wood- and bio-based products and packaging materials, as well as notions about durability, thermal, electric and acoustic properties.

BIOP 4080 BUSINESS MANAGEMENT FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Introduction to key forest products and sustainable biomaterials business management topics including supply chain management policies and limitations specific to the forest products, sustainable biomaterials and packaging industry.

BIOP 4360 SUSTAINABLE BIOMATERIALS TRADE AND MARKETING (3) LEC. 3. Covers the general structure of the sustainable bioproducts/biomaterials industry and the major product markets. Students will be provided an overview of structure of both traditional forest products as well as emerging sustainable biomaterial industry segments.

BIOP 4400 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT I (1) LEC. 1. Examines the initial stages of product development, providing a blend of economics, engineering, marketing, and sustainability to design a product that meets the needs of a chosen/participating customer.
BIOP 4410 SUSTAINABLE BIOMATERIALS & PRODUCT DEVELOPMENT II (1) LAB. 1. Pr. BIOP 4400. Continues and completes the final stages of product development (initiated in BIOP 4400), providing a blend of economics, engineering, marketing, and sustainability to finalize the product design that meets the needs of a chosen/participating customer.

BIOP 4800 BIOPOLYMERS FOR SUSTAINABLE BIOMATERIALS AND PACKAGING (3) LEC. 3. Introduction to engineering principals applied to sustainable biomaterials and packaging materials. Students will analyze the morphological, physical and thermal properties, processing methods, and polymerization of traditional, natural and sustainable biomaterials used in packaging.

BIOP 4840 LIFE CYCLE ASSESSMENT FOR SUSTAINABLE BIOMATERIALS (3) LEC. 3. Examines the performance and durability of products and packaging, including sustainability of raw materials and society energy needs, the use of sustainable materials to meet these needs and reduce impact on environment, and associated methods.

BIOP 5250 WOOD COMPOSITES FOR BIOMATERIALS & PACKAGING (3) LEC. 3. Pr. FOPR 3390. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.

Biosystems Engineering - BSEN

Courses

BSEN 2210 ENGINEERING METHODS FOR BIOLOGICAL SYSTEMS (2) LEC. 1. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (PHYS 1600 or PHYS 1607) or Departmental approval. Introduction to experimental design methodology, basic engineering design and problem solving methodology for Biological Engineering. Visualization skills, computer-aided 3-D solid modeling of parts, 3-D assembly of solid part geometries, computation of mass properties, 2-D engineering drawings, engineering design process, safety, tools and fabrication processes and design, and hands-on shop fabrication of semester project.

BSEN 2240 BIOLOGICAL AND BIOENVIRONMENTAL HEAT AND MASS TRANSFER (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and (PHYS 1600 or PHYS 1607) and P/C ENGR 2010. Basic principles of heat and mass transfer with special applications to biological and environmental systems. Introduction to steady state and transient heat conduction. Convection, radiation, diffusion, simultaneous heat and mass transfer, and generation and depletion of heat and mass in biological systems.

BSEN 3210 MECHANICAL POWER FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. ENGR 2010 and MATH 2650 and P/C ENGR 2350. Basic engineering analysis, synthesis, and design concepts applied to power sources, mobile equipment, and machinery applications for agricultural, forestry, and natural resource systems.

BSEN 3230 NATURAL RESOURCE CONSERVATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Engineering analysis applied to natural resource systems. Design principles and practices in rainfall-runoff relationships, soil erosion and its prediction and control, hydraulic structures, and open channel hydraulics.

BSEN 3240 PROCESS ENGINEERING IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. Theory and application of process operations in biological, food and agricultural systems. Heat transfer, fluid flow, thermal processing, evaporation, psychrometrics, refrigeration, drying freezing.

BSEN 3260 ENGINEERING FOR PRECISION AGRICULTURE AND FORESTRY (3) LEC. 2. LAB. 3. Pr. ELEC 3810 and MATH 2650. Departmental approval. Engineering aspects of spatial technologies applied to agricultural and forest production. Data collection in the field using GPS and use of field data in site specific applications. Fall.

BSEN 3310 HYDRAULIC TRANSPORT IN BIOLOGICAL SYSTEMS (4) LEC. 3. LAB. 3. Pr. (ENGR 2050 or ENGR 2053) and MATH 2650 or Departmental approval. Fluid properties, Non-Newtonian fluids and biological systems, Fluid statics, Energy equation, mass and momentum balance, pipe flow for Newtonian and Non-Newtonian fluids, dimensional analysis, compressible flows.

BSEN 3560 TURF SYSTEMS IRRIGATION DESIGN (3) LEC. 3. Pr. MATH 1130 or MATH 1133. Irrigation system design for turf-based systems including residential lawns, commercial properties, athletic fields, and golf courses. Irrigation scheduling and water demand are presented to provide management capabilities.

BSEN 3610 INSTRUMENTATION AND CONTROLS FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and BSEN 2210. Departmental approval. Understanding of fundamentals of electrical circuits, sensing and sensors, simple digital electronics, analog measurement circuits, introductory digital signal processing, computer data acquisition.
BSEN 4210 IRRIGATION SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. Theory and design of irrigation systems for the application of water and wastewater including surveying techniques for system design. Systems include solid-set, traveler, center-pivot, and trickle. Fall.

BSEN 4240 BULK BIOLOGICAL SOLIDS BEHAVIOR AND PROCESSING (3) LEC. 2. LAB. 3. Pr. BIOL 1020 and (STAT 2510 or STAT 3010 or BSEN 3310). The course is designed to enable students to develop fundamental understanding of the properties of bulk biological solids and how these properties influence the behavior and processability of bulk solids.

BSEN 4250 HYDRAULIC CONTROL SYSTEMS DESIGN (3) LEC. 2. LAB. 3. Pr. BSEN 3310 or Departmental approval. Principles of energy transfer by means of fluid power. Design of hydraulic control systems using prime movers, valves, actuators, and accessories. Spring.

BSEN 4300 PROFESSIONAL PRACTICE IN BIOSYSTEMS ENGINEERING (2) LEC. 1. LAB. 3. Pr. BSEN 3230 and ENGR 2070 or Departmental approval. This course focuses on issues related to the professional practice of biological engineering including preparing students for transition to careers as professional engineers.

BSEN 4310 ENGINEERING DESIGN FOR BIOSYSTEMS (3) LEC. 1. LAB. 6. Pr. BSEN 4300. Departmental approval. Capstone design course in biosystems engineering emphasizing teamwork, communication, safety engineering, and economic analysis to complete an engineering design project. Spring.

BSEN 4960 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) AAB/IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in biosystems engineering. May be repeated with change in problem. Course may be repeated with change in topics.

BSEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

BSEN 4970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

BSEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

BSEN 5220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043 or Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 5230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 and BIOL 3200 and P/C BSEN 3230. Introduction to animal waste management problems of confined production systems, and characterization of animal waste types. Design of biological treatment and processing systems. Departmental approval. May count either BSEN 5230 or BSEN 6230.

BSEN 5250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. LAB. 2. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 5260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Application and use of renewable energy in biological, food, forest and agricultural systems including bioenergy, solar energy, wind power and geothermal. Departmental approval. May count either BSEN 5260 or BSEN 6260.

BSEN 5270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Pr. BIOL 3200 and CHEM 1040. Or with the consent of the instructor. Introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries.

BSEN 5280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240 and BSEN 3310. Introduces the concept of life cycle assessment (LCA) in in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.
BSEN 5450 COMMERCIAL POULTRY & LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 5510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities. Departmental approval. May count either BSEN 5510 or BSEN 6510.

BSEN 5520 WATERSHED MODELING (3) LEC. 3. Pr. BSEN 5510. Modeling of non-point source pollution at watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants. Departmental approval. May count either BSEN 5520 or BSEN 6520.

BSEN 5540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. Pr. CHEM 1040 and MATH 2650 and BSEN 3310. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 5550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617) and (PHYS 1000 or PHYS 1007) or PHYS 1500 or (PHYS 1600 or PHYS 1607). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 5560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Development of student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts. Departmental approval. May count either BSEN 5560 or BSEN 6560.

BSEN 6220 GEOSPATIAL TECHNOLOGIES IN BIOSYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Geospatial technologies including GPS, GIS, and remote sensing systems applied to biosystems. Collecting, managing, and analyzing spatial data for agricultural and forest systems. Spring.

BSEN 6230 WASTE MANAGEMENT AND UTILIZATION FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEM 1040 or CHEM 1041. Departmental approval. Coreq. BSEN 3230. Introduction to the animal waste management problems of confined production systems and characterization of animal waste types. Design of biological treatment and processing systems.

BSEN 6250 DETERMINISTIC MODELING FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. MATH 2650 and ELEC 3810 and (ENGR 2350 or MECH 2110) or Departmental approval. Modeling of biosystems, methods to deal with complexity, and validation tools. Spring.

BSEN 6260 RENEWABLE ENERGY IN BIOSYSTEMS PROCESS OPERATIONS (3) LEC. 2. LAB. 3. Pr. BSEN 3310. Departmental approval. Application and se of renewable energy in biological, food forest and agricultural systems including biomass and bioenergy, solar energy, wind power and geothermal.

BSEN 6270 METABOLIC ENGINEERING FOR BIOPROCESS (3) LEC. 3. Department/instructor approval. An introduction of basic principles of bioprocess engineering and metabolic engineering, to prepare engineers and scientists for biotechnology and bioeconomy industries. May count either BSEN 5270 or BSE 6270.

BSEN 6280 LIFE-CYCLE ASSESSMENT FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 2240. Departmental approval. This course introduces the concept of life cycle assessment (LCA) in the context of biological engineering. Examples will include LCA applications to engineered biological systems and other engineering processes and products.

BSEN 6450 COMMERCIAL POULTRY AND LIVESTOCK HOUSING (3) LEC. 2. LAB. 3. An introduction to the basic design, operation, and maintenance of modern commercial animal housing systems. Emphasis will be placed on poultry and swine systems with elements of dairy and beef when applicable.

BSEN 6510 ECOLOGICAL ENGINEERING (3) LEC. 3. Pr. BSEN 3230. Departmental approval. The course introduces students to ecological engineering non-point source transport of nutrients, sediment, pesticides, pathogens, and chemicals from agricultural, forestry, and urban activities.

BSEN 6520 WATERSHED MODELING (3) LEC. 3. Departmental approval. The course covers modeling of non-point source pollution at the watershed scale using Soil and Water Assessment Tool model including underlying processes that control movement of pollutants.
BSEN 6540 BIOMASS AND BIOFUELS ENGINEERING (3) LEC. 2. LAB. 3. This course introduces the various processes and engineering principles in converting biomass into biofuels and chemicals. The focus will be on thermochemical and biochemical conversion platforms. May count either BSEN 5540 or BSEN 6540.

BSEN 6550 PRINCIPLES OF FOOD ENGINEERING TECHNOLOGY (4) LEC. 3. LAB. 3. Pr. (MATH 1130 or MATH 1133) and (PHYS 1000 or PHYS 1007). Engineering concepts and unit operations used in processing food products. Fall.

BSEN 6560 SITE DESIGN FOR BIOSYSTEMS (3) LEC. 2. LAB. 3. Pr. BSEN 3230. Departmental approval. The course is designed to develop student skills in computer-aided site design and restoration by using rural and urban best management practices to reduce environmental impacts.

BSEN 7016 QUANTITATIVE AGRICULTURAL REMOTE SENSING (3) LEC. 3. Departmental approval. Theory and application of remote sensing to quantifying soil and vegetation characteristics, with emphasis on agriculture but also relevant to natural biosystems.

BSEN 7020/7026 SITE-SPECIFIC TECHNOLOGIES FOR AGRICULTURE AND FORESTRY SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Introduction to advanced concepts of off-highway vehicle equipment for use in agricultural and forestry production with emphasis on site-specific management (Precision Agriculture/Forestry). The course will overview new concepts and technologies for equipment usage and technologies applied for site-specific crop management.

BSEN 7050 SOIL DYNAMICS OF TILLAGE AND TRACTION (3) LEC. 3. Pr. CIVL 4300 and CSES 7590. Departmental approval. Analyses and measurements of soil reactions as affected by physical properties of soil when subjected to forces imposed by tillage implements and traction devices.

BSEN 7110/7116 FUNDAMENTALS OF INSTRUMENTATION FOR BIOLOGICAL SYSTEMS (3) LEC. 2. LAB. 3. Departmental approval. Students will gain an understanding of the fundamentals of sensing and sensors, simple digital electronics and measurement circuits, introductory digital signal processing, and computer data acquisition. They will be required to build and test instrumentation to collect data on biological systems that might include fluid flow, pressure, force, or other transducers.

BSEN 7120 STOCHASTIC MODELING FOR BIOSYSTEMS (3) LEC. 3. Pr. CIVL 3020. Departmental approval. Solving problems in biosystems engineering and related fields by modeling data with probability distributions, spatial statistics, autoregressive models, Monte-Carlo simulation, and reliability methods.

BSEN 7136 GIS APPLICATIONS IN PRECISION AGRICULTURE (1) LEC. 1. Departmental approval. Exploration of geographic information systems (GIS) and its applications in precision agriculture. Topics include file structure and formatting, interfacing with precision agriculture equipment, georeferencing maps, merging and clipping farm data, data field calculations, designing management zones, variable rate prescriptions, and basic data analysis.

BSEN 7216 BIOMASS TO RENEWABLE ENERGY PROCESSES (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2080 or CHEM 2087) or CHEM 5180 and BIOL 3200. Departmental approval. This will introduce fundamental principles and practical applications of biomass-to-renewable energy processes.

BSEN 7220 RENEWABLE ENERGY SYSTEMS DESIGN, ANALYSIS AND APPLICATIONS (3) LEC. 3. Understanding of the basic principles, applications, modeling, energetic and economic analysis of renewable energy resources namely solar, biomass, wind, hydropower and geothermal. Design of renewable energy systems.

BSEN 7240 BULK SOLIDS STORAGE, HANDLING AND TRANSPORTATION (3) LEC. 3. Sampling of particulate materials, bulk solids characterization, flow properties, particle and bulk solid flow, dynamics of fluid/solids systems, hydraulic and pneumatic conveyor design, storage bin and hopper design and geometry, safety issues.

BSEN 7260 ADVANCED UNIT OPERATIONS IN BIOSYSTEMS ENGINEERING (3) LEC. 2. LAB. 3. The course is an advance analysis of the unit operations used to process and enhance the value of biological materials.

BSEN 7280 FOOD THERMAL PROCESSING (3) LEC. 2. LAB. 3. Departmental approval. Insight of technologies and approaches used in food thermal processing for commercial purposes. Application of fundamentals of heat transfer, thermo-bacteriology, physical and chemical kinetics of food, and plant layout.

BSEN 7310 NONPOINT SOURCE POLLUTION (3) LEC. 3. Departmental approval. Non-point source (NPS) transport of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Basic concepts of pollutant transport through soils and with overland flow. Evaluation, management, and prevention of non-point pollution of surface and groundwater.
BSEN 7320 NON-POINT SOURCE POLLUTION MODELING (3) LEC. 3. Pr. BSEN 7310 or Departmental approval. Non-point source (NPS) modeling of nutrients, sediment, pesticides, and pathogens from agricultural, forestry, and urban activities. Underlying processes (climate, hydrology, nutrients and pesticides, erosion, channel), land cover/plants best management practices. Sensitivity and uncertainty analyses.

BSEN 7330 SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN SOIL-PLANT-ENVIRONMENTAL SYSTEM DESIGN (3) LEC. 3. Study of systems that incorporate plant uptake of nutrients and/or heavy metals for remediation of soil-based contaminants. Design applications of environmental remediation include constructed wetlands, drip irrigation of wastewater effluent, disposal of municipal sludge, and phytoremediation of contaminants in shallow groundwater.

BSEN 7350 ENGINEERING ANALYSIS OF LAKES AND RESERVIORS (3) LEC. 3. Departmental approval. Knowledge and understanding of the causes, impacts, and methods of restoring water quality impairments, with emphasis placed on impounded water bodies and perennial streams.

BSEN 7366 INTEGRATING AUTOCAD CIVIL3D & GIS (3) LEC. 3. Departmental approval. Accessing and importing GIS data into C3D. Exporting C3D objects to GIS for subsequent manipulation and display. Emphasis on applications in environmental engineering projects such as stream restoration and wetland design.


BSEN 7516 INTRODUCTION TO LAND AND WATER ENGINEERING (3) LEC. 3. This course aims at equipping students with the engineering tools and knowledge needed for advanced courses in land and water engineering.

BSEN 7526 INTRODUCTION TO FLUVIAL GEOMORPHOLOGY (3) LEC. 3. Pr. BSEN 3230. This course provides an overview of stream geomorphology as it relates to natural stream physical processes.

BSEN 7536 DRAINMOD (3) LEC. 3. Pr. BSEN 3230. This course presents the principles of water movement and fate in shallow water table systems and application of the drainage water management model DRAINMOD to a wide variety of problems.

BSEN 7616 AGRICULTURAL WASTE MANAGEMENT (3) LEC. 3. This course covers principles of managing, handling, treating and applying animal and poultry manures and organic byproducts from an engineering perspective. Departmental approval

BSEN 7626 STORMWATER BMP DESIGN (3) LEC. 3. Pr. BSEN 3230. Departmental approval. This course is designed to introduce students to several innovative stormwater practices including stormwater wetlands, bioretention, green roofs, permeable pavement, cisterns, and others.

BSEN 7636 STREAM RESTORATION STRUCTURE RISK AND FAILURE ASSESS (1) LEC. 1. Pr. BSEN 3230. Departmental approval. Critical thinking about the use of various stream restoration structures an providing the tools needed to investigate further into failure analysis and risk assessment.

BSEN 7646 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. BSEN 3310. Departmental approval. Theory and application of hydraulics in open channels with an emphasis on natural systems (natural streams and rivers).

BSEN 7666 WETLANDS DESIGN AND RESTORATION (3) LEC. 3. Departmental approval. Fundamental understanding of hydrology, soils and ecology of natural wetland systems to serve as the basis of designing wetland systems for water treatment and restoring degraded natural wetlands.

BSEN 7900 SPECIAL PROBLEMS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in biosystems engineering at the graduate level. Pr., Course may be repeated with change in topics.

BSEN 7950 SEMINAR (1) SEM. SU. Reviews and discussions of research techniques, current scientific literature, and recent developments in biosystems engineering. Course may be repeated for a maximum of 12 credit hours.

BSEN 7970 SPECIAL TOPICS IN BIOSYSTEMS ENGINEERING (1-4) IND. Departmental approval. Individual or small group study of an advanced specialized area in biosystems engineering at the graduate level. Course may be repeated with change in topics.

BSEN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topic.

BSEN 8990 RESEARCH AND DISSERTATION (1-12) DSR.
Building Science - BSCI

Courses

BSCI 1100 INTRODUCTION TO CONSTRUCTION (3) LEC. 3. Introduction to construction industry and education, current issues, and career opportunities.

BSCI 2200 CONSTRUCTION DOCUMENTS (3) LEC. 2. LAB. 3. Pr. BSCI 2300. Reading and interpreting working drawings, specifications, shop drawings, and digital 3D models for use in estimating and administrating various types of construction projects.

BSCI 2300 CONSTRUCTION METHODS AND MATERIALS (3) LEC. 3. Materials, methods and construction equipment used in the construction of buildings.

BSCI 2400 STRUCTURES OF BUILDINGS I (3) LEC. 3. Pr. (PHYS 1500 or PHYS 1600) and (MATH 1610 or MATH 1150). Principles of mechanics and materials behavior related to building structures. Includes force systems, frame analysis, gravity load tracing, wind and seismic resistance for concrete and steel buildings.

BSCI 3200 CONSTRUCTION COMMUNICATION (3) LEC. 3. Overview of communication skills and tools required to succeed as a construction manager. Oral communication, written communication, ethics, visual literacy, and video capture in the context of construction risk management.

BSCI 3300 FIELD SURVEYING (2) LEC. 1. LAB. 6. Surveying techniques, construction layout, use of equipment, and dimensional controls for buildings. Surveying camp, a concentrated, 10 working day course held during breaks.

BSCI 3400 STRUCTURES FOR ARCHITECTS II (3) LEC. 3. Pr. BSCI 2400. Primary and secondary member design, connection design, temporary bracing/shoring, and steel shop drawing review.

BSCI 3440 STRUCTURES OF BUILDINGS II (3) LEC. 3. Pr. BSCI 2400. Principles of static equilibrium and materials behavior related to building structures. Includes force systems, frame analysis, section properties, stress, basic design of structural elements in buildings.

BSCI 3450 STRUCTURES FOR ARCHITECTS III (3) LEC. 3. Pr. BSCI 3400. Introduction to the design of reinforced concrete and related formwork including beams, columns, slabs, footings, retaining walls, and pre-stressed members.

BSCI 3500 CONSTRUCTION AND INFORMATION TECHNOLOGY I (3) LEC. 2. LAB. 2. To explore, discover and create applications of information communication technology (ICT) for Construction Processes.

BSCI 3600 ESTIMATING AND COSTING (4) LEC. 3. LAB. 3. BSCI Major. Introduction to construction estimating for CSI Divisions 1-33. Students perform quantity take-of (QTO), pricing, and preparation for a commercial construction project using computer-based techniques.

BSCI 3660 PRECONSTRUCTION AND PROJECT MANAGEMENT (4) LEC. 3. LAB. 2. Pr. BSCI 3600. Project(s) simulation as a context to discuss, negotiated procurement, pre-construction services in the alternative delivery environment and construction phase management procedures.

BSCI 3700 CONSTRUCTION SAFETY (3) LEC. 3. Construction safety, including OSHA guidelines, accident investigation, and the creating of construction safety plans and worker training program.

BSCI 3800 CONTRACTING BUSINESS (4) LEC. 4. Pr. BSCI 3600. Construction-specific look at the business functions associated with the industry; includes organizational structures, construction finance, risk analysis, construction contracts, project delivery, and associated documents with these functions.

BSCI 3910 EXPERIMENTAL LEARNING (3) LEC. 3. SU. Departmental approval. Requires daily log and employer certification.

BSCI 4200 RESIDENTIAL CONSTRUCTION (3) LEC. 3. Provides an overview of residential construction and development practices and professional issues including: local ordinances and codes, land use law, financing practices, architect-builder relationship, spec homes vs. custom homes, etc.

BSCI 4300 COMBINED ESTIMATING AND SCHEDULING FOR DESIGNERS (3) LEC. 3. Provides an overview of estimating and project planning practices and techniques which relate to interactions between the architect and constructor. Includes: sources of project costs, conceptual estimating, value engineering, CPM scheduling, cost of acceleration and delays, change order, etc.
BSCI 4350 CONSTRUCTION PROJECT ANALYSIS (3) LEC. 3. Pr. BSCI 3660. Analysis of methods, materials and equipment used to construct projects. Methods used to assure the quality of construction projects.

BSCI 4360 CONSTRUCTION FIELD LAB (2) LAB. 4. Pr. BSCI 3700 and BSCI 3660. Students conduct a service learning project to integrate all components of the construction process.

BSCI 4410 PROBLEMS IN CONSTRUCTION MEANS AND METHODS (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Solving challenging problems encountered in construction processes, including form work, scaffolding, framing, steel erection, rigging, lifting, safety, and site management.

BSCI 4420 MANAGEMENT FOR CONSTRUCTION SUPERINTENDENTS (3) LEC. 1. LAB. 4. Pr. BSCI 3660. Senior Standing in Building Science. Development of expanded management strategies for construction superintendents including field conditions analysis, direction of tradesmen, communication skills, and project hoisting and equipment.

BSCI 4500 INFORMATION AND COMMUNICATION TECHNOLOGY FOR CONSTRUCTION II (3) LEC. 2. LAB. 2. To recognize, experiment and practice the applications of advanced information and communication technology (ICT) for Construction Processes.

BSCI 4610 SCHEDULING AND FIELD OPERATIONS (4) LEC. 4. Pr. BSCI 3660. The third of a sequence of three project controls classes (BSCI 3600 and BSCI 3660); an in-depth study of construction project sequencing and scheduling, job site cost control measures, construction cash flow analysis, and a variety of leadership and management issues associated with field operations.

BSCI 4700 MECHANICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500 and BSCI 3600. Overview of the plumbing and mechanical systems of buildings. Basic design, sustainability concepts, systems, installation and testing are covered.

BSCI 4710 MECHANICAL CONSTRUCTION ESTIMATING AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BSCI 4700. Advance study of mechanical construction industry. Study and application of design principles, estimating and management techniques used in the industry.

BSCI 4750 ELECTRICAL SYSTEMS IN BUILDINGS (3) LEC. 2. LAB. 2. Pr. BSCI 3500. Electrical systems commonly used in buildings; basic theory and design concepts, with emphasis on lighting and electrical distribution equipment and its installation.

BSCI 4850 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages, and dispute resolution.

BSCI 4860 ADVANCED CONSTRUCTION INFORMATION TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. BSCI 3660. Exploration and creation of advanced applications of Information and Communication Technology (ICT) for planning, decision making, projects monitoring, and controls.

BSCI 4870 CONSTRUCTION HISTORY (3) LEC. 3. Survey of historic construction projects to analyze how and why buildings and structures were constructed in the way they were.

BSCI 4880 CONSTRUCTION EQUIPMENT MANAGEMENT (3) LEC. 3. Pr. BSCI 3660. Construction equipment management and ownership. Equipment acquisition and disposition options, production costs and productivity, cost analysis and control, management staffing and responsibilities.

BSCI 4890 LEAN CONSTRUCTION PRINCIPLES AND PRACTICES (3) LEC. 3. Pr. BSCI 3660. This course provides an understanding of lean construction principles involving lean design, assembly, supply, production and work processes.

BSCI 4960 SPECIAL PROBLEMS (1-5) IND. Special problems in construction topics. Course may be repeated for a maximum of 5 credit hours.

BSCI 4990 BUILDING SCIENCE THESIS (4) LAB. 12. Individual project demonstrating mastery of curriculum content through the application of skills/knowledge to a theoretical construction company and project. Requires a written thesis and oral defense of work.

BSCI 5450 BUILDING GREAT STRUCTURES (3) LEC. 3. Departmental approval. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 5460 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Pr. BSCI 3660. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. Departmental approval. May count either BSCI 5460 or BSCI 6460.
BSCI 5470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 45. Departmental consent. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 5830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 5840 MULTI-CULTURAL ISSUES IN CONSTRUCTION (3) LEC. 3.

BSCI 5960 SPECIAL PROBLEMS (1-5) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 5 credit hours.

BSCI 5970 SPECIAL PROBLEMS (1-5) AAB. Departmental approval. Special problems in construction topics. Offered only at the discretion of the department head. Course may be repeated for a maximum of 15 credit hours.

BSCI 6450 BUILDING GREAT STRUCTURES (3) LEC. 3. Conceptual Analysis of a variety of structural systems using observation and modeling of the world's greatest structures. Emphasis on construction innovations necessary to build these structures. May count either BSCI 5450 or BSCI 6450.

BSCI 6460/6466 PLANNING AND DECISION MAKING IN CONSTRUCTION (3) LEC. 3. Applications of quantitative methods in various phases of project life cycle to assist project stakeholders in making effective planning and informed decision making. Departmental approval. May count either BSCI 5460 or BSCI 6460.

BSCI 6470 SMALL UNMANNED AIRCRAFT SYSTEMS IN CONSTRUCTION (3) LEC. 3. Overview of FAA requirements including hands on training with small unmanned aerial systems and associated software focused on applications in construction.

BSCI 6830 GLOBAL CONSTRUCTION MANAGEMENT (3) LEC. 3. This course will discuss global construction issues and related project management practices. Departmental approval. May count either BSCI 5830 or BSCI 6830.

BSCI 6840 MULTI-CULTURAL ISSUES IN CONSTRUCTION LABOR (3) LEC. 3.

BSCI 6960 SPECIAL PROBLEMS IN CONSTRUCTION (1-5) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours.

BSCI 6970 SPECIAL PROBLEMS IN CONSTRUCTION (1-3) AAB. Departmental approval. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables. Course may be repeated for a maximum of 3 credit hours.

BSCI 7010 CONSTRUCTION LABOR AND PRODUCTIVITY (3) LEC. 3. Departmental approval. Construction labor issues, productivity measurement, and productivity improvement in the construction industry. Includes reading, research, and an out of class project.

BSCI 7020/7026 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

BSCI 7030/7036 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

BSCI 7040/7046 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

BSCI 7050/7056 EXECUTIVE ISSUES IN CONSTRUCTION (3) LEC. 3. Construction industry executives will present 6 to 10 topics that represent a cross-section of significant management issues.

BSCI 7060 RESEARCH METHODS IN BUILDING SCIENCE (3) LEC. 3. A study of the academic research process, with an emphasis on defining research problems in construction and the development of a research proposal.
BSCI 7100/7106 GRADUATE ELECTIVE IN PROJECT MANAGEMENT: PROJECT MANAGEMENT AND SCHEDULING (3) LEC. 3. This course develops advanced student knowledge and skills in construction business facets such as delivery, contracts and financial management; and develops tactile skills in producing advanced construction schedules in current software applications. Credit will not be given for both BSCI 7100 and BSCI 7106. Course may be repeated with change in topics.


BSCI 7126 CONSTRUCTION LAW AND RISK MANAGEMENT (3) LEC. 3. Construction law, business law and risk management; the legal system and terminology, contracts, insurance, warranties, liens, environmental concerns, workplace issues, damages and dispute resolution. Admission to Certificate in Construction Management.


BSCI 7156 HEAVY CIVIL CONSTRUCTION (3) LEC. 3. Students must be admitted to the Executive Integrated Processes Certificate in Construction Management. Principles of heavy civil construction including budget, planning, excavation, haul, equipment, temporary structures and types of projects involved.

BSCI 7200 ELECTIVES IN CONSTRUCTION LABOR (3) LEC. 3. Departmental approval. Special course offerings related to construction labor topics. Course may be repeated with change in topic.

BSCI 7300 ELECTIVES IN INFORMATION TECHNOLOGY AND INNOVATION (3) LEC. 3. Departmental approval. Special course offerings related to information technology, innovation, and robotics in construction. Course may be repeated with change in topic.

BSCI 7900 DIRECTED READING IN CONST (1-3) IND. Departmental approval. Individually proposed exploration of a construction industry related topic not covered in existing course offerings Students must prepare a written proposal of the topic. Course may be repeated for a maximum of 3 credit hours.

BSCI 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

BSCI 7980/7986 CAPSTONE PROJECT (3) LAB. 6. Departmental approval. Independent exploration of an approved topic with final written report of findings and an oral defense of the work. Specific capstone project requirements are established by the supervising committee and vary based on the chosen topic.

Business Admin - BUSI

Courses

BUSI 1010 PROFESSIONAL DEVELOPMENT IN BUSINESS I (1) LEC. 1. Exposure to various topics relative to business administration. For Business majors, should be taken during student's first academic year.

BUSI 2010/2013 PROFESSIONAL DEVELOPMENT IN BUSINESS II (1) LEC. 1. Orientation to business administration. Business majors should take during student's second academic year.

BUSI 2100/2103 ORAL COMMUNICATION FOR BUSINESS (1) LEC. 1. Theories and techniques of strong oral communication skills, with real-world applications for business.

BUSI 2900 DIRECTED STUDIES (1-3) IND. SU. Independent study option for freshmen and sophomores in the College of Business for students who seek general or free elective credit. Course may be repeated for a maximum of 3 credit hours.

BUSI 3510 INTRODUCTION TO BUSINESS AND ENGINEERING (3) LEC. 3. Principles of business and engineering issues in new product and business development.

BUSI 3520 INTEGRATING BUSINESS AND ENGINEERING THEORIES WITH PRACTICE (3) LEC. 2. LAB. 3. Case study problems from business and engineering practice.

BUSI 3550 CROSS-FUNCTIONAL TEAMWORK (1) LEC. 1. Development of skills needed to perform well in cross-functional teams. A Admission to the B-E-T program.

BUSI 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

BUSI 4010 PROFESSIONAL DEVELOPMENT IN BUSINESS IV (1) LEC. 1. Preparation for transition from college student to career professional. Lecture and case discussion format to discuss issues faced as a new professional. Senior Standing.

BUSI 4920 BUSINESS INTERNSHIP (1-3) AAB/INT. SU. Internship option for students to gain work experience who seek general or free elective credit. Approval of instructor prior to internship, and completion of or current enrollment in two or more of the following: ACCT 2110, ECON 2020, ECON 2030, FINC 3610, MNGT 3100, or MKTG 3310. Course may be repeated for a maximum of 3 credit hours.

BUSI 5540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (BUSI 3510 or ENGR 3510) and (BUSI 3520 or ENGR 3520). Acceptance into the BET minor program. Develop student skills for starting a new business and making strategic decisions concerning technology.

BUSI 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be enrolled in BET minor. Processes to develop and present design proposal for cooperating industry.

BUSI 5560 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 1. LAB. 6. Pr. (BUSI 5970 or ENGR 5970) and (ENGR 5540 or BUSI 5540). Must be admitted to BET minor. Cross-functional team design projects for sponsoring industry.

BUSI 6540/6546 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Develop student skills for starting a new business and making strategic decisions concerning technology. May count either BUSI 5540 or BUSI 6540.

BUSI 6556 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Develop student skills for starting a new business and making strategic decisions concerning technology.

BUSI 6566 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 3. Pr. (BUSI 5540 or ENGR 6540) and (BUSI 5550 or ENGR 6550). Cross-functional team design projects for sponsoring industry.

BUSI 7110/7116 FINANCIAL ANALYSIS (3) LEC. 3. Departmental approval. Integrated course combining financial accounting and corporate finance for MBA students.

BUSI 7120/7126 QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS (3) LEC. 3. Departmental approval. Integrated course in statistical methods and management science for MBA students.

BUSI 7130/7136 STRATEGIC ANALYSIS AND THE COMPETITIVE ENVIRONMENT (3) LEC. 3. Departmental approval. Integrated course covering business strategy and the external environment in a global context.

BUSI 7140/7146 ORGANIZATIONAL LEADERSHIP, ETHICS AND CHANGE (3) LEC. 3. Departmental approval. Integrated course covering individual and group behavior in organizations, effective team building, motivation, and communications, ethical behavior, and leading organizations through change. May count either BUSI 7140 or BUSI 7146.

BUSI 7150/7156 OPERATIONAL EXCELLENCE THROUGH SUPPLY CHAIN AND QUALITY MANAGEMENT (3) LEC. 3. An examination of the strategic roles of supply chain and quality management in the creation of outstanding product and service operations. Departmental approval. May count either BUSI 7150 or BUSI 7156.

BUSI 7160 ADVANCED PROFESSIONAL DEVELOPMENT (1) LEC. 1. Departmental approval. This course prepares students for career success by focusing on self-assessment, industry/job/company research, personal brand identification, resumes and cover letters, interviewing, career and company research, presentation skills, and benefits and negotiation. Course may be repeated for a maximum of 3 credit hours.
BUSI 7210/7216 MARKETING AND CONSUMER THEORY (3) LEC. 3. Departmental approval. Combines elements of the economics of demand theory and marketing management. Includes advanced pricing topics and the competitive environment.

BUSI 7220/7226 INFORMATION TECHNOLOGY FOR COMPETITIVE ADVANTAGE (3) LEC. 3. Examines the strategic role information technology plays in influencing competitive advantage. Departmental approval. May count either BUSI 7220 or BUSI 7226.

BUSI 7230/7236 COST ANALYSIS AND SYSTEMS (3) LEC. 3. Departmental approval. Integrates production and cost theory from economics with managerial and cost accounting theory and systems for MBA.

BUSI 7250/7256 GLOBAL BUSINESS EXPERIENCE (1-3) LLB. Departmental approval. Examines the economic, financial, legal, political, social and cultural factors impacting global business operations. A study abroad experience is included to provide hands-on experience and awareness. Course may be repeated for a maximum of 3 credit hours.

BUSI 7310/7316 INTEGRATED BUSINESS PROJECT AND CASE ANALYSIS (3) LEC. 3. Integrates knowledge gained from MBA classes and applies that knowledge to address actual business problems. Departmental approval. May count either BUSI 7310 or BUSI 7316.

BUSI 7920/7926 MBA INTERNSHIP (0-6) INT. SU. Departmental approval. Internship for MBA students in business organizations. Course may be repeated for a maximum of 6 credit hours.

BUSI 7970/7976 SPECIAL TOPICS IN BUSINESS ADMINISTRATION (1-3) AAB. Departmental approval. Specialized topics in business administration not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

**Business Analytics - BUAL**

**Courses**

**BUAL 2600/2603 BUSINESS ANALYTICS I (3) LEC. 3.** Pr. (MATH 1610 or MATH 1617 or MATH 1680 or MATH 1683). Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results.

**BUAL 2650/2653 BUSINESS ANALYTICS II (3) LEC. 3.** Pr. BUAL 2600 or STAT 2610 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 3010 or STAT 2513. A second course in quantitative analysis in business including statistical inference, classification analysis, predictive modeling, forecasting, introduction to data mining.

**BUAL 3010 PROFESSIONAL DEVELOPMENT IN BUSINESS ANALYTICS (1)** LEC. 1. SU. Pr. P/C BUAL 2650 and P/C BUSI 2010. Career planning and preparation for employment as an analytics professional.

**BUAL 4910 PRACTICUM (1-3) PRA.** SU. Supervised practical application of business analytics theory and methods. Course may be repeated for a maximum of 3 credit hours.

**BUAL 4920 BUSINESS ANALYTICS INTERNSHIP (1-6) INT. SU.** The internship program represents an opportunity for students to be exposed to analytics environments first-hand and to integrate this experience with their formal education. The practical nature of the internship facilitates the educational process and provides valuable work experience. Course may be repeated for a maximum of 6 credit hours.

**BUAL 5600 PREDICTIVE MODELING I (3) LEC. 3.** Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

**BUAL 5610 PREDICTIVE MODELING II (3) LEC. 3.** Pr. (BUAL 5600 or BUAL 6600 or BUAL 6606). or equivalent. Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. Credit will not be given for both BUAL 5610 and BUAL 6610/6616.

**BUAL 5650 BIG DATA I (3) LEC. 3.** Pr. BUAL 2650. or equivalent. Managing, governing, extracting, merging, and preparing large data sets for analysis.

**BUAL 5660 BIG DATA II (3) LEC. 3.** Pr. BUAL 5650. Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. Credit will not be given for both BUAL 5660 and BUAL 6660/6666.
BUAL 5700 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650. Advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6706.

BUAL 5860 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 5610 and BUAL 5660. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 5900 DIRECTED STUDIES (1-3) IND. SU. Faculty led individualized or group-oriented in-depth study of a topic in business analytics. May include literary research, algorithm development, programming, data analysis, or a combination of these. Course may be repeated for a maximum of 6 credit hours.

BUAL 6600/6606 PREDICTIVE MODELING I (3) LEC. 3. Pr. BUAL 2650. Introduction to linear models including multiple linear regression and model building in business decision making and applications. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 6610/6616 PREDICTIVE MODELING II (3) LEC. 3. Pr. (BUAL 5600 or BUAL 6600 or BUAL 6606). Basic data mining techniques including neural networks, decision trees, clustering algorithms, linear programs, text and web mining in business setting. May count either BUAL 5610 or BUAL 6610/6616.

BUAL 6650/6656 BIG DATA I (3) LEC. 3. or equivalent. Managing, governing, extracting, merging, and preparing large data sets for analysis.

BUAL 6660/6666 BIG DATA II (3) LEC. 3. Pr. (BUAL 5650 or BUAL 6650 or BUAL 6656). Advanced topics in big data management, with emphasis on loading and cleansing the data for analysis. Credit will not be given for both BUAL 5600 and BUAL 6600/6606.

BUAL 6700/6706 BIG DATA INFRASTRUCTURE AND APPLICATIONS (3) LEC. 3. Pr. ISMN 5650 or ISMN 6650 or ISMN 6656. This course covers advanced topics related to big data infrastructure and using these technologies to create data science applications. The course provides deep understanding of various state-of-art data science approaches using different distributed and (or) cloud computing environments. Credit will not be given for both BUAL 5700 and BUAL 6700/6.

BUAL 6860/6866 COMMUNICATING QUANTITATIVE RESULTS IN BUSINESS (3) LEC. 3. Pr. BUAL 6610 or BUAL 6616. A case-based, project-oriented approach to business decision making based on company's mission and strategic objectives. Credit will not be given for both BUAL 5860 and BUAL 6860/6866.

BUAL 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

BUAL 6960/6966 SPECIAL PROBLEMS (3) IND. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

Career and Technical - CTCT

Courses

CTCT 1200 KEYBOARDING AND FORMATTING (3) LEC. 1. LAB. 4. Mastery of alphanumeric keyboard with basic keyboarding and formatting applications of business documents. (Students with previous keyboarding/typewriting instruction consult with Business/Marketing Education faculty for placement.)

CTCT 2100 POWER EQUIPMENT TECHNOLOGY (3) LEC. 2. LAB. 3. Repair and maintenance of small air-cooled engines and power equipment in Agriculture. May count either CTCT 2100 or CTCT 3100.

CTCT 2200/2203 COMPUTER LITERACY IN BUSINESS EDUCATION (3) LEC. 1. LAB. 4. Advanced formatting, processing, and evaluation of business correspondence, as well as administrative and employment documents. Includes basic computer literacy skills. May count either CTCT 2200 or CTCT 2203.
CTCT 3000/3003 LEADERSHIP SKILLS FOR PERSONAL AND ORGANIZATIONAL DEVELOPMENT (3) LEC. 3. Organizational and leadership skills needed to become successful professionals in work or community activities; skills and strategies for conducting efficient meetings. Departmental approval. May count either CTCT 3000 or CTCT 3003.

CTCT 3200/3203 RECORDS MANAGEMENT (2) LEC. 2. Integrated records management systems, records management functions, classification systems, micrographics, electronic records, and records management careers. Departmental approval. May count either CTCT 3200 or CTCT 3203.

CTCT 3240/3243 INFORMATION PROCESSING I (3) LEC. 2. LAB. 2. Pr. CTCT 2200 or CTCT 2203 or (CTSE 2200 or CTSE 2203 or CTSE 2207). Exploration of organizational needs for text-based information processing. Functions and capabilities of text-based information processing components. Departmental approval. May count either CTCT 3240 or CTCT 3243.

CTCT 3250/3253 INFORMATION ANALYSIS (3) LEC. 2. LAB. 2. Decision-making and business problem solving using microcomputer software applications including spreadsheets, database management programs, and operating systems. May count either CTCT 3250 or CTCT 3253.

CTCT 4000/4003 CLASSROOM/LABORATORY MANAGEMENT, ORGANIZATION AND EVALUATION IN CAREER AND TECHNICAL EDUCATION (2) LEC. 2. Admission to Teacher Education. Organization, objectives, principles, management, and evaluation of career and technical education classrooms, laboratories, and programs. May count either CTCT 4000 or CTCT 4003.

CTCT 4030 CAREER AND TECHNICAL STUDENT ORGANIZATIONS (3) LEC. 3. Survey of career and technical student organizations; procedures involved in developing and implementing informal and co-curricular educational programs for students and preparing students for state and national competitions.


CTCT 4160 SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS (2) LEC. 2. Responsibility for SAEP planning, supervision, and evaluation of entrepreneurship, placement, exploratory, analytical, and experimental SAEPs and record books; completing award applications.

CTCT 4200/4203 MANAGING OFFICE SYSTEMS (3) LEC. 2. LAB. 2. Pr. CTCT 3250 or CTCT 3253. Capstone course with emphasis on integration of information processing procedures, administrative support, and management functions. Departmental approval. May count either CTCT 4200 or CTCT 4203.

CTCT 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. The student's learning efforts are guided toward desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 4910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTCT 4920/4923 CLINICAL RESIDENCY (12) AAB. 40. SU. Admission to Teacher Education. Admission to Clinical Residency. Supervised clinical residency experiences abroad in a school or other appropriate setting. Evaluation and analysis of the clincial residency experience. May count either CTCT 4920 or CTCT 4923.

CTCT 4940/4943 DIRECTED FIELD EXPERIENCE IN AREA OF SPECIALIZATION (1-3) FLD. SU. Supervised occupational work experience in an approved specialization-related occupation. Departmental approval. May count either CTCT 4940 or CTCT 4943. Course may be repeated for a maximum of 3 credit hours.

CTCT 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or special topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 5050/5053 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Admission to Teacher Education. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within career and technical education. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 5060 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Admission to Teacher Education. Introduction to principles and practices involved in designing education programs in the area of specialization. May count CTCT 5060, CTCT 6060, or CTCT 6066.
CTCT 5080/5083 PRINCIPLES OF COORDINATION (3) LEC. 3. Admission to Teacher Education. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 5200/5203 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, systems, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 6200 or CTCT 6200/CTCT 6206.

CTCT 5240/5243 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 5240/CTCT 5243 or CTCT 6240/CTCT 6246.

CTCT 5250/5253 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May Count Either CTCT 3250/CTCT 3253 or CTCT 5250/CTCT 5253 or CTCT 6250/CTCT 6256.

CTCT 5260/5263 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/CTCT 6266.

CTCT 5940/5943 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience in a Commerce and Information Technology environment. May count either CTCT 4940/CTCT 4943 or CTCT 5940/CTCT 5943 or CTCT 6940/CTCT 6946.

CTCT 6050/6056 METHODS OF TEACHING IN AREA OF SPECIALIZATION (3) LEC. 2. LAB. 2. Methods and techniques of instruction using appropriate instructional materials; planning and evaluation of instruction for programs within the area of specialization. Admission to alternative master's program. May count CTCT 5050, CTCT 5053, CTCT 6050, or CTCT 6056.

CTCT 6060/6066 PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Introduction to principles and practices involved in designing educational programs in the area of specialization. Admission to alternative master's program. May count CTCT 5060, CTCT 6060, or CTCT 6066.

CTCT 6080/6086 PRINCIPLES OF COORDINATION (3) LEC. 3. Coordination, placement, and supervision of students in work-based programs; development of employability skills. May count CTCT 5080, CTCT 5083, CTCT 6080, or CTCT 6086.

CTCT 6200/6206 RECORDS MANAGEMENT SYSTEMS (3) LEC. 3. Study of integrated records management systems, functions, and careers; including decision making and problem solving using software applications. May count either CTCT 5200/CTCT 5203 or CTCT 6200/CTCT 6206.

CTCT 6240/6246 MULTIMEDIA DESIGN (3) LEC. 3. Focus on presentation, desktop publishing, multimedia production, web page design, and digital graphics. May count either CTCT 6240/CTCT 6246 or CTCT 5240/5243.

CTCT 6250/6256 INFORMATION DESIGN & ANALYSIS (3) LEC. 3. Decision making, problem solving, and presentation using business software applications. May count either CTCT 6250/CTCT 6256 or CTCT 5250/5253.

CTCT 6260/6266 APPLIED COMPUTER TECHNOLOGY (3) LEC. 3. Capstone course with emphasis on integration of business software for decision making, processing, collaboration and management functions, including accounting and financial management. May count either CTCT 5260/CTCT 5263 or CTCT 6260/6266.

CTCT 6940/6946 WORK EXPERIENCE IN INFORMATION TECHNOLOGY (3) LEC. 3. SU. Supervised occupational work experience and software application in a Commerce and Information Technology environment. May count either CTCT 6940/CTCT 6946 or CTCT 5940/5943.

CTCT 7000/7006 FOUNDATIONS OF CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Philosophical, historical, economic, and sociological perspectives of vocational education in relation to the organization of vocational education programs. May count either CTCT 7000 or CTCT 7006.

CTCT 7010/7016 YOUTH PROGRAM DEVELOPMENT (3) LEC. 3. Developing, managing, and evaluating formal and informal youth education programs; training volunteers for youth development programs; securing and developing supporting resources. Departmental approval. May count either CTCT 7010 or CTCT 7016.
CTCT 7100/7106 TEACHING MECHANICAL TECHNOLOGY (3) LEC. 2. LAB. 2. Theory and practice of managing agricultural mechanics laboratories, theories of machine operation, and maintaining laboratory equipment. May count either CTCT 7100 or CTCT 7106.

CTCT 7120/7126 COURSES OF STUDY IN AGRICIENCE EDUCATION (3) LEC. 3. Pr. CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066. Emerging technologies in agriscience education; principles and procedures of curriculum construction applied to courses of study in agriscience education. Departmental approval. May count either CTCT 7120 or CTCT 7126.

CTCT 7200/7206 CAREER AND OCCUPATIONAL INFORMATION (3) LEC. 3. Trends and issues in occupational structure, job qualifications and requirements, and sources of occupational information for new and emerging occupations; analysis of career education models for students. Departmental approval. May count either CTCT 7200 or CTCT 7206.

CTCT 7240/7246 ADMINISTRATIVE MANAGEMENT (3) LEC. 3. Pr. CTCT 4200 or CTCT 4203. Management of office systems, information and personnel. Managing and controlling administrative services. Departmental approval. May count either CTCT 7240 or CTCT 7246.

CTCT 7300/7306 INTEGRATING TECHNOLOGY IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Pr. CTCT 5050 or CTCT 6050 or CTCT 5053 or CTCT 6056. Selecting, developing, utilizing, and evaluating instructional resources and technology for teaching. Departmental approval. May count either CTCT 7300 or CTCT 7306.

CTCT 7710/7716 ADVANCED TEACHING METHODS (3) LEC. 3. Pr. (CTCT 5050 or CTCT 5053) or (CTCT 6050 or CTCT 6056). Analysis of research in theories of teaching and learning, effective teacher characteristics, learning styles, teaching methodologies, and diversity in teaching. Departmental approval. May count either CTCT 7710 or CTCT 7716.

CTCT 7720/7726 ADVANCED PROGRAM PLANNING IN AREA OF SPECIALIZATION (3) LEC. 3. Pr. CTCT 5060 or CTCT 6060 or CTCT 5063 or CTCT 6066. Issues affecting the development and management of educational programs; strategies for improving educational programs. Departmental approval. May count either CTCT 7720 or CTCT 7726.

CTCT 7730/7736 PROGRAM EVALUATION (3) LEC. 3. Pr. (CTCT 7720 or CTCT 7726). Principles and procedures used in evaluating academic-related programs. Alternative approaches to evaluation and practical guidelines for conducting evaluations. Departmental approval. May count either CTCT 7730 or CTCT 7736.

CTCT 7750/7756 ADMINISTRATION OF CAREER AND TECHNICAL EDUCATION (3) LEC. 2. LAB. 2. Introduction to concepts, theories and practices related to administration, organizational behavior, and leadership in secondary and post-secondary vocational education programs. Departmental approval. May count either CTCT 7750 or CTCT 7756.

CTCT 7760/7766 COMPREHENSIVE PLANNING IN CAREER AND TECHNICAL EDUCATION (3) LEC. 2. LAB. 2. Pr. (CTCT 7750 or CTCT 7756). Processes of comprehensive planning for vocational education programs at high school and secondary school levels using local, state, and regional data. Departmental approval. May count either CTCT 7760 or CTCT 7766.

CTCT 7770/7776 CLINICAL SUPERVISION (3) LEC. 3. Pr. (CTCT 7710 or CTCT 7716). Theories, concepts, models, and techniques of student teacher and beginning teacher supervision by administrators, school district personnel, and university supervisors. Recommended for individuals who supervise or plan to supervise student teachers. Departmental approval. May count either CTCT 7770 or CTCT 7776.

CTCT 7780/7786 RESEARCH IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Review, analysis and interpretation of research procedures and data with emphasis on designing new research in vocational and adult education. Departmental approval. May count either CTCT 7780 or CTCT 7786.

CTCT 7810 SUPERVISED COLLEGE TEACHING (1) LEC. 1. SU. Departmental approval. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 2 credit hours.

CTCT 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent learning effort directed toward desired objectives. Includes evaluation at regular intervals by student and professor. Course may be repeated for a maximum of 3 credit hours.

CTCT 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-3) PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 3 credit hours.

CTCT 7920/7926 CLINICAL RESIDENCY (9-12) AAB/INT. 40. SU. Admission to Clinical Residency. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Departmental approval. May count either CTCT 7920 or CTCT 7926. Course may be repeated for a maximum of 12 credit hours.
CTCT 7950/7956 SEMINAR IN AREA OF SPECIALIZATION (1-3) SEM. SU. Departmental approval. Presentation by graduate students of research projects and/or findings. Analysis of procedures and findings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7960/7966 SPECIAL PROBLEMS (1-3) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

CTCT 7970/7976 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTCT 8730/8736 CURRICULUM DEVELOPMENT IN CAREER AND TECHNICAL EDUCATION (3) LEC. 3. Pr. CTCT 7730 or CTCT 7736. Principles of career and technical education curriculum planning, identification of educational needs of students, selecting technical content, and evaluating materials. May count either CTCT 8730 or CTCT 8736.

CTCT 8770/8776 SUPERVISION OF INSTRUCTION (3) LEC. 3. Pr. CTCT 7770 or CTCT 7776. Theories and models to become effective supervisors of vocational and adult education programs; philosophies and styles of supervision used to improve schools, instruction, curriculum and personnel. Departmental approval. May count either CTCT 8870 or CTCT 8876.

CTCT 8800/8806 TEACHER EDUCATION (3) LEC. 3. Emphasis on beliefs, philosophy, issues, research, roles, student selection, curriculum, methodology, internships, organization, and administration of teacher education programs. Departmental approval. May count either CTCT 8800 or CTCT 8806.

CTCT 8810 SUPERVISED COLLEGE TEACHING (1-10) LEC. 3. Practical experience in the classroom under the supervision of a faculty mentor. Course may be repeated for a maximum of 10 credit hours.

CTCT 8900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning efforts at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTCT 8910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experiences closely relating theory and practice. Course may be repeated for a maximum of 6 credit hours.

CTCT 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 10 credit hours.

CTCT 8950 SEMINAR IN AREA OF SPECIALIZATION (1-6) SEM. Departmental approval. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 6 credit hours.

CTCT 8960 SPECIAL PROBLEMS (1-6) IND. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 6 credit hours.

CTCT 8970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

CTCT 8980/8986 FIELD PROJECT (1-10) FLD. 1. SU. Departmental approval. Field project. Course may be repeated for a maximum of 10 credit hours.

CTCT 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Cell and Molecular Biology - CMBL

Courses

CMBL 4150 HUMAN GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and (CHEM 2080 or CHEM 2087). Study of the biological interaction of genes, effects of mutation and changes in gene frequency in human populations. Emphasis on molecular approach to study evolutionary changes in human gene pools.

CMBL 5190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4220 and CHEM 2090. The study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches.
CMBL 5500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms and medical immunology.

CMBL 5501 IMMUNOLOGY LAB (2) LAB. 4. Coreq. BIOL 5500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

CMBL 6190 CELL AND MOLECULAR SIGNAL TRANSDUCTION (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4100 and BIOL 4050 and CHEM 2090. Study of cellular communication and regulation with emphasis on integration between cellular, molecular, genetic and biochemical approaches. Credit will not be given for both CMBL 6190 and BIOL 6190.

CMBL 6220 INTRODUCTION TO MOLECULAR GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 4510. Advanced principles of gene expression including replication, transcription and translation; structure and regulation of genes; detailed concepts and techniques in recombinant DNA. Credit will not be given for both CMBL 6220 and BIOL 6230.

CMBL 6230 VIROLOGY (4) LEC. 4. Pr. (BIOL 3000 or BIOL 3003) and BIOL 3200 and BIOL 4520. Molecular mechanisms of virus biology including virus-cell replication, assembly and release pathogens. Credit will not be given for both CMBL 6230 and BIOL 6230.

CMBL 6320 PLANT GENE EXPRESSION (4) LEC. 4. Pr. BIOL 5320. Departmental approval. Genetic expression of genetic elements in plants from the recent literature. Credit will not be given for both BIOL and CMBL 6320.

CMBL 6500 IMMUNOLOGY (3) LEC. 3. Pr. BIOL 3200 and (BIOL 3000 or BIOL 3003). The cellular and molecular basis of the immune response, including antigen presentation, immunogenetics, effector mechanisms, and medical immunology.

CMBL 6501 TECHNIQUES IN IMMUNOLOGY (2) LAB. 4. Coreq. BIOL 6500. Techniques illustrating principles of antigen-antibody interactions and their application in immunoassays, identification of leukocytes, cellular interactions and antibody production.

CMBL 7070 PLANT BIOTECHNOLOGY (4) LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement.

CMBL 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems and gene regulation.

CMBL 7270 ULTRASTRUCTURE OF PLANT CELLS AND MICROBES (5) LEC. 3. LAB. 4. Departmental approval. Theory and practice of transmission and scanning electron microscopy and their application to the biological sciences. Credit will not be given for both CMBL 7270 and BIOL 7290.

CMBL 7290 EVOLUTIONARY GENETICS (3) LEC. 3. Pr. (BIOL 3000 or BIOL 3003) and BIOL 6170. Departmental approval. Examines two major topics: the role of population processes as mechanisms for evolution; and evolution at the molecular level. Credit will not be given for both CMBL 7290 and BIOL 7290.

CMBL 7330 MOLECULAR BIOLOGY OF PLANT DEVELOPMENT (2) LEC. 2. Pr. BIOL 6130 and BIOL 7280. Departmental approval. Physiological, biochemical and molecular aspects of plant growth and development. Credit will not be given for both CMBL 7330 and BIOL 7330.

CMBL 7400 PLANT VIROLOGY (4) LEC. 3. LAB. 2. Pr. (PLPA 3000 or PLPA 3003 or PLPA 6000) and CHEM 6180. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

CMBL 7440 ADVANCED CELL BIOLOGY (3) LEC. 3. Pr. BIOL 4100. Examination of current areas of research in cell and developmental biology by directed reading and discussion. Credit will not be given for both CMBL 7440 and BIOL 7440.

CMBL 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

CMBL 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concept underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.

CMBL 7510 MOLECULAR GENETICS I (5) LEC. 5. Pr. CHEM 7200. Bacterial, bacteriophage, and eukaryotic genetics, with a focus on gene structure, and molecular mechanisms regulation expression. Critical review of current literature will be emphasized.

CMBL 7520 MOLECULAR GENETICS II (5) LEC. 5. Pr. VBMS 7510. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

CMBL 7530 ADVANCED SYSTEMATIC BOTANY (3) LEC. 3. Pr. BIOL 6120. Morphological and molecular approaches to modern systematics of plants.

CMBL 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7510 and VBMS 7520. Viral gene expression and evasion of host defense mechanisms.

CMBL 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Departmental approval. Principles and applications of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies. Credit will not be given for both CMBL 7660 and FISH 7660.

CMBL 7960 READINGS IN MOLECULAR BIOLOGY (1) RCT. 1. Pr. P/C BIOL 7220. Oral presentation and discussion of recent scientific publications from a selected area of molecular biology. Credit will not be given for both CMBL 7960 and BIOL 7960. Course may be repeated for a maximum of 4 credit hours.

CMBL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 4520 and BIOL 4530. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both CMBL 8160 and POUL 8160.

CMBL 8880 PHYSIOLOGICAL AND MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6000 and CHEM 6180 and BIOL 4230. Comprehensive coverage of physiology and molecular biology of plant-pathogen interactions.

Chemical Engineering - CHEN

Courses

CHEN 2100 PRINCIPLES OF CHEMICAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. (CHEM 1110 or CHEM 1117 or CHEM 1030) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710) and (P/C CHEM 1120 or P/C CHEM 1127 or P/C CHEM 1040) and (P/C MATH 1620 or MATH 1623 or P/C MATH 1627 or P/C MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Application of multicomponent material and energy balances to chemical processes involving phase changes and chemical reactions.

CHEN 2610 TRANSPORT I (3) LEC. 3. Pr. (PHYS 1600 or PHYS 1607) and CHEN 2100 and (P/C MATH 2630 or P/C MATH 2637) and P/C ENGR 2010. CHEN 2100 requires a grade of C or better. Introduction to fluid statics and dynamics; dimensional analysis; compressible and incompressible flows; design of flow systems, introduction to fluid solids transport including fluidization, flow through process media and multiphase flows.

CHEN 2650 CHEMICAL ENGINEERING APPLICATIONS OF MATHEMATICAL TECHNIQUES (3) LEC. 3. Pr. P/C CHEN 2100 and P/C CHEN 2610 and MATH 2650 and COMP 1200. CHEN 2100 requires a grade of C or better. CHEN 2610 and MATH 2650 are Prerequisites with Concurrency. COMP 1200 should be the Matlab section. Application of a broad range of mathematical techniques to chemical engineering problems. Emphasis on engineering significance and interpretation of mathematical operations.

CHEN 2AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT I (0) LAB. SU. Pr. P/C CHEN 2100. Progress assessment examination in basic science, general chemistry, physics, basic math principles (geometry, algebra), multivariable calculus, chemical engineering process principles (mass and energy balances).

CHEN 3090 PULP AND PAPER TECHNOLOGY (3) LEC. 3. Pr. (CHEM 1030 or CHEM 1110 or CHEM 1117) and ENGR 2010. An introductory course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.

CHEN 3370 PHASE AND REACTION EQUILIBRIA (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and ENGR 2010 and CHEN 2100 and P/C CHEN 3600. Molecular thermodynamics of phase and chemical reaction equilibria including non-ideal thermodynamics and multicomponent applications. (ENGR 2010 and CHEN 2100 require a grade of C or better).

CHEN 3410 CREATIVITY AND CRITICAL THINKING IN ENGINEERING (3) LEC. 3. Application of creativity and critical thinking principles to effectively approach solving engineering problems. Convincing presentation of information to technical audiences.
CHEN 3600 COMPUTER-AIDED CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. COMP 1200 and MATH 2650 and CHEN 2610 and P/C CHEN 2650. CHEN 2650 is prerequisite with concurrency. General and structured programming concepts, numerical methods, and introductory probability and statistics concepts. Application to chemical engineering problems involving material and energy balances and transport process, data validation, and analysis. (CHEN 2610 requires a grade of C or better).

CHEN 3620 TRANSPORT II (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and ENGR 2010 and CHEN 2610 and P/C CHEN 3600. Fundamentals and applications of heat and mass transfer in chemical processes including conduction, convection, and radiation, heat exchange, evaporation, chemical reaction gas absorption, drying and humidification. (ENGR 2010 and CHEN 2610 require a grade of C or better).

CHEN 3650 CHEMICAL ENGINEERING ANALYSIS (3) LEC. 2. LAB. 3. Pr. CHEN 2650 and CHEN 3600 and CHEN 3620 and CHEN 2AA0. CHEN 2650, CHEN 3600 and CHEN 3620 all require a grade of C or better. Mathematical modeling, analytical, numerical and statistical analysis of chemical processes.

CHEN 3660 CHEMICAL ENGINEERING SEPARATIONS (3) LEC. 3. Pr. CHEN 3370 and CHEN 3620. Separations processes including distillation, extraction, membrane separation, and other separation operations. (CHEN 3370 and CHEN 3620 require a grade of C or better).

CHEN 3700 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. MATH 2650 and CHEN 2610 and ENGR 2010 and P/C CHEN 3620. Design of chemical reactors with homogeneous reaction systems. (CHEN 2610 and ENGR 2010 require a grade of C or better).

CHEN 3820 CHEMICAL ENGINEERING LABORATORY I (2) LEC. 1. LAB. 3. Pr. CHEN 3600 and CHEN 3620. Experimental study of chemical thermodynamics, heat and momentum transfer with analytical, numerical, and statistical analysis.

CHEN 3AA0 CHEMICAL ENGINEERING PROGRESS ASSESSMENT II (0) LAB. SU. Pr. CHEN 2AA0 and P/C CHEN 3370 and P/C CHEN 3650 and P/C CHEN 3700 and P/C CHEN 3660. Progress assessment examination in thermodynamics, linear differential equations, organic chemistry, transport phenomena (fluid mechanics, heat, mass transfer), phase and reaction equilibria, reaction engineering, design and conduction of experiments, analysis and interpretation of data, professional, ethical, societal and contemporary issues.

CHEN 4100 PULP AND PAPER PROCESSING LABORATORY (2) LAB. 6. Pr. CHEN 2610 and CHEN 3090 and CHEN 3820 or Departmental approval. Experimental study of pulping and papermaking operations. Departmental approval.

CHEN 4160 PROCESS DYNAMICS AND CONTROL (3) LEC. 2. LAB. 3. Pr. CHEN 3600 and (CHEN 3650 or CHEN 3653). Dynamic modeling of chemical processes, feedback systems and analog controller tuning and design, sequential control systems. (CHEN 3600 and CHEN 3650 require a grade of C or better).

CHEN 4170 DIGITAL PROCESS CONTROL (3) LEC. 3. Pr. CHEN 3650 or CHEN 3653. Introduction of basic concepts and principles for control system. Analysis of open loop and closed-loop processes using transfer functions.

CHEN 4180 ADVANCED DIGITAL PROCESS CONTROL (3) LEC. 2. LAB. 3. Pr. CHEN 4170. Application of sequential, closed loop and open loop process control principles to actual industrial and experimental control laboratory process. (CHEN 4170 requires a grade of C or better).

CHEN 4450 PROCESS ECONOMICS AND SAFETY (3) LEC. 2. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700. Fundamentals and applications of process economics and design, computer-aided cost estimation, profitability analysis and process improvement. Application of chemical process safety, risk assessment and management, hazard and operability analysis, chemical engineering principles for risk reduction. (CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4460 PROCESS SIMULATION SYNTHESIS AND OPTIMIZATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and (CHEN 3650 or CHEN 3656 or CHEN 2087) and CHEN 3660 and CHEN 3700. Fundamentals of computer-aided simulation and synthesis. Process integration and optimization principles including their applications in design, retrofitting and operation of chemical processes. (CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4470 PROCESS DESIGN PRACTICE (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4460. Flow sheet simulation and techno-economic analysis applied to complex, open-ended chemical processes. Screening of alternatives and economic optimizations. Capstone design course.
CHEN 4560 PULP AND PAPER PROCESS SIMULATION (2) LEC. 1. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3090 and CHEN 3370 and (CHEN 3650 or CHEN 3653) and CHEN 3660 and CHEN 3700 and P/C CHEN 4100 and P/C CHEN 5110. Fundamentals of microcomputer process simulation with applications to the pulp and paper industry. Design of pulp and paper unit operations and small scale processes using commercial simulation software. (CHEN 3090, CHEN 3370, CHEN 3650, CHEN 3660 and CHEN 3700 require a grade of C or better).

CHEN 4570 PULP AND PAPER PROCESS DESIGN (3) LEC. 2. LAB. 3. Pr. CHEN 3AA0 and CHEN 4450 and CHEN 4560. Application of process simulation and process economics to complex, open-ended design, retrofitting and operation problems in pulp and paper. Design of pulp and paper unit operations and processes. Screening of alternatives and economic optimization.

CHEN 4630 INTRODUCTION TO TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 3620 and (CHEN 3650 or CHEN 3653). Application of chemical engineering analysis to momentum, heat and mass transport problems for advanced undergraduate students preparing for graduate school. (CHEN 3620 and CHEN 3650 require a grade of C or better).

CHEN 4860 CHEMICAL ENGINEERING LABORATORY II (2) LEC. 1. LAB. 3. Pr. CHEN 3660 and CHEN 3820 and P/C CHEN 3700. Experimental study of mass transfer, separations and reaction engineering. Emphasis is on open-ended laboratory projects with electronic instrumentation; experimental design with numerical and statistical analysis of data.

CHEN 4880 PULP AND PAPER ENGINEERING LABORATORY (3) LAB. 9. Pr. CHEN 4100 and CHEN 5110. Comprehensive open-ended projects on pulp and paper topics.

CHEN 4930 DIRECTED STUDIES (1) LEC. 1. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during preregistration. Project report.

CHEN 4970 SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-10) AAB. Departmental approval. Topical courses in special areas. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 10 credit hours.

CHEN 4980 UNDERGRADUATE RESEARCH (1-3) IND. Pr. 3.00 GPA. Departmental approval. GPA of 3.0 or higher. Individual and small group projects. Topic must be arranged with instructor during preregistration. Research Report. Course may be repeated for a maximum of 3 credit hours.

CHEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

CHEN 5110 PULP AND PAPER ENGINEERING (3) LEC. 3. Pr. CHEN 3090 and CHEN 3620 and CHEN 3700 and P/C CHEN 4450. Chemical and engineering principles in the manufacturing of pulp and paper. (CHEN 3090, CHEN 3620, and CHEN 3700 require a grade of C or better).

CHEN 5120 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Pr. CHEN 3620 and CHEN 4100. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits. (CHEN 3620 and CHEN 4100 require a grade of C or better).

CHEN 5400 MOLECULAR ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and P/C CHEN 3700. Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications. (CHEN 3370 requires a grade of C or better).

CHEN 5410 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reputation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers. (CHEN 3370 requires a grade of C or better).

CHEN 5420 POLYMER CHEMICAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and CHEN 3620 and CHEN 5410. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing. (CHEN 3620 and CHEN 5410 require a grade of C or better).

CHEN 5430 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Pr., Departmental Approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.
CHEN 5440 ELECTROCHEMICAL ENGINEERING (3) LEC. 3. Pr. CHEN 3370 and CHEN 3620 and CHEN 3700. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion. (CHEN 3370, CHEN 3620, and CHEN 3700 require a grade of C or better).

CHEN 5650 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3. Pr. (CHEM 2030 or CHEM 2080 or CHEM 2087) and (CHEN 3820 or CIVL 5210). Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering principles for risk education.

CHEN 5660 MACROSCE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Departmental approval. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials.

CHEN 5670 POLLUTION PREVENTION ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3370 and CHEN 3620 and CHEN 3700. Chemical and engineering principles applied to pollution prevention. Theory and practice of basic separation methods, reaction engineering, process controls, and other fundamental chemical engineering disciplines as well as regulatory requirements to prevent unnecessary waste generation. Case studies. (CHEN 3370, CHEN 3620, CHEN 3660, and CHEN 3700 require a grade of C or better).

CHEN 5700 ADVANCED SEPARATION PROCESSES (3) LEC. 3. Pr. CHEN 3370 and CHEN 3660. Advanced treatment of modern chemical engineering separation processes. Theory and practice of staged multi-component mass transfer operations, non-ideal multi-phase separations and continuous rate processes. (CHEN 3370 and CHEN 3660 require a grade of C or better).

CHEN 5800 BIOCHEMICAL ENGINEERING (3) LEC. 3. Pr. CHEN 3700. Bioreactor design. Analysis of enzyme and microbial processes. (CHEN 3700 requires a grade of C or better).

CHEN 5810 BIOMEDICAL ENGINEERING (3) LEC. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEN 3620 and CHEN 3700. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer. (CHEN 3620 and CHEN 3700 require a grade of C or better).

CHEN 5820 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3. Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 5970 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 6090/6096 PULP AND PAPER TECHNOLOGY (3) LEC. 3. An introductory graduate level course on the technology of pulp and paper manufacturing with emphasis on raw materials, pulping, bleaching, paper making, coating and environmental control. For students with no previous formal pulp and paper background.CHEN Department Approval and Alabama Center for Paper and Bioresource Engineering Director approval.

CHEN 6110 PULP AND PAPER ENGINEERING (3) LEC. 3. Chemical and engineering principles in the manufacturing of pulp and paper.

CHEN 6120/6126 SURFACE AND COLLOID SCIENCE (3) LEC. 3. Fundamentals of surface and colloid science with applications in pulping and papermaking, including sizing, retention and drainage, charge measurements, dry/wet strength additives, fillers, colorants, foams, pitch and deposits.

CHEN 6400/6406 MOLECULAR ENGINEERING (3) LEC. 3. Introduction to how molecular structure and long range microstructure affect the properties of chemical engineering products and how this knowledge can be used to design chemical engineering products for specific applications.

CHEN 6410/6416 MACROMOLECULAR SCIENCE AND ENGINEERING (3) LEC. 3. Statistical mechanics of chain molecules; thermodynamics of polymer solutions; dilute, semi-dilute, and concentrated solutions and gels; polymer physics; scaling concepts in polymer physics; reptation theory (deGennes, Doi, Edwards) and molecular dynamics; phase separations; crystallization of polymers; rubber elasticity theory; mechanical analysis; viscoelasticity; diffusion theory of polymers; surface properties of polymers.
CHEN 6420/6426 POLYMER CHEMICAL ENGINEERING (3) LEC. 3. Polymer rheology, transport phenomena, thermodynamics, membranes, conducting polymers, surfaces, interfaces and processing.

CHEN 6430/6436 BUSINESS ASPECTS OF CHEMICAL ENGINEERING (3) LEC. 3. Departmental approval. The procession of activities required to successfully commercialize and market new chemical-engineering-based technologies to the consumer and process industries.

CHEN 6440/6446 ELECTROCHEMICAL ENGINEERING (3) LEC. 3. Thermodynamics, electrode kinetics and transport phenomena of electrochemical systems, current and potential distributions, double layer theory, electrochemical processes, power sources, synthesis, corrosion.

CHEN 6650/6656 HAZARDOUS MATERIALS MANAGEMENT AND ENGINEERING (3) LEC. 3. Fundamental principles and regulatory information related to hazardous material and process safety management and engineering, dispersion of chemicals, hazard and operability analysis, chemical engineering, principles for risk education.

CHEN 6660/6666 MACROSCALE ASSEMBLY AND APPLICATIONS OF NANOMATERIALS (3) LEC. 3. Production of macroscopic assemblies and structures from nanomaterials. Processing and applications of inorganic, organic, biological and hybrid nanomaterials. Or departmental approval. May count either CHEN 6660 or CHEN 6666.


CHEN 6810/6816 BIOMEDICAL ENGINEERING (3) LEC. 3. Application of chemical engineering principles to the study of medical physiology. Human biochemistry, anatomy, and physiology, rheological properties of blood and synovial fluid, rheology of cell membranes. Biomedical fluid mechanics and heat and mass transfer.

CHEN 6820/6826 ADVANCED TOPICS IN ENVIRONMENTAL BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Application of biotechnology to environmental process treatment, bioremediation and bioreactor development.

CHEN 6970/6976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) LEC. Departmental approval. Topical courses in areas for advanced undergraduate and graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 24 credit hours.

CHEN 7020/7026 INTERFACIAL PHENOMENA (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Fundamental analyses of interfacial phenomena at liquid/gas, liquid/liquid and solid/liquid interfaces.


CHEN 7110/7116 CHEMICAL ENGINEERING ANALYSIS AND ADVANCED TRANSPORT PHENOMENA (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106. Analytical solutions of ordinary and partial differential equations pertaining to transport phenomena and other areas of chemical engineering.

CHEN 7120/7126 ADVANCED TOPICS IN PAPER PROCESSING OPERATIONS (3) LEC. 3. Pr. CHEN 6120 or CHEN 6126. Surface and colloidal interactions in the wet end of paper manufacturing. Colloidal stability theory, absorption of macromolecules, flocculation and retention of particles. Wet-end chemistry process control.

CHEN 7130/7136 ADVANCED PULP AND PAPER ENGINEERING (3) LEC. 3. Topics in pulping, chemical recovery and papermaking.


CHEN 7250/7256 CHEMICAL REACTION ENGINEERING (3) LEC. 3. Pr. P/C CHEN 7100 or P/C CHEN 7106. Analysis and design of homogeneous and heterogeneous chemical reactors. Physicochemical factors and analysis of non-ideal chemical reactor behavior.
CHEN 7600/7606 ENVIRONMENTAL TRANSPORT (3) LEC. 3. Pr. (CHEN 7100 or CHEN 7106) and (CHEN 7200 or CHEN 7206) and (P/C CHEN 7110 or P/C CHEN 7116). Environmental chemodynamics, interphase equilibrium, reactions, boundary layers, transport mechanisms and models or movement of substances across natural interfaces (air-water-sediment-soil).

CHEN 7710 INTRODUCTION TO RESEARCH SEMINAR (1) LEC. 1. SU. Pr. P/C CHEN 7100 or P/C CHEN 7106. Introductory graduate research seminars for entering graduate students.

CHEN 7720 ADVANCED PROCESS DESIGN SEMINAR (1) LEC. 1. Pr. (P/C CHEN 7100 or P/C CHEN 7106) and (P/C CHEN 7200 or P/C CHEN 7206). Fundamentals of advanced process design including process synthesis, simulation, analysis, optimization and integration. Systematic process synthesis tools for screening potential flow sheets.

CHEN 7900/7906 INDEPENDENT STUDY (1-10) IND. SU. Departmental approval. Supervised study in specialized areas of chemical engineering. Topic must be arranged with instructor during pre-registration. Course may be repeated for a maximum of 20 credit hours.

CHEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Seminar. Course may be repeated for a maximum of 12 credit hours.

CHEN 7970/7976 ADVANCED SPECIAL TOPICS IN CHEMICAL ENGINEERING (1-6) IND. Departmental approval. Topical courses for graduate students. Topics must be arranged with instructor during preregistration. Course may be repeated for a maximum of 12 credit hours.

CHEN 7990 RESEARCH AND THESIS (1-20) MST. Credit hours to be arranged. Course may be repeated with change in topics.

CHEN 8000/8006 GRADUATE CHEMICAL ENGINEERING ANALYSIS (2) LEC. 2. Pr. CHEN 7100 or CHEN 7106. Applications of advanced numerical methods to the analysis of complex chemical engineering problems.

CHEN 8010 ADVANCED CHEMICAL ENGINEERING NUMERICAL ANALYSIS (2) LEC. 2. Pr. CHEN 7100 or CHEN 7106. Advanced numerical methods for the analysis of chemical engineering problems. Computer applications.

CHEN 8020 ADVANCED TOPICS IN THE CHARACTERIZATION OF SURFACE PROPERTIES OF MATERIALS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Nature of surface and intermolecular forces. Surface chemical characterization of solid surfaces. Adhesion and the role of chemical, physical and mechanical properties of solid surfaces. Modern characterization techniques including scanning probe microscopy, thermodynamic and spectroscopic methods.

CHEN 8100 ADVANCED TOPICS IN CHEMICAL ENGINEERING PROCESSES (3) LEC. 3. Pr. CHEN 7110 or CHEN 7116. Advanced concepts in fluid dynamics with special emphasis on applications to chemical engineering, creeping flow, multiphase instabilities, computational fluid mechanics and turbulence.

CHEN 8110 ADVANCED TOPICS IN HEAT AND MASS TRANSFER (3) LEC. 3. Pr. CHEN 7110 or CHEN 7116. Application of transport operations to chemical engineering problems containing physical and chemical rate processes. Chemically reacting boundary layers, heat and mass transfer, eddy diffusion, phase change and separation processes.

CHEN 8210 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Application of advanced thermodynamics to complex chemical engineering problems including advanced models for electrolyte solutions, critical and supercritical phenomena, high pressure equilibrium, non-equilibrium and surface thermodynamics and molecular modeling.

CHEN 8220 POLYMER THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Fundamentals and applications of macromolecular thermodynamics to industrial polymer problems.

CHEN 8230 CHEMICAL ENGINEERING STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Applications of molecular theory and models to the properties of non-ideal gases and liquids using advanced statistical mechanics and chemical thermodynamics.

CHEN 8270 HETEROGENEOUS CATALYSIS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Advanced concepts, techniques, applications and principles for the use of heterogeneous catalysts in chemical and environmental processes. Departmental approval.

CHEN 8280 SURFACE CHARACTERIZATION/SOLIDS (3) LEC. 3. Pr. CHEN 7200 or CHEN 7206. Advanced concepts and techniques in the physical and chemical characterization of solid surfaces by microscopic, spectroscopic and chemical methods including various photon and/or electron spectroscopies, thermal desorption.

CHEN 8300 PROCESS DYNAMICS AND CONTROL (3) LEC. 3. Pr. CHEN 7100 or CHEN 7106 and (P/C CHEN 7110 or P/C CHEN 7116). Advanced linear and nonlinear chemical process dynamics and control systems.
CHEN 8310 PROCESS DYNAMICS AND CONTROL II (2) LEC. 2. Advanced chemical process dynamics and control.

CHEN 8320 ADVANCED TOPICS IN CHEMICAL PROCESS COMPUTER CONTROL SYSTEMS (3) LEC. 2. LAB. 3. Pr. CHEN 7100 or CHEN 7106. Analysis and design of advanced digital control systems for chemical processes. Introduction to computer communications through dynamic data exchange and peripheral linkage. Experimental application of advanced digital control algorithms to chemical processes.

CHEN 8340/8346 PROCESS MODELING AND SIMULATION (3) LEC. 2. LAB. 3. Advances in computer-aided process synthesis, simulation, analysis and optimization including systematic process integration tools for developing and screening potential flow sheets using advanced process simulators.

CHEN 8990 RESEARCH AND DISSERTATION (1-20) DSR. Credit hours to be arranged. Course may be repeated with change in topics.

Chemistry - CHEM

Courses

CHEM 1010 SURVEY OF CHEMISTRY I (3) LEC. 3. Science Core. Survey of important topics from general and organic chemistry. Atomic and bonding theory, chemical reactions and stoichiometry, gas laws, solutions, acids and bases, hydrocarbons, alcohols, ethers and amines.

CHEM 1011 SURVEY OF CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1010. Science Core. Laboratory experiments emphasizing course material in CHEM 1010.

CHEM 1020 SURVEY OF CHEMISTRY II (3) LEC. 3. Pr. CHEM 1010. Science Core. Survey of important topics from organic and biochemistry. Aldehydes and ketones, carboxylic acids, carbohydrates, lipids, proteins, enzymes, extracellular fluids, metabolism, nucleic acids, radioactivity.

CHEM 1021 SURVEY OF CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1020 and CHEM 1011. Science Core. Laboratory experiments emphasizing course material in CHEM 1020.

CHEM 1030/1033 FUNDAMENTALS CHEMISTRY I (3) LEC. 3. Science Core. Atomic and molecular theory, chemical equations, stoichiometry, gas laws, thermochemistry, bonding, electronic structure, molecular geometries, solids, liquids, properties of solutions, problem-solving techniques. Credit will not be given for both CHEM 1030 and CHEM 1110 or CHEM 1117.

CHEM 1031 FUNDAMENTAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1030 or P/C CHEM 1033. Science Core. Laboratory experiments emphasizing course material in CHEM 1030. Credit will not be given for both CHEM 1031 and CHEM 1111 or CHEM 1118.

CHEM 1040 FUNDAMENTAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1030 or CHEM 1033 or CHEM 1110 or CHEM 1117. Science Core. Chemical kinetics; chemical equilibrium; acids and bases; calculations of pH; equilibrium constants and thermodynamical properties; electrochemistry; descriptive chemistry. Credit will not be given for both CHEM 1040 and CHEM 1120 or CHEM 1127.

CHEM 1041 FUNDAMENTAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 1040 and (CHEM 1031 or CHEM 1111 or CHEM 1118). Science Core. Laboratory experiments emphasizing course material in CHEM 1040. Credit will not be given for both CHEM 1041 and CHEM 1121 or CHEM 1128.

CHEM 1110 GENERAL CHEMISTRY I (3) LEC. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Science Core. Chemical principles for chemistry and related majors. Atomic and molecular theory, periodicity, chemical reactions, Stoichiometry, gases, thermochemistry, bonding, molecular geometries, liquids, solids, and solutions. Credit will not be given for both CHEM 1110 and CHEM 1030 or CHEM 1117.

CHEM 1111 GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 1110 or P/C CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1110. Credit will not be given for both CHEM 1111 and CHEM 1031 or CHEM 1118.

CHEM 1117 HONORS GENERAL CHEMISTRY I (3) LEC. 3. Pr. Honors College. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1110, but covered in more depth. Credit will not be given for both CHEM 1117 and CHEM 1030 or CHEM 1110.
CHEM 1118 HONORS GENERAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. Honors College. CHEM 1117. Science Core. Laboratory experiments emphasizing course material in CHEM 1117. Credit will not be given for both CHEM 1118 and CHEM 1031 or CHEM 1111.

CHEM 1120 GENERAL CHEMISTRY FOR SCIENTISTS AND ENGINEERS II (3) LEC. 3. Pr. CHEM 1110 or CHEM 1117. Science Core. Continuation of CHEM 1110. Chemical kinetics, chemical equilibrium, acids and bases, thermodynamics, electrochemistry, representative element and transition metal chemistry. Credit will not be given for both CHEM 1120 and CHEM 1040 or CHEM 1127.

CHEM 1121 GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. (P/C CHEM 1120 or P/C CHEM 1127) and CHEM 1111 or CHEM 1118. Science Core. Laboratory experiments emphasizing course material in CHEM 1120. Credit will not be given for both CHEM 1121 and CHEM 1041 or CHEM 1128.

CHEM 1127 HONORS GENERAL CHEMISTRY II (3) LEC. 3. Pr. Honors College. CHEM 1117. Science Core. General chemistry for students in the honors program. Topics similar to CHEM 1120, but covered in more depth. Credit will not be given for both CHEM 1127 and CHEM 1040 or CHEM 1120.

CHEM 1128 HONORS GENERAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. Honors College. Science Core. Laboratory experiments emphasizing course material in CHEM 1127. Credit will not be given for both CHEM 1128 and CHEM 1041 or CHEM 1121.

CHEM 2030 SURVEY OF ORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Structure, nomenclature and reactions of the functional group classes of organic compounds polymers, and molecules of biological interest. Credit will not be given for both CHEM 2030 and CHEM 2070.

CHEM 2070 ORGANIC CHEMISTRY I (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. In-depth study of organic chemistry including structure, nomenclature, reactions, reaction mechanisms, stereochemistry, synthesis and spectroscopic structure determination organized by the functional group approach. Considers alkanes, alkenes, alkynes, alkyl halides, alcohols, ethers, and aromatic compounds. Credit will not be given for both CHEM 2070 and CHEM 2030.

CHEM 2071 ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 1041 or CHEM 1128 or CHEM 1121). Laboratory for CHEM 2070.

CHEM 2077 HONORS ORGANIC CHEMISTRY I (3) LEC. 3. Pr. Honors College. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2070, but covered in more depth. Additional credit will not be given for CHEM 2070. Member of the Honors College or CHEM 1110 with grade of A or B or CHEM 1040 with grade of A.

CHEM 2078 HONORS ORGANIC CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 2070 or P/C CHEM 2077. Laboratory experiments emphasizing course material in CHEM 2077. Additional credit will not be given for CHEM 2071. Course may be repeated for a maximum of 3 credit hours.

CHEM 2080 ORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 2070 or CHEM 2077. Continuation of CHEM 2070. Aldehydes, ketones, amines, carboxylic acids, esters, amides, anhydrides, polymers, carbohydrates and amino acids.

CHEM 2081 ORGANIC CHEMISTRY II LABORATORY (1) LAB. 1. Pr. (CHEM 2070 or CHEM 2077) and (CHEM 2071 or CHEM 2078) and (P/C CHEM 2080 or P/C CHEM 2087). Laboratory for CHEM 2080.

CHEM 2087 HONORS ORGANIC CHEMISTRY II (3) LEC. 3. Pr. Honors College or departmental approval. Organic chemistry for students in the honors program and Chemistry & Biochemistry majors. Topics similar to CHEM 2080, but covered in more depth. Additional credit will not be given for CHEM 2080. Member of the Honors College or CHEM 2077

CHEM 2088 HONORS ORGANIC CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 2080 or P/C CHEM 2087. Laboratory experiments emphasizing course material in CHEM 2087. Additional credit will not be given for CHEM 2081. May count either CHEM 2081 or CHEM 2088. Course may be repeated for a maximum of 3 credit hours.

CHEM 2980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN CHEMISTRY (1-3) LAB. SU. Individual problems course. Students will work under the direction of a staff member on some problem of mutual interest. Departmental approval required. Only Freshman or Sophomore. Course may be repeated for a maximum of 6 credit hours.

CHEM 3000 CHEMICAL LITERATURE (1) LEC. 1. Pr. CHEM 2080 or CHEM 2087. Chemical literature with emphasis on primary and secondary sources and the various computer data bases available.
CHEM 3050 ANALYTICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or CHEM 1120 or CHEM 1127. Theory and application of volumetric, potentiometric and photometric chemical analysis.

CHEM 3051 ANALYTICAL CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 3050. Analytical techniques applied to chemical analysis.

CHEM 3160 SURVEY OF PHYSICAL CHEMISTRY (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127). The principles of physical chemistry.

CHEM 4071 PHYSICAL CHEMISTRY I LABORATORY (1) LAB. 3. Pr. P/C CHEM 4070.

CHEM 4080 PHYSICAL CHEMISTRY II (3) LEC. 3. Pr. CHEM 1040 or (CHEM 1120 or CHEM 1127) and (MATH 2630 or MATH 2637) and MATH 2650 and (PHYS 1610 or PHYS 1617). Principles of quantum mechanics and spectroscopy; application in molecular structure and in statistical thermodynamics.

CHEM 4081 PHYSICAL CHEMISTRY II LABORATORY (1) LAB. 3. Pr. P/C CHEM 4080. Laboratory for CHEM 4080.

CHEM 4100 INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 4080 or CHEM 3160. Principles of inorganic chemistry emphasizing periodic properties, bonding, structure and symmetry, the solid state, acid-base theory and coordination chemistry.

CHEM 4101 INORGANIC CHEMISTRY LABORATORY (1) LAB. 3. Pr. P/C CHEM 4100. Synthesis and characterization of a variety of inorganic compounds.

CHEM 4110 INORGANIC CHEMISTRY II (3) LEC. 3. Pr. CHEM 4100. Departmental approval. Survey of main group, transition metal and organometallic chemistry.

CHEM 4111 INORGANIC CHEMISTRY LABORATORY II (1) LAB. 3. Pr. CHEM 4101 and P/C CHEM 4110. Laboratory for CHEM 4110.

CHEM 4130 INSTRUMENTAL ANALYSIS (3) LEC. 3. Pr. P/C CHEM 3050. Fundamental concepts used in instrumental analytical chemistry emphasizing spectrophotometric, electroanalytical and chromatographic analysis.

CHEM 4131 INSTRUMENTAL ANALYSIS LABORATORY (1) LAB. 3. Pr. P/C CHEM 4130. Laboratory for CHEM 4130.

CHEM 4950 UNDERGRADUATE SEMINAR (1) LEC. 1. Oral presentation and discussion of research in the area of specialization.

CHEM 4980 UNDERGRADUATE RESEARCH IN CHEMISTRY (3) LAB. 9. Departmental approval. This is an individual problem course. Each student will work under the direction of a staff member on some problem of mutual interest. Course may be repeated for a maximum of 9 credit hours.

CHEM 4997 HONORS THESIS (1-3) LEC. 3. Pr. Honors College. Departmental approval. Honors College Members Only; Course may be repeated for a maximum of 6 credit hours.

CHEM 5180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Molecular Structure: classification, structure and reactions of the major constituents of living matter. Also includes binding phenomena and bioenergetics. Credit will not be given for both CHEM 5180 and BCHE 5180.

CHEM 5181 BIOCHEMISTRY I LABORATORY (1) LEC. 3. Pr. P/C CHEM 5180 or P/C BCHE 5180. Identification and quantification of compounds from the important biochemical classes. Examples include amino acid chromatography, dipeptide sequencing, glucose concentration etc. Credit will not be given for both CHEM 5181 and BCHE 5181.

CHEM 5190 BIOCHEMISTRY II (3) LEC. 3. Pr. CHEM 5180. Metabolism: survey of design and regulation of the major catabolic and biosynthetic (including photosynthesis) metabolic pathways. An overview of the flow of genetic information. Credit will not be given for both CHEM 5190 and BCHE 5190.

CHEM 5191 BIOCHEMISTRY II LABORATORY (1) LEC. 3. Pr. P/C CHEM 5190 or P/C BCHE 5190. Partial purification, Kinetic studies and characterization of enzymes and nucleotides from various plants, animals and bacteria. Credit will not be given for both CHEM 5191 and BCHE 5191.
CHEM 5280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 5310 LEARNING ASSISTANT PEDAGOGY (1) ST1. 1. Departmental approval. The Learning Assistant Pedagogy course is a special topics course reserved for students (undergraduate or graduate) serving as learning assistants in active learning classrooms. This seminar style class incorporates literature on student-centered learning with reflective writing and discussion.

CHEM 6180 BIOCHEMISTRY I (3) LEC. 3. Pr. CHEM 2080 or CHEM 2087. Molecular Structure: classification, structure and reactions of the major constituents of living matter. Also includes binding phenomena and bioenergetics. Credit will not be given for both CHEM 6180 and BCHE 6180.

CHEM 6190 BIOCHEMISTRY II (3) LEC. 3. Pr. CHEM 6180. Departmental approval. Metabolism: survey of design and regulation of the major catabolic and biosynthetic (including photosynthesis) metabolic pathways. An overview of the flow of genetic information. Credit will not be given for both CHEM 6190 and BCHE 6190.

CHEM 6280 COMPUTATIONAL CHEMISTRY (4) LEC. 3. LAB. 3. Pr. (CHEM 2080 or CHEM 2087) and CHEM 4080. Modern computational chemistry including molecular mechanics and quantum mechanical calculations.

CHEM 7100 ADVANCED INORGANIC CHEMISTRY (3) LEC. 3. Departmental approval. Current concepts of inorganic chemistry with an emphasis on theory, structure, bonding and reactivity.

CHEM 7110 PHYSICAL METHODS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Or equivalent. Theory and application of techniques for obtaining information inorganic compounds including magnetism, multinuclear nmr, mass spectrometry, x-ray diffraction, vibrational and electronic spectroscopies.

CHEM 7120 ORGANOMETALLIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Main group and transition metal organometallic chemistry.

CHEM 7160 ADVANCED TOPICS IN INORGANIC CHEMISTRY (3) LEC. 3. Pr. CHEM 7100. Departmental approval. Currently active research areas in inorganic chemistry. Course may be repeated for a maximum of 12 credit hours.

CHEM 7200 PHYSICAL ORGANIC CHEMISTRY (3) LEC. 3. This course will combine the foundations of undergraduate organic chemistry reactions and add to this the physical properties of chemical reactions as affected by real laboratory applications.

CHEM 7210 STRUCTURE ELUCIDATION OF ORGANIC COMPOUNDS (3) LEC. 3. Pr. CHEM 7200 or CHEM 7220. The early stages of this course will focus on the identification of functional groups, saturated, unsaturated and cyclic compounds using IR and NMR spectroscopy, as well as mass spectrometry. Detailed analyses of 1H NMR spectra, i.e., chemical shift, multiplet shape, and coupling constants will demonstrate the power of these methods in ascertaining atom connectivity in simple organic molecules. More advanced two-dimensional NMR techniques such as COSY, HSQC and HMBC will be discussed and used for determining the structures of more complex organic molecules. The determination of absolute and relative stereochemistry using Mosher ester analyses and NOESY, respectively, in chiral molecules will also be covered. Most of the structures that will be discussed and analyzed will be stereochemically complex systems and polycyclic molecules that require a combination of multiple one-dimensional and two-dimensional NMR techniques.

CHEM 7220 ORGANIC REACTIONS (3) LEC. 3. Pr. (CHEM 2070 or CHEM 2073 or CHEM 2077) and (CHEM 2080 or CHEM 2083 or CHEM 2087). Organic reactions are described in the context of oxidation; reduction; C-C, C-N, C-O bond forming; olefination; aldol (and related) condensations; pericyclic, fragmentation, ring-expansion and ring-contraction reactions; and, named organic reactions and their reaction mechanisms and their application to chemical synthesis. Concurrent enrollment with CHEM 7200 is highly recommended.

CHEM 7230 COMPLEX MOLECULE SYNTHESIS (3) LEC. 3. Pr. CHEM 7220. This class is focused on target-oriented chemical synthesis of complex organic molecules. The main objective is to teach students how to use retrosynthetic analysis, a method for disconnecting a complex molecule into simpler starting materials, as well classical and modern organic reactions to plan syntheses of organic compounds that are biologically relevant and important in the development of better pharmaceuticals. During the course of the semester, students will be introduced to important classes of natural products including terpenes, terpenoids, alkaloids, macrolides, polycyclic ethers, as well as designed molecules that are biologically relevant, but not natural products themselves. Identifying key structural components (i.e., retrens), stereogenic centers, and substructures that can be derived from the chiral pool will be emphasized in synthesis planning. All lecture content will come from the current literature, with only manuscripts published in the past 12 months being discussed in class. Students will be responsible for reading Classics in Total Synthesis on their own and tested on the content of this book as well as assigned current literature in class. Emphasis will be placed on identifying economical and streamlined synthetic protocols that can employ cascade or domino reaction sequences.
**CHEM 7260 SPECIAL TOPICS IN ORGANIC CHEMISTRY (1-3)** LEC. Pr. CHEM 7200. Advanced course in a research area in organic chemistry which is of mutual interest to graduate students and the instructor. Course may be repeated for a maximum of 6 credit hours.

**CHEM 7270 SUPRAMOLECULAR CHEMISTRY: SYNTHESIS, STRUCTURES, AND APPLICATIONS (3)** ST1. 3. Pr. CHEM 2080. Supramolecular Chemistry bridges organic, inorganic, surface science, and analytical chemistries. It is a topical area that explores synthesis, spatial organization, weak bonding interactions, hydrogen bonding or covalent bonding, and is interest for numerous industrial or pharmacy applications.

**CHEM 7300 ADVANCED PHYSICAL CHEMISTRY (3)** LEC. 3. Topics of general and current interest; may vary from year to year.

**CHEM 7330 CHEMICAL KINETICS (3)** LEC. 3. Theoretical and experimental aspects of reaction rates. The mathematics and characterization of chemically reacting systems.

**CHEM 7350 QUANTUM AND STATISTICAL MECHANICS (3)** LEC. 3. Pr. CHEM 7300. A quantum mechanical and statistical approach to molecular structure and chemistry.

**CHEM 7370 SPECIAL TOPICS IN PHYSICAL CHEMISTRY (1-3)** LEC. 3. Pr. CHEM 7300. Modern topics in advanced physical chemistry. Course may be repeated for a maximum of 3 credit hours.

**CHEM 7380 MOLECULAR SPECTROSCOPY (3)** LEC. 3. Pr. CHEM 7300. Theory and application of optical and magnetic resonance spectroscopy.

**CHEM 7410 A DBER APPROACH TO TEACHING AND LEARNING IN CHEMISTRY (3)** LEC. 3. Pr. CHEM 1030 and CHEM 1040. Discipline-based education research (DBER) theory and trends, consuming and evaluating DBER research, active learning in advanced chemistry topics, action research, review of pedagogical tools, assessment. This course will be of use to chemistry graduate students aiming for careers in academia, masters education students looking to take a chemistry course for the fulfillment of their degree requirements, and other fields that want to know more about evaluating and critiquing current DBER literature and methods.

**CHEM 7500 ADVANCED ANALYTICAL CHEMISTRY (3)** LEC. 3. Analytical principles, applications and methods, mathematical interpretations and current developments.

**CHEM 7510 ELECTROANALYTICAL CHEMISTRY (3)** LEC. 3. Pr. CHEM 7500. Analytical applications of electrochemistry.

**CHEM 7520 SURFACE CHEMISTRY (3)** LEC. 3. Pr. CHEM 7500. Basic concepts in surface chemistry and surface analytical methods.

**CHEM 7530 ADVANCES IN BIOANALYTICAL CHEMISTRY (3)** LEC. 3. Pr. CHEM 7500. Analytical Chemistry of microfluidic devices and "Lab on a chip." New methods of miniaturization of separations and analysis with emphasis on bioanalytical applications.

**CHEM 7750 FORMAL PRESENTATIONS IN MODERN CHEMISTRY (1)** LEC. 1. Oral presentations skills will be developed with a focus on the dissemination of new discoveries in the field of Chemistry. Course may be repeated for a maximum of 6 credit hours.

**CHEM 7930 DIRECTED INDIVIDUAL STUDY (1-15)** IND. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

**CHEM 7950 SEMINAR (1)** SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

**CHEM 7990 RESEARCH AND THESIS (1-10)** MST. Course may be repeated with change in topics.

**CHEM 8990 RESEARCH AND DISSERTATION (1-10)** DSR. Course may be repeated with change in topics.

### Civil Engineering - CIVL

**Courses**

**CIVL 2010 SURVEYING (3)** LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and COMP 1200. Civil engineering surveying theory and practice including history of land surveys and U.S. datums; field measurements, office calculations and graphical/digital presentation of spatial data.

**CIVL 3010 CIVIL ENGINEERING ANALYSIS (4)** LEC. 3. LAB. 3. Pr. MATH 2650 and COMP 1200 and (ENGR 2050 or ENGR 2053). Applications of calculus and ordinary differential equations, numerical methods, vector algebra, and linear algebraic expressions to practical civil engineering problems. Heavy emphasis on computerized techniques and civil engineering software.
CIVL 3110 HYDRAULICS (4) LEC. 3. LAB. 3. Pr. (ENGR 2010 or ENGR 2200) and MATH 2650 and P/C ENGR 2350 and P/C CIVL 3010. Pr. ENGR 2010 is only allowed for students who transfer into Civil Engineering. Students already enrolled in Civil Engineering should take ENGR 2200. Introduction to fluid mechanics, fluid properties, hydraulics, kinematics, dynamics, energy equation, ideal flow and energy losses. Applications of fluid mechanics, pipe flow, fluid measurements, pumps, open channel flow, dimensional analysis and theory of modeling.

CIVL 3220 WATER AND WASTE TREATMENT (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and BIOL 3200. Fundamentals of potable water treatment and wastewater treatment and disposal. Treatment systems; operation/ process physics, chemistry, and biology; operation and maintenance issues; regulatory requirements. Credit will not be given to students majoring in Civil Engineering.

CIVL 3230 ENVIRONMENTAL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and (ENGR 2200 and P/C CIVL 3010) or P/C BSEN 3310. Fundamental principles of environmental engineering, including basic environmental chemistry and microbiology; materials and energy balances; diffusion; chemical equilibrium; kinetics; and chemical reaction engineering.

CIVL 3310 GEOTECHNICAL ENGINEERING I (4) LEC. 3. LAB. 3. Pr. CHEM 1040 and ENGR 2070. Soil-forming processes, physical properties of soils, subsurface investigations, clay mineralogy, soil classification, permeability, effective stress, consolidation theory, time-settlement analysis, compaction, shear strength, geosynthetics.

CIVL 3410 CONSTRUCTION ENGINEERING (3) LEC. 3. Pr., Junior standing. Basic concepts of the construction industry, contractual methods, estimating and scheduling.

CIVL 3510 TRANSPORTATION ENGINEERING (4) LEC. 4. Pr. CIVL 2010. Introduction to transportation engineering practice with emphasis on highway facility design, traffic operations, and life-cycle costing.


CIVL 3820 CIVIL ENGINEERING MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3310. Introduction to common materials used in construction of civil facilities including highways; aggregate, concrete, asphalt, and steel.

CIVL 4210 WATER AND WASTEWATER TREATMENT AND DESIGN (3) LEC. 3. Pr. CIVL 3230. Departmental approval. The fundamentals of theory, design, and operation of water and wastewater treatment systems are covered.

CIVL 4211 WATER AND WASTEWATER LABORATORY (1) LAB. 3. Pr. CHEM 1040 and BIOL 3200. Coreq. CIVL 4210. Introduction to analytical techniques used to assess water quality. Credit will not be given to students majoring in Civil Engineering.

CIVL 4220 ENVIRONMENTAL ENGINEERING DESIGN (3) LEC. 3. Pr. CIVL 4210 or CIVL 4230. Process design of environmental engineering systems.

CIVL 4230 URBAN HYDRAULIC SYSTEM DESIGN (3) LEC. 3. Pr. CIVL 3230 and CIVL 3110. Engineering approaches to designing and managing urban water supply, sanitary sewer, storm water collection systems and flood control works.

CIVL 4310 GEOTECHNICAL ENGINEERING II (3) LEC. 3. Pr. CIVL 3310. Analysis and design in geotechnical engineering based on principles of soil mechanics and soil behavior. Problems of slope stability, earth pressure and design of earth retaining structures, foundation bearing capacity and settlement.

CIVL 4420 PROJECT MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Planning and management of construction/engineering projects and organizations, project management techniques, skills, and applications.

CIVL 4490 DESIGN-BUILD PROJECT (3) LEC. 3. Pr. CIVL 4420. Develop a design-build proposal for a civil engineering improvement including engineering study, consideration of alternative designs, and formal written and oral presentation.

CIVL 4500 TRAFFIC ENGINEERING FUNDAMENTALS (3) LEC. 3. Pr. CIVL 3510. The fundamental elements of traffic engineering including traffic operations and traffic control devices.

CIVL 4520 AIRPORT DESIGN (3) LEC. 3. Pr. CIVL 3510. Departmental approval. An analysis of the elements affecting the design of airports including forecasting, runway configuration, capacity analyses, geometric design of runways and taxiways, pavement design and airfield drainage.

CIVL 4530 GEOMETRIC DESIGN (3) LEC. 3. Pr. CIVL 3510. An analysis of the elements affecting the location and design of rural highways, urban highways and arterial streets including design controls and criteria.
CIVL 4590 TRANSPORTATION DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4530. Individual senior design project requiring the development of plans for a roadway over a large land segment: horizontal and vertical curves in accord with State and AASHTO standards; topographic terrain features; historical preservation area; minimum elevation; intersection design; earthwork balance.

CIVL 4600 REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 3610. Concrete and reinforcing steel properties; analysis and design of reinforced concrete beams, one-way slabs, columns and footings; anchorage of reinforcement.


CIVL 4690 STRUCTURAL DESIGN PROJECT (3) LEC. 3. Pr. CIVL 4600. Execution of a comprehensive design of a major structure. Emphasis on the design process, creative thinking, analysis, synthesis, teamwork and communications.

CIVL 4960 SPECIAL PROBLEMS (1-3) LEC. Departmental approval. Individual student endeavor under staff supervision involving advanced special problems in civil engineering. Course may be repeated for a maximum of 6 credit hours.

CIVL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

CIVL 5110 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/ CIVL 6116.

CIVL 5120 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3010. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications. Departmental approval. May count either CIVL 5120 or CIVL 6120.

CIVL 5130 HYDRAULIC DESIGN OF PRESSURIZED SYSTEMS (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 5150 GROUNDWATER HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Mechanics of groundwater flow, definitions, conservation of mass, Darcy's law, confined and unconfined flow, steady and transient flow, groundwater transport. Credit will not be given for both CIVL 5150 and CIVL 6150/CIVL 6156.

CIVL 5210 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 5220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3. Pr. CIVL 3230. Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. Departmental approval. Credit will not be given for both CIVL 5220 and CIVL 6220.

CIVL 5230 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 5240 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling, theory and design of control devices; legal/ administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 5250 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 5260 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment.
CIVL 5330 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 5340 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 5350 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining structures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 5410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.


CIVL 5430 CONSTRUCTION SAFETY AND HEALTH MANAGEMENT (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies for preventing worksite injuries and illness are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 5440 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410 and CIVL 3310 and CIVL 3510. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 5450 EROSION & SEDIMENT CONTROL (3) LEC. 3. Pr. CIVL 3310 and CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 5460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.

CIVL 5480 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 5500 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 5510 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 5560 PLANNING FOR MULTIModal TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Departmental approval. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations.

CIVL 5580 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Introduction to intelligent transportation systems, covering applications of information and communication technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Credit will not be given for both CIVL 5580 and CIVL 6580/CIVL 6586.

CIVL 5600 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.
CIVL 5620 PRESTRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable lay-out, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 5630 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials; chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 5640 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 5650 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.


CIVL 5690 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 5700 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 5710 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 5810 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction, quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.

CIVL 5820 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820 or CIVL 6820.

CIVL 5970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.

CIVL 6110/6116 OPEN CHANNEL HYDRAULICS (3) LEC. 3. Pr. CIVL 3110. Application of continuity, energy, and momentum analyses to problems of open channel flow. Topics include rapidly and gradually varied flow, unsteady flow, flood routing, computational methods, design concepts and applications. Credit will not be given for both CIVL 5110 and CIVL 6110/CIVL 6116.

CIVL 6120/6126 HYDROLOGIC ANALYSIS AND MODELING (3) LEC. 3. Pr. CIVL 3110 and STAT 3110. Departmental approval. Hydrologic cycle, hydrologic frequency analysis, precipitation, infiltration, runoff hydrograph, flood routing, urban hydrology, watershed hydrologic modeling, and computer modeling applications.

CIVL 6130 HYDRAULIC DESIGN (3) LEC. 3. Pr. CIVL 3110. Pressurized flow applications; pump-pipeline design optimization; multiple reservoir operation; flow measurement/control systems; distribution manifolds; fundamentals of unsteady flows. Departmental approval. May count either CIVL 5130 or CIVL 6130.

CIVL 6210/6216 CHEMICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic chemistry as applied to environmental engineering: chemical thermodynamics, acid/base equilibrium, solution/dissolution chemistry, redox equilibrium, and chemical kinetics. Departmental approval. Credit will not be given for both CIVL 5210 and CIVL 6210/CIVL 6216.

CIVL 6220 ENVIRONMENTAL ENGINEERING PROCESSES LABORATORY (1) LAB. 3. Pr. CIVL 3230. Laboratory exploration of the fundamentals and applications of aquatic chemistry, physical-chemical processes and biological processes, as employed in water and wastewater treatment. Departmental approval. May count either CIVL 5220 or CIVL 6220.

CIVL 6230/6236 ENVIRONMENTAL HEALTH ENGINEERING (3) LEC. 3. Application of engineering methodology in environmental health; communicable disease control, insect and rodent control, solid and hazardous wastes, noise, radiological health, legal and administrative considerations, etc. Departmental approval. Credit will not be given for both CIVL 5230 and CIVL 6230/CIVL 6236.

CIVL 6240/6246 AIR POLLUTION (3) LEC. 3. Nature, sources and effects of air pollutants; effects of atmospheric conditions on dispersion; dispersion modeling theory and design of control devices; legal/administrative control. Departmental approval. Credit will not be given for both CIVL 5240 and CIVL 6240/CIVL 6246.

CIVL 6250/6256 BIOLOGICAL PRINCIPLES OF ENVIRONMENTAL ENGINEERING (3) LEC. 3. Pr. CIVL 3230. Fundamentals of aquatic biology and microbiology as applied to environmental engineering: microbial growth, microbial metabolism, microbial population dynamics, wastewater treatment microbiology, environmental impacts, toxicity testing, and biomonitoring. Departmental approval. Credit will not be given for both CIVL 5250 and CIVL 6250/CIVL 6256.

CIVL 6260/6266 SURFACE WATER QUALITY MODELING (3) LEC. 3. Water uses and water quality goals, objectives, and criteria of natural aquatic systems. Principles of surface water quality modeling and waste load allocation. Physical, chemical, biological, and hydrological considerations relating to the fate and transport of pollutants in water environment

CIVL 6330/6336 LANDFILLS (3) LEC. 3. Pr. CIVL 3310. Landfill siting design, construction and operational practices; regulations, terminology, closure regulations and procedures. Credit will not be given for both CIVL 5330 and CIVL 6330/CIVL 6336.

CIVL 6340/6346 GEOSYNTHETICS AND SOIL IMPROVEMENT (3) LEC. 3. Pr. CIVL 3310. Use of geosynthetics in civil engineering design: reinforcement, retaining walls, filtration, slopes, roads and erosion control. Evaluation and testing of geosynthetics. Improvement of soil properties for civil engineering design: principles and practice of densification, grouting, reinforcement, stone columns, soil nailing. Credit will not be given for both CIVL 5340 and CIVL 6340/CIVL 6346.

CIVL 6350/6356 EARTH RETAINING STRUCTURES (3) LEC. 3. Pr. CIVL 3310. Analysis and design of earth retaining strictures. Shear strength; earth pressure theory; gravity, mechanically stabilized, flexible sheet, and anchored structures. May count either CIVL 5350 or CIVL 6350/CIVL 6356.

CIVL 6410 GEOGRAPHIC INFORMATION SYSTEMS IN CIVIL ENGINEERING (3) LEC. 3. Pr. CIVL 2010. Departmental approval. Basic principles and the development of geographic information systems and practical experiences in the field of civil engineering. Credit will not be given for both CIVL 5410 and CIVL 6410.


CIVL 6430/6436 CONSTRUCTION SAFETY (3) LEC. 3. Pr. CIVL 3410. Departmental approval. Various causes of construction accidents and adopted strategies preventing worksite injuries and illnesses are investigated. Emphasis on OSHA standards, insurance, and health and safety hazards. Credit will not be given for both CIVL 5430 and CIVL 6430/CIVL 6436.

CIVL 6440/6446 CONSTRUCTION EQUIPMENT AND METHODS (3) LEC. 3. Pr. CIVL 3410 and CIVL 3310 and CIVL 3510. Selection of equipment for heavy construction operations, production rates, owning and operating costs, fleet management. May count either CIVL 5440 or CIVL 6440/CIVL 6446.

CIVL 6450 EROSION AND SEDIMENT CONTROL TECHNOLOGIES IN CONSTRUCTION (3) LEC. 3. Pr. CIVL 3310 and CIVL 3410. Process of erosion, sediment transport, and sedimentation along with strategies adopted to prevent and manage erosion on construction sites. May count either CIVL 5450 or CIVL 6450.

CIVL 6460 PROJECT ESTIMATING (3) LEC. 3. Pr. CIVL 3410. Conceptual and definitive estimates, overhead and profit determination; claim change order pricing. May count either CIVL 5460 or CIVL 6460.
CIVL 6480/6486 LEGAL ASPECTS OF CIVIL ENGINEERING PRACTICE (3) LEC. 3. Pr. CIVL 3410. Covered is the law of contracts, agency, association, property, and labor law, studied generally and in the context that the practicing civil engineer encounters them. Departmental approval. May count either CIVL 5480 or CIVL 6480/CIVL 6486.

CIVL 6500/6506 TRAFFIC ENGINEERING ANALYSIS (3) LEC. 3. Pr. CIVL 3510. Capacity analysis of rural and suburban highways, 2-lane highways, freeways, weaving sections, ramps and intersections. May count either CIVL 5500 or CIVL 6500/CIVL 6506.

CIVL 6510/6516 TRAFFIC CONTROL SYSTEMS DESIGN (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. Fundamental design concepts for highway traffic control systems. Control requirements and warrants; hardware operation and equipment selection; development and implementation of timing plans for isolated intersections and intersection networks. May count either CIVL 5510 or CIVL 6510/CIVL 6516.

CIVL 6560/6566 PLANNING FOR MULTIMODAL TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510 and STAT 3010. The planning process for urban and regional transportation development. Topics include planning objectives and data requirements; planning inventories; modeling of trip-making behavior, development and evaluation of alternate plans; multimodal applications, including railway operations. Departmental approval. May count either CIVL 5560 or CIVL 6560/CIVL 6566.

CIVL 6580/6586 INTELLIGENT TRANSPORTATION SYSTEMS (3) LEC. 3. Pr. CIVL 3510. Introduction to intelligent transportation systems, covering applications of information and communications technologies to transportation, with emphasis on operations of traffic management and traveler information systems. Departmental approval. May count either CIVL 5580 or CIVL 6580/CIVL 6586.

CIVL 6600/6606 ADVANCED REINFORCED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Analysis and design of continuous beams and one-way slabs, bond and development length, torsion, slenderness effects in columns, two-way slabs, footings, and retaining walls. May count either CIVL 5600 or CIVL 6600/CIVL 6606.

CIVL 6620/6626 PRE-STRESSED CONCRETE DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties and behavior of pre-stressed concrete, pre-stressing systems and end anchorages, analysis and design of beams for flexure and shear, camber and deflection, cable layout, pre-stressed concrete slabs. May count either CIVL 5620 or CIVL 6620/CIVL 6626.

CIVL 6630/6636 ADVANCED CONCRETE MATERIALS (3) LEC. 3. Pr. CIVL 3820. Comprehensive coverage of concrete materials. Topics include cement and aggregate properties; concrete microstructure; mechanical properties; supplementary cementing materials, chemical admixtures; durability issues; special concretes. May count either CIVL 5630 or CIVL 6630/CIVL 6636.

CIVL 6640/6646 STRUCTURAL MASONRY DESIGN (3) LEC. 3. Pr. CIVL 4600. Properties of masonry component materials; behavior and design of unreinforced and reinforced masonry assemblages and structures. May count either CIVL 5640 or CIVL 6640/CIVL 6646.

CIVL 6650/6656 ADVANCED STEEL DESIGN (3) LEC. 3. Pr. CIVL 4650. Composite construction, open web joists, torsion, plate girders, plastic analysis and design, highway bridges, computer applications. May count either CIVL 5650 or CIVL 6650/CIVL 6656.


CIVL 6690/6696 TIMBER DESIGN (3) LEC. 3. Pr. CIVL 3610. Properties and behavior of timber and plywood; design of timber beams, columns, floor and wall assemblies and wood formwork; timber trusses and laminated arches. May count either CIVL 5690 or CIVL 6690/CIVL 6696.

CIVL 6700/6706 DESIGN FOR LATERAL LOADS (3) LEC. 3. Pr. CIVL 3610 and (CIVL 4600 or CIVL 4650). Wind meteorology and loadings, effects of wind loadings, building code wind pressures and load provisions, fundamentals of structural vibrations, earthquake characteristics and loadings, building code earthquake provisions, building lateral load resisting systems. May count either CIVL 5700 or CIVL 6700/CIVL 6706.

CIVL 6710/6716 STRUCTURAL REPAIR (3) LEC. 3. Pr. CIVL 4600. Evaluation of causes of distress; condition; repair materials; methods of repair; protection methods; and structural strengthening in structural concrete applications. May count either CIVL 5710 or CIVL 6710/CIVL 6716.

CIVL 6810/6816 PAVEMENT DESIGN AND CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820 and CIVL 3310 and CIVL 3510. General concepts, traffic factors, material characterization, layer thickness selection, earthwork, base and sub-base construction, surface course construction quality control/assurance. May count either CIVL 5810 or CIVL 6810/CIVL 6816.
CIVL 6820/6826 DESIGN AND PRODUCTION OF ASPHALT PAVING MIXTURES (3) LEC. 2. LAB. 3. Pr. CIVL 3820. Selection and optimization of component materials based on physical properties, specification criteria, performance expectations, and costs. Production and quality assurance. May count either CIVL 5820, CIVL 6820 or CIVL 6826.

CIVL 6970 CIVIL ENGINEERING SPECIAL TOPICS (3) LEC. 3. Departmental approval. Special topics of an advanced undergraduate nature pertinent to civil engineering. Specific prerequisites will be announced for each course offering. Credit will not be given for both CIVL 5970 and CIVL 6970. Course may be repeated for a maximum of 6 credit hours.


CIVL 7140/7146 ECOHYDROLOGY (3) LEC. 3. Pr. P/C CIVL 6120 or P/C CIVL 6126 or P/C GEOL 6100 or P/C FORY 7550. This course covers current theory, methods, and issues in ecohydrology. Topics include the soil-plant-atmosphere continuum; stochastic modeling of soil moisture; vadose zone hydrology; theory, measurement, and modeling of evapotranspiration; ecological competition in water-limited systems; and current issues and research topics.

CIVL 7170/7176 NUMERICAL METHODS IN HYDRAULICS AND HYDROLOGY (3) LEC. 3. Pr. CIVL 3230. Numerical approximations of ordinary and partial differential equations representing problems common to civil engineering including groundwater flow, soil consolidation, and mass transport. The formulation and computational solution of diffusion and equilibrium problems are emphasized. Computer programming is required.

CIVL 7210/7216 METHODS OF POLLUTANT ANALYSIS IN ENVIRONMENTAL ENGINEERING (3) LEC. 2. LAB. 3. Pr. CIVL 6210 or CIVL 6216. Fundamentals of identifying and quantifying environmental pollutants: review of pollutant chemistry, quality and quantity of pollutants, statistical basis of sampling, environmental sampling techniques, analytical techniques, and data analysis.


CIVL 7230/7236 WATER AND WASTEWATER OPERATIONS AND PROCESSES II (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Rigorous analysis of unit operations and processes used in modern water and wastewater treatment systems. Mixing, coagulation, sedimentation, filtration, and chemical precipitation.

CIVL 7240/7246 WATER AND WASTEWATER OPERATIONS AND PROCESSES III (3) LEC. 3. Pr. CIVL 7220 or CIVL 7226. Departmental approval. Design and analysis of unit operations and processes used in modern water and wastewater treatment systems are rigorously examined: adsorption, ion exchange, membrane filtration, reverse osmosis, gas transfer, corrosion, and treatment residuals processing.


CIVL 7260/7266 ENVIRONMENTAL NUTRIENT CONTROL PROCESSES (3) LEC. 3. Pr. CIVL 7250 or CIVL 7256. The nature, sources, and impacts of aquatic nutrients in the environment: microbial nutrient cycles, biological nutrient removal processes, chemical nutrient control processes, natural systems for nutrient removal.


CIVL 7280/7286 SURFACE WATER QUALITY MODELING (3) LEC. 3. Pr. CIVL 3230. Departmental approval. Physical, chemical, biological and hydrological considerations relating to the degradation and self-purification of streams, lakes, and estuaries. Water uses and water quality goals, objectives and criteria. Principles of water quality modeling and waste load allocation.

CIVL 7310/7316 FOUNDATION ENGINEERING (3) LEC. 3. Pr. CIVL 3310 and CIVL 4600. Analysis, design and construction of shallow and deep foundation systems.

CIVL 7330/7336 SOIL PROPERTIES (3) LEC. 3. Pr. CIVL 3310. Soil behavior, shear strength, compressibility, hydraulic conductivity, and measurement of soil properties.
CIVL 7340/7346 SOIL DYNAMICS (3) LEC. 3. Pr. CIVL 3310. Soil behavior during dynamic loads, wave propagation, dynamically loaded foundations, geotechnical earthquake engineering.


CIVL 7390/7396 IN SITU TESTING OF SOILS (3) LEC. 3. Pr. CIVL 4310. In situ tests used in geotechnical engineering: test procedures, interpretation of results, and designing from in situ geotechnical data.

CIVL 7410/7416 TEMPORARY STRUCTURES AND FACILITIES (3) LEC. 3. Pr. STAT 3010 and CIVL 3310 and CIVL 3610. Construction loads, applicable codes and standards, and design principles for temporary structures; planning and implementation of construction facilities; economic analysis of alternatives.

CIVL 7500/7506 TRAFFIC FLOW THEORY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Basic phenomena underlying traffic stream movement and individual vehicle behavior. Topics include flow parameters and relationships; microscopic and macroscopic flow models; equations of motion and state; single and multi-regime flow models.

CIVL 7520/7526 PUBLIC TRANSPORTATION (3) LEC. 3. Pr. CIVL 3510. Departmental approval. Technology and characteristics of public transportation; transportation demand analysis; transit users; innovative technologies.

CIVL 7540/7546 TRANSPORTATION SAFETY (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Transportation safety problems and the engineer’s role in developing and administering safety programs. Topics include hazardous location identification; analysis of accident data; development and evaluation of accident countermeasures and safety programs.

CIVL 7550/7556 ROADSIDE DESIGN (3) LEC. 3. Pr. CIVL 6500 or CIVL 6506. Departmental approval. Concepts of roadside design that can prevent or reduce crash severity. Topics include design, selection, placement and construction of longitudinal barriers, crash cushions, bridge rails, transitions, end terminals, sign posts, and other roadside features.


CIVL 7620/7626 STRUCTURAL DYNAMICS II (3) LEC. 3. Pr. CIVL 7610 or CIVL 7616. Analysis of MDOF systems by direct numerical integration, continuous systems, nonlinear dynamics response, earthquake response of structures.

CIVL 7630/7636 ADVANCED STRESS ANALYSIS (3) LEC. 3. Pr. CIVL 3610. Hooke’s 1-D, 2-D, 3-D stress-strain relations and applications, stress and strain transformations and Mohr’s circle, material properties and failure theories, biaxial bending, unsymmetrical bending, composite material members, shear center, torsional stress, stress concentrations, beams on elastic foundations.

CIVL 7640/7646 STABILITY OF STRUCTURES (3) LEC. 3. Coreq. CIVL 6670. Introduction to stability and failure of compression members, rigid bar buckling, elastic and inelastic buckling of columns, approximate methods of buckling analysis, beam-columns, buckling of frames, torsional buckling, lateral torsional buckling of beams.

CIVL 7650/7656 ADVANCED ANALYSIS OF FRAMED STRUCTURES (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Matrix analysis of framed structures, elastic supports, specified displacements, member end releases, principle of minimum potential energy, geometric non-linearity, frame stability, substructures.

CIVL 7660/7666 FINITE ELEMENT METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Introduction to finite element analysis; variational principles. 1D, 2D and 3D element formulation; nonlinear (geometric and constitutive) formulations and solutions; eigenvalue problems.

CIVL 7670/7676 NUMERICAL TECHNIQUES IN STRUCTURAL ANALYSIS (3) LEC. 3. Basic concepts of non-linear analyses, formulation of the continuum mechanics incremental equations, total and updated Lagrangian formulations, finite elements for non-linear analyses, non-linear solution strategies.

CIVL 7680/7686 FATIGUE AND FRACTURE MECHANICS (3) LEC. 3. Pr. CIVL 4650. Departmental approval. Linear-elastic and elastic-plastic fracture mechanics, fatigue, yield criteria, applications to highway structures.

CIVL 7690/7696 ANALYSIS OF PLATE AND SHELL SYSTEMS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Analysis of isotropic and anisotropic plates with various shapes and boundary conditions due to lateral and in-plane loads; large deflection considerations; numerical techniques; bending and membrane behavior of isotropic shells.
CIVL 7710/7716 APPLIED ELASTICITY (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Analysis of stress-strain; generalized stress-strain relationships; solution of elasticity problem by potentials; thick cylinders, disks and spheres; energy principles and introduction of variational methods.

CIVL 7720/7726 EARTHQUAKE ENGINEERING (3) LEC. 3. Pr. (CIVL 7610 or CIVL 7616) and (CIVL 5670 or CIVL 6670 or CIVL 6676). Principles of earthquakes and earthquake engineering; Analysis and design of steel and reinforced concrete buildings for earthquakes. May count either CIVL 7720 or CIVL 7726.

CIVL 7770/7776 VARIATIONAL METHODS IN STRUCTURAL MECHANICS (3) LEC. 3. Pr. CIVL 6670 or CIVL 6676. Departmental approval. Calculus of variations; derivation of Euler's equations and boundary conditions; applications of energy principles to structures; variational approaches to finite element methods.

CIVL 7810/7816 ADVANCED CONSTRUCTION MATERIALS (4) LEC. 3. LAB. 3. Pr. CIVL 6810 or CIVL 6816. Departmental approval. Evaluate soils, unbound and stabilized materials, hot mix asphalt, and cement concrete products; stress-strain relationships; thermal expansion; design and testing of non-traditional construction products.

CIVL 7820/7826 ADVANCED PAVEMENT DESIGN AND REHABILITATION (3) LEC. 3. Pr. CIVL 7810 or CIVL 7816. Pavement management concepts, life cycle costs analysis, design and rehabilitation alternatives, serviceability concepts, empirical thickness selection models, reliability.

CIVL 7830 ASPHALT CONCRETE MIX DESIGN (3) LEC. 2. LAB. 3. Marshall and Superpave mix design methods and QC/QA for asphalt concrete are covered. Topics include aggregate, asphalt and mix properties, laboratory testing and proportion optimization.

CIVL 7840/7846 PAVEMENT MANAGEMENT AND REHABILITATION (3) LEC. 3. Pr. CIVL 3820. Departmental approval. Topics include: network and project level management, pavement distress surveys, non-destructive testing for condition measurements, flexible and rigid pavement maintenance and rehabilitation practices.

CIVL 7860/7866 PAVEMENT CONSTRUCTION (3) LEC. 3. Pr. CIVL 3820. Operation, quality control and specifications of component construction processes for asphalt and concrete paving; and overview of major rehabilitation strategies.

CIVL 7870 ADVANCED CHARACTERIZATION OF PAVEMENT MATERIALS (3) LEC. 2. LAB. 3. Pr. CIVL 3820. This course introduces theories and procedures for determining fundamental properties of asphalt materials for advanced material evaluation and pavement design.

CIVL 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Course may be repeated for a maximum of 6 credit hours.

CIVL 7970/7976 SPECIAL TOPICS IN CIVIL ENGINEERING (1-3) LEC. Individual student or group endeavor under direct faculty supervision involving special topics of an advanced nature in civil engineering. Course may be repeated for a maximum of 9 credit hours.

CIVL 7980/7986 ENGINEERING PROJECT (1-10) LEC. Departmental approval. Directed study on an engineering project or research supervised by an individual graduate faculty member. Course may be repeated for a maximum of 10 credit hours.

CIVL 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Credit to be arranged. Course may be repeated for a maximum of 10 credit hours.

CIVL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Credit to be arranged. Course may be repeated with change in topics.

Clinical Pharmacy Practice - PYPP

Communication - COMM

Courses

COMM 1000/1003 PUBLIC SPEAKING (3) LEC. 3. Oral communication theory and practice in a public speaking setting, with emphasis on content, organization, delivery, and adaptation to the audience.

COMM 1007 HONORS PUBLIC SPEAKING (3) LEC. 3. Pr. Honors College. This course will focus on numerous elements of oral communication - public speaking, group communication and interpersonal communication. This is different from a typical speech class that focuses solely on public speaking. An emphasis will also be placed on debate(forensics).
COMM 2010/2013 COMMUNICATION IN SOCIETY (3) LEC. 3. Theory underlying the construction of rhetorical messages as well as critical perspectives for the analysis of public discourse. May count either COMM 2010 or COMM 2013.

COMM 2400/2403 INTRODUCTION TO WORKPLACE COMMUNICATION (3) LEC. 3. Communication in modern organizations, emphasizing practice in areas such as interviewing, managing meeting, and conducting professional presentations. May count either COMM 2400 or COMM 2403.

COMM 2410/2413 SMALL GROUP COMMUNICATION (3) LEC. 3. Theory and practice of competent communication in task-oriented small group settings such as committees. Topics include roles, leadership, decision making, problem solving, and conflict management. May count either COMM 2410 or COMM 2413.

COMM 3100/3103 ADVANCED PUBLIC SPEAKING (3) LEC. 3. Pr. COMM 1000 or COMM 1003. Refining the knowledge and skills necessary for communicating clearly and effectively in oral presentations. May count either COMM 3100 or COMM 3103.

COMM 3110/3113 PERSUASION (3) LEC. 3. Understanding and analyzing persuasive messages. Survey of theoretical approaches to attitude formation and change. Developing skills as a critical evaluator of persuasive messages. May count either COMM 3110 or COMM 3113.

COMM 3300/3303 COMMUNICATION AND CONFLICT (3) LEC. 3. Enhance awareness of and develop skills in managing conflict processes in interpersonal relationships. May count either COMM 3300 or COMM 3303.

COMM 3400/3403 ORGANIZATIONAL COMMUNICATION (3) LEC. 3. This course examines theory, approaches, and processes associated with organizational communication. May count either COMM 3400 or COMM 3403.

COMM 3450/3453 INTERCULTURAL COMMUNICATION (3) LEC. 3. Different types of problems encountered when communicating with different cultures. May count either COMM 3450 or COMM 3453.

COMM 3500/3503 FOUNDATIONS OF HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Theories examining the nature of human communication. May count either COMM 3500 or COMM 3503.

COMM 3510/3513 RESEARCH IN HUMAN COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Introduction to and application of quantitative and qualitative methods of communication research. May count either COMM 3510 or COMM 3513.

COMM 3600/3603 FOUNDATIONS OF RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Rhetorical theory from its classical roots to contemporary thinkers. Relates rhetorical theory and analysis to understanding persuasive discourse in our society. May count either COMM 3600 or COMM 3603.

COMM 3610/3613 RESEARCH IN RHETORIC AND SOCIAL INFLUENCE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103). Exploration of how to perform a critical analysis of various rhetorical artifacts. May count either COMM 3610 or COMM 3613.

COMM 3700/3703 ARGUMENTATION (3) LEC. 3. Examination of the critical tools necessary to evaluate arguments in current public discourse. May count either COMM 3700 or COMM 3703.

COMM 3800/3803 FAMILY COMMUNICATION (3) LEC. 3. Examines communication theory and research as applied to the family context (broadly defined). May count either COMM 3800 or COMM 3803.

COMM 3970/3973 SPECIAL TOPICS IN COMMUNICATION (3-6) LEC. Topics that range beyond what is covered in other courses within the COMM curriculum. Specific subject matter is left up to the individual instructor. Course may be repeated for a maximum of 6 credit hours.

COMM 4100/4103 COMMUNICATION STRATEGIES OF SOCIAL MOVEMENTS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Examination of persuasive strategies used in social movements to attract members, solidify support, and effect social change. May count either COMM 4100 or COMM 4103.

COMM 4410/4413 THEORIES OF LEADERSHIP (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, or MDIV or Departmental approval. Examination of theory and research in leadership as a communication variable and behavioral practice in small group and organizational settings. May count either COMM 4410 or COMM 4413.
COMM 4420/4423 COMMUNICATION AND CREATIVITY (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. This course examines creativity research and its practical applications, particularly in collaborative settings. May count either COMM 4420 or COMM 4423.

COMM 4430/4433 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theoretical and practical issues involved in communication training and consulting.

COMM 4480/4483 HEALTH PROMOTION MESSAGE AND DESIGN (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Introduction to theory, practice, and ethics of health message and design as related to health promotion and behavior change. May count either COMM 4480 or COMM 4483.

COMM 4500/4503 COMMUNICATION AND COGNITION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Explores theory and research related to cognitive and affective influences on communication in interpersonal and social interactions. May count either COMM 4500 or COMM 4503.

COMM 4700/4703 LEGAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV, or Departmental approval. Examination of communication processes in legal contexts. May count either COMM 4700 or COMM 4703.

COMM 4800/4803 INTERPERSONAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Relationship between communication and the formation of self-identity and maintenance of relationships. May count either COMM 4800 or COMM 4803.

COMM 4810/4813 NONVERBAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Theory of non-language based communication and the impact of these messages on the overall communication process. May count either COMM 4810 or COMM 4813.

COMM 4920 INTERNSHIP (3) INT. 200. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603). Admission to Internship Program. Declared major in COMM. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

COMM 4930 DIRECTED STUDIES IN COMMUNICATION (3) IND. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Independent study on a specific topic of interest not already addressed in any regular COMM course.

COMM 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. COMM 3613. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Honors level independent study on a specific topic of interest not already addressed in any regular COMM course. Course may be repeated for a maximum of 3 credit hours.

COMM 4970/4973 SPECIAL TOPICS IN COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Topics in communication. Course may be repeated with a change in topic. Course may be repeated for a maximum of 6 credit hours.

COMM 4997 HONORS THESIS (1-3) IND. Pr. Honors College. COMM 3600 or COMM 3603 and COMM 3500 or COMM 3503. and COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613. and CMJN 2100 or CMJN 2103. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. 2.3 GPA. Departmental approval. Course may be repeated for a maximum of 3 credit hours.
COMM 5430/5433 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study of gender, work, and communication. May count either COMM 5430 or COMM 5433.

COMM 5470/5473 HEALTH COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). History, theory, and concepts central to the study and practice of health communication. May count either COMM 5470 or COMM 5473.

COMM 5600/5603 POLITICAL COMMUNICATION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3600 or COMM 3603) and (COMM 3500 or COMM 3503) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV MDIV or Departmental approval. Examines communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity. May count either COMM 5600 or COMM 5603.

COMM 5700/5703 DISCOURSE IN SOCIAL LIFE (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and (COMM 3500 or COMM 3503) and (COMM 3600 or COMM 3603) and (COMM 3510 or COMM 3513 or COMM 3610 or COMM 3613). and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV MDIV or Departmental approval. Examines the functions of language and social interaction as they reflect and shape our identity in various contexts. May count COMM 5700 or 5703 or 6700.

COMM 6300 SEX, GENDER, AND SPORT (3) LEC. 3. Focuses on sport, as a gendered institution. The course examines intersections of gender with age, sexual orientation, social class, gender identity, race and ethnicity and politics.

COMM 6430 GENDER, WORK, AND COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study of gender, work, and communication.

COMM 6470 HEALTH COMMUNICATION (3) LEC. 3. History, theory, and concepts central to the study and practice of health communication.

COMM 6600 POLITICAL COMMUNICATION (3) LEC. 3. This course will examine the communication strategies involved in the varied contexts of politics. Students will be exposed to relevant theories and ideas and asked to apply this knowledge to current political activity.

COMM 7000 COMMUNICATION THEORY (3) LEC. 3. Critical examination of contemporary theories in communication.

COMM 7010 QUALITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Qualitative research in communication; emphasis on understanding and engaging in a variety of qualitative methods.

COMM 7020 QUANTITATIVE METHODS OF COMMUNICATION RESEARCH (3) LEC. 3. Quantitative research in communication; emphasis on understanding and doing empirical research.

COMM 7230 RHETORICAL CRITICISM (3) LEC. 3. Advanced methods in rhetorical criticism, including tools for the analysis of persuasive messages.

COMM 7300 APPROACHES TO STUDYING LANGUAGE AND SOCIAL INTERACTION (3) LEC. 3. Major approaches to studying language and social interaction that collectively make up discourse analysis.

COMM 7410 DEVELOPMENT OF RHETORICAL THEORY (3) LEC. 3. Historical survey of rhetorical theory from ancient to contemporary era; special attention to the role of rhetoric in shaping attitudes towards persuasion.

COMM 7420 SEMINAR IN PERSUASION AND ATTITUDE CHANGE (3) LEC. 3. Critical examination of current theory and research in the persuasive act and its effects.

COMM 7430 SEMINAR IN AMERICAN PUBLIC ADDRESS (3) LEC. 3. Investigation of key issues and debates that have emerged in post-World War II America.

COMM 7440 SEMINAR IN ARGUMENTATION AND DEBATE (3) SEM. 3. Analysis of the fundamental theories of argumentation.

COMM 7450 SEMINAR IN INTRAPERSONAL PROCESSES IN COMMUNICATION (3) SEM. 3. Theories of cognitive and affective processing of information during speaking and listening.

COMM 7460 SEMINAR IN INTERPERSONAL COMMUNICATION (3) SEM. 3. Theories of the structure and function of interpersonal (dyadic) communication focusing on conversational behavior, traits, relationships, and persuasion.
COMM 7470 SEMINAR IN SMALL GROUP COMMUNICATION (3) SEM. 3. Advanced study of the principles of communication as they apply to the small group setting.

COMM 7480 SEMINAR IN ORGANIZATIONAL COMMUNICATION (3) SEM. 3. In-depth approach to the study of communication processes within the setting of modern organizations.

COMM 7490 HEALTH COMMUNICATION (3) LEC. 3. Examination and application of social science research approaches to the study of health communication.

COMM 7500 GENDER COMMUNICATION (3) LEC. 3. Exploration of current theories and research on the relationship between communication and gender.

COMM 7600 MASS COMMUNICATION THEORY (3) LEC. 3. Exploration of major areas of concern to the theoretical study of mass communication and the social impact of mediated messages.

COMM 7610 STUDIES IN POPULAR CULTURE AND MASS COMMUNICATION (3) LEC. 3. Critical approaches to identifying, interpreting and experiencing popular culture texts within historical, cultural and communication contexts.

COMM 7620 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Exploration of critical, theoretical, and organizational issues relevant to programming and the production of culture within mass media environments.

COMM 7630 MEDIA MANAGEMENT (3) LEC. 3. In-depth analysis of current management issues specific to media managers in a multi-cultural world.

COMM 7640 SEMINAR IN FILM THEORY AND CRITICISM (3) SEM. 3. Exploration of classical and contemporary film theories and criticism.

COMM 7650 THE MASS MEDIA AND AMERICAN POLITICS (3) LEC. 3. Examination of the role of the mass communication system in the American political system.

COMM 7660 CULTURAL STUDIES IN MASS MEDIA (3) LEC. 3. Examination of communication research approaches to the study of culture and media.

COMM 7670 CONTEMPORARY ISSUES IN FIRST AMENDMENT LAW (3) LEC. 3. Exploration of controversial issues and cases in First Amendment Law that have been recently decided, are currently before courts, and have shaped the constitutional landscape in the United States.

COMM 7680 SPORTS, MEDIA, AND CULTURE (3) LEC. 3. Cultural implications of the relationship between sports and media.

COMM 7810 PUBLIC RELATIONS THEORY (3) LEC. 3. Current areas of concern in the theoretical study of public relations.

COMM 7820 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Application of public relations and communication concepts to campaign challenges.

COMM 7830 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Examination of research on public relations case studies to provide a theoretical basis for analyzing similar situations in on the job.

COMM 7840 COMMUNICATION TRAINING AND CONSULTING (3) LEC. 3. Theory, concepts, and skills needed to be an effective communication trainer or consultant.

COMM 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research, and reports in general communication, mass communication, or public relations. Course may be repeated for a maximum of 3 credit hours.

COMM 7970 SPECIAL TOPICS IN COMMUNICATION (3) SEM. 3. Advanced treatment of contemporary topics, trends, current research findings, and opportunities. Course may be repeated for credit with change in topic.

COMM 7980 NON-THESIS PROJECT IN COMMUNICATION (3-6) LEC. SU. Pr. COMM 7000 and COMM 7010 and COMM 7020. and Minimum 27 graduate hours. Professional experience in communication area of interest. Must include managerial experience. Only 3 hours will apply to the degree. Course may be repeated for a maximum of 6 credit hours.

COMM 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.
Communication and Journalism - CMJN

Courses

CMJN 2100/2103 CONCEPTS IN COMMUNICATIONS AND JOURNALISM (3) LEC. 2. LAB. 1. Introduction to the basic principles of various communication forms, the dominant communication theories, and communication industries. May count either CMJN 2100 or CMJN 2103.

CMJN 2910 COMMUNICATION AND JOURNALISM PRACTICUM (1-3) PRA. SU. Departmental Approval. Practical experiences in potential career fields gained while working in professional settings. One to three hours variable credit. Course may be repeated for a maximum of 3 credit hours.

CMJN 3110 SPORTS MEDIA RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Focuses on the major concepts and theories of the management of sports media relations. Will include discussion of issues, philosophies and cases. May count either sections CMJN 3110 or MDIA 4350.

CMJN 3210 NEWS AND SPORTS ANNOUNCING (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103 or Departmental approval. This class focuses on the theory and practical technique of studio and field announcing. Primary emphasis will be placed on announcing for news and sports. Additional attention will be given to voice over announcing.

CMJN 3350/3353 VISUAL COMMUNICATION (3) LEC. 3. Visual literacy, cognition, aesthetics, critical evaluation, and technology in human communication, with emphasis on impact of visual media in informative, interpretive, and persuasive message.

CMJN 3410/3413 INTRODUCTION TO SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Introduction to multi-camera live sports production, video and audio editing techniques, how to operate equipment, create basic animated graphics, learn work crew positions and understand a script. Students will complete work for the SEC Network and War Eagle Productions.

CMJN 3650/3653 RHETORIC OF SPORTS (3) LEC. 3. Examination of sports in the public sphere, using rhetorical theories to understand how sports contribute to social issues such as identity, community, ethnicity, gender, and politics. May count either CMJN 3650 or COMM 3650.

CMJN 4000 MASS MEDIA LAW AND REGULATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. and junior or senior standing. Laws and regulations that govern journalists, media content and industries.

CMJN 4340/4343 MASS COMMUNICATION AND FAMILY (3) LEC. 3. Examination of the relationship between the American family and the mass communication industry.

CMJN 4370 MASS COMMUNICATION AND RELIGION (3) LEC. 3. Examines the relationship between mass communication and religion. Portrayals and influences will be analyzed.

CMJN 4400/4403 GENDER COMMUNICATION (3) LEC. 3. Examination of the ways in which gender is created, maintained, and/or changed through communication.

CMJN 4410 ADVANCED SPORTS VIDEO PRODUCTION (3) LEC. 2, LST. 1. Pr. CMJN 3410. This course is designed to give students in-depth training that covers advanced video editing techniques and effects. In addition, students will gain experience with advanced camera operation and techniques, focusing on high-quality production throughout the process.

CMJN 4430/4433 SPORTS, MEDIA AND SOCIETY (3) LEC. 3. Cultural and professional implications of the relationship between sports and media. May count either CMJN 4430 or JRNL 4430.

CMJN 4970/4973 SPECIAL TOPICS IN COMMUNICATION AND JOURNALISM (3) LEC. 3. Specialized topics related to the study and practice of Communication, Journalism, Media Studies and/or Public Relations. Course may be repeated for a maximum of 6 credit hours.

CMJN 5100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

CMJN 6100 CMJN ABROAD (3) AAB. 3. Explores theory, research, and practice in the fields of communication, media, and public relations in an international context. May count either CMJN 5100 or CMJN 6100.

Communication Disorders - CMDS
Courses

CMDS 2500/2503 COMMUNICATION DISORDERS IN SOCIETY (2) LEC. 2. Information on stuttering, speech, language, voice disorders and hearing impairment and how to interact with individuals with communication disorders.

CMDS 3000 INTRODUCTION TO SPEECH PATHOLOGY-AUDIOLOGY (3) LEC. 3. Survey of the field of speech pathology-audiology. Includes history of the profession, the inter-relatedness of the various pathologies, general principles of evaluation and therapy and the profession itself.

CMDS 3400 ANATOMY AND PHYSIOLOGY OF SPEECH (3) LEC. 3. The study of anatomy and physiology of speech production including respiratory, laryngeal and articulatory-resonance systems and the process swallowing. Speech acoustics will be introduced.

CMDS 3410 PHONETICS (3) LEC. 3. Principles of phonetics and their application to speech.

CMDS 3560 NEUROANATOMY FOR COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language, hearing and swallowing function and disorders.

CMDS 4400 ADULT NEUROGENIC COMMUNICATION DISORDERS (3) LEC. 3. Study of the disorders of speech, language, and swallowing in adults occurring as a result of CNS pathologies and their evaluation and treatment.

CMDS 4510 ARTICULATION DISORDERS (3) LEC. 3. Principles of normal and deviant articulation acquisition.

CMDS 4520 LANGUAGE ACQUISITION (3) LEC. 3. First language acquisition in childhood and its change throughout the life span.

CMDS 4530 FLUENCY DISORDERS (3) LEC. 3. Departmental approval. Principles of fluent and disfluent verbal behavior.

CMDS 4540 VOCAL DISORDERS (3) LEC. 3. Principles of normal and deviant vocal behavior.

CMDS 4560 CHILD AND ADOLESCENT LANGUAGE DISORDER (3) LEC. 3. Pr. CMDS 4520. Departmental approval. Overview of research dealing with the nature, assessment and treatment of language disorders in child and adolescent populations.

CMDS 4580 INTRODUCTION TO CLINICAL PROCEDURES IN SPEECH-LANGUAGE PATHOLOGY (3) LEC. 3. CLN/LEC. 30. Pr. CMDS 4510 and CMDS 4520. Orientation to clinical activities, management methods and preparation of professional reports.

CMDS 4600 INTRODUCTION TO AUDIOLOGY (3) LEC. 3. Principles of auditory reception and the problems involved in measuring, evaluating and conserving hearing.

CMDS 4620 HEARING REHABILITATION (3) LEC. 3. Pr. CMDS 4600. Departmental approval. Rehabilitation problems of children and adults in the area of auditory training, speech reading and speech conservation; includes clinical practice.

CMDS 4650 INTRODUCTION TO CLINICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600. Audiological instrumentation and test procedures.

CMDS 4910 CLINICAL PRACTICUM IN SPEECH-LANGUAGE PATHOLOGY (1) PRA. 1. Pr. CMDS 4580. Departmental approval.. Course may be repeated for a maximum of 2 credit hours.

CMDS 4930 DIRECTED STUDY IN COMMUNICATION DISORDERS (1-3) IND. Departmental approval. Directed learning experience in communication disorders involving bibliographic research, writing, gaining expertise with laboratory/clinical procedures or conducting directed research. Course may be repeated for a maximum of 6 credit hours.

CMDS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 3 credit hours.

CMDS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours.

CMDS 5810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 7500 CLINICAL PROBLEMS IN SPEECH (1) PRA. 1. Pr. CMDS 4580 and CMDS 4910. Clinical practicum in evaluation and treatment of individuals with speech-language disorders. Course may be repeated for a maximum of 4 credit hours.

CMDS 7510 ADVANCED ARTICULATION/PHONOLOGICAL DISORDERS (3) LEC. 3. Pr. CMDS 4510. Empirical and theoretical bases for articulatory pathologies.
CMDS 7520 LANGUAGE DISORDERS: BIRTH TO FIVE (3) LEC. 3. Empirical and theoretical bases for evaluation and treatment of language disorders for the birth to five population.

CMDS 7530 ADVANCED FLUENCY DISORDERS (3) LEC. 3. Pr. CMDS 4530. Empirical and theoretical bases for dysfluency disorders, diagnoses and therapies.

CMDS 7540 ADVANCED VOICE DISORDERS (3) LEC. 3. Pr. CMDS 4540. Empirical and theoretical bases for voice pathologies, diagnoses and therapies.

CMDS 7550 ADULT APHASIA (3) LEC. 3. Pr. CMDS 4520. Empirical and theoretical bases for adult language disorders associated with CNS pathologies, diagnoses and therapies.

CMDS 7560 CRANIOFACIAL ANOMALIES (3) LEC. 3. A review of syndromic and non-syndromic craniofacial disorders including cleft lip/palate. Assessment and treatment of speech and language problems associated with these anomalies is emphasized.

CMDS 7570 EVALUATION OF RESEARCH IN SPEECH PATHOLOGY AND AUDIOLOGY (3) LEC. 3. Survey of experimental designs and statistical procedures used in speech-language pathology/audiology literature for consumers of research.


CMDS 7600 CLINICAL PROBLEMS IN HEARING (2) LEC. 2. Pr. CMDS 4650 and CMDS 4600 and CMDS 4620. Course may be repeated for a maximum of 12 credit hours.

CMDS 7700 CLINICAL PROBLEM SOLVING I (2) LEC. 2. This course will help students develop problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7720 CLINICAL PROBLEM SOLVING II (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7740 CLINICAL PROBLEM SOLVING III (2) LEC. 2. This course will promoted advanced problem-solving skills that can be applied to clinical practice in Speech-Language Pathology.

CMDS 7810 MOTOR SPEECH DISORDERS (3) LEC. 3. Pr. CMDS 7800. Empirical and theoretical bases for motor speech disorders, diagnoses and therapies.

CMDS 7820 DYSPHAGIA (3) LEC. 3. Pr. CMDS 7800. The role of speech-language pathology in diagnosing and treating swallowing disorders in children and adults. Emphasis will be placed upon clinical and instrumental assessment and treatment strategies.

CMDS 7840 AUGMENTATIVE AND ALTERNATIVE COMMUNICATION (3) LEC. 3. Process and specific equipment involved in assessment, prescription and intervention with adults and children who are unable to use traditional communication modes.

CMDS 7860 SPEECH SCIENCE (3) LEC. 3. Pr. CMDS 3550. Acoustic properties of speech, physiology and perception of the speech signal, and an orientation to instrumentation used in speech science.

CMDS 7920 INTERNSHIP IN SPEECH-LANGUAGE PATHOLOGY (5) LEC. 5. SU. Completion of all academic course work. Successful completion of comprehensive exams or enrollment in graduate thesis. Course may be repeated for a maximum of 10 credit hours.

CMDS 7930 DIRECTED STUDIES (1-3) IND. Conferences, readings, research or reports in a specialized area of communication disorders. Course may be repeated for a maximum of 3 credit hours.

CMDS 7970 SPECIAL TOPICS SEMINAR (1-3) SEM. Advanced treatment of contemporary topics and trends, as well as current research aspects of audiology and speech-language pathology. Course may be repeated for a maximum of 3 credit hours.

CMDS 7990 RESEARCH AND THESIS (1-5) MST. Course may be repeated with change in topics.

CMDS 8100 HEARING SCIENCE (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Introduction to instrumentation and calibration of audiometric equipment. Auditory perception in normal-hearing and hearing impaired listeners.

CMDS 8110 AUDITORY PHYSIOLOGY (3) LEC. 3. Pr. CMDS 4600. Departmental approval. Detailed study of the anatomy and physiology of the human auditory, and vestibular system over the lifespan.
CMDS 8120 AUDIOLOGY CLINICAL METHODS (3) LEC. 3. Use of audiometric equipment, administering audiological tests, recording test results, and interpreting test findings, including otoscopy, and cerumen management.

CMDS 8200 DIAGNOSTIC AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4650. Basic and advanced audiometric techniques to assess auditory system's site of lesion, including otoscopy, cerumen management, otoacoustic emissions and immittance.

CMDS 8210 MEDICAL ASPECTS OF HEARING DISORDERS (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Study of the disorders of hearing including their medical diagnosis, evaluation, and treatment.

CMDS 8220 AMPLIFICATION I (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Background and development of hearing aids and other amplification systems; performance standards and measurement techniques; selection, fitting and dispensing procedures.

CMDS 8300 CENTRAL AUDITORY PROCESSING (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Selected clinical procedures in audiology, including electrophysiologic and behavioral tests of central auditory functioning.

CMDS 8310 AURAL REHABILITATION (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Psychosocial aspects on hearing loss; clinical and therapeutic management of older persons with hearing disorders including counseling of the hearing-impaired and their families.

CMDS 8320 CLINICAL APPLICATIONS OF AMPLIFICATION (2) LEC. 2. Didactic and practical training in use of instrumentation for testing, programming, fitting and verifying amplification.

CMDS 8400 PEDIATRIC AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Departmental approval. Normal development of speech, language and hearing losses' effect on communication, etiologic factors, screening, audiologic assessment, differential diagnosis and clinical management.

CMDS 8410 AURAL HABILITATION (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. The parameters involved in the management of hearing-impaired school-aged children.

CMDS 8420 AMPLIFICATION II (3) LEC. 3. Pr. CMDS 8220. Review of recent trends in hearing aid technology including digital and Programmable instruments.

CMDS 8430 CLINICAL APPLICATION OF DIAGNOSTIC AUDIOLOGY (2) LEC. 2. Pr. CMDS 8320. Didactic and practical training for selection, administration, and interpretation of behavioral and electrophysiologic tests, including auditory processing disorders.

CMDS 8500 ELECTROPHYSIOLOGICAL PROCEDURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Selected neurophysiological clinical procedures in audiology, including electronystagmography and auditory evoked potentials.

CMDS 8510 CLINICAL APPLICATION OF BALANCE ASSESSMENT (2) LEC. 2. Pr. CMDS 8230 and CMDS 8320 and CMDS 8430. Didactic and practical training for selecting, conducting, and interpreting tests to identify disorders of balance and other auditory related systems.

CMDS 8520 HEARING CONSERVATION (3) LEC. 3. Pr. CMDS 8310. Studies the effects of noise on auditory system and implementation of hearing conservation programs in industry, schools and the military.

CMDS 8570 EVALUATION OF RESEARCH IN AUDIOLOGY (3) LEC. 3. Survey of experimental designs and statistical procedures used in audiology research.

CMDS 8600 BALANCE DISORDERS (3) LEC. 3. Pr. CMDS 4600 and CMDS 4620. Detailed coverage of the assessment and treatment of patients with balance disorders using nystagmography and other techniques.

CMDS 8610 IMPLANT TECHNOLOGY (3) LEC. 3. Detailed study of the assessment and treatment of patients with cochlear implants.

CMDS 8620 OUTCOME MEASURES IN AUDIOLOGY (3) LEC. 3. Pr. CMDS 6120. Application of research methodology to demonstrate efficacy in clinical service delivery in all areas of audiologic practice.

CMDS 8630 COUNSELING IN AUDIOLOGY (3) LEC. 3. Advanced course in the counseling component of rehabilitative audiology.

CMDS 8650 ADVANCED AUDIOMETRY (2) LEC. 2. Pr. CMDS 8120 and CMDS 8320 and CMDS 8430 and CMDS 8510. Didactic and practical training for selection, administration, scoring, and interpretation of behavioral audiometric tests and electrophysiologic procedures.
CMDS 8700 PROFESSIONAL ISSUES (3) LEC. 3. Legal and ethical issues in clinical audiology.

CMDS 8800 THE NEUROLOGICAL BASES OF COMMUNICATION DISORDERS (3) LEC. 3. Anatomy and physiology of the central nervous system as it relates to speech, language and hearing function and disorders.

CMDS 8810 PRIVATE PRACTICE (3) LEC. 3. Concepts and strategies for private practice in the areas of clinical and industrial audiology.

CMDS 8910 CLINICAL PRACTICE IN AUDIOLOGY (2) LEC. 2. Pr. CMDS 4650 and CMDS 4600. Departmental approval. Clinical practicum involving evaluation and management of patients of all ages with disorders of auditory, vestibular, and other auditory related systems.

CMDS 8920 CLINICAL INTERNSHIP (5) INT. 5. SU. Pr. CMDS 8910. Intensive clinical experience at off-campus setting up to 20 hours per week of supervised practicum.

CMDS 8940 CLINICAL RESIDENCY (6) INT. 6. SU. Pr. CMDS 8920. A full time, supervised, nine month residency at an off-campus facility that provides audiological services. Fall, Spring.

CMDS 8950 AUDIOLOGY GRAND ROUNDS (3) LEC. 3. Discussion/Seminar in timely clinical issues in audiology, clinical problem solving and case studies in contemporary audiologic service delivery.

CMDS 8980 CAPSTONE PROJECT (1) IND. 1. A third year project involving applied clinical research or development of an innovative clinical procedure.

Community and Civic Engagement - CCEN

Courses

CCEN 2000 INTRODUCTION: COMMUNITY AND CIVIC ENGAGEMENT (3) LEC. 3. Introduction to Community and Civic Engagement introduces students to the context, issues, skills, and experience of citizenship and civic leadership in a democratic society.

CCEN 2100 WOMEN AND LEADERSHIP (3) LEC. 3. An interactive exploration of the social, political, economic, and cultural implications of women's current and historic leadership roles.

CCEN 3000 CAPSTONE IN COMMUNITY AND CIVIC ENGAGEMENT (1) PRA. 1. SU. Completion of 15 credits toward Minor in Community and Civic Engagement. This course is required for minors in CEE. The capstone requires students to draw upon the knowledge obtained throughout their coursework and to perform relevant service projects.

CCEN 3200 LEADERSHIP FOR A GLOBAL SOCIETY (3) LEC. 3. This heavily discussion- and project-based seminar, coupled with reading list and plethora of guests, activities, and online resources, offers participants the tools required or effective leadership in an increasingly global society.

CCEN 5100 ENGAGE, INTERACT, LEAD (3) LEC. 3. Pr. CCEN 2000. An interactive exploration of classic texts of leadership, civic engagement and daily reading resources available through social media.

CCEN 6100 ENGAGE, INTERACT, LEAD (3) LEC. 3. Pr. CCEN 2000. An interactive exploration of classic texts of leadership, civic engagement and daily reading resources available through social media.

CCEN 7900 COMMUNITY LEADERSHIP PRACTICUM (3) LEC. 3. This course provides graduates in CCL an opportunity to integrate course content, personal commitments, and real world experience. Completion of 9 credits toward Graduate Certificate in Collaborative Community Leadership.

Community Planning - CPLN

Courses

CPLN 5000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 5010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.
CPLN 5200 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course teaches about connections that climate has with urban processes; how cities are affected by climate change, impact of local land use and transportation decisions, and Climate Action Planning at local level including GHG inventory, adaptation and mitigation strategies.

CPLN 5040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.

CPLN 5050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 5060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. This topical seminar addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester.

CPLN 5070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 5080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. This topical seminar addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080/6080.

CPLN 5090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 5100 URBAN DESIGN METHODS (3) LEC. 3. Departmental approval. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 5110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 5120 ENVIRONMENTAL POLICY (3) SEM. 3. This course covers federal, state, and local environmental policy-making and governance. It discusses how planners, policy-makers, and government officials implement existing environmental policies, how environmental policies are created, theories of environmental policy, and new and emerging methods of environmental policy.

CPLN 5400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation, adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 5450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 5460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 5970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 6000 HISTORY AND THEORY OF URBAN FORM (3) LEC. 3. The vocabulary and historical development of urban design, focusing on the environmental and cultural forces that design, shape, build, and redevelop the urban fabric.

CPLN 6010 INTRODUCTION TO COMMUNITY PLANNING (3) LEC. 3. Examines the basic principles of community design and planning, and introduces areas of specialization with the professional of planning.

CPLN 6020 CITIES, PLANNING, AND CLIMATE CHANGE (3) SEM. 3. This course focuses on connections that climate has with urban processes, climate action planning at local level, compiling greenhouse gas inventory, climate adaptation and mitigation strategies, and building sustainable and resilient cities.

CPLN 6040 LAND USE PLANNING (3) SEM. 3. Students will develop the critical and analytical skills, as well as analyze relevant literature, that will arm them with the necessary tools in order to implement, administer, and analyze a wide range of plans.
CPLN 6050 LAND AND URBAN ECONOMICS (3) LEC. 3. Examines the historical development and contemporary functioning of cities from an economic perspective, with focus on land use and transportation.

CPLN 6060 SUSTAINABLE TRANSPORTATION PLANNING AND POLICY (3) SEM. 3. Program approval for non-majors and ABM students. Addresses issues related to transportation and mobility within the context of sustainable, healthy cities. Specific course content may vary from semester to semester. May count either CPLN 5060 or CPLN 6060.

CPLN 6070 ENVIRONMENTAL PLANNING (3) SEM. 3. Program approval for ABM students and non-majors. Addresses issues related to land use, environmental impact and policy, and sustainability. Specific course content may vary from semester to semester. May count either CPLN 5070 or CPLN 6070.

CPLN 6080 AFFORDABLE HOUSING PLANNING AND POLICY (3) SEM. 3. Program approval for ABM students and non-majors. Addresses planning issues related to housing and neighborhood conservation. Specific course content may vary from semester to semester. May count either CPLN 5080 or CPLN 6080.

CPLN 6090 COMMUNITY DEVELOPMENT (3) SEM. 3. Program approval for ABM students and non-majors. Planning issues related to community and economic development. Content may vary from semester to semester. May count either CPLN 5090 or CPLN 6090.

CPLN 6100 URBAN DESIGN METHODS (3) LEC. 3. Techniques and methodologies in urban design problem-solving and strategies for implementation.

CPLN 6110 SUSTAINABLE URBANISM AND GROWTH MANAGEMENT (3) SEM. 3. This course covers growth management in the United States. It covers growth management programs, the causes of sprawl, the costs and benefits of sprawl and growth management, and solutions to managing growth.

CPLN 6400 HISTORIC PRESERVATION PLANNING (3) LEC. 3. Planning for the preservation, restoration, conservation and adaptive reuse of historic buildings, sites and districts within the comprehensive planning process.

CPLN 6450 PLANNING HISTORY AND THEORY (3) LEC. 3. This course provides future practitioners with the theoretical and historical tools and knowledge to effective in the planning field. May count either CPLN 5450 or CPLN 6450.

CPLN 6460 GEOGRAPHIC INFORMATION SYSTEMS FOR PLANNING AND POLICY (3) LEC. 3. Program approval for non-majors and ABM students. Basic concepts of geographic information systems and digital planning applications. Emphasis on spatial decision-making and visualization of planning scenarios. May count with CPLN 5460 or CPLN 6460.

CPLN 6970 SPECIAL TOPICS: CURRENT ISSUES IN PLANNING (3) LEC. 3. Elective seminar addresses current issues in planning. May count either CPLN 5970 or CPLN 6970.

CPLN 7200 URBAN DESIGN STUDIO (3) STU. 3. Basic principles of urban design are explored, with an emphasis on the planner's role in shaping the built environment. Exercises and projects provide hands-on experience in making good urban places.

CPLN 7240 QUANTITATIVE METHODS FOR PLANNING (3) LEC. 3. Development of working knowledge of planning techniques such as data collection, basic statistics, demographic analysis, economic analysis, social research, transportation, and evaluation.

CPLN 7430 LAND USE LAW (3) LEC. 3. This course covers three key elements of the planning profession: ethics, law and plan implementation.

CPLN 7600 SYNTHESIS STUDIO I (3) STU. 3. Pr. CPLN 7400. Serves as the primary opportunity for the student to demonstrate their competency in community design and planning by translating knowledge into action through the development of a practical plan.

CPLN 7610 SYNTHESIS STUDIO 2 (3) STU. 3. This class is the second required plan-making studio in the Master of Community Planning Program. Synthesis Studio 2 is the second in a two-semester series of classes that will critically consider a real-world planning project involving a city. Course may be repeated for a maximum of 6 credit hours.

CPLN 7800 SYNTHESIS PROJECT (6) AAB/STU. 12. Departmental approval. Demonstration of competence in community planning and design through production of an original, comprehensive project that integrates knowledge and experience in addressing a complex planning and design problem.

CPLN 7920 PLANNING INTERNSHIP (1-6) AAB/INT. Departmental approval. Professional experience in public, private or non-profit planning or planning-related agency. Course may be repeated for a maximum of 6 credit hours.
Computer Sci & Software En - COMP

Courses

COMP 1000/1003 PERSONAL COMPUTER APPLICATIONS (2) LEC. 2. Introduction to personal computers and software applications, including word processing, spreadsheets, databases, and presentation graphics; generation and retrieval of information with the Internet; integration of data among applications.

COMP 1200 INTRODUCTION TO COMPUTING FOR ENGINEERS AND SCIENTISTS (2) LEC. 2. Computer programming in a high-level language, with emphasis on use of the computer as a tool for engineering or science.

COMP 1201 INTRODUCTION TO COMPUTING LABORATORY (1) LAB. 2. Coreq. COMP 1200. Laboratory activities focused on computer programming in a high-level language.

COMP 1210 FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1217 HONORS FUNDAMENTALS OF COMPUTING I (3) LEC. 2. LAB. 3. Pr. Honors College. Introduction to the fundamental concepts of programming from an object-oriented perspective. Emphasis on good software engineering principles and development of the fundamental programming skills in the context of a language that supports the object-oriented paradigm.

COMP 1AA0 COMPUTER COMPETENCY TEST (0) TST. SU. A comprehensive test of all material covered in COMP 1000 and COMP 1003.

COMP 2000 NETWORK PROGRAMMING WITH HTML AND JAVA (3) LEC. 3. Pr. COMP 1000 or COMP 1003 or ENGR 1110 or ENGR 1113. Introduction to network programming using HTML and Java to build web pages and web-based applications; presentation graphics; retrieval of information from the Internet; integration of data among applications. Pr., COMP 1000 or higher, or ENGR 1110.

COMP 2210 FUNDAMENTALS OF COMPUTING II (4) LEC. 3. LAB. 3. Pr. COMP 1210 or COMP 1217. Software development in the context of collections (e.g., lists, trees, graphs, hashtables). Communication, teamwork, and a design experience are integral course experience.

COMP 2710 SOFTWARE CONSTRUCTION (3) LEC. 3. Pr. COMP 2210. Intensive experience in software construction, to include topics such as testing, debugging, and associated tools; configuration management; low-level file and device I/O; systems and event-driven programming.

COMP 3000 OBJECT-ORIENTED PROGRAMMING FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr., Departmental approval. Fundamentals of object-oriented design and programming principles; data abstraction, identifying objects, problem decomposition, design and implementation of classes. Credit for the major will not be given to CSCI and SWEN, and WIRS majors.

COMP 3010/3013 SPREADSHEET-BASED APPLICATIONS WITH VISUAL BASIC (3) LEC. 2. LAB. 3. Pr. A grade of D or higher in COMP 1200-3000. COMP 1200 or higher. Design and implementation of applications such as simulations, spreadsheet front-ends for modeling, interfaces to databases, and multimedia applications.

COMP 3220 PRINCIPLES OF PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 2210. Study of programming language principles supporting procedural abstraction, data abstraction, storage allocation, and parallel execution; language types and examples; language translations.

COMP 3240 DISCRETE STRUCTURES (3) LEC. 3. Pr. COMP 1210 or COMP 1217. Characterization of computer science data structures and algorithms in terms of sets and relations, functions, recurrence relations. Use of propositional and predicate calculus to describe algorithms. Proving correctness and running time bounds for algorithms by induction and structural induction.

COMP 3270 INTRODUCTION TO ALGORITHMS (3) LEC. 3. Pr. COMP 3240 and COMP 2210. Algorithms for standard computational problems and techniques for analyzing their efficiency; designing efficient algorithms and experimentally evaluating their performance.

COMP 3350 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) LEC. 3. Pr. ELEC 2200 or ELEC 2210. Stored Program Computers, hardware and software components; data representation, instruction sets, addressing modes; assembly language programming; linkers, loader, and operating systems.
COMP 3500 INTRODUCTION TO OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

COMP 3510 EMBEDDED SYSTEMS DEVELOPMENT (3) LEC. 3. Pr. COMP 2710 and (COMP 3350 or ELEC 2220). Operating system design and analysis for embedded systems: Real-time issues, resource management, scheduling, exception handling, device driver development, kernel development, synchronization, network support.

COMP 3700 SOFTWARE MODELING AND DESIGN (3) LEC. 3. Pr. COMP 2710. Current processes, methods, and tools related to modeling and designing software systems. Communication, teamwork, and a design experience are integral course experiences.

COMP 3710 WIRELESS SOFTWARE ENGINEERING (3) LEC. 3. Pr. COMP 2710. Software engineering for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

COMP 4000 SYSTEMS ADMINISTRATION FOR INFORMATION TECHNOLOGY (3) LEC. 3. Pr. COMP 2000 or Departmental approval. Principles and techniques of systems administration, including configuration of mail, file servers, print servers, databases systems, and networks.

COMP 4200 FORMAL LANGUAGES (3) LEC. 3. Pr. COMP 3240. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models.

COMP 4270 ADVANCED ALGORITHMS (3) LEC. 3. Pr. COMP 3270 or Departmental approval. Fundamentals of designing and analyzing advanced algorithms. Algorithm design theory; computational complexity; relationship of data structures to algorithm design; study of design strategies including divide-and-conquer, the greedy method, and dynamic programming.

COMP 4300 COMPUTER ARCHITECTURE (3) LEC. 3. Pr. COMP 3350. Comparison of computer architectures, emphasizing the relationships between system software and hardware. Includes processor control and datapath organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

COMP 4320 INTRODUCTION TO COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 3500 or COMP 3510 or Departmental approval. Fundamentals of computer networks, OSI model, LAN, WAN, packet transmission, interworking, Internet Protocol, WWW and Java technology.

COMP 4650 INTERFACE DESIGN FOR WIRELESS APPLICATIONS (3) LEC. 3. Pr. COMP 3270. Principles of user interface design, usability, for wireless devices: Consequences of low bandwidth network connections for interface design; consequences of battery power, small screen, other limited resources on interface design; case studies; design project using technology such as WAP.

COMP 4710 SENIOR DESIGN PROJECT (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Development of requirement definitions, architectural design specification, detailed design specification, testing plan and documentation for the software and/or hardware components of a comprehensive project.

COMP 4730 COMPUTER ETHICS (1) LEC. 1. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027) or PHIL 1040. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity. Communication and teamwork are integral course experiences.

COMP 4960 SPECIAL PROBLEMS (1-4) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 4970 SPECIAL TOPICS (1-3) LEC. 1-3. Investigation of current topics in computer science and software engineering. Departmental approval Course may be repeated for a maximum of 12 credit hours.

COMP 4997 HONORS THESIS (3-6) IND. Pr. Honors College. Departmental approval. Individual student endeavor consisting of directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

COMP 5000 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 5010 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.
COMP 5020 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 5000. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures.

COMP 5030 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3. Pr. COMP 5000. Departmental approval. Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language.

COMP 5120 DATABASE SYSTEMS I (3) LEC. 3. Pr. COMP 3270. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.

COMP 5130 DATA MINING (3) LEC. 3. Pr. COMP 3270. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 5200 THEORETICAL COMPUTER SCIENCE (3) LEC. 3. Pr. COMP 4200. Departmental approval. The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 5210 COMPILER CONSTRUCTION (3) LEC. 3. Pr. COMP 4200 and COMP 3220. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; runtime storage management; code generation; error detection and recovery.

COMP 5220 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 3220. Advanced topics in programming language concepts, design, and implementation.

COMP 5230 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Pr. COMP 3220. Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 5280 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Pr. COMP 3220. Object oriented language principles and study of the language support for these principles. Example languages and distributed object programming principles.


COMP 5330 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

COMP 5340 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3. Pr. COMP 4320 or ELEC 5220. Theoretical and practical aspects of network simulation and quality assurance.

COMP 5350 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or (MNGT 3080 or MNGT 3087). Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 5360 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.


COMP 5380 PERSONAL AREA NETWORKS (3) LEC. 3. Pr. COMP 4320 or ELEC 5220. Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion.

COMP 5390 3G AND 4G WIRELESS (3) LEC. 3. Pr. P/C COMP 5360 or P/C ELEC 5110. Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.
COMP 5400 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 2710 and MATH 2660. Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 5500 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 4320. Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 5510 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3. Pr. COMP 4320. Departmental approval. Basic concepts, architecture and design of networked multimedia systems.

COMP 5520 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Pr. COMP 4320. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.


COMP 5610 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 5600. Departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.


COMP 5630 MACHINE LEARNING (3) LEC. 3. Pr. COMP 3270. An exploration of current concepts, techniques, and applications in machine learning including abductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 5640 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3. Pr. COMP 3270. Theory and design of intelligent and interactive software; treatments of intelligent agents and human-computer interaction.

COMP 5700 SOFTWARE PROCESS (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Process models of the software life cycle as well as methods and tools for software development.

COMP 5710 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Pr. COMP 3700 or COMP 3710. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 5720 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Pr. COMP 3500 or COMP 3510. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 5970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 6000/6006 WEB APPLICATION DEVELOPMENT (3) LEC. 3. Departmental approval. Design and implementation of web sites and associated applications. Emphasis on user interface design and information organization and presentation. Fall, Spring.

COMP 6010/6016 INTERACTIVE APPLICATIONS IN VISUAL BASIC (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Design and implementation of applications like simulations, front-ends to Excel for modeling, interfaces to databases and multimedia applications.

COMP 6020/6026 ADVANCED WEB APPLICATION DEVELOPMENT (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Design and implementation of interactive web applications in Java as applets and servlets. Use of concepts like security, internationalization, multi-threading and server/client architectures. Fall, Spring.

COMP 6030/6036 OBJECT-ORIENTED TECHNOLOGIES (3) LEC. 3. Pr. COMP 6000 or COMP 6006. Departmental approval. Object-oriented design and implementation of a variety of applications including databases and intelligent agents with one or more object-oriented programming language.

COMP 6120/6126 DATABASE SYSTEMS I (3) LEC. 3. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of relational database systems.
COMP 6130/6136 DATA MINING (3) LEC. 3. Advanced concepts, techniques, and applications of data mining with an algorithmic and computational focus, including data visualization, data warehousing, data cube computation, pattern and rule mining, classification, belief networks, clustering, outlier detection, graph matching, and parallel and distributed computation.

COMP 6200/6206 THEORETICAL COMPUTER SCIENCE (3) LEC. 3. Departmental approval. The nature of the recursive sets and recursively enumerable sets. Decidability. Context-sensitive grammars, and linear-bounded automata, including closure properties; oracles; reduction; the arithmetic hierarchy; the analytic hierarchy.

COMP 6210/6216 COMPILER CONSTRUCTION (3) LEC. 3. Departmental approval. Compiler organization; lexical analysis; parsing; syntax- direction translation; symbol tables; basic dependence analysis; intermediate forms; interpreters vs. compilers; run-time storage management; code generation; error detection and recovery.

COMP 6220/6226 ADVANCED TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Departmental approval. Advanced topics in programming language concepts, design, and implementation.

COMP 6230/6236 DECLARATIVE PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Departmental approval. Functional and logic programming theoretical foundations, models and implementation issues; example language studies.

COMP 6280/6286 OBJECT ORIENTED PROGRAMMING LANGUAGES AND PRINCIPLES (3) LEC. 3. Departmental approval. Object oriented language principles and study of the language support for these principles. Example languages distributed object programming principles.

COMP 6320/6326 DESIGN AND ANALYSIS OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Computer networks design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

COMP 6330/6336 PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Departmental approval. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, parallel applications.

COMP 6340/6346 NETWORK QUALITY ASSURANCE AND SIMULATION (3) LEC. 3. Departmental approval. Theoretical and practical aspects of network simulation and quality assurance.

COMP 6350/6356 DIGITAL FORENSICS (3) LEC. 3. Pr. COMP 2710 or ISMN 3080 or (MNGT 3080 or MNGT 3087). Departmental approval. Computer compromise and forensics, with focus on computer crime and ways to uncover, protect, and exploit digital evidence.

COMP 6360/6366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP personal communication systems, and GSM.


COMP 6380/6386 PERSONAL AREA NETWORKS (3) LEC. 3. Departmental approval. Fundamentals of very low power, short-range high-bandwidth personal network technologies such as Bluetooth and direct diffusion.

COMP 6390/6396 3G AND 4G WIRELESS (3) LEC. 3. Pr. P/C COMP 6360 or COMP 6366 or P/C ELEC 6110 or ELEC 6116. Departmental approval. Exploration of technology types, design issues for handset and network systems, economics. Exploration of standards such as CT2, CT3, IS-91A. Future challenges for 4G.

COMP 6400/6406 FUNDAMENTALS OF COMPUTER GRAPHICS (3) LEC. 3. Departmental approval. Graphics hardware and software components, coordinate systems, 2-D and 3-D transformations, 3-D viewing and projection, clipping and windowing, scan conversion and algorithms, visibility determination and shadowing, and software projects using a graphics software package.

COMP 6500/6506 DISTRIBUTED OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Basic concepts of distributed systems. Concurrent process communication and synchronization mechanisms, distributed process scheduling, distributed file systems, distributed shared memory, distributed system security and case studies.

COMP 6510/6516 NETWORKED MULTIMEDIA SYSTEMS (3) LEC. 3. Departmental approval. Basic concepts, architecture and design of networked multimedia systems.
COMP 6520/6526 NETWORK AND OPERATING SYSTEM ADMINISTRATION (3) LEC. 3. Departmental approval. Studies of the installation, configuration and management of traditional, distributed and networked system software. Network integration of different systems. Performance monitoring, safety and security issues together with policies, politics and the laws regarding system software management.

COMP 6600/6606 ARTIFICIAL INTELLIGENCE (3) LEC. 3. Departmental approval. Introduction to intelligent agents, search knowledge representation and reasoning, machine learning.

COMP 6610/6616 ARTIFICIAL INTELLIGENCE PROGRAMMING (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic and constraint programming, knowledge representation and heuristic search methods.

COMP 6620/6626 USER INTERFACE DESIGN AND EVALUATION (3) LEC. 3. Departmental approval. Theory and practice of designing interfaces for interactive systems, usability engineering techniques; implementing and evaluating interfaces.

COMP 6630/6636 MACHINE LEARNING (3) LEC. 3. An exploration of current concepts, techniques, and applications in machine learning including inductive learning, case-based learning, deep learning, and reinforcement learning.

COMP 6640/6646 INTELLIGENT AND INTERACTIVE SYSTEMS (3) LEC. 3. Pr. COMP 3270. Theory and design of intelligent and interactive software; treatments of intelligent agents and human-computer interaction.

COMP 6700/6706 SOFTWARE PROCESS (3) LEC. 3. Departmental approval. Process models of the software life cycle as well as methods and tools for software development.

COMP 6710/6716 SOFTWARE QUALITY ASSURANCE (3) LEC. 3. Departmental approval. Processes, methods, and tools associated with the production of robust, high-quality software.

COMP 6720/6726 REAL TIME AND EMBEDDED SYSTEMS (3) LEC. 3. Departmental approval. Concepts of real-time and embedded computer systems. Studies of real-time algorithm issues such as timeliness, time-constrained scheduling and communication. Embedded system issues such as limited memory, low power, and high latency communication. Fall, Spring.

COMP 6970/6976 SPECIAL TOPICS (1-3) LEC. Investigation of current topics in computer science and software engineering. Course may be repeated for a maximum of 9 credit hours.

COMP 7120/7126 DATABASE SYSTEMS II (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied issues related to the analysis, design, and implementation of object-oriented database systems.


COMP 7270/7276 ADVANCED TOPICS IN ALGORITHMS (3) LEC. 3. Departmental approval. In-depth study of advanced topics in algorithms.


COMP 7300/7306 ADVANCED COMPUTER ARCHITECTURE (3) LEC. 3. Departmental approval. Modern instruction level parallel computer design, including superscalar and very-long instruction word processor design.

COMP 7310/7316 VLSI CAD TOOL DESIGN (3) LEC. 3. Pr. COMP 6210 or COMP 6216. Departmental approval. Design of CAD tools for VLSI design, including high-level synthesis and hardware-software co-design, logic synthesis, floor planning, optimization, placement and routing. Software development of a CAD tool as a comprehensive project.
COMP 7320/7326 ADVANCED COMPUTER NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Advanced network topics, including ISDN, ATM, active networks, security, Internet, wireless and mobile networks, and network management.

COMP 7330/7336 TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 6330 or COMP 6336. Departmental approval. Parallel programming languages, environments and tools, parallel algorithms performance issues, distributed memory systems, group communication, fault tolerance.

COMP 7340/7346 HIGH SPEED NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. High-speed networks design, including ATM and gigabit Ethernets, quality of service, ATM traffic, congestion control ATM switching, and signaling.

COMP 7350/7356 MULTIMEDIA NETWORKING (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Multimedia network requirements, coding, compression, multicast, traffic shaping and analysis, quality of service, scheduling, buffer design and congestion control.

COMP 7360/7366 WIRELESS AND MOBILE NETWORKS (3) LEC. 3. Pr. COMP 6320 or COMP 6326. Departmental approval. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless TCP, personal communication systems, and GSM.

COMP 7370/7376 ADVANCED COMPUTER AND NETWORK SECURITY (3) LEC. 3. Pr. COMP 6370 or COMP 6376. Departmental approval. Advanced, research-based examination of computer network attack and defense techniques, viruses and other malware; operating system vulnerabilities and safeguards.

COMP 7400/7406 ADVANCED COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 6400 or COMP 6406. Departmental approval. Advanced 3-D topics including visual realism issues, visible surface determination algorithms, illumination and shading models, surface and solid modeling, advanced modeling techniques, special purpose graphics architectures, and animation. Software projects will be assigned.

COMP 7440 SIMULATION OF COMPUTER NETWORKS (3) LEC. 3. Departmental approval. Research-based examination of network simulation, including TCP/IP networks, wireless networks and verification and validation of a network simulation.

COMP 7500/7506 ADVANCED TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Departmental approval. Advanced topics in operating system concepts, design and implementation.

COMP 7600/7606 COMPUTATIONAL INTELLIGENCE (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. A study of computational intelligence with emphasis on the design and implementation of neural, genetic and fuzzy computing techniques.

COMP 7610/7616 COMPUTATIONAL COGNITION (3) LEC. 3. Pr. COMP 6600 or COMP 6606. Departmental approval. Computational models of cognition, including knowledge representations and process mechanisms like means-ends analysis, semantic networks, frames.

COMP 7620/7626 HUMAN-COMPUTER INTERACTION (3) LEC. 3. Departmental approval. Coreq. COMP 6620. Theoretical principles and practical aspects of interaction between humans and computers, design and evaluation of interactive systems.

COMP 7700/7706 SOFTWARE ARCHITECTURE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Methods and tools related to the analysis, specification and design of software architecture.

COMP 7710/7716 SOFTWARE ENVIRONMENTS (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Issues associated with the design, implementation, and use of software engineering environments.

COMP 7720/7726 SOFTWARE RE-ENGINEERING (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Process, methods and tools associated with re-engineering software systems.

COMP 7730/7736 FORMAL METHODS FOR SOFTWARE (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Precise, abstract models for characterizing and reasoning about properties of software systems.

COMP 7740 AGENT-DIRECTED SIMULATION (3) LEC. 3. Pr. COMP 6700 or COMP 6706. Departmental approval. Covers entire simulation software development life cycle including problem formulation, system and objectives definition, conceptual modeling, model design, implementation, analysis of simulation data, and credibility assessment including verification and validation. Special emphasis is given to modeling aspects using agent-directed simulation methodology.

COMP 7930 DIRECTED STUDY (1-3) IND. Course may be repeated with change in topics.
Auburn University

COMP 7950/7956 INTRODUCTION TO GRADUATE STUDY IN COMPUTER SCIENCE AND SOFTWARE ENGINEERING (1) LEC. 1. SU. Introduction to graduate research and study topics in computer science and software engineering.

COMP 7970/7976 SPECIAL TOPICS (1-3) LEC. Course may be repeated with change in topics.

COMP 7980/7986 CAPSTONE ENGINEERING PROJECT (3) LEC. 3. Planning, implementation, and completion of a design project. Project culminates in both a written report and an oral presentation.

COMP 7990/7996 RESEARCH AND THESIS (1-15) MST. May count either COMP 7990 or COMP 7996. Course may be repeated with change in topics.

COMP 8120 CURRENT TOPICS IN DATABASE SYSTEMS (3) LEC. 3. Pr. COMP 6120 or COMP 6126. Departmental approval. Theoretical and applied research issues related to database systems. Topics will reflect current research in the field.

COMP 8220 RESEARCH TOPICS IN PROGRAMMING LANGUAGES (3) LEC. 3. Pr. COMP 7220 or COMP 7226. Departmental approval. Topics of current research in the area of programming languages, their design, and implementation.


COMP 8330 ADVANCED TOPICS IN PARALLEL AND DISTRIBUTED COMPUTING (3) LEC. 3. Pr. COMP 6330 or COMP 6336. Parallelizing compiler, theory of concurrency, advanced parallel algorithms, load balancing, migration, performance evaluation, distributed architectures. Departmental approval.

COMP 8400 CURRENT TOPICS IN COMPUTER GRAPHICS (3) LEC. 3. Pr. COMP 7400 or COMP 7406. Departmental approval. In-depth study of current research topics in computer graphics. Topics may include theoretical, performance implementation, and system integration issues. Extensive literature survey, issue identification, performance comparison, and future research trends will be discussed.

COMP 8500 RESEARCH TOPICS IN OPERATING SYSTEMS (3) LEC. 3. Pr. COMP 7500 or COMP 7506. Departmental approval. Topics of current research in the area of operating systems their design, and implementation.

COMP 8600 ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE (3) LEC. 3. Pr. COMP 6610 or COMP 6616 or COMP 7600 or COMP 7606 or COMP 7610 or COMP 7616. Departmental approval. In-depth study of current research topics in Artificial Intelligence, e.g., reasoning mechanisms, heuristic search methods, cognitive modeling.

COMP 8620 ADVANCED TOPICS IN HUMAN-COMPUTER INTERACTION (3) LEC. 3. Pr. COMP 7620 or COMP 7626. Departmental approval. In-depth study of current research topics in Human-Computer Interaction, e.g., evaluation and assessment methods, multimodal interfaces, educational technology.

COMP 8700/8706 CURRENT TOPICS IN SOFTWARE ENGINEERING (3) LEC. 3. Pr. (COMP 6700 or COMP 6706) and (COMP 6710 or COMP 6716). Departmental approval. Current theoretical and applied research issues in software engineering.

COMP 8930 DIRECTED STUDY (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

COMP 8970 SPECIAL TOPICS (1-3) IND. Course may be repeated with change in topics.

COMP 8990/8996 RESEARCH AND DISSERTATION (1-15) DSR. Course may be repeated with change in topics.

Computer Science - CPSC

Courses

CPSC 1213 INTRODUCTION TO COMPUTER SCIENCE I (3) DSL. 45. Admission into Bachelor of Computer Science Program. Introduces the fundamental concepts of object-oriented programming.

CPSC 1223 INTRODUCTION TO COMPUTER SCIENCE II (3) DSL. 45. Pr. CPSC 1213. Admission into Bachelor of Computer Science Program. Continues the development of programming from an object-oriented perspective. Emphasizes sound software engineering principles and best practices.
CPSC 1233 DATA STRUCTURES (3) DSL. 45. Pr. CPSC 1223. Admission into Bachelor of Computer Science Program. Developing programs that use data structures and collections to efficiently store data. Emphasis will be placed on the interplay between effective data structures and efficient algorithms.

CPSC 2713 SOFTWARE CONSTRUCTION FUNDAMENTALS (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Development of graphical user interface-based, event-driven desktop/laptop computer application using a modern object-oriented language. Systematic testing, debugging, documentation, and maintenance programming.

CPSC 3223 PROGRAMMING LANGUAGES AND TRANSLATION (3) DSL. 45. Pr. CPSC 1233 and CPSC 3303. Admission into Bachelor of Computer Science Program. Fundamental concepts of programming language design, interpretation, and compilation.

CPSC 3243 DISCRETE STRUCTURES (3) DSL. 45. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and MATH 1710. Admission into Bachelor of Computer Science Program. Basics of set theory, propositional and predicate logic as used to describe algorithms, recurrence relations. Proving correctness and estimating running time for algorithms. Mathematical and structural induction.

CPSC 3273 ALGORITHMS I (3) DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Introduction to algorithms as tools for computational problem solving, language of algorithms, understanding algorithms, approximately analyzing correctness and efficiency of algorithms, algorithms that solve fundamental computational problems, basic algorithm design techniques, steps of computational problem solving.

CPSC 3283 ALGORITHMS II (3) DSL. 45. Pr. CPSC 3273. Admission into Bachelor of Computer Science Program. Advanced complexity analysis techniques, notions of computational complexity, polynomial time hierarchy, computability, algorithms that solve advanced computational problems, advanced algorithm design techniques, computational problem solving.

CPSC 3303 COMPUTER ORGANIZATION AND ASSEMBLY LANGUAGE PROGRAMMING (3) DSL. 45. Pr. CPSC 3243 and CPSC 1213. Admission into Bachelor of Computer Science Program. Stored program computers, hardware and software components, data representations, instruction sets, addressing modes, assembly language programming, loaders, linkers and operating systems.

CPSC 3323 COMPUTER ARCHITECTURE (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Design of Computer Systems, emphasizing the relationship between computer hardware and software. Includes processor control and data path organization, memory subsystem design, instruction set design, processor simulation, and quantitative analysis of computer performance.

CPSC 3333 OPERATING SYSTEMS (3) DSL. 45. Pr. CPSC 1233 and CPSC 3303. Admission into Bachelor of Computer Science Program. Structure and functions of operating systems; processes and process scheduling; synchronization and mutual exclusion; memory management; auxiliary storage management; resource allocation and deadlock; security, privacy, and ethical concerns; design tradeoffs.

CPSC 3343 PARALLEL SYSTEMS (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Overview of hardware and software issues in parallel systems: fundamental parallel architectures, programming languages, tools and algorithms, and parallel applications.

CPSC 3353 COMPUTER NETWORKS I (3) DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science Program. Fundamentals of computer networks, TCP/IP layered model: application layer, transport layer, network layer, link layer, with examples of each layer, and explanation of design issues. IPv6.

CPSC 3363 COMPUTER NETWORKS II (3) DSL. 45. Pr. CPSC 3353. Admission into Bachelor of Computer Science Program. Computer network design, including multiplexing, switching, routing, internetworking, transport protocols, congestion control, and performance evaluation.

CPSC 3373 WIRELESS AND MOBILE NETWORKS (3) DSL. 45. Pr. CPSC 3353. Admission into Bachelor of Computer Science Program. Mobile IP, wireless routing, location management, ad-hoc wireless networks, wireless, wireless TCP personal communication systems, and current mobile phone OTA protocols.

CPSC 3703 SOFTWARE ENGINEERING I (3) DSL. 45. Pr. CPSC 2713. Admission into Bachelor of Computer Science Program. Current processes, methods, and tools related to modeling and designing software systems.

CPSC 3713 SOFTWARE ENGINEERING II (3) DSL. 45. Pr. CPSC 3703. Admission into Computer Science Online Program. Current processes, methods, and tools related to modeling and designing software systems.
**CPSC 4003 SYSTEM ADMINISTRATION (3)** DSL. 45. Pr. CPSC 3333. Admission into Bachelor of Computer Science. Basics of system administration for Windows and Unix machines, including configuration of Performance measurement and enhancement.

**CPSC 4203 FORMAL LANGUAGES (3)** DSL. 45. Pr. CPSC 3273 and CPSC 3243. Admission into Bachelor of Computer Science Program. Fundamentals of formal languages including mathematical models of regular sets, context-free languages and Turing machines; deterministic and non-deterministic models. Basics of interpretation and compilation.

**CPSC 4733 COMPUTER ETHICS (3)** DSL. 45. Admission into Bachelor of Computer Science Program. Application of ethical principles to computing-related topics, including privacy, property rights, autonomy, access, and diversity.

**CPSC 5123 DATABASE I (3)** DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. The design and implementation of database applications, with a focus on relational database management systems.

**CPSC 5133 DATABASE II (3)** DSL. 45. Pr. CPSC 5123. Admission into Bachelor of Computer Science Program. Theory, design, and implementation of database systems.

**CPSC 5203 DEVELOPING WEB APPLICATIONS WITH XML (3)** DSL. 45. Pr. CPSC 1233. Admission into Bachelor of Computer Science Program. Comprehensive introduction to XML, working with XML and Databases, event-driven programming with XML, implementing Communication and Web Services, working with XML, Jquery, XHTML and HML5.

**CPSC 5213 WEB APPLICATION DEVELOPMENT WITH JSP (3)** DSL. 40. Pr. CPSC 5203. Admission into Bachelor of Computer Science Program. Advanced course in web development using JSP, includes JCP fundamentals, JAP and web server software development, and applying JSP in the real world.

**CPSC 5333 MOBILE APPLICATIONS I (3)** DSL. 45. Pr. CPSC 2713. Admission into Computer Science Online Program. Software development for wireless applications: specification, process, testing, and performance evaluation. Design and development of wireless application layer software, including current protocols.

**CPSC 5343 MOBILE APPLICATION DEVELOPMENT II (3)** DSL. 3. Pr. CPSC 5333. Admission into Bachelor of Computer Science Program. Builds mastery of mobile application development and the skills necessary to stay current in this fast-moving field throughout one’s career by introducing a new programming language and application programmer interface and requiring the student to master them.

**Consumer and Design Sciences - CADS**

**Courses**

**CADS 1000 THEORIES AND PRINCIPLES OF INTERIOR DESIGN (4)** LEC. 2, LST. 6. Introduction to and application of the theories and principles of interior design.

**CADS 1100 TECHNICAL PROCESSES OF INTERIOR DESIGN (4)** LEC. 2, LST. 4. Space planning and delineation of interior systems for residential, institutional, and other consumer environments.

**CADS 1600 TEXTILE INDUSTRIAL COMPLEX (3)** LEC. 3. Introduction to the composition, characteristics, and products of the network of fiber producers, textile manufacturers, dyers, finishers, apparel manufacturers, and retailers.

**CADS 1700/1703 COLLEGIATE CONSUMING AND GIVING: SPEND, SAVE, AND SHARE (3)** LEC. 3. Study of collegiate behavior and decision making as it applies to spending, saving and philanthropic theories, principles, and applications.

**CADS 1740 AESTHETICS FOR FASHION (3)** LEC. 3. Elements and principles of design and their application in industries such as textiles, apparel, and retail.

**CADS 2000/2003 GLOBAL CONSUMER CULTURE (3)** LEC. 3. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000, CADS 2003 or CADS 2007.

**CADS 2007 HONORS GLOBAL CONSUMER CULTURE (3)** LEC. 3. Pr. Honors College. Sustainability and social responsibility provide a framework for the study of cultural, commercial, and aesthetic factors influencing the selection and usage of consumer products and services that create and express social identity. Credit will only be given for CADS 2000, CADS 2003 or CADS 2007.

**CADS 2100 VISUAL PRESENTATION OF INTERIOR DESIGN I (4)** LEC. 2, LST. 6. Pr. CADS 1000 and CADS 1100. Development of visual communication skills for interior design.
CADS 2200 STUDIO IV: CAD FOR INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 2100. Application of graphic visualization and computer-aided design techniques to represent interior design.

CADS 2300 HISTORY, THEORY, AND CRITICISM OF INTERIOR DESIGN (3) LEC. 3. Historical survey of interior design and the decorative arts from antiquity through present.

CADS 2400 INTERIOR MATERIALS AND COMPONENTS (3) LEC. 3. Pr. CADS 1000. Survey of finishes, textiles, materials, and components. Introduction to health, safety, and environmental issues that impact consumers.

CADS 2500 VISUAL PRESENTATION IN INTERIOR DESIGN II (4) LEC. 2, LST. 6. Pr. CADS 2100. Development of color visual communication skills for interior design ideas, concepts, and professional presentation media.

CADS 2700/2703 INTRODUCTION TO NONPROFIT ORGANIZATIONS (3) LEC. 3. Introduction to mission, structure, and impact of nonprofit organizations at the local, state, national and international levels. May count either CADS 2700 or CADS 2703.

CADS 2740 ILLUSTRATION TECHNIQUES FOR APPAREL (3) LEC. 1. LAB. 4. Pr. CADS 1740 and CADS 1600. Creative approach to illustrating apparel through the use of varied media and development of illustrative style appropriate for portfolio presentations. APDP Major.

CADS 2750 PRODUCT DEVELOPMENT: TECHNICAL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2740 and CADS 2800. Apparel pattern development through drafting, flat pattern manipulation and draping; custom apparel production. APDP Major.

CADS 2760 VISUAL MERCHANDISING (4) LEC. 2, LST. 6. Pr. CADS 1600. History, equipment, application, and theory of display techniques in store and non-store settings. AMDP major.

CADS 2770 COMPUTER-AIDED DESIGN FOR APPAREL (4) LEC. 2, LST. 4. Pr. CADS 1600 and CADS 2740. Principles of aesthetics applied to apparel product development including computer aided design and other presentation techniques.

CADS 2800 APPAREL PRODUCTION MANAGEMENT (4) LEC. 3. LAB. 3. Pr. CADS 1600. Introduction to apparel industry terminology, technology, production methods, and engineering quality into apparel products.

CADS 3100 STUDIO VI: LIGHTING DESIGN/ENVIRONMENTAL SYSTEMS (4) LEC. 2, LST. 6. Pr. CADS 2200 and CADS 2400 and CADS 2500. Application of principles and processes of lighting, mechanical, and environmental systems to interior design.

CADS 3200 RESIDENTIAL INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 2200 and CADS 2300 and CADS 2400 and CADS 2500. Application of human factors and consumer needs to programming and design process of residential interiors.

CADS 3380 STUDY ABROAD OPPORTUNITES IN HUMAN SCIENCE (1) LEC. 1. Departmental approval. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

CADS 3400 COMMERCIAL INTERIOR DESIGN (4) LEC. 2, LST. 6. Pr. CADS 3100 and CADS 3200. Application of programming and presentation techniques to commercial spaces.

CADS 3500 INTERIOR DESIGN PROFESSIONAL PRACTICE (3) LEC. 3. Pr. CADS 3100 and CADS 3200. Exploration of the interior design profession and standard practices.

CADS 3600 TEXTILES (4) LEC. 3. LAB. 3. Pr. CADS 1600 and CHEM 1020 and CHEM 1021. Organic compounds, polymers, fibers, yarns, fabrics, and chemical finishes for apparel and household textiles with laboratory evaluation. AMDP major.

CADS 3700/3703 GENDER, WEALTH & PHILANTHROPY (3) LEC. 3. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700, CADS 3703 or CADS 3707.

CADS 3707 GENDER, WEALTH AND PHILANTHROPY (3) LEC. 3. Pr. Honors College. Study of wealth and philanthropic theories, principles, and applications as it applies in gender. May count CADS 3700, CADS 3703 or CADS 3707.

CADS 3750 PRODUCT DEVELOPMENT: APPAREL DESIGN (4) LEC. 2, LST. 4. Pr. CADS 2750 and CADS 2800 and CADS 2770. Advanced design techniques, including couture production; portfolio and internship planning. ADMP major.

CADS 3800 CONSUMER DECISION MAKING FOR APPAREL AND FASHION PRODUCTS (3) LEC. 3. Pr. CADS 2000 or CADS 2003 or CADS 2007. Analysis of consumer decision making for apparel and fashion products and the factors that impact consumer decisions. Credit will not be given for both CADS 3800 and MKTG 3410. AMDP major.
CADS 3850/3853 MERCHANDISE PLANNING AND CONTROL (3) LEC. 2. LAB. 2. Pr. (COMP 1000 or COMP 1003) and CADS 1600 and ACCT 2810 or Departmental approval. Application of principles of merchandise management and retail buying to the retailing of consumer goods and services. Credit will not be given for both CADS 3850 and CADS 3853.

CADS 3900 DIRECTED STUDIES (1-3) AAB/IND. SU. Departmental approval. Directed readings and/or individualized research project. Course may be repeated for a maximum of 6 credit hours.

CADS 3920 INDUSTRY EXPERIENCE (3) INT. 3. Pr. CADS 1600. Departmental approval. Supervised industry experience requiring students to spend time working in the industry under supervision. Course may be repeated for a maximum of 6 credit hours.

CADS 3940 STUDY TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) AAB/FLD. Departmental approval. Concentrated study in the U.S. or abroad. Course may be repeated for a maximum of 6 credit hours.

CADS 3970 SPECIAL TOPICS (1-3) LEC. Courses may be repeated for 9 hours. Departmental approval. Standing grade. Course may be repeated for a maximum of 9 credit hours.

CADS 4100 PHILANTHROPY & NONPROFIT STUDIES LECTURE SERIES (1) LEC. 1. Pr. (CADS 2700 or CADS 2703) and (CADS 3700 or CADS 3703 or CADS 3707). Lecture series showcasing philanthropic and nonprofit leaders. Course may be repeated for a maximum of 2 credit hours.

CADS 4200 STUDIO IX: PORTFOLIO DEVELOPMENT (3) STU. 5. Pr. CADS 3400 and CADS 3500. Portfolio development, critique, and review.

CADS 4500 PORTFOLIO DEVELOPMENT FOR DESIGNERS (4) LEC. 2, LST. 4. Pr. P/C CADS 3750. Survey of advanced techniques in design presentation including computer-aided design and graphics software. Portfolio development in print, computer slide show, and web formats. Open to AMDP majors in Apparel Design Option.

CADS 4700 PORTFOLIO DEVELOPMENT FOR PHILANTHROPY AND NONPROFIT STUDIES (3) LEC. 3. LAB. 3. Pr. CADS 3700 or CADS 3703 or CADS 3707 and CADS 4100 and CADS 4910. Portfolio development in print, digital, and web formats for students in Philanthropy and Nonprofit Studies.

CADS 4750 PRODUCT DEVELOPMENT: SPECIALIZED DESIGN (3) STU. 6. Pr. CADS 3750. Specialized design development concepts, techniques, and applications for target markets including children's wear, performance wear, and bridal markets.

CADS 4800 APPAREL ENGINEERING (4) LEC. 3. LAB. 3. Pr. CADS 2800. Coreq. CADS 3750. Planning and problem solving throughout the apparel production process, including methods engineering, time study, costing, CAD. AMDP major.

CADS 4900 UNDERGRADUATE TEACHING ASSISTANT EXPERIENCE (1-3) LEC/LST. Student must have previously earned an "A" in the course s/he is assisting with. Departmental approval. Student participation as an undergraduate teaching assistant (UTA) for the Consumer and Design Sciences course under the supervision of a faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4910 PRACTICUM IN PHILANTHROPY AND NONPROFIT ORGANIZATIONS (3) PRA. 3. Pr. CADS 2700 or CADS 2703 and CADS 3700 or CADS 3703 or CADS 3707. Departmental approval. Supervised practicum experience with a philanthropic or nonprofit organization.

CADS 4920 INTERNSHIP (8) AAB/INT. 8. Supervised 10 week professional internship. Departmental approval. 2.0 GPA. Junior standing.

CADS 4960 SPECIAL PROBLEMS IN DESIGN (1-3) LEC. Departmental approval. A) Apparel, B) Interior Design, C) Visual Merchandising, D) Textile Design. Creative solution of design problems. Course may be repeated for a maximum of 9 credit hours.

CADS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Readings in specialized topics. Course may be repeated for a maximum of 6 credit hours.

CADS 4980 UNDERGRADUATE RESEARCH IN CONSUMER AND DESIGN SCIENCES (1-3) IND/LEC. SU. Pr. 3.50 GPA. Departmental approval. Participation as an undergraduate research assistant (URA) for a Consumer and Design Sciences research project under the supervision of a CADS faculty member. Course may be repeated for a maximum of 6 credit hours.

CADS 4997 HONORS THESIS (3) IND. 3. SU. Pr. Honors College. CADS 4967. Departmental approval. Research in specialized topics.
CADS 5300 HOSPITALITY DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 3400. Development of a large scale hospitality project with emphasis on design of environments that serve the needs of multiple users. May count either CADS 5300 or CADS 6300.

CADS 5310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 5400 HEALTHCARE DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 5300. In-depth development of a large scale institutional solution explored across multiple projects during the semester, with emphasis on design for health and healing environments.

CADS 5450 HISTORY OF COSTUME (3) LEC. 3. Pr., Core History or departmental approval. AMDP major. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 5450 and CADS 6450.

CADS 5460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. P/C; Core History, Core Literature or departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460.

CADS 5500 PROFESSIONAL DEVELOPMENT: MERCHANDISING PORTFOLIO (3) LEC. 3. Pr. CADS 3850 or CADS 3853. Portfolio Development in print, digital, and web formats for merchandising students. May count either CADS 5500 or CADS 6500.

CADS 5600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ANTH 1000 or ANTH 1003 or ANTH 1007 or GEOG 1010 or GEOG 1013 or GEOG 1017 or PSYC 2010 or PSYC 2013 or PSYC 2017 or SOCY 1000 or SOCY 1007) or Departmental approval. The role of fiber, textile, and apparel industries in the international economy. AMDP major.

CADS 5610 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Pr. (CADS 2000 or CADS 2003 or CADS 2007) and (CADS 3850 or CADS 3853). Strategies for successful global business expansion for textile and apparel retailers. Credit granted for only one of: CADS 5610, CADS 6610, MKTG 4330.

CADS 5650 TEXTILE AND APPAREL EVALUATION (4) LEC. 2. LAB. 6. Pr. CADS 3600. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CADS 5650 and CADS 6650.

CADS 5700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 5730 HISTORY OF TEXTILES (3) LEC. 3. Pr., Core History or departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 5750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. CADS 3750 and CADS 4800. Team driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750.

CADS 5760 FASHION ANALYSIS AND FORECASTING (3) LEC. 3. Pr. CADS 1600 and CADS 2740 or CADS 2760. Theories explaining fashion dynamics and techniques for forecasting change, with case applications in textiles, apparel, and retailing. Credit will not be given for both CADS 5760 and CADS 6760. AMDP major.

CADS 5850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Pr. CADS 3850 or CADS 3853. Problem-solving and decision making strategies for retailing apparel, textiles, and other consumer products. Credit will not be given for both CADS 5850 and CADS 6850. AMDP major.

CADS 5860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Pr. CADS 5850. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 6300 HOSPITALITY DESIGN (4) LEC. 2. LAB. 6. Development of a large scale hospitality project with emphasis on design of environments that serve the needs of multiple end users. May count either CADS 5300 or CADS 6300. Graduate standing.

CADS 6310 SUSTAINABLE DESIGN AND LEED ACCREDITATION (3) LEC. 3. Sustainable certification standards and professional accreditation requirements related to sustainability. May count either CADS 5310 or CADS 6310.

CADS 6400 STUDIO XI: HEALTH CARE DESIGN (4) LEC. 2. LAB. 6. Pr. CADS 6300. Development of a large scale institutional project with emphasis on design of a healing environment. Credit may only be used for CADS 5400 or CADS 6400. Graduate standing.

CADS 6450 HISTORY OF COSTUME (3) LEC. 3. Historical roles of dress in western civilization. Cultural, social, and physical evolution. Credit will not be given for both CADS 6450 and CADS 5450. Departmental approval. Graduate standing.
CADS 6460 FASHION INDUSTRY SINCE 1910 (3) LEC. 3. Departmental approval. Fashion history, designers and businesses from 1910 to the present. May count either CADS 5460 or CADS 6460. Graduate standing.

CADS 6500 PROFESSIONAL DEVELOPMENT: MERCHANDISING PORTFOLIO (3) LEC. 3. Pr. CADS 5850 or CADS 5860. Portfolio Development in print, digital, and web formats for merchandising students. May count either CADS 5500 or CADS 6500.

CADS 6600 GLOBAL SOURCING IN TEXTILES AND APPAREL (3) LEC. 3. Departmental approval. The role of fiber, textile, and apparel industries in the international economy. Credit will not be given for both CADS 5600 and CADS 6600. Graduate standing.

CADS 6610/6616 GLOBAL RETAILING STRATEGIES FOR TEXTILE AND APPAREL PRODUCTS (3) LEC. 3. Strategies for successful global business expansion for textile and apparel retailers. Credit given for only one of: CADS 5610, CADS 6610, MKTG 4330. Departmental approval.

CADS 6650 TEXTILE AND APPAREL EVALUATION (4) LEC. 2. LAB. 6. Pr. CADS 3600. Departmental approval. Testing procedures for characterization and evaluation of fabrics and sewn products for apparel and interiors. Credit will not be given for both CADS 5650 and CADS 6650. Spring.

CADS 6700 ENTREPRENEURSHIP IN APPAREL AND INTERIORS (3) LEC. 3. Departmental approval. Analyzing business opportunities in textiles, apparel, and interiors; developing marketing concepts and entrance strategies. Credit will not be given for both CADS 5700 and CADS 6700.

CADS 6730 HISTORY OF TEXTILES (3) LEC. 3. Departmental approval. Cultural, economic, material, technological, and aesthetic perspectives on the evolution of textiles. Credit will not be given for both CADS 5730 and CADS 6730.

CADS 6750 APPAREL LINE DEVELOPMENT (4) LEC. 2. LAB. 6. Team-driven design, production, and market research. Development of apparel lines. Credit will not be given for both CADS 5750 and CADS 6750. Departmental approval. Graduate standing.

CADS 6850 APPAREL MERCHANDISING AND RETAIL MANAGEMENT (4) LEC. 3. LAB. 2. Departmental approval. Problem-solving and decision making strategies for retailing, apparel, textiles, and other consumer products. Credit will not be given for both CADS 6850 and CADS 5850.

CADS 6860 ADVANCED RETAIL BUYING (3) LEC. 2. LAB. 1. Departmental approval. Planning, executing and evaluating retail buying to maximize ROI. Credit will not be given for both CADS 5860 and CADS 6860.

CADS 7040 PROTOCOL FOR GRADUATE STUDY (1) LEC. 1. SU. Departmental approval. Introduction to policies, practices, and expectations for successful completion of the graduate degree.

CADS 7050 RESEARCH METHODS IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Research and investigation methods appropriate to the study of consumer and design sciences.

CADS 7060 SURVEY OF CONSUMER AND DESIGN SCIENCES RESEARCH (3) LEC. 3. Presentation and discussion of a broad array of research topics to support literature review development.

CADS 7100 ENVIRONMENTAL DESIGN THEORIES AND APPLICATIONS (3) LEC. 3. Theories, methodologies, and current issues relevant to interior design; sociological, psychological, ecological, and post-modern perspectives. Departmental approval for Pre-requisites.


CADS 7530 ECONOMICS OF APPAREL AND TEXTILES (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Departmental approval. Economic issues involving the manufacture, distribution, and consumption of textiles and apparel. Graduate standing.

CADS 7670 SOCIAL PSYCHOLOGICAL THEORIES IN CONSUMER AND DESIGN SCIENCES (3) LEC. 3. Pr. P/C CADS 7050. Examination of theories that explain the social-psychological aspects of consumer behavior related to apparel and design sciences.
CADS 7690 CONSUMER THEORY IN APPAREL AND INTERIORS (3) LEC. 3. Pr. CADS 7050. Departmental approval. Overview of various theories used in consumer research with an emphasis on their application in apparel, merchandising, design, and interiors.

CADS 7900 DIRECTED STUDIES (1-3) IND. SU. Course may be repeated for a maximum of 6 credit hours.

CADS 7910 SUPERVISED TEACHING IN CONSUMER AND DESIGN SCIENCES (1) AAB/IND. 1. SU. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

CADS 7920 GRADUATE INTERNSHIP (3) INT. 3. Departmental approval. Supervised professional experience in the United States or internationally.

CADS 7930 ADVANCED DESIGN PROJECTS (1-6) IND. SU. Departmental approval. Independent execution of advanced design work. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Course may be repeated for a maximum of 6 credit hours.

CADS 7940 STUDY/TRAVEL IN CONSUMER AND DESIGN SCIENCES (1-3) FLD. SU. Departmental approval. Concentrated study/travel in the U.S. or internationally. Course may be repeated for a maximum of 6 credit hours.

CADS 7950 SEMINAR (1) SEM. 1. SU. Departmental approval. Research presentations and discussion. Course may be repeated for a maximum of 3 credit hours.

CADS 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Directed readings in textiles, apparel, interiors and retailing. Course may be repeated for a maximum of 6 credit hours.

CADS 7970 SPECIAL TOPICS IN DESIGN (1-6) RES. Departmental approval. (A) Apparel; (B) Interiors; (C) Visual Merchandising; (D) Textile Design. Independent execution of advanced design work. Course may be repeated for a maximum of 6 credit hours.

CADS 7980 GRADUATE PROJECT (1-3) RES. Departmental approval. In-depth, integrative research in a particular project related to apparel, textiles, interiors or consumer behavior. Course may be repeated for a maximum of 6 credit hours.

CADS 7990 RESEARCH AND THESIS (1-10) AAB/MST. Course may be repeated with change in topics.

CADS 8100 APPAREL AND INTERIORS BRANDING (3) LEC. 3. Pr. CADS 7050. Departmental approval. Critical examination of theories and methodological issues in branding research and application in apparel and interior product and service branding.

CADS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Research presentations and discussions on issues facing consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8960 CURRENT ISSUES IN CONSUMER AND DESIGN SCIENCES (1-3) LEC. Departmental approval. Examination of current issues in consumer and design sciences. Course may be repeated for a maximum of 6 credit hours.

CADS 8970/8976 SPECIAL TOPICS (1-3) LEC. Departmental approval. Topics related to various aspects of consumer and design sciences. Course may be repeated for a maximum of 9 credit hours.

CADS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Cooperative Education - COOP

Courses

COOP 4920 COOPERATIVE WORK EXPERIENCE (0) PRA. Departmental approval. A practical, professional, full-time, curriculum-related work experience in industry, business, or government. Under joint supervision of employer and university.

Counselor Ed, Counseling Psych - COUN

Courses

COUN 1000 CAREER ORIENTATION EXPLORATION (2) LEC. 1. LAB. 2. The process of career decision-making through hands-on activities, in-class exercises, and job shadowing.

COUN 2000 LIVING AND COMMUNICATING IN A DIVERSE SOCIETY (3) LEC. 3. The class developing cultural competence in context of relationships, issues, and trends in a multicultural and diverse society related to such factors as culture, ethnicity, nationality, age, gender, sexual orientation, and mental and physical abilities/disabilities.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUN 2020</td>
<td>INTRODUCTION TO LGBTQ STUDIES (3)</td>
<td>LEC. 3</td>
<td>The class focuses on content addressing and introduces lesbian, gay, bisexual, and transgender studies. The course will examine the historical, scientific, psychological, and cultural contexts of relationships, issues and trends in a diverse society related to sexual orientation.</td>
</tr>
<tr>
<td>COUN 2900</td>
<td>DIRECTED STUDIES (1-3)</td>
<td>IND. SU</td>
<td>Reading, research, or other work undertaken by a student focused on an area of special interest. Directed by faculty member. Course may be repeated for a maximum of 9 credit hours.</td>
</tr>
<tr>
<td>COUN 2940</td>
<td>DIRECTED FIELD EXPERIENCE (1-3)</td>
<td>FLD.</td>
<td>Course may be repeated for a maximum of 9 credit hours.</td>
</tr>
<tr>
<td>COUN 2950</td>
<td>THRIVING THROUGH TRANSITIONS (1)</td>
<td>SEM. 1</td>
<td>This course requires participation in activities that support healthy living and assignments that facilitate understanding of mechanisms that promote well-being. Course content reviews the process of recovery from addiction and mechanisms used to support long-term recovery. Course may be repeated for a maximum of 12 credit hours.</td>
</tr>
<tr>
<td>COUN 2970/2973</td>
<td>SPECIAL TOPICS IN COLLEGE STUDENT DEVELOPMENT (1-3)</td>
<td>LEC.</td>
<td>Selected topics in college student development. Fall, Spring. Course may be repeated for a maximum of 12 credit hours.</td>
</tr>
<tr>
<td>COUN 3000/3003</td>
<td>CAREER SUCCESS (2)</td>
<td>LEC. 2</td>
<td>Developing a career plan via instruction on researching careers, writing resumes, developing portfolios, interviewing, net working and other career development practices. May count either COUN 3000 or COUN 3003.</td>
</tr>
<tr>
<td>COUN 3100</td>
<td>COUNSELING AND HUMAN SERVICES (3)</td>
<td>LEC. 3</td>
<td>Counseling concepts and skills appropriate in the helping professions. Not open to graduate students in counseling education.</td>
</tr>
<tr>
<td>COUN 3980</td>
<td>SUPERVISED RESEARCH EXPERIENCE IN COUNSELING (3)</td>
<td>LAB. 3</td>
<td>SU. This course provides students with the opportunity to gain supervised research experience in counselor education, counseling psychology, and special education programs. Students will work with the faculty instructor to gain experience in a range of research activities. Course may be repeated for a maximum of 12 credit hours.</td>
</tr>
<tr>
<td>COUN 4000</td>
<td>INTRODUCTION TO COUNSELING AND PSYCHOTHERAPY (3)</td>
<td>LEC. 3</td>
<td>Pr. COUN 2000. Current theory, research, and practice regarding counseling and psychotherapy. We will cover several current issues related relevant to counseling and psychotherapy, including the process of change, theoretical perspectives, ethical issues.</td>
</tr>
<tr>
<td>COUN 4010</td>
<td>INTRODUCTION TO PREVENTION AND MENTAL HEALTH PROMOTION (3)</td>
<td>LEC. 3</td>
<td>Pr. COUN 2000. Addressing the ideas of prevention and health promotion in counseling psychology. We will address such concepts as positive psychology, mindfulness, stress, health promotion, body image, social justice theory, social advocacy, and prevention theory.</td>
</tr>
<tr>
<td>COUN 4910</td>
<td>PRACTICUM (1-3)</td>
<td>PRA.</td>
<td>SU. This course provides students with the opportunity to be actively involved in social justice efforts that affect the region and nation through gaining hands-on experience in a social justice agency. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>COUN 4970</td>
<td>SPECIAL TOPICS IN COUNSELING (3)</td>
<td>LAB. 3</td>
<td>Introduction to selected topic in counseling. Course will provide a semester-long introduction and introduction into research in the topic of interest using a seminar style of instruction. Course may be repeated for a maximum of 9 credit hours.</td>
</tr>
<tr>
<td>COUN 7100</td>
<td>INTRODUCTION TO SCHOOL PSYCHOLOGY (3)</td>
<td>LEC. 3</td>
<td>Orientation to profession of school psychology; history of the profession, professional roles, ethical and legal standards, and current issues.</td>
</tr>
<tr>
<td>COUN 7200</td>
<td>INTRODUCTION TO MEASUREMENT AND ASSESSMENT (3)</td>
<td>LEC. 3</td>
<td>Pr. COUN 7100 or (COUN 7400 or COUN 7406) or COUN 8530. Introduction to the history and theory of measurement and assessment as it applies to counselors and psychologists.</td>
</tr>
<tr>
<td>COUN 7220</td>
<td>INTELLECTUAL ASSESSMENT OF CHILDREN AND ADOLESCENTS (3)</td>
<td>LEC. 3</td>
<td>Pr. COUN 7200. Theory and measurement of children's intelligence. Administration and interpretation of selected tests.</td>
</tr>
<tr>
<td>COUN 7230</td>
<td>CAREER DEVELOPMENT AND VOCATIONAL APPRAISAL (3)</td>
<td>LEC. 3</td>
<td>Career development theories appraising vocationally related interests, aptitudes, and personal characteristics. Laboratory practice in test procedures.</td>
</tr>
<tr>
<td>COUN 7240/7246</td>
<td>COUNSELING CHILDREN AND ADOLESCENTS (3)</td>
<td>LEC. 3</td>
<td>Course provides awareness, knowledge, and skills for counseling children and adolescents using effective theoretical approaches, counseling modalities, and specific techniques. May count either COUN 7240 or COUN 7246.</td>
</tr>
</tbody>
</table>
COUN 7250/7256 ADVANCED ASSESSMENT AND DIAGNOSIS IN COUNSELING (3) LEC. 3. Pr. COUN 7100 or (COUN 7400 or COUN 7406) or COUN 8530. Assessment/diagnostic skills related to counseling: intake, assessment, diagnostic criteria, treatment planning, counseling interventions. May count either COUN 7250 or COUN 7256.

COUN 7310/7316 COUNSELING APPLICATIONS OF LIFESPAN DEVELOPMENT (3) LEC. 3. Theories and current research in development across the lifespan with emphasis on applications to counseling. May count either COUN 7310 or COUN 7316.

COUN 7320/7326 COUNSELING THEORIES (3) LEC. 3. Study of major counseling theories. May count either COUN 7320 or COUN 7326.

COUN 7330/7336 COUNSELING DIVERSE POPULATIONS (3) LEC. 3. Departmental approval. Special counseling and advocacy issues. Needs of diverse populations are considered.

COUN 7340 GROUP COUNSELING (3) LEC. 3. Leading, developing, evaluating a counseling group; including group proposal, session development, group dynamics, group leadership and evaluation, treatment planning; group intervention, counseling skills.

COUN 7350 INTRODUCTION TO COUNSELING PRACTICE (3) LEC. 3. Pr. (COUN 7320 or COUN 7326) or (COUN 7400 or COUN 7406) or COUN 8530. Methods, interventions, and skills essential to counseling.

COUN 7360 ADVANCED COUNSELING PRACTICE (3) LEC. 3. An intensive study of advanced counseling skills with supervised experience. Class format will include lecture, group discussion, role play, case and videotaped counseling practice analysis, observational analysis and evaluation of counseling techniques.

COUN 7400/7406 ORIENTATION TO PROFESSIONAL COUNSELING (3) LEC. 3. Orientation to the counseling field with emphasis on philosophical, historical, psychological, and organizational foundations of professional practice.

COUN 7410 ORIENTATION TO CLINICAL MENTAL HEALTH COUNSELING (3) LEC. 3. Orientation to clinical mental health counseling to include roles, responsibilities, systems, theories, professional issues, and history.

COUN 7420 ORIENTATION TO SCHOOL COUNSEL (3) LEC. 3. Orientation to the role and activities of the K-12 school counselor. Emphasis on the components of a developmentally-oriented school counseling program.

COUN 7430 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Theory and practice of counseling and student services in higher education.

COUN 7500/7506 CRISIS INTERVENTION IN COUNSELING (3) LEC. 3. Development of skills and knowledge for crisis intervention and management in counseling, including prevention planning, intervention strategies and evaluation.

COUN 7510 ADVANCED CLINICAL MENTAL HEALTH COUNSELING INTERVENTIONS (3) LEC. 3. Pr. COUN 7320 or COUN 7326. Advanced counseling interventions, practices, techniques and methods for mental health counselors, including treatment planning, counseling processes, and evaluation.

COUN 7810 COUNSELING CONSULTATION THEORY AND PRACTICE (3) LEC. 3. Counseling consultation theories, models, practices, legal and ethical standards, and interdisciplinary approaches in school and clinical mental health settings.

COUN 7820 PSYCHOEDUCATIONAL INTERVENTIONS: ACADEMIC (3) LEC. 3. Pr. COUN 7100 and COUN 7220. Intervention approaches designed to address children’s academic success across all content areas including: reading, mathematics, written language and other academic enablers.

COUN 7900 DIRECTED STUDIES (1-3) IND. SU. Independent learning effort directed at desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

COUN 7910 PRACTICUM (3) LEC. 3. SU. Departmental approval. Supervised experiences appropriate to student’s program emphasis area. Course may be repeated for a maximum of 9 credit hours.

COUN 7920 INTERNSHIP (1-9) INT. SU. Pr. COUN 7910. Departmental approval. Supervised on-the-job experiences. Course may be repeated for a maximum of 9 credit hours.

COUN 7940 DIRECTED FIELD EXPERIENCE (1-10) FLD. SU. Course may be repeated for a maximum of 10 credit hours.

COUN 7960 SPECIAL PROBLEMS (1-10) IND. SU. May be taken more than one semester. Course may be repeated for a maximum of 10 credit hours.
COUN 7970 SPECIAL TOPICS (1-3) AAB. An in-depth study of a current topic(s) impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with a change in topic. Course may be repeated with change in topics.

COUN 8100 PERSONALITY AND INDIVIDUAL DIFFERENCES (3) LEC. 3. Origins and structure of individual differences in personality and intelligence, and their application to counseling.

COUN 8110 COUNSELING ASSESSMENT ACROSS THE LIFESPAN (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, and attitude tests across the lifespan.

COUN 8120 APPRAISAL IN COUNSELING AND PSYCHOLOGY (3) LEC. 3. Development, administration, scoring and interpretation of personality, interest, aptitude, achievement, attitude tests. Includes assessment interview, behavioral observation.

COUN 8200 INTELLECTUAL ASSESSMENT OF ADULTS (3) LEC. 2. LAB. 3. Pr. COUN 7200. Theory and measurement of adult intelligence. Administration and interpretation of selected tests.

COUN 8210 TEST ADMINISTRATION AND PROFESSIONAL PRACTICE (3) LEC. 3. Pr. COUN 7200 or ERMA 8350 or FOUN 8350 and COUN 7210. Coreq. COUN 8200. Administration and scoring of selected tests, primarily WAIS-IV, to familiarize students with measurements for assessment of adult intelligence.

COUN 8220 PSYCHOLOGICAL SCIENCE AND HEALTH (3) LEC. 3. Pr. PSYC 7150 and PSYC 7180 and COUN 7330 and COUN 7310. In this course, fundamental science relating to health and psychology will be reviewed, focusing on major theoretical foundations, research findings, and empirically supported interventions. Students will be expected to integrate foundational knowledge in psychological science with particular emphasis on biological.

COUN 8230 COLLOQUIUM IN COUNSELING PSYCHOLOGY I (2) SEM. 2. SU. This course provides pre-practicum students with training in the conduct of counseling psychology research to provide foundational skills in processes involved in research.

COUN 8240 COLLOQUIUM IN COUNSELING PSYCHOLOGY II (2) SEM. 2. SU. This course provides continued training in the conduct of counseling psychology research and provides opportunities to demonstrate an ability to evaluate psychotherapy research in order to achieve readiness for practicum in research skills.

COUN 8250 COLLOQUIUM IN COUNSELING PSYCHOLOGY III (2) SEM. 2. SU. Pr. COUN 8240. This course provides advanced training in the development, conduct, and dissemination of counseling psychology research and provides opportunities to demonstrate an ability to contribute to meaningful scholarship in Counseling Psychology.

COUN 8260 COLLOQUIUM IN COUNSELING PSYCHOLOGY IV (2) SEM. 2. SU. Pr. COUN 8250. This course provides advanced training in the development, conduct, and dissemination of social justice-oriented research and provides opportunities to demonstrate an ability to integrate concepts of equity and justice in the contribution to meaningful scholarship in Counseling Psychology.


COUN 8400 PROFESSIONAL SEMINAR COUNSELING PSYCHOLOGY (1-3) LEC. Scientific foundations of the counseling psychology profession and application of that foundational knowledge in counseling interventions. Course may be repeated for a maximum of 9 credit hours.

COUN 8510 CONTEMPORARY ISSUES IN COUNSELOR EDUCATION (3) LEC. 3. Departmental approval. History, development, current issues. Philosophical assumptions, legal and ethical considerations, new research service initiatives.

COUN 8520 CONTEMPORARY ISSUES IN SCHOOL PSYCHOLOGY (1-3) LEC. History, development, and current issues. Legal and ethical considerations, research and service initiatives, and new client populations. Course may be repeated for a maximum of 3 credit hours.

COUN 8530 CONTEMPORARY ISSUES IN COUNSELING PSYCHOLOGY (3) LEC. 3. History, development, and current professional issues. Philosophical and cultural assumptions, legal and ethical considerations, and current research topics.

COUN 8540 COUN SUPERVISION-THEORY & PRAC (3) LEC. 3. Advanced theories, skills, models and methods used in counseling supervision including counselor development, supervisory processes and evaluation.
COUN 8550/8556 COUNSELOR EDUCATION PEDAGOGY (3) LEC. 3. Counselor Education pedagogical skills and knowledge including; theories, course and curriculum development methods, and professional responsibilities. May count either COUN 8550 or COUN 8556.

COUN 8610 ADVANCED THEORIES: EXISTENTIAL/HUMANISTIC (3) LEC. 3. Theory and practice of humanistic/existential approaches to individual and group therapy.


COUN 8630 ADVANCED THEORIES: PSYCHODYNAMIC THEORIES (3) LEC. 3. Departmental approval. The origins, current status, and emerging applications of psychodynamic approaches to counseling.

COUN 8700 DIVERSITY AND SOCIAL JUSTICE IN COUNSELOR EDUCATION (3) LEC. 3. Must be admitted to the Counselor Education Doctoral Program. This advanced course provides students with information about issues of diversity and social justice. Students apply this information to their roles in the counseling profession, specifically as future counselor educators, leaders of the profession, and advocates.

COUN 8800 PROFESSIONAL DEVELOPMENT INTERNSHIP SKILLS (3) LEC. 3. This three-hour required course is designed to help students solidify their professional identity and effectively apply for their one-year Counseling Psychology internship.

COUN 8910 PRACTICUM (3) LEC. 3. SU. Departmental approval. Advanced supervised experiences appropriate to student's program emphasis. Course may be repeated for a maximum of 9 credit hours.

COUN 8920 INTERNSHIP (1-9) INT. SU. Departmental approval. Advanced supervised on-the-job experiences appropriate to doctoral-level study. Course may be repeated for a maximum of 9 credit hours.

COUN 8930 INTERNSHIP IN COUNSELING PSYCHOLOGY (0) INT. SU. Departmental approval. Supervised, full-time experience in Counseling Psychology at the doctoral level. May be repeated to satisfy 2000 clock hour accreditation requirement.

COUN 8970 SPECIAL TOPICS (1-3) SEM. SU. An in-depth study of the current educational, sociological, psychological, economic, health, legal, technological, and professional issues impacting the professions related to departmental programs. Course may be repeated for a maximum of 9 credit hours.

COUN 8980 FIELD PROJECT (1-10) FLD. SU. Departmental approval. Required for completion of the Education Specialist degree. Course may be repeated for a maximum of 10 credit hours.

COUN 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Crop, Soil, and Environmental Sciences - CSES

Courses

CSES 1000/1003 BASIC CROP SCIENCE (4) LEC. 3. LAB. 2. Agronomic principles of classification, growth, structure, and soil-plant relationship of field crops, with emphasis on influence of man and environment, and importance of crop production. Credit will not be given for both CSES 1000 and CSES 1003.

CSES 1010 SOILS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Practical applications of important soil properties and their function in everyday life. Connections between soils and human life will be made. Topics include food security, sustainable agricultural production, soil and water quality, and waste disposal.

CSES 1020 CROPS AND LIFE (4) LEC. 3. LAB. 2. Science Core. Essential role of crop plants to human life. Topics will include historical development of crop science, impact of crop science on human development, and major issues and problems facing modern crop science and technology.

CSES 2040/2043 BASIC SOIL SCIENCE (4) LEC. 3. LAB. 2. Pr. (CHEM 1010 and CHEM 1011) or (CHEM 1030 and CHEM 1031) or (CHEM 1110 and CHEM 1111) or (CHEM 1117 and CHEM 1118). Formation, classification, properties, management, fertility and conservation of soils in relation to the growth of plants. Fall, Spring.

CSES 2910 TURFGRASSES: USES AND CARE FOR SPORTS AND LEISURE (2) LEC. 2. Introduction to the commonly used turfgrasses of the southeastern United States including of these turfgrasses for gold courses, athletic fields and home lawns will be included. This course may not be substituted for CSES 3150.
CSES 3100 SOILS IN AGRICULTURAL AND EARTH SYSTEMS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 1007) and CHEM 1010. The role of the soils as key components in changing earth and agricultural systems. Intended for those who will teach earth science at the middle school level. Credit will not be given for CSES 3100 and either CSES 2040 or CSES 3040. Spring, Summer, Fall.

CSES 3120/3123 PRINCIPLES OF WEED SCIENCE (4) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) and (BIOL 1020 or BIOL 1027). Weed identification and biology, methods of weed management and classification of herbicides and how they are used in weed control. Laboratory subjects are weed identification and sprayer calibration. Fall.

CSES 3150/3153 TURFGRASS MANAGEMENT (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043 or AGRN 2040 or AGRN 2043) and (BIOL 1020 or BIOL 1027). The management of recreational and home area turfgrass will be studied including establishment and maintenance of turf and the effect of light, traffic, soil fertility and water on its growth. Fall, Spring.

CSES 3200 APPLIED TURF MANAGEMENT (3) LEC. 1. LAB. 4. Pr. (P/C CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Familiarize students with the operation and maintenance of the equipment used for turfgrass maintenance. Effects on turfgrass performance will also be covered.

CSES 3920 INTERNSHIP (3-4) INT. 3-4. Departmental approval. Practical experience under the the supervision of an approved employer and the department. Internship may be in the areas of production, business, turf or science.

CSES 3960 SPECIAL PROBLEMS (2) LAB. 2. Departmental approval. Individual and group problems investigations in crop, soil or weed science. Course may be repeated for a maximum of 4 credit hours.

CSES 3970 SPECIAL TOPICS (3) ST1. 3. New topics in agronomy and soils. Course may be repeated for a maximum of 6 credit hours.

CSES 4200 SOIL JUDGING (2) LEC. 1. LAB. 4. Description, evaluation and interpretation of soil-profile characteristics. Fall. Course may be repeated for a maximum of 8 credit hours.

CSES 4210 ADVANCED SOIL JUDGING (2) LEC. 1. LAB. 2. Pr. CSES 4200 or (AGRN 4200 or AGRN 4203). Advanced description, evaluation, and interpretations of soil-profile characteristics. Spring. Course may be repeated for a maximum of 8 credit hours.

CSES 4950 SENIOR SEMINAR (2) LEC. 2. This course will cover professional presentations, both oral and written, in the area of Agronomy and Soils.

CSES 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

CSES 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

CSES 5000 SOILS & ENVIRONMENTAL QUALITY (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 5010/5013 ANALYSIS OF PLANT, SOIL, AND ANIMAL DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 5020/5023 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.

CSES 5030/5033 ADVANCED CROP SCIENCE (3) LEC. 3. Pr. (CSES 1000 or CSES 1003) or (AGRN 1000 or AGRN 1003 or AGRN 1007) or (AGRN 2040 or AGRN 2043) and (CSES 2040 or CSES 2043) and (BIOL 1030 or BIOL 1037). Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030.

CSES 5060/5063 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.
CSES 5061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 5060 or P/C CSES 5063) or (P/C AGRN 5060 or P/C AGRN 5063). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 5080/5083 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 5080 Summer. CSES 5083 Fall.

CSES 5100/5103 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 5150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 5160/5163 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 5180 SPORTS TURF MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) or (AGRN 3150 or AGRN 3153). Design, construction and management of sports fields and the turfgrass cover on such fields.

CSES 5200 APPLIED WEED SCIENCE TECHNOLOGY (3) LEC. 3. SU. Pr. (CSES 3120 or CSES 3123) or (AGRN 3120 or AGRN 3123). Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 5300/5303 SOIL CHEMISTRY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 5400/5403 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 5500/5503 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops. Spring. May count either CSES 5500 or CSES 5503.

CSES 5590 ENVIRONMENTAL SOIL PHYSICS (4) LEC. 3. LAB. 2. Pr. CSES 2040. This course is designed to make the students understand basic soil physical properties and processes occurring in soils. All concepts are based on sound physical and mathematical principles. May count either CSES 5590 or CSES 6590.

CSES 5600 SOILS & ENVIRONMENTAL QUALITY (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Role of soils in bio-geochemical cycling of major elements and compounds of environmental concern; interactions of pollutants with soils and aquatic and atmospheric environments; methods to minimize or correct pollution; risk assessment.

CSES 6010/6016 ANALY PLANT, SOIL & ANI DATA (3) LEC. 3. Pr. (MATH 1130 or MATH 1133) or (STAT 2510 or STAT 2513). Principles of data analysis based on real examples will be discussed. Topics include measures of central tendency, dispersion, confidence intervals, sampling issues, probability distributions, etc.

CSES 6020/6026 NUTRIENT MANAGEMENT (3) LEC. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Lectures and problems illustrate principles of nutrient management as related to soil or growth media, plant, fertilizer practices, management systems and environment. Required for all students majoring in Agronomy and Soils. Spring.
CSES 6030/6036 ADVANCED CROP SCIENCE (3) LEC. 3. Application and integration of principles from undergraduate agricultural, biological and physical sciences courses in management of crop production systems. May count either CSES 5030/CSES 6030 or CSES 5033/CSES 6036.

CSES 6060/6066 SOIL MICROBIOLOGY LECTURE (3) LEC. 3. Pr. BIOL 3200. Ecology, physiology, and biochemistry of soil microorganisms with emphasis on soil microbial processes that are important to environmental quality and soil productivity. Spring.

CSES 6061 SOIL MICROBIOLOGY LAB (1) LAB. 2. Pr. (P/C CSES 6060 or P/C CSES 6066) or (P/C AGRN 6060 or P/C AGRN 6066). Laboratory exercises illustrating ecology, physiology, and biochemistry of soil microorganisms. Credit will not be given for both CSES 5061 and CSES 6061. Spring.

CSES 6080/6086 SOIL RESOURCES AND CONSERVATION (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soils as a natural resource for land-use planning; their use and management for sustainable crop production, urban and industrial development and ecosystem protection. CSES 6080 Summer. CSES 6086 Fall.

CSES 6100/6106 PLANT GENETICS AND CROP IMPROVEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Principles related to mendelian, population, and molecular genetics of plants including inheritance of qualitative and quantitative traits, and plant transformation. Improvement of crop plants including heritability, role of environment, pedigree selection, recurrent selection, the backcross method, and marker-assisted selection. Fall

CSES 6150 SOIL MORPHOLOGY (4) LEC. 3. LAB. 2. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Physical, chemical and mineralogical properties of soils are studied in relation to their distribution and classification for environmental, engineering and agricultural use and interpretations. Spring.

CSES 6160/6166 ADVANCED TURFGRASS MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (BIOL 3100 or BIOL 6130) or (AGRN 3150 or AGRN 3153). Factors affecting the turfgrass plant as a component of a dynamic community. Influence of soil chemical and physical conditions, management practices and climate are discussed. Theoretical and practical aspects of turfgrass management practices are discussed along with design and construction of golf courses and other athletic purpose turf areas.

CSES 6180 SPORTS TURF MANAGEMENT (3) LEC. 3. Pr. (CSES 3150 or CSES 3153) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) or (AGRN 3150 or AGRN 3153). Design, construction and management of sports fields and the turfgrass cover on such fields.

CSES 6200 APPLIED WEED SCIENCE TECH (3) LEC. 3. SU. Pr. (CSES 3120 or CSES 3123) or (AGRN 3120 or AGRN 3123). Advanced weed identification, pesticide application technology, identification of herbicide injury symptomology, and develop of interaction techniques and problem solving skills for dealing with potential herbicide efficacy problems. Course may be repeated for a maximum of 6 credit hours.

CSES 6300/6306 SOIL CHEMISTRY (4) LEC. 2. LAB. 4. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). An introduction to the basic soil chemical properties of mineral composition, weathering, absorption, cation exchange, acidity, alkalinity, salinity and soil reactions with fertilizers, pesticides and heavy metals. Spring.

CSES 6400/6406 BIOENERGY AND THE ENVIRONMENT (3) LEC. 3. The role of bioenergy in reducing environmental problems related to use of fossil fuels and certain agricultural practices, and in addressing declining rural economies.

CSES 6500/6506 FORAGE PRODUCTION AND UTILIZATION (3) LEC. 3. Pr., In major or departmental approval. Grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil-improving crops and (d) energy crops. May count either CSES 6500 or CSES 6506.

CSES 6590 ENVIRONMENTAL SOIL PHYSICS (4) LEC. 3. LAB. 2. Pr. CSES 2000. Graduate level standing in AGRN, CSES 2040, or departmental approval. This course is designed to make the students understand basic soil physical properties and processes occurring in soils. All concepts are based on sound physical and mathematical principles. May count either CSES 5590 or CSES 6590.

CSES 6906 DIRECTED STUDIES (1-3) DSL. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 6936 ADVANCED DIRECTED STUDIES (1-3) DSL. SU. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.
CSES 6960/6966 SPECIAL PROBLEMS (1-3) IND. Conferences, problems and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields. Course may be repeated for a maximum of 6 credit hours.

CSES 7016 ENVIRONMENTAL SOIL SCIENCE (3) LEC. 3. Departmental approval. Science of the environment and the role of soil science in the environmental arena. Important chemical, biological, and physical processes that influence compounds.


CSES 7080/7086 EXPERIMENTAL METHODS (3) LEC. 3. Pr. STAT 7000. Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references, and preparation of publications. Problems, assigned readings and lectures. Summer.

CSES 7120 CYTOLOGY AND CYTOGENETICS (4) LEC. 2. LAB. 4. Pr. BIOL 3000 or BIOL 3003. Cell structure and function with emphasis on cell reproduction and factors contributing to the evolution of organisms. Fall.


CSES 7140/7146 CHEMISTRY AND USE OF HERBICIDES IN CROP PRODUCTION (4) LEC. 3. LAB. 2. Pr. CHEM 1040. Principles and use of herbicides in agronomic crops. Methods of herbicide application, including time, incorporation and formulation, the fate of herbicides in soil and the ecological impact on succeeding plant species. Fall.

CSES 7150 SEMINAR IN GENETICS (1) SEM. 1. Pr. BIOL 3000 or BIOL 3003. Reports by students and staff members on current research and literature in the field of genetics. Spring.

CSES 7160/7166 GENETIC DATA ANALYSIS (3) LEC. 3. Pr. (CSES 5100 or CSES 5103) or (CSES 6100 or CSES 6106) and STAT 4020 or (AGRN 5100 or AGRN 5103) or (AGRN 6100 or AGRN 6106). Introduces procedures to study the genetic characteristics of individuals and populations. Computer models will be used to simulate genomes and traits. Application of quantitative methods to experimental populations used to plan breeding programs. Fall.

CSES 7170 ADVANCED PLANT BREEDING (3) LEC. 3. Pr. CSES 7160 or (AGRN 7160 or AGRN 7166). Estimation and interpretation of genetic variance components, heritability, selection response, yield stability indices and their effect on choice of breeding method. Recurrent selection theory and breeding for resistance to plant stresses.

CSES 7180 CROP ECOLOGY (3) LEC. 3. Pr. (BIOL 6130 or CSES 7250) or (AGRN 7250 or AGRN 7256) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Analysis of structure and function of crop and pasture farming systems with emphasis on production processes and resource management.

CSES 7190 ADVANCED FORAGE MANAGEMENT AND RESEARCH METHODS (3) LEC. 3. Principles involved in successful establishment, maintenance and management of crops used for grazing, hay and silage, and research methods related to this field. Field trips will be made to research stations and private farms to observe management practices. Spring.

CSES 7250/7256 CROP PHYSIOLOGY (3) LEC. 3. Pr. BIOL 3100. Integrates principles of plant physiology, biochemistry, ecology, and genetics as they relate to plant growth and development and crop yield. The effect of management practices and abiotic stress on plant growth and development will be discussed.

CSES 7276 SOIL MICROBIOLOGY (4) LEC. 4. Pr. (BIOL 1020 or BIOL 1027) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Soil as a medium for microbial growth, the relation of microbes to important mineral transformations in soil, the importance of biological equilibrium and significance of microbes.

CSES 7286 APPLIED GEOSTATISTICS (3) LEC. 3. Departmental approval. Application of regionalized variable theory to surface and subsurface landlords using semivariograms and kriging.

CSES 7316 ENVIRONMENTAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CHEM 1010 or CHEM 1011) and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Study of soil chemical processes (sorption, desorption, ion exchange, precipitation, dissolution, and redox reactions) of nutrients and inorganic and organic contaminants in soils and organic matter.
CSES 7326 WETLANDS SOILS (3) LEC. 3. Departmental approval. Application of regionalized variable theory to surface and landforms using semivariograms and kriging.

CSES 7540/7546 PRINCIPLES OF PLANT NUTRITION (3) LEC. 3. Pr. CSES 6020 or CSES 6026 or (AGRN 6020 or AGRN 6026). Processes of nutrient flux to plant roots growing in soil. Chemistry and properties of soil in relation to the nutrition and growth of plants. Summer.

CSES 7550 SOIL AND PLANT ANALYSIS (4) LEC. 1. LAB. 6. Pr. CHEM 3050 and (CSES 6020 or CSES 6026) or (AGRN 6020 or AGRN 6026). Principles, methods and techniques of quantitative chemical analysis of soils and plants applicable to soil science. Fall.

CSES 7560 CLAY MINERALOGY (4) LEC. 3. LAB. 2. Crystal structure and properties of the important clay-size minerals of soils and clay deposits combined with identification techniques involving x-ray diffraction and spectroscopy, differential thermal analysis, electron microscopy, specific surface analysis, and infrared absorption.

CSES 7586 SOIL PHYSICS (3) LEC. 3. Pr. PHYS 1500 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). City.

CSES 7600/7606 AGROCLIMATOLOGY (3) LEC. 3. The relationships between climatological processes and agriculture, including precipitation, evapotranspiration, meteorological hazards, irrigation and drainage, crop development, climate data acquisition and analysis, crop-weather models, and impacts of global climate change. May count either CSES 7600 pr CSES 7606.

CSES 7676 SPECIAL TOPICS (1-4) DSL. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7950/7956 SEMINAR (1) SEM. 1. SU. Required of all graduate students in Agronomy and Soils. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

CSES 7970/7976 SPECIAL TOPICS (1-4) LEC. Advanced topics related to Crop, Soil and Environmental Sciences. Course may be repeated for a maximum of 8 credit hours.

CSES 7990/7996 RESEARCH AND THESIS (1-10) MST. Research and thesis on problems in the soil and crop sciences. Course may be repeated with change in topics.

CSES 8570 PHYSICAL SOIL CHEMISTRY (3) LEC. 3. Pr. (CSES 6300 or CSES 6306) and CHEM 6070 or (AGRN 6300 or AGRN 6306). Interpretation of soil properties and chemical reactions in terms of ion exchange, solubility diagrams, solutions equilibria, electrochemistry and electrokinetics of charged particles. Fall.

CSES 8580 FATE AND TRANSPORT OF CHEMICALS IN SOILS (3) LEC. 3. Pr. MATH 1720 and (PHYS 1600 or PHYS 1607) and CSES 7590. Transport phenomena in soils. Physical principles and analysis of the storage and movement of water, solutes, heat, and gases in soils. Spring.

CSES 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and dissertation on problems in the soil and crop sciences. Course may be repeated with change in topics.

Design Build - DBLD

Courses

DBLD 5620 DESIGN CONSTRUCTION STUDIO (6) LEC. 6. Pr. ARCH 4020. Second of three-studio progression. Skills associated with formation and schematic design phases of architectural project, with emphasis on rigorous design research methods, program development, and interdisciplinary team collaboration. Project initiated in 5620/6620 continues in subsequent semester.

DBLD 5640 SUSTAINABILITY FOR INTEGRATED PROJECT DELIVERY (3) LEC. 3. Departmental approval. Principles, terminology, and methods of sustainable design and construction, with emphasis on role of interdisciplinary design collaboration.

DBLD 6620 DESIGN CONSTRUCTION STUDIO (6) LEC. 6. Pr. DBLD 6610. Second of three-studio progression. Skills associated with formation and schematic design phases of architectural project, with emphasis on rigorous design research methods, program development, and interdisciplinary team collaboration. Project initiated in 5620/6620 continues in subsequent semester.

DBLD 6640 SUSTAINABILITY FOR INTEGRATED PROJECT DELIVERY (3) LEC. 3. Departmental approval. Principles, terminology, and methods of sustainable design and construction, with emphasis on role of interdisciplinary design collaboration.
DBLD 7020 INTEGRATED BUILDING PROCESSES I (3) LEC. 3. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability.

DBLD 7030 CONSTRUCTION INFORMATION MANAGEMENT (3) LEC. 3. Applications of advanced information technology in construction.

DBLD 7040 INTEGRATED BUILDING PROCESSES II (3) LEC. 3. Departmental approval. Construction project delivery, from pre-construction service through ownership. Topics include project management, pre-construction services, pre-planning, procurement, site utilization, subcontracts, commissioning, closeout, building operation, and long-term ownership.

DBLD 7550 COLLABOR PROCESS DES CONSTRU (3) LEC. 3. Coreq. DBLD 7551 and DBLD 6620. Current integrated delivery models and decision-making strategies related to interface of design and construction disciplines from professional, contractual, and technological perspectives. Emphasis on risk quantification between parties involved in integrated delivery.

DBLD 7551 COLLABORATIVE PRACTICE LAB (1) LAB. 4. Pr. DBLD 6620. Coreq., DBLD 6620 (students in design track). Problemsolving exercises related to effective pre-construction practices employed by design and construction professionals.

DBLD 7630 DESIGN CONSTRUCTION SUMMARY COMPREHENSIVE STUDIO (7) LEC. 7. Pr. DBLD 6620 or (DBLD 7550 or DBLD 7551) or (BSCI 7550 or BSCI 7556). Third of three-studio progression. Development of design and construction for architectural project in interdisciplinary teams, including analysis of constructability, projected construction cost, and scheduling.

DBLD 7650 EXECUTIVE ISSUES (3) LAB. Individually proposed problems or projects related to the construction industry. Students must prepare a written proposal with defined deliverables.

DBLD 7950 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. Project manifestation and development preceding design and construction phases with emphasis on the project owner's perspective, the financial parameters, and the speculative demand driving project viability. Course may be repeated for a maximum of 3 credit hours.

Drug Discovery and Development - DRDD

Courses

DRDD 5800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

DRDD 6800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING (2) LEC. 2. Departmental approval. State-of-the-art survey of molecular imaging techniques that are available and their use to monitor the progression of various human diseases.

DRDD 7000 INTRODUCTION TO GRANT WRITING (3) LEC. 3. Departmental approval. Course will train students to prepare NIH RO1 grant applications. Students will prepare mock applications on topics of their choosing.

DRDD 7010 PHARMACOKINETICS (4) LEC. 4. Departmental approval. Pharmacokinetic and pharmacodynamic principles and methods used to study the absorption, distribution, metabolism and excretion of drugs.

DRDD 7020 SCIENCE AND TECHNOLOGY OF TABLETING (2) LEC. 2. Pr. (PYPS 7030 or DRDD 7030) or Departmental approval. Formulation, compression, coating and evaluation of tablets.

DRDD 7021 SCIENCE AND TECHNOLOGY OF TABLETING LAB (2) LAB. 6. Pr. (PYPS 7020 or DRDD 7020). Actual formulation, compression, coating and evaluation of tablets.

DRDD 7030 DRUG PRODUCTS AND BIOPHARM (4) LEC. 4. Departmental approval. Formulation, evaluation, and use of various pharmaceutical dosage forms including biopharmaceutical aspects.

DRDD 7040 PHYSICAL PHARMACY (4) LEC. 4. Departmental approval. Application of physical chemical principles to dosage form design and evaluation.

DRDD 7050 NOVEL DOSAGE FORMS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Theoretical basis and design of controlled release and site specific drug delivery systems.
DRDD 7060 FORMULATION AND DELIVERY OF PEPTIDE/PROTEIN DRUGS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Formulation and delivery problems unique to peptide/protein pharmaceuticals and strategies to overcome such problems.


DRDD 7080 ADVANCED BIOPHARMACEUTICS (3) LEC. 3. Pr. PYPS 7010 or DRDD 7010. The mathematical and pharmacokinetic relationships between physical and chemical properties of a drug and its dosage form and biological effects.

DRDD 7090 PHARMACEUTICAL SCIENCE I: TARGETS (4) LEC. 4. Pharmaceutical Science Graduate Student or Departmental Approval. Study of nature and function of drug targets, advanced molecular mechanisms by which drugs interact with these targets and the basic principles of drug design.

DRDD 7100 PHARMACEUTICAL SCIENCE II: ADME (4) LEC. 4. Pharmaceutical Science Graduate Student or Departmental Approval. Study of the mechanisms of drug absorption, distribution, metabolism and elimination with an advanced study of drug design strategies and methods to optimize these processes.

DRDD 7110 STABILITY KINETICS OF PHARMACEUTICALS (3) LEC. 3. Pr. PYPS 7030 or DRDD 7030 or Departmental approval. Principles of chemical kinetics as applied to the unique stability problems of the various pharmaceutical dosage forms.

DRDD 7230 ADVANCED MEDICINAL CHEMISTRY I (3) LEC. 3. Departmental approval. Explanation of the principles of Medicinal Chemistry progressing to qualitative and quantitative descriptions of the synthesis, influence of physical and chemical properties of chemical substances on biological activity and biodisposition.

DRDD 7240 ADVANCED MEDICINAL CHEMISTRY II (3) LEC. 3. Pr. PYPS 7230. Departmental approval. Advanced study of organic medicinal agents featuring organic synthesis, chemical and pharmacological properties and current literature topics.

DRDD 7250 DRUG ACTION AND DESIGN (3) LEC. 3. Pr. (PYPS 7230 or DRDD 7230) and (PYPS 7240 or DRDD 7240). Modern molecular modeling methods with emphasis on computer-aided drug design, quantitative structure activity relationships and combinatorial chemistry.

DRDD 7260 SEPARATION SCIENCE (4) LEC. 4. Departmental approval. A survey of modern separation science with emphasis on analytical scale techniques including gas chromatography, liquid chromatography and electrokinetic separations.

DRDD 7270 MASS SPECTROMETRY OF ORGANIC COMPOUNDS (4) LEC. 4. Departmental approval. A survey of modern techniques in mass spectrometry with emphasis on fragmentation chemistry and structure education.

DRDD 7290 NEUROPHARMACOLOGY OF DRUG ABUSE (2) LEC. 2. Departmental approval. An in-depth study of drugs of abuse, including mechanisms of action, pharmacokinetics, addiction, physical dependence and the effects of drug use during pregnancy. Substance abuse treatment strategies will also be discussed.

DRDD 7300 NEUROPHARMACOLOGY (3) LEC. 3. Neurochemical mechanisms related to the pharmacological actions of medicinal agents affecting the central nervous system.

DRDD 7310 PSYCHOPHARMACOLOGY I (3) LEC. 3. Discussions on anxiety, depression and related disorders.

DRDD 7320 PSYCHOPHARMACOLOGY II (3) LEC. 3. Discussions on schizophrenia, Alzheimer’s disease, experimental methods and animal models of disorders.

DRDD 7330 PHARMACOLOGY RESEARCH METHODS (3) LEC. 1. LAB. 9. Experimental design, research methods and data analysis in pharmacology.

DRDD 7340 ORGAN SYSTEMS PHARMACOLOGY I (3) LEC. 3. The course will evaluate the basic principles and rationale for current and novel pharmacological therapeutics for various disease states.

DRDD 7350 ORGAN SYSTEMS PHARMACOLOGY II (3) LEC. 3. The course will evaluate the mechanism of action and rationale for current and novel pharmacological therapeutics for various disease states.
DRDD 7360 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY I (3) LEC. 3. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels.

DRDD 7370 CELLULAR & MOLECULAR PHARMACOLOGY & TOXICOLOGY II (3) LEC. 3. Pr. PYPS 7360 or DRDD 7360. Cellular biology course integrated with pharmaceutical sciences for the study of pharmacologically related mechanisms at the molecular and cellular levels. This is a continuation of PYPS 7360/DRDD 7360.

DRDD 7500 METABOLISM AND DISPOSITION XENOB IOTICS (2) LEC. 2. Portals of entry, absorption, distribution and elimination of drugs and xenobiotics. Metabolic mechanisms relevant to chemical structure and principles of pharmacokinetics will be emphasized.

DRDD 7510 ENVIRONMENTAL TOXICOLOGY (3) LEC. 3. Mechanisms of action of agricultural and industrial chemicals, drugs, radiation, metals, gases, air particulates, food additives, plant and food poisons in the environment.

DRDD 7600 HETEROCYCLIC MEDICINAL CHEMISTRY (3) LEC. 3. Pr. CHEM 7220. Departmental approval. A survey of chemical nature of heterocyclic moieties of medicinal substances with emphasis on methods of synthesis of medicinally important compounds containing a heterocyclic ring.

DRDD 7930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 98 credit hours.

DRDD 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 6 credit hours.

DRDD 7960 SPEC Prob IN PHARM SCIE (1-3) IND. At least 6 credits each with a minimum grade of B in DRDD 7000-7999 Selected study topics in the pharmaceutical sciences. Departmental approval and 6 hours of 7000-level courses. Course may be repeated for a maximum of 6 credit hours.

DRDD 7980 NON-THESIS RESEARCH (1-3) RES. Non-thesis research project, to be determined by faculty advisor and student's graduate advisory committee. Course may be repeated for a maximum of 14 credit hours.

DRDD 7990 RESEARCH AND THESIS (1-10) MST. Research And Thesis. Course may be repeated with change in topics.

DRDD 8930 DIRECTED STUDIES IN PHARMACAL SCIENCES (1-3) LEC. Departmental approval. Selected laboratory research topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Course may be repeated for a maximum of 10 credit hours.

DRDD 8960 DIRECTED READINGS IN PHARMACAL SCIENCES (1-3) IND. Pr. At least 6 credits each with a minimum grade of B in DRDD 7000-7999. Selected study topics in the pharmaceutical sciences. Course may be repeated for a maximum of 6 credit hours.

DRDD 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research for doctoral students. Course may be repeated with change in topics.

Early Childhood Educ - CTEC

Courses

CTEC 3020 PRIMARY MATH AND SCIENCE (3) LEC. 3. Exploration of learning and pedagogy for the development of math and science concepts appropriate for children in Kindergarten through Grade 3.

CTEC 3030 INTUITIVE THOUGHT AND SYMBOLIC FUNCTION (3) LEC. 3. Coreq. CTEC 4911. Young children's intuitive thought for pre-service teachers.

CTEC 3150 LANGUAGE DEVELOPMENT: IMPLICATIONS FOR THE CHILDHOOD EDUCATOR (3) LEC. 3. Applications of language development theories to teaching children. Emphasis on the effects theories have on curriculum and teaching.

CTEC 3200 A WORKING THEORY FOR THE CONSTRUCTIVIST EDUCATOR (3) LEC. 3. Constructivist theory for pre-service teachers preparing to teach at the early childhood level.

CTEC 4210/4213 THE CONSTRUCTIVIST TEACHER: GROWING PROFESSIONALLY (1) AAB. 1. Pr. P/C CTEC 4920 or P/C CTEC 4923. Admission to Clinical Residency. The roles and responsibilities of being an early childhood professional. May count either CTEC 4210 or CTEC 4213.

CTEC 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Reading, research or other work undertaken independently by a student focused on a content area of special interest. Course may be repeated for a maximum of 6 credit hours.

CTEC 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Students and faculty cooperatively select and execute an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.

CTEC 4911 PRACTICUM IN THE PRESCHOOL (2) LEC. 2. SU. Pr. CTEC 3200. Coreq. CTEC 3030. Laboratory experiences with children from birth to five years of age designed to help students relate theory to practice.

CTEC 4912 PRACTICUM IN PRIMARY GRADES (2) LEC. 2. SU. Pr. CTEC 3200. Coreq. CTEC 4200. Laboratory experiences with children 5 through 9 years of age help students relate theory to practice. Course may be repeated for a maximum of 6 credit hours.

CTEC 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTEC 4210 or P/C CTEC 4213. Admission to Clinical Residency. Experience in a setting serving pre-primary or primary-school children with varying abilities. Admission to internship. May count either CTEC 4920 or CTEC 4923.

CTEC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Individual readings program. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

CTEC 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTEC 7200/7206 EARLY CHILDHOOD EDUCATION PERSPECTIVE (3) LEC. 3. Historical overview of current issues, trends, and programs in early childhood education. May count either CTEC 7200 or CTEC 7206.

CTEC 7210/7216 ORIGINS OF THOUGHT (3) LEC. 3. Piaget's theories of how thought develops in young children. Comparison of the social and biological roots of thought. May not count either CTEC 7210 or CTEC 7216.

CTEC 7260/7266 PLAY AND EARLY CHILDHOOD EDUCATION (3) LEC. 3. Examination of children's play from a constructivist theoretical perspective and translation of theory into early childhood educational practice. May count either CTEC 7260 or CTEC 7266.

CTEC 7270/7276 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of a problem related to the thought, writing and research that form the theoretical foundations of constructivist approaches in early childhood education. May count either CTEC 7270 or CTEC 7276. Course may be repeated for a maximum of 9 credit hours.

CTEC 7510/7516 RESEARCH STUDIES IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. How to read, review, analyze and interpret significant research studies in early childhood education. May count either CTEC 7510 or CTEC 7516.

CTEC 7520/7526 CURRICULUM AND TEACHING IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Reappraisal of experiences and content for children by focusing on the nature of the learner and the nature of the knowledge to be learned. May count either CTEC 7520 or CTEC 7526.

CTEC 7530/7536 ORGANIZATION OF PROGRAM IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Organization, administration, and supervision of early childhood programs. May count either CTEC 7530 or CTEC 7536.

CTEC 7540/7546 EVALUATION OF PROGRAMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Assessment and evaluation of all program components from a constructivist perspective. May count either CTEC 7540 or CTEC 7546.

CTEC 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent learning objectives related to the student's area of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEC 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Experience relating theory and practice, usually in a school setting. Departmental approval. May count either CTEC 7910 or CTEC 7916. Course may be repeated for a maximum of 6 credit hours.

CTEC 7970 SPECIAL TOPICS (3-9) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.
CTEC 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTEC 8240/8246 RESEARCH IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the needs of young children. May count either CTEC 8240 or CTEC 8246.

CTEC 8270/8276 THEORY-BASED PROBLEMS IN EARLY CHILDHOOD EDUCATION (3) LEC. 3. In-depth exploration of problems related to the thought, writings, and research that form the theoretical foundations of constructivist approaches to early childhood education. Master's Degree. May count either CTEC 8270 or CTEC 8276. Course may be repeated for a maximum of 6 credit hours.

CTEC 8720/8726 DESIGNING EARLY CHILDHOOD CURRICULUM (3) LEC. 3. Application of early childhood history, philosophy, program analysis and constructivist theory to the design of early childhood curriculum. Master's Degree. May count either CTEC 8720 or CTEC 8726.

CTEC 8850 CONSTRUCTIVIST INVESTIGATIONS IN EARLY CHILDHOOD SETTINGS (3) LEC. 3. Analysis and interpretation of the design of constructivist investigation. Master's Degree.

CTEC 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEC 8970 SPECIAL TOPICS (3-9) LEC. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. Course may be repeated for a maximum of 9 credit hours.

CTEC 8980/8986 FIELD PROJECT (1-3) FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May not count either CTEC 8980 or CTEC 8986. Course may be repeated for a maximum of 3 credit hours.

CTEC 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with a change in topic. Course may be repeated with change in topics.

Earth System Science - ESSI

Courses

ESSI 8000 EARTH SYSTEM SCIENCE AND GLOBAL CHANGE (3) LEC. 3. The course explores the Earth system as a whole, with an emphasis on the interrelationships between geological, biological, climatological, and human systems on regional and global scales.

ESSI 8100 EARTH SYSTEM OBSERVATIONS AND ANALYSIS (3) LEC. 2. LAB. 2. Pr. GSEI 1200 and GSEI 2070. Course reviews recent advances in earth system observations and provides students opportunity to develop holistic understanding of key parameters and processes of the earth system including biosphere, atmosphere, and oceans processes using observations.

ESSI 8200 EARTH SYSTEM SCIENCE SEMINAR (1) SEM. 1. SU. Students deliver oral presentations based upon their research and provide constructive criticism of their peers' presentations. Topics of presentations may include student's dissertation research areas or critical examination of current research problems in Earth system science.

ESSI 8990 RESEARCH AND DISSERTATION (1-3) DSR. Theoretical and practical aspects of designing dissertation research in the interdisciplinary Earth System Science program. The course is designed to assist students through the proposal and dissertation writing and presentation processes and to prepare for the dissertation defense. Course may be repeated for a maximum of 10 credit hours.

Economics - ECON

Courses

ECON 2020/2023 PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.

ECON 2027 HONORS PRINCIPLES OF MICROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing scarcity and choice, consumer behavior, supply and demand, markets, production and cost, globalization of markets, role of government, and market and government failure.
ECON 2030/2033 PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy. May count either ECON 2030 or ECON 2033.

ECON 2037 HONORS PRINCIPLES OF MACROECONOMICS (3) LEC. 3. Pr. Honors College. Economic principles emphasizing economic aggregates, including measuring economic performance, macroeconomic theory, inflation and unemployment, money and banking, and fiscal and monetary policy.

ECON 3020 INTERMEDIATE MICROECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theory of pricing under varying market conditions and distribution of income among the factors of production.

ECON 3030 INTERMEDIATE MACROECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. A study of national economic aggregates and the market determination of output, employment, and inflation. Introduction to economic monetary and fiscal policy on the economy.

ECON 3040 CONSUMER ECONOMICS (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). A broad study of consumer economics at both the household level and the national consumption aggregates.

ECON 3100 LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Description of the many substantive areas in which law has an economics foundation and an analysis of how law affects economic relations.

ECON 3200 MONEY AND BANKING (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Theoretical and institutional analyses of monetary systems, foreign exchange, and commercial banking.

ECON 3300 ECONOMICS OF SPORTS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic analysis of professional and collegiate sports, including the structure of competition and performance in individual and team sports.

ECON 3400 AMERICAN ECONOMIC HISTORY I (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) and (ECON 2030 or ECON 2033 or ECON 2037). Examines development of the American economy from colonial history to present. Topics include changes in institutions, the standard of living, income distributions, social mobility, labor markets, demographic structure, technological development, and the financial system.

ECON 3420 AMERICAN ECONOMIC HISTORY II (3) LEC. 3. Pr. ECON 2020. This class will study the history of American business cycle fluctuations with extended discussions of the Great Depression and the Great Recession. A point of emphasis in this class will be on the importance of data construction in interpreting historical economic events.

ECON 3500 COMPARATIVE ECONOMIC SYSTEMS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Analysis of alternative government approaches to solving basic economic problems.

ECON 3600 MATHEMATICAL METHODS FOR ECONOMISTS (3) LEC. 3. Pr. ECON 3020 and (MATH 1690 or MATH 2630 or MATH 2637). Fundamental mathematical and quantitative methods employed by economists. Application of calculus, probability, statistics, and linear algebra to economics.

ECON 3700 HISTORY OF ECONOMIC THOUGHT (3) LEC. 3. Pr. ECON 2030 or ECON 2037. Development of economic ideas, principles and systems of analysis from early times to the present.

ECON 3800 PUBLIC CHOICE (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic analysis of public sector decision making. Emphasis on actions taken by voters, bureaucrats, and lobbyists elected to influence public sector outcomes.

ECON 4000 ECONOMICS OF WORK AND PAY (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Theoretical and institutional examination of the labor market, including wage theories, unionism, occupational choice, and public policy.

ECON 4100 INDUSTRIAL ORGANIZATION (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Relationship of market structure to the pricing behavior and economic performance of firms. Topics include regulation, research and development, and technical change.

ECON 4200 GOVERNMENT, BUSINESS AND SOCIETY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or ECON 2020 or ECON 2023 or ECON 2027. Economic role of government in a free enterprise economy. Application of microeconomic theory to policy issues, particularly antitrust and regulation.
ECON 4300 INTERNATIONAL ECONOMICS (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Economic consequences of free trade, including identification and measurement of gains and losses. Analysis of trade restrictions, such as quotes, tariffs, VERs. Examination of labor and capital movements between nations.

ECON 4400 ECONOMICS OF INNOVATION (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027) or (ECON 2030 or ECON 2033 or ECON 2037). Study of how innovation and technological change impacts the individual firm and the national and global economies.

ECON 4600 ECONOMETRICS I (3) LEC. 3. Pr. ECON 3600 and (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 2600). Basic statistical toolbox to analyze economic data and evaluate economic models. Topics include simple and multivariate linear regressions, maximum likelihood estimation, serial correlation and heteroscedasticity, simultaneous equations, qualitative response models, and basic time series.

ECON 4920 INTERNSHIP (1-3) AAB/INT. SU. Pr. ECON 2030 or ECON 2033 and ECON 2037 or departmental approval. Course may be repeated for a maximum of 3 credit hours.

ECON 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

ECON 4970 SPECIAL TOPICS (1-3) AAB/IND. SU. Pr., Departmental approval. Investigation and research into economic problems of special interest to the student and instructor. Course may be repeated for a maximum of 6 credit hours.

ECON 4997 HONORS THESIS (1-3) IND. Pr. Honors College. ECON 3020 or Departmental approval. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

ECON 5020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617) or Departmental approval. Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty, and strategic behavior.

ECON 5030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 5100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. Causes and effects of economic growth and development, for example, ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.

ECON 5200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and ECON 3020. Nature and causes of state and local economic development, including plant location, residential location, interregional trade and factor flows, and public policy.

ECON 5400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 5600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 5700 HEALTH ECONOMICS (3) LEC. 3. Pr., Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 5800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr., Departmental approval. The economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 6020 ADVANCED MICROECONOMICS (3) LEC. 3. Pr. ECON 3020 and (MATH 1610 or MATH 1613 or MATH 1617). Mathematical analysis of market-based pricing and production. Includes the economics of information and uncertainty and strategic behavior.

ECON 6030 MACROECONOMIC THEORY AND POLICY (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Analysis of the national economy and impact of government policies on aggregate economic variables.

ECON 6100 ECONOMICS OF GROWTH AND DEVELOPMENT (3) LEC. 3. Causes and effects of economic growth and development, for example ways of measuring growth, role of government policy, effects of growth and trade, and effects of investment.
ECON 6200 URBAN AND REGIONAL ECONOMIC DEVELOPMENT (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and ECON 3020. Nature and causes of state and local economic development, including plant location, residential location, interregional trade and factor flows, and public policy.

ECON 6400 ECONOMIC HISTORY OF THE UNITED STATES (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037 or Departmental approval. Survey of the economic advancement of the United States from European origins to the present.

ECON 6600 BUSINESS AND ECONOMIC FORECASTING (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (STAT 2610 or STAT 2010 or STAT 2017) or Departmental approval. Interpretation of macroeconomic forecasting methods and development of competency in forecasting at the firm level.

ECON 6700/6706 HEALTH ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Analysis of the economics of health care, including demand for and supply of health care and health care policy.

ECON 6800 GOVERNMENT SPENDING AND TAXATION (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Economic rationale for government expenditures, economic consequences of public spending, and methods of taxation and funding of government programs.

ECON 7000 MANAGERIAL ECONOMICS (3) LEC. 3. Pr., Consent of MBA program director. Microeconomic theories of the firm and of markets, with emphasis on their applications to current business issues.

ECON 7110 MICROECONOMICS I (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Consumer behavior and market models of competition and monopoly. Traditional and contemporary theories of consumer and household behavior under constraint; models of competitive behavior.

ECON 7120 MICROECONOMICS II (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of producer behavior, including production theory, cost theory, profit maximization, theories of various market structures, and derived demand for inputs.

ECON 7130 MATHEMATICAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 and ECON 6030 or Departmental approval. Fundamental mathematical methods in economics and econometrics, including linear and matrix algebra, calculus, comparative statistics, optimization, concavity, constrained optimization dynamics difference equations, and differential equations.

ECON 7210 MACROECONOMICS I (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Evaluation of fundamental theoretical and policy-oriented issues in macroeconomics, emphasizing post-Keynesian developments.

ECON 7220 MACROECONOMICS II (3) LEC. 3. Pr. ECON 6030 or Departmental approval. Foundations of macroeconomics, neoclassical production and growth theory, overlapping generations models, optimal saving, open economy macroeconomics, applied time series macrodynamics.

ECON 7310 ECONOMETRICS I (3) LEC. 3. Pr., Departmental approval. Advanced treatment of the standard linear model of least square theory, including assumptions and properties of the SLM and the statistical testing of behavioral hypotheses.

ECON 7320 ECONOMETRICS II (3) LEC. 3. Pr. ECON 7310. Econometric techniques employed in advanced empirical research. Topics include estimation and inference in simultaneous equation systems, limited dependent variables, non-nested testing, time-series analysis.

ECON 7330 MICROECONOMETRICS (3) LEC. 3. Pr. ECON 7310. Econometric techniques for applied microeconomics. Limited dependent variable models, survival and count data analysis, and selection bias.


ECON 7410 HISTORY OF ECONOMIC THOUGHT I (3) LEC. 3. Pr. ECON 3700 or Departmental approval. Analysis and study of classical contributions to economics, from early times to Karl Marx.

ECON 7420 HISTORY OF ECONOMIC THOUGHT II (3) LEC. 3. Pr. ECON 3700 or Departmental approval. Neoclassical economics, including the theories of Mill, Jevons, early Austrians, early French contributors, Veblenian institutional economics, and Alfred Marshall.

ECON 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated with change in topics.

ECON 8110 ADVANCED MICROECONOMICS I (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis, integrating the economics of time and uncertainty into mainline price theory.
ECON 8120 ADVANCED MICROECONOMICS II (3) LEC. 3. Pr. ECON 7120. or Departmental approval. Advanced analysis, integrating imperfect information and strategic behavior into economic models of trade and investment.

ECON 8210 TOPICS IN MACROECONOMICS (3) LEC. 3. Pr. ECON 7220 or Departmental approval. Goals, procedures and achievements in attaining monetary objectives domestically and abroad. Emphasis on macro-money models and effects of monetary policy on economic activity.

ECON 8420 ECONOMIC INSTITUTIONS AND CONTEMPORARY ECONOMIC THEORY (3) LEC. 3. Pr., Departmental approval. How contemporary economic theory helps explain the emergence, hey-day, and decline of economic institutions, including social and regulatory institutions.

ECON 8510 ECONOMICS OF TAXATION (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Examines tax structures in the United States, evaluates tax reform proposals, and studies the effects of taxation on resource allocation and economic welfare.

ECON 8520 PUBLIC CHOICE (3) LEC. 3. Pr., Departmental approval. Advanced analysis of governmental expenditures and other not-for-profit sectors of the economy.

ECON 8530 ECONOMIC ANALYSIS OF THE LAW (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of the substantive areas in which law has an economic foundation and ways law affects economic relations.

ECON 8540 SEMINAR IN ENVIRONMENTAL ECONOMICS (3) LEC. 3. Pr. ECON 3020 or Departmental approval. Advanced analysis of pricing and allocation of renewable and non-renewable resources.

ECON 8550 EXTERNALITIES AND PUBLIC GOODS (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Advanced analysis of pricing and allocation of economic goods when property rights are not well defined.

ECON 8610 INDUSTRIAL ORGANIZATION I (3) LEC. 3. Pr. ECON 7120. or Departmental approval.. Determinants of market structure, effects of market structure on industry performance, theory of the firm, research and development, advertising, and vertical integration.

ECON 8620 INDUSTRIAL ORGANIZATION II (3) LEC. 3. Pr. ECON 7120 or Departmental approval. Case studies in the history and current practice of regulation in the United States at all levels.

ECON 8710 INTERNATIONAL TRADE (3) LEC. 3. Pr., Departmental approval. Trade theory, including classical, neoclassical, factor proportions, and industrial organization. Applied trade theory and empirical applications.

ECON 8720 INTERNATIONAL MACROECONOMICS (3) LEC. 3. Pr., Departmental approval. Theoretical and applied time series analysis at open economy macroeconomic models, international monetary and financial theory, balance of payments theory, and exchange rates.

ECON 8810 LABOR MARKET ANALYSIS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Analysis of labor markets, and determination of wages and other terms of employment. Emphasis on academic studies of labor market issues.

ECON 8820 TOPICS IN LABOR ECONOMICS (3) LEC. 3. Pr. ECON 7110 or Departmental approval. Selected topics, including education and on-the-job training. Labor mobility and immigration, employment discrimination, and the impact of labor unions.

ECON 8970 SPECIAL TOPICS (1-3) IND. Pr., Departmental approval. Advanced topics related to economics. Course may be repeated for a maximum of 12 credit hours.

ECON 8980 ECONOMICS WORKSHOP (1) LEC. 1. Pr., Departmental approval. Individual research projects, presentations, and discussions of the economics profession.

ECON 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Ed Res Methods & Analysis - ERMA

Courses

ERMA 7100 ADVANCED STUDY OF EDUCATIONAL MEASUREMENT AND EVALUATION (3) LEC. 3. Educational measurement and evaluation with special emphasis on uses of measurement data such as standardized testing and emerging evaluation models such as alternative and authentic assessment.
ERMA 7110 EDUCATIONAL PSYCHOLOGY AND ASSESSMENT (3) LEC. 3. Study of educational psychology as it applies to understanding the teaching-learning process. Measurement and evaluation skills will also be covered.

ERMA 7200/7206 BASIC METHODS IN EDUCATION RESEARCH (3) LEC. 3. Major modes of inquiry in contemporary educational research including experimental, casual comparative, descriptive, qualitative inquiry, and action research models. May count either ERMA 7200 or ERMA 7206.

ERMA 7210/7216 THEORY AND METHODOLOGY OF QUALITATIVE RESEARCH (3) LEC. 3. Major modes of qualitative research, their underlying philosophical assumptions about knowledge, and the major strategies for collecting and analyzing relevant data.

ERMA 7220 APPLIED QUALITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7210 or ERMA 7216 or FOUN 7210 or FOUN 7216). Study of detailed strategies of data collection, principles of observation, interviewing, focus groups, recording and coding data, triangulation, strategies for analyzing coded data, and writing up of one's findings.

ERMA 7300/7306 DESIGN AND ANALYSIS IN EDUCATION I (3) LEC. 3. Basic methods of inferential analysis including t-tests, between and within subjects ANOVA, mixed ANOVAs and hierarchical designs as they are utilized in educational research. Departmental approval. May count either ERMA 7300 or ERMA 7306.

ERMA 7310/7316 DESIGN AND ANALYSIS IN EDUCATION II (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300) or (FOUN 7306 or ERMA 7306). Bivariate and multiple correlation and regression analysis, trend analysis, analysis of covariance, and logistic regression, as they are utilized in educational research. Departmental approval. May count either ERMA 7310 or ERMA 7316.

ERMA 7320/7326 APPLIED QUANTITATIVE RESEARCH (3) LEC. 3. Pr. (ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206) and (ERMA 7300 or ERMA 7306) or (FOUN 7300 or FOUN 7306). The study and application of detailed strategies of research study designs, data collection, analysis, and reporting of quantitative data. May count either ERMA 7320 or ERMA 7326. Course may be repeated for a maximum of 6 credit hours.

ERMA 7400 MIXED METHODS RESEARCH (3) LEC. 3. Pr. ERMA 7200 or ERMA 7206 or ERMA 7210 or ERMA 7216 or ERMA 7300 or ERMA 7306. Overview and introduction to the use of mixed methods research in the social and behavioral sciences.

ERMA 7410 RESEARCH METHODS FOR SOCIAL JUSTICE AND EQUITY (3) LEC. 3. Pr. ERMA 7300 or ERMA 7306 or ERMA 7210 or ERMA 7216 or ERMA 7400. This course focuses on critical educational research in the scholar-activist model. Through engaging with critical theoretical frameworks, critical empirical research, and research methods, this course prepares students to produce research and scholarship for social justice and equity in education.

ERMA 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

ERMA 7970/7976 SPECIAL TOPICS IN EDUCATION RESEARCH METHODS & ASSESSMENT (1-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be with a change in topic. Course may be repeated with change in topics.

ERMA 8100/8106 PROGRAM EVALUATION (3) LEC. 3. Study of various theories and models of curriculum evaluation, methodological issues regarding planning and conducting evaluation studies, reporting and using information from evaluation. May count either ERMA 8100 or ERMA 8106.

ERMA 8120 TEACHER EVALUATION (3) LEC. 3. Analysis of research on teaching, classroom observation methods, teaching portfolios, supervision of teachers, license and certification assessment, ethical and legal consideration, and using information to improve teaching.

ERMA 8200/8206 SURVEY RESEARCH METHODS (3) LEC. 3. Overview of survey research, sampling issues, selection and construction of survey instruments, response effects, issues influencing response rate, reliability and validity of survey data, and analysis of survey data. May count either ERMA 8200 or ERMA 8206.

ERMA 8210/8216 PREP RESEARCH FOR PUBLICATION (3) LEC. 3. SU. Pr. (ERMA 7300 or ERMA 7306) and (ERMA 7310 or ERMA 7316) and ERMA 7210 or (FOUN 7210 or FOUN 7216) or (FOUN 7300 or FOUN 7306) or (FOUN 7310 or FOUN 7316). Preparation of graduate student research for publication or presentation at professional conference through practice, group discussions, peer review and feedback from experienced editorial board members. May count either ERMA 8210 or ERMA 8216.
ERMA 8320/8326 DESIGN AND ANALYSIS IN EDUCATION III (3) LEC. 3. Pr. (FOUN 7310 or ERMA 7310) or (ERMA 7316 or FOUN 7316). Discriminate analysis, MANOVA, canonical correlation, path analysis, exploratory and confirmatory factor analysis, and hierarchical linear modeling as they are utilized in educational research. Departmental approval. May count either ERMA 8320 or ERMA 8326.

ERMA 8330 NON-PARAMETRIC DATA ANALYSIS IN EDUCATION RESEARCH (3) LEC. 3. Pr. FOUN 7300 or FOUN 7306 or ERMA 7300 or ERMA 7306. Departmental approval. Common non-parametric statistical tests appropriate for use with nominal and ordinal data in educational applications. These include rank-order correlation, sign tests, median tests, analysis of variance of ranks and log-linear analysis.

ERMA 8340 A PRACTICAL INTRODUCTION TO STRUCTURAL EQUATION MODELING (3) LEC. 3. Pr. (FOUN 8320 or FOUN 8326 or ERMA 8320 or ERMA 8326). Departmental approval. Theory and practice of structural equation modeling techniques as they are utilized in educational research will be developed by expanding concepts of multiple linear regression and exploratory factor analysis to allow for correlation and causally related latent constructs.

ERMA 8350 ADVANCED MEASUREMENT THEORY (3) LEC. 3. Pr. (FOUN 7300 or ERMA 7300 or ERMA 7306 or FOUN 7306) and (FOUN 7310 or ERMA 7310 or FOUN 7316 or ERMA 7316). Introduction to classical and modern (IRT) test theory, measurement properties, differential item functioning, standard and adaptive testing.

ERMA 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with change in topics.

**Educ Psychology - EPSY**

**Courses**

EPSY 7400/7406 ED PSYCH & EDUCATIONAL IMPLICA (3) LEC. 3. Educational psychology theory and research addressing critical problems, challenges, and opportunities in education or other growth-oriented settings. Content ranges from the study of learning to educational evaluation and authentic assessment. May count either EPSY 7400 or EPSY 7406.

EPSY 7410 THE INDIVIDUAL IN THE TEACHING-LEARNING PROCESS (3) LEC. 3. The study of human growth, development, and motivation theory and research, including culture, socio-economic status, language, gender and race as a base for understanding individual differences and their sources.

EPSY 7420/7426 LEARNING THEORY AND EDUCATIONAL PRACTICE (3) LEC. 3. Advanced study of learning theory and research with an emphasis on application to effective design, implementation, and evaluation of instruction. May count either EPSY 7420 or EPSY 7426.

EPSY 7430 MOTIVATION AND ACHIEVEMENT (3) LEC. 3. Social, cultural, and psychological antecedents of achievement motivation are examined. This process requires reviewing theories and research, and emphasis is placed on discerning implications for practice and policy.

EPSY 7440 CLASSROOM MANAGEMENT: SKILLS AND REFLECTION (3) LEC. 3. Advanced study and analysis of existing classroom management discipline models including observation research activity.

EPSY 7450 PERSONAL AND PROFESSIONAL DEVELOPMENT AND PERSONALITY DYNAMICS (3) LEC. 3. Survey of different theories and models of personality leading to in-depth study of theories and models most applicable for use in conceiving of and building personal and professional development plans.

EPSY 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

EPSY 7970 SPECIAL TOPICS IN FOUNDATION OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

EPSY 8410/8416 LEARNING IN THE SOCIAL CONTEXT (3) LEC. 3. Examination of the complex nature of learning as a socially-shared and individualized process. Topics may include the social construction of knowledge, scaffolded instruction, cognitive apprenticeships, and problem based learning. May count either EPSY 8410 or EPSY 8416.
EPSY 8430 TOPICAL SEMINAR IN LEARNING, COGNITION, AND INSTRUCTION (3) LEC. 3. An intensive and advanced study of research and theory on selected topics. Examples include folk theories of mind and alternative methods of studying thinking.

EPSY 8440 ED PSYCH APPRENT SEMINAR (3) LEC. 3. Focuses on the historical foundations of educational psychology as well as possibilities for future disciplinary development.

EPSY 8540 EDUCATIONAL PSYCHOLOGY RESEARCH APPRENTICESHIP SEMINAR (3) LEC. 3. A structured context for students to begin applying what they have learned from their research methods and statistic courses. Students will design and conduct research that contributes to the educational psychological knowledge base.

EPSY 8640 EDUCATIONAL PSYCHOLOGY LEARNING AND INSTRUCTION APPRENTICESHIP SEMINAR (3) LEC. 3. A structured opportunity for students to begin applying educational psychological concepts and theories in the classroom. Students will study theories of learning and instruction and begin to translate and implement these theories into practice.

EPSY 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Course may be repeated with changes in topic.

Educational Leadership - EDLD

Courses

EDLD 7200/7206 SUPERVISION AND PERSONNEL MANAGEMENT (3) LEC. 3. Supervision theory and practice with responsibility for leadership in the recruitment, evaluation and staff development of employees. May count either EDLD 7200 or EDLD 7206.

EDLD 7210/7216 MULTIPROFESSIONAL LEADERSHIP FOR EQUITY (3) LEC. 3. National, state, and local evidence will inform students' understanding of diversity issues in schools. Theories, concepts and principles of leadership from a multidisciplinary, multiprofessional perspective, will be applied to addressing issues of equity in schools. May count either EDLD 7210 or EDLD 7216.

EDLD 7220/7226 ORGANIZATIONAL AND SCHOOL MANAGEMENT (3) LEC. 3. This course will prepare students in understanding legal and ethical responsibilities of school leaders, fiscal revenues and expenditures of Alabama public schools, using action research and components of a comprehensive, ongoing, planning and budgeting program. May count either EDLD 7220 or EDLD 7226.

EDLD 7330/7336 INTRODUCTION TO CURRICULUM AND INSTRUCTIONAL LEADERSHIP (3) LEC. 3. Principles of curriculum development and the leadership skills required to enact it with emphasis on school settings.

EDLD 7340 OVERVIEW OF CURRICULUM PROCESSES (3) LEC. 3. Curriculum as a field of study; the first course required for the ASC concentration in curriculum; an overview of curriculum history, processes, models, and designs.

EDLD 7500/7506 PRINCIPAL LEADERSHIP (3) LEC. 3. Designed to serve instructional leaders in K-12 settings concerning leadership dispositions and leadership theory important to promoting student success and achievement. May count either EDLD 7500 or EDLD 7506.

EDLD 7510/7516 ACTION RESEARCH AND DATA ANALYSIS (3) LEC. 3. Research methodologies to improve instructional and school-based decision-making action, qualitative, and case study techniques applied to school, classroom, or school-community observation. May count either EDLD 7510 or EDLD 7516.

EDLD 7520/7526 LEADERSHIP AND THE LEARNING ORGANIZATION (3) LEC. 3. Management of schools as learning organizations; issues related to student learning and achievement through attention to organizational components. May count either EDLD 7520 or EDLD 7526.

EDLD 7530/7536 PLANNING AND CONTINUOUS IMPROVEMENT (3) LEC. 3. Development of frameworks for collection, analysis, and use of school data for the improvement of instruction, the learning environment, and student achievement. May count either EDLD 7530 or EDLD 7536.

EDLD 7540/7546 INSTRUCTIONAL AND CURRICULAR LEADERSHIP (3) LEC. 3. Curriculum design and development; areas of study include student needs, organizational mission and goals, data driven improvement, change process, diverse faculty, curriculum alignment tools. May count either EDLD 7540 or EDLD 7546.

EDLD 7550/7556 EDUCATIONAL FINANCE AND RESOURCE MANAGEMENT (3) LEC. 3. Preparation of pro-active leaders in school business affairs; use of action research and components of a comprehensive, ongoing, planning and budgeting program; facilities management. May count either EDLD 7550 or EDLD 7556.
EDLD 7560/7566 EDUCATIONAL SYSTEMS AND COMMUNITIES (3) LEC. 3. Change theory, forecasting, trend analysis and application of these concepts to student achievement and school improvement efforts.

EDLD 7570/7576 LEGAL AND ETHICAL ISSUES (3) LEC. 3. Ethical and legal provisions for education communities: emphasis on the support of and belief in the cultural value of a diverse and educated democratic society. May count either EDLD 7570 or EDLD 7576.

EDLD 7580/7586 SUPERVISION AND PERSONNEL ISSUES IN EDUCATION (3) LEC. 3. Policies and practices related to teacher recruitment, selection, evaluation, and professional development; faculty/staff developmental processes that impact student achievement and school improvement efforts. May count either EDLD 7580 or EDLD 7586.

EDLD 7900 DIRECTED STUDIES (1-9) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.

EDLD 7910/7916 PRACTICUM (1-6) PRA. Experience closely relating theory and practice, usually conducted in realistic settings. May count either EDLD 7910 or EDLD 7916. Course may be repeated for a maximum of 6 credit hours.

EDLD 7920 ADMINISTRATIVE INTERNSHIP (1-6) AAB/INT. Departmental approval. Opportunities for interns to internalize and employ administrative skills learned during graduate coursework. Course may be repeated for a maximum of 6 credit hours.

EDLD 7930/7936 ADMINISTRATIVE INTERNSHIP/RESIDENCY (1-6) INT. Ongoing field-based experiences in educational administration; observation, participation, and leading with practicing administrators in school systems. Course may be repeated for a maximum of 6 credit hours.

EDLD 7970 SPECIAL TOPICS (1-9) LEC. Variable content for advanced studies in the area of educational leadership. Course may be repeated for a maximum of 9 credit hours.

EDLD 8200/8206 ASSESSMENT AND EVALUATION IN LEARNING ORGANIZATIONS (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making purposes. May count either EDLD 8200 or EDLD 8206.

EDLD 8210/8216 EDUCATIONAL LEADERSHIP: THEORY AND PRACTICE (3) LEC. 3. Educational leadership theory and applications for K-12 settings. May count either EDLD 8210 or EDLD 8216.

EDLD 8220/8226 PERSONAL AND PROFESSIONAL DEVELOPMENT (3) LEC. 3. Includes theoretical frameworks and applications for successful and systematic mentoring of professionals in organizations. May count either EDLD 8220 or EDLD 8226.

EDLD 8230 SYSTEMIC PLANNING AND BUDGETING (3) LEC. 3. Covers the components and implementation of a comprehensive ongoing planning and budgeting program for learning organizations.

EDLD 8240/8246 TRENDS AND ISSUES IN EDUCATIONAL ADMINISTRATION (3) LEC. 3. Trends and issues affecting educational institutions with particular attention to development of administrative procedures to cope with educational changes. May count either EDLD 8240 or EDLD 8246.

EDLD 8250/8256 ORGANIZATIONAL POWER, POLITICS AND POLICY FORMATION (3) LEC. 3. Analysis of social forces, antecedent movements, and political actions affecting organizations. The study of policy development and practice. May count either EDLD 8250 or EDLD 8256.

EDLD 8260/8266 THEORY AND DEVELOPMENT OF ORGANIZATIONS (3) LEC. 3. Theoretical frameworks of educational organizations. May count either EDLD 8260 or EDLD 8266.

EDLD 8270/8276 LEADERSHIP IN FINANCE AND MANAGEMENT (3) LEC. 3. Theory and practice of instructional leadership related to personnel and fiscal management of a school or school district. May count either EDLD 8270 or EDLD 8276.

EDLD 8280 THE SUPERINTENDENCY IN EDUCATION (3) LEC. 3. Theoretical frameworks of educational organizations.

EDLD 8300/8306 CURRICULUM THEORY AND PRACTICE (3) LEC. 3. Advanced course dealing with application of curriculum theories with an emphasis on the impact of philosophical and theoretical beliefs on practice.

EDLD 8310/8316 LEADERSHIP IN THE DEVELOPMENT AND APPLICATION OF CURRICULUM AND THEORY DESIGN (3) LEC. 3. Application of transformative leadership in the design, delivery, and evaluation of curriculum in a wide variety of organizational settings. May count either EDLD 8310 or EDLD 8316.
EDLD 8320/8326 CURRICULUM LEADERSHIP FOR ORGANIZATIONS (3) LEC. 3. Pr. EDLD 7340 and EDLD 8300 and EDLD 8310 or EDLD 8316. For those considering a career in upper level management. Focuses on context, societal, and political influences related to curriculum processes and organizational change. Departmental approval. May count either EDLD 8320 or EDLD 8326.

EDLD 8340/8346 TRANSFORMATIONAL PROCESSES AND ORGANIZATIONAL CHANGE (3) LEC. 3. Organizational and transformational change at personal, interpersonal, and institutional levels. May count either EDLD 8340 or EDLD 8346.

EDLD 8400/8406 ETHICS FOR LEADERS (3) LEC. 3. Theory and practice of ethics and the role of ethical and personal integrity for leaders in the context of educational organizations and the communities they serve. May count either EDLD 8400 or EDLD 8406.

EDLD 8480 INSTITUTIONAL RESEARCH AND DECISION SUPPORT (3) LEC. 3. Components of institutional research and assessment programs that can support the comprehensive planning, decision support, and management needs of the institution.

EDLD 8600/8606 MENTORING FOR CAREER DEVELOPMENT (3) LEC. 3. Assist graduate students in discovering how mentoring can enhance their career/professional development and benefit their organizations. May count either EDLD 8600 or EDLD 8606.

EDLD 8940/8946 DIRECTED FIELD EXPERIENCE IN EDUCATIONAL LEADERSHIP (1-6) FLD. Field-based experience in diverse settings to develop knowledge, skills, and abilities in an area of special interest. Course may be repeated for a maximum of 6 credit hours.

EDLD 8950/8956 SEMINAR (3) SEM. 3. Professional and social integration into doctoral program; enhancement of professional knowledge through structured inquiry, professional dialogue, and reflective thinking. May count either EDLD 8950 or EDLD 8956. Course may be repeated for a maximum of 6 credit hours.

EDLD 8980/8986 PROJECT ANALYSIS (3) LEC. 3. Problem solving, reflective practice and action research and used for continuous school improvement. Provides opportunities to engage in diverse field based research projects. May count either EDLD 8980 or EDLD 8986.

EDLD 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 hours. Course may be repeated with change in topics.

Educational Media - EDMD

Courses

EDMD 3300 UTILIZATION OF INSTRUCTIONAL TECHNOLOGY FOR EDUCATORS (2) LEC. 1. LAB. 2. Basics of current and emerging instructional & communication technologies with primary emphasis on curricular integration. Location, selection, and application of technology resources (WWW, commercially authored software, etc.) for curricular needs with emphasis on developmental stages, learning styles and learning technologies. Limited to majors requiring teaching certification.

EDMD 5000 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments.

EDMD 5100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 6000/6006 INSTRUCTIONAL TECHNOLOGY FOR TEACHING AND LEARNING (3) LEC. 3. Introduction to the systematic application of instructional technologies in teaching and learning environments. May count either EDMD 6000 or EDMD 6006.

EDMD 6100 MEDIA FOR CHILDREN (3) LEC. 3. Examination and evaluation of current literature in print and other formats, including oral literature. Focuses on literary and instructional criteria for selecting and utilizing media.

EDMD 7000/7006 INSTRUCTIONAL DESIGN AND DEVELOPMENT (3) LEC. 3. Theory, problems, procedures, and standards in the utilization of technology in instructional design and development. May count either EDMD 7000 or EDMD 7006.

EDMD 7010/7016 INSTRUCTIONAL AND INFORMATION TECHNOLOGIES (3) LEC. 3. Evaluation, selection, and use of traditional and current technologies for instruction, information, and administration in learning environments. May count either EDMD 7010 and EDMD 7016.

EDMD 7020/7026 PRINCIPLES OF GRAPHIC DESIGN FOR INSTRUCTION (3) LEC. 3. Principles of graphic design and visual literacy to facilitate the presentation of information. Criteria for graphics utilization examined. May count either EDMD 7020 or EDMD 7026.
EDMD 7100/7106 SELECTION AND USE OF MEDIA FOR YOUTH (3) LEC. 3. Evaluation, selection, and use of print and non-print media for youth, including materials for multi-cultural, special and gifted education. May count either EDMD 7100 or EDMD 7106.

EDMD 7110/7116 BIBLIOGRAPHIC DESCRIPTION, ORGANIZATION AND CONTROL (3) LEC. 3. Principles and procedures of describing, classifying and organizing resources with applications using new technologies. May count either EDMD 7110 or EDMD 7116.

EDMD 7120/7126 INFORMATION SOURCES, SERVICES AND INSTRUCTION (3) LEC. 3. An overview of information needs, services, and print and electronic resources; ways to teach information literacy skills. May count either EDMD 7120 or EDMD 7126.

EDMD 7130/7136 ADMINISTRATION OF MEDIA AND TECHNOLOGY SERVICES (3) LEC. 3. Functions of and planning for media and technology services. Budget, evaluation, facilities, guidelines, legal issues, personnel and policies. May count either EDMD 7130 or EDMD 7136.

EDMD 7200/7206 APPLIED INSTRUCTIONAL DESIGN (3) LEC. 3. Pr. EDMD 7000 or EDMD 7006. Applying instructional design skills, students will plan, develop, implement and assess instructional products using appropriate technologies. May count either EDMD 7200 or EDMD 7206.

EDMD 7210/7216 INTEGRATION OF TECHNOLOGY INTO CURRICULUM (3) LEC. 3. Learner competence in integration of technology into curriculum, including designing and writing software and plans for using computers in instruction. May count either EDMD 7210 or EDMD 7216.

EDMD 7230/7236 THEORY AND PRACTICE OF DISTANCE EDUCATION (3) LEC. 3. Theories, concepts, and tools that support distance education, with emphasis on application in design, development, and implementation of distance education instruction. May count either EDMD 7230 or EDMD 7236.

EDMD 7300/7306 RESEARCH IN INSTRUCTIONAL TECHNOLOGY (3) LEC. 3. Pr. ERMA 7200 or FOUN 7200 or ERMA 7206 or FOUN 7206. A forum for sharing research perspectives, exploring processes involved in defining research problems and analyzing research theories, problems, and methods in instructional technology. May count either EDMD 7300 or EDMD 7306.

EDMD 7310/7316 EVALUATION OF MEDIA AND TECHNOLOGY PROGRAMS (3) LEC. 3. Factors contributing to effective media and technology programs. Understanding of research process and experience with media and technology services assumed. May count either EDMD 7310 or EDMD 7316.

EDMD 7320/7326 ADVANCED INFORMATION SOURCES AND SERVICES (3) LEC. 3. Electronic databases, advanced searching techniques, information representation, and the role of the media specialist in networking and creating electronic information sources. May count either EDMD 7320 or EDMD 7326.

EDMD 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor of student's work accomplished at regular intervals.

EDMD 7910/7916 PRACTICUM (1-6) PRA. SU. Experiences closely relating theory and practice, usually conducted in realistic settings. Course may be repeated for a maximum of 6 credit hours.

EDMD 7920/7926 CLINICAL RESIDENCY (1-6) INT. SU. Pr. (P/C EDMD 7120 or P/C EDMD 7126) and (P/C EDMD 7130 or P/C EDMD 7136). Supervised experience in a school media center or other appropriate setting. These experiences, accompanied by regularly scheduled meetings with the university supervisor, provide evaluation and analysis of the intern experience. May count either EDMD 7920 or EDMD 7926. Course may be repeated for a maximum of 6 credit hours.

EDMD 7930 TEACHING APPRENTICESHIP (3) SEM. 3. Departmental approval. A structured opportunity for students to apply educational media concepts and theories in the college classroom. Course may be repeated for a maximum of 6 credit hours.

EDMD 7940/7946 DIRECTED FIELD EXPERIENCE (3-6) FLD. SU. Pr. FOUN 7200 or ERMA 7200 or ERMA 7206 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques. Course may be repeated for a maximum of 6 credit hours.

EDMD 7970/7976 SPECIAL TOPICS IN INSTRUCTIONAL TECHNOLOGY (3-9) LEC. Opportunity for study of current topics related to the field of instructional technology. Course may be repeated for a maximum of 9 credit hours.

EDMD 7980/7986 FIELD PROJECT (3-6) INT. SU. Pr. ERMA 7200 or ERMA 7206 or FOUN 7200 or FOUN 7206. Field-based study in the area of media and technology. Addresses a scholarly concern of the student and is conducted using valid research techniques.
Electrical and Computer En - ELEC

Courses

ELEC 2110 ELECTRIC CIRCUIT ANALYSIS (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (COMP 1200 or COMP 1210 or COMP 1217) and (P/C ENGR 1110 or P/C ENGR 1113) and P/C MATH 2650. Basic laws and concepts; resistive circuits; first-order transient circuits; phasors and frequency response of circuits; RMS values and complex power.

ELEC 2120 LINEAR SIGNALS AND SYSTEMS ANALYSIS (3) LEC. 3. Pr. ELEC 2110 and MATH 2650. Time-domain and frequency-domain methods for modeling and analyzing continuous and discrete-data signals and systems.

ELEC 2200 DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. COMP 1200 or COMP 1210 or COMP 1217. Electronic devices and digital circuits; binary numbers; Boolean algebra and switching functions; gates and flip-flops; combinational and sequential logic circuits; hierarchical design of digital systems; computer-aided design tools for digital design, simulation, and testing.

ELEC 2210 DIGITAL ELECTRONICS (4) LEC. 3. LAB. 3. Pr. ELEC 2110 and ELEC 2200. History of electronics; semiconductors; biasing and operation of PN junction diodes; field-effect transistors and bipolar junction transistors; logic families and logic technologies; flip-flops and memory circuitry.

ELEC 2220 COMPUTER SYSTEMS (3) LEC. 3. Pr. ELEC 2200. Computer hardware/software organization, processor programming models, assembly language programming, design of memory systems, I/O device interfacing, programming and multiprocessing.

ELEC 3030 RF SYSTEMS LAB (1) LAB. 3. Pr. ELEC 2210. Assembly, testing and analysis of a radio. Integration of basic concepts of electronics, electromagnetics, and signals and systems.

ELEC 3040 ELECTRICAL SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2220 and ELEC 3030 and P/C ELEC 3500. Exploration and integration of electrical engineering concepts and professional practice issues through the design of a contemporary engineering system.

ELEC 3050 EMBEDDED SYSTEM DESIGN LAB (1) LAB. 3. Pr. ELEC 2210 and ELEC 2220. Integration of hardware and software in the design of an embedded computing system; development of professional skills.

ELEC 3060 WIRELESS DESIGN LAB (1) LAB. 3. Pr. ELEC 3400. Laboratory experiments geared towards understanding the implementation and testing of components used in wireless communication systems.

ELEC 3310 FUNDAMENTALS OF APPLIED ELECTROMAGNETICS (3) LEC. 3. Pr. MATH 2660 and ELEC 2110. Transmission lines are studied as a bridge to understanding electromagnetic theory. Then, electric and magnetic fields are studied using vector algebra, culminating in Maxwell's equations.

ELEC 3320 ELECTROMAGNETICS FOR WIRELESS COMMUNICATION (3) LEC. 3. Pr. ELEC 3310. Maxwell's equations are used in the study of plane waves, guided waves, fiber optics, electromagnetic compatibility and interference, antennas and radiation, and satellite communication systems.

ELEC 3400 COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3800. Pulse code modulation, line coding, information rate, equalization, amplitude modulation, angle modulation, noise in communication systems.

ELEC 3500 CONTROL SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Analog and discrete transfer function models, system response specifications, control system characteristics, root locus analysis and design, frequency response analysis and design.

ELEC 3600 ELECTRIC POWER ENGINEERING (3) LEC. 3. Pr. ELEC 2110. Introduction to the basic concepts in electric power engineering.


ELEC 3800 RANDOM SIGNALS AND SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Introduction to probability, random variables, random processes and basic statistics, analysis of random signals and noise.

ELEC 3810 FUNDAMENTALS OF ELECTRICAL ENGINEERING (3) LEC. 3. Electrical circuit analysis; electronic devices, digital systems, amplifier concepts, power devices and systems. Not open to ECE majors.
ELEC 4000 SENIOR DESIGN PROJECTS (3) LEC. 3. Pr. ELEC 3040 or ELEC 3050 or ELEC 3060. A capstone design project which draws on the accumulated curricular experience. Particular project sections may have additional prerequisites.

ELEC 4200 DIGITAL SYSTEM DESIGN (3) LEC. 2. LAB. 3. Pr. ELEC 2210 and ELEC 2220. Hierarchical, modular design of digital systems, computer-aided digital system modeling, simulation, analysis, and synthesis; design implementation with programmable logic devices and FPGAs.

ELEC 4800 INSTRUMENTATION ENGINEERING (3) LEC. 2. LAB. 3. Pr. ELEC 3040 or ELEC 3050. Study and application of sensors, instrumentation and computer technology to research and industrial process control.

ELEC 4810 LONG TERM TECHNOLOGY DEVELOPMENT AND PROJECT MANAGEMENT (1-2) LAB. Pr. ELEC 2120. Departmental approval. Students participate in ongoing electrical, computer, or wireless engineering design projects and competitions while learning project management and organization strategies. May be repeated for up to three credit hours. Course may be repeated for a maximum of 2 credit hours.

ELEC 4980 SPECIAL PROJECTS (1-3) IND. Departmental approval. Supervised study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

ELEC 5100 WIRELESS COMMUNICATION SYSTEMS (3) LEC. 3. Pr. ELEC 3400. Introduction to mobile cellular radio and wireless personal communications, mobile radio propagation, modulation techniques, multiple access techniques, wireless systems and standards.

ELEC 5110 WIRELESS NETWORKS (3) LEC. 3. Pr. ELEC 3400. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 5120 TELECOMMUNICATION NETWORKS (3) LEC. 3. Pr. ELEC 3400. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 5130 RF DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 3700. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 5150 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 5190 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Pr. ELEC 3700. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on front-end design skills.

ELEC 5200 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Pr. ELEC 4200. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 5220 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 5230 PARALLEL PROCESSING (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Hardware components of multiprocessor systems including processor, inter-connection, memory and control architectures; software elements of parallel processing.


ELEC 5250 COMPUTER AIDED DESIGN OF DIGITAL LOGIC CIRCUITS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 5260 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. Pr. ELEC 2220 or COMP 3350. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.
ELEC 5270 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Pr. ELEC 2210. Departmental approval. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits.

ELEC 5280 BUILT-IN-SELF-TEST (3) LEC. 3. Pr. ELEC 2210. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.

ELEC 5310 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Pr. P/C ELEC 3320. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 5320 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 5340 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Pr. ELEC 3320 and ELEC 3700. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 5350 RADAR PRINCIPLES (3) LEC. 3. Pr. ELEC 3320 and ELEC 3800. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 5360 BIOMEDICAL APPLICATIONS OF ELECTROMAGNETICS (3) LEC. 3. Pr. ELEC 3310. Development of medical instrumentation using electromagnetic principles; focus on magnetic resonance imaging systems.

ELEC 5410 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Pr. ELEC 3800. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 5530 MOBILE ROBOT DESIGN (3) LEC. 3. Pr. ELEC 3040 or ELEC 3050. Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization.


ELEC 5620 POWER SYSTEM ANALYSIS (3) LEC. 3. Pr. ELEC 3600. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.


ELEC 5650 POWER SYSTEM PROTECTION (3) LEC. 3. Pr. ELEC 3600. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 5670 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. Pr. ELEC 3600. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 5700 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Pr. ELEC 3700. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 5710 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5700. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 5730 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 5740 ELECTRONICS MANUFACTURING (3) LEC. 2. LAB. 3. Pr. ELEC 2210. Departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 5750 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Pr. ELEC 3320. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.
ELEC 5760 SOLID STATE SENSORS (3) LEC. 3. Pr. ELEC 3700. Theory, technology and design micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.

ELEC 5770 VLSI DESIGN (3) LEC. 3. Pr. ELEC 2210 and ELEC 2220. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 5780 ANALOG CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 3700. Departmental approval. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 5810 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Pr. ELEC 2120. Departmental approval. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 5820 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 5970 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics.

ELEC 6110/6116 WIRELESS NETWORKS (3) LEC. 3. Introduction to wireless broadband, satellite communication, wireless local area networks, Bluetooth and Home RF standards and Internet protocol and wireless access.

ELEC 6120/6126 TELECOMMUNICATION NETWORKS (3) LEC. 3. Principles and building blocks of telecommunication systems, including switched telephone networks, voice and data networks, transmission technologies, and switching architectures.

ELEC 6130/6136 RF DEVICES AND CIRCUITS (3) LEC. 3. Introduction to RF semiconductor devices and circuits targeted for wireless applications.

ELEC 6150/6156 INFORMATION SECURITY (3) LEC. 3. Departmental approval. Emerging protocols, standards and technologies of information security; design of information network security using firewalls, virtual private networks and secured applications.

ELEC 6190/6196 INTRODUCTION TO DIGITAL AND ANALOG IC DESIGN (3) LEC. 3. Digital IC design using Verilog, analog and mixed signal IC design using industry standard tools; emphasis on on front-end design skills.

ELEC 6200/6206 COMPUTER ARCHITECTURE AND DESIGN (3) LEC. 3. Structural organization and hardware design of digital computers; register transfers; micro-operations, control units and timing; instruction set design; input/output devices, multiprocessors, automated hardware design aids.

ELEC 6220/6226 INFORMATION NETWORKS AND TECHNOLOGY (3) LEC. 3. Architectures, protocols, standards and technologies of information networks; design and implementation of information networks; applications of information networks for data, audio and video communications.

ELEC 6230/6236 PARALLEL PROCESSING (3) LEC. 3. Hardware components of multiprocessor systems including processor, interconnection, memory and control architectures; software elements of parallel processing.


ELEC 6250/6256 COMPUTER AIDED DESIGN OF DIGITAL LOGIC CIRCUITS (3) LEC. 3. Computer-automated design of digital logic circuits using discrete gates, programmable logic devices, and standard cells; hardware description languages, circuit simulation for design verification and analysis, fault diagnosis and testing.

ELEC 6260/6266 EMBEDDED COMPUTING SYSTEMS (3) LEC. 3. The design of systems containing embedded computers. Microcontroller technology, assembly language and C programming, input/output interfacing, data acquisition hardware, interrupts, and timing. Real-time operating systems and application programming. Embedded system application examples.

ELEC 6270/6276 LOW-POWER DESIGN OF ELECTRONIC CIRCUITS (3) LEC. 3. Departmental approval. Design of digital circuits and systems for reduced power consumption, power analysis algorithms, low-power MOS technologies, low-power design architectures for FPGAs, memory, and microprocessors, reduction of power in testing of circuits.
ELEC 6280/6286 BUILT-IN-SELF-TEST (3) LEC. 3. Testing during product life-cycle, fault models and detection, design for testability, test pattern generation, output response analysis, concurrent fault detection, manufacturing and system use, built-in self-test approaches and applications.

ELEC 6310/6316 DESIGN OF ANTENNAS AND ANTENNA SYSTEMS (3) LEC. 3. Application of electromagnetic and circuit concepts to the design of practical antennas and antenna systems.

ELEC 6320/6326 ELECTROMAGNETIC COMPATIBILITY (3) LEC. 3. Electromagnetic noise coupling, designing for electromagnetic compatibility (EMC), EMC regulation, noise sources, standard techniques for eliminating noise, circuit layout for reduced electromagnetic interference (EMI).

ELEC 6340/6346 MICROWAVE AND RF ENGINEERING (3) LEC. 3. Application of electromagnetic and electronic concepts to the design of practical microwave devices and circuits typically used in wireless communications.

ELEC 6350/6356 RADAR PRINCIPLES (3) LEC. 3. Study of the fundamentals of RADAR and related systems such as SONAR and LIDAR.

ELEC 6360/6366 BIOMEDICAL APPLICATIONS OF ELECTROMAGNETICS (3) LEC. 3. Development of medical instrumentation using electromagnetic principles; focus on magnetic resonance imaging systems.

ELEC 6410/6416 DIGITAL SIGNAL PROCESSING (3) LEC. 3. Digital processing of signals, sampling difference equations, discrete-time Fourier transforms, discrete and fast Fourier transforms, digital filter design.

ELEC 6530/6536 MOBILE ROBOT DESIGN (3) LEC. 3. Fundamentals of mobile robot design, including motor control, sensor integration, path planning, navigation, and localization. Departmental Approval.


ELEC 6620/6626 POWER SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Power system modeling, power flow analysis, analysis of faulted power systems.


ELEC 6650/6656 POWER SYSTEM PROTECTION (3) LEC. 3. Fault analysis using symmetrical components. Power switchgear, including switches, disconnects, fuses, relays and circuit breakers. Fundamentals of electric power system protection, including bus, transformer and line protection.

ELEC 6670/6676 ELECTRIC POWER ENGINEERING TOPICS (1-3) LEC. Various topics representing state-of-the-art power technology. Course may be repeated for a maximum of 12 credit hours.

ELEC 6700/6706 SEMICONDUCTOR FUNDAMENTALS (3) LEC. 3. Introduction to semiconductors: crystal structure, energy band theory, equilibrium electron and hole statistics, doping, generation and recombination processes, carrier drift and diffusion, transport equations.

ELEC 6710/6716 SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Introduction to semiconductor devices: pn junctions, junction diode based devices, optoelectronic devices, bipolar transistors, field effect transistors.

ELEC 6730/6736 MICROELECTRONIC FABRICATION (3) LEC. 2. LAB. 3. Departmental approval. Introduction to monolithic integrated circuit technology. Bipolar and MOS processes and structures. Elements of layout, design, fabrication, and applications. Experiments in microelectronic technologies.

ELEC 6740/6746 ELECTRONICS MANUFACTURING (3) LEC. 2. LAB. 3. Departmental approval. Materials and processes used to manufacture electronic products. Particular attention is given to substrate technology and electronics assembly.

ELEC 6750/6756 INTRODUCTION TO PLASMA ENGINEERING (3) LEC. 3. Departmental approval. Electrical breakdown and discharges in gases, basic plasma theories, applications of plasmas, plasma processing for microelectronic fabrication.

ELEC 6760/6766 SOLID STATE SENSORS (3) LEC. 3. Theory, technology and design of micro-machined sensors and related sensor technologies; and the application of micro-machined sensors.
ELEC 6770/6776 VLSI DESIGN (3) LEC. 3. Review of MOS transistor fundamentals, CMOS logic circuits; VLSI fabrication and design rules; clocking strategies and sequential design; performance estimation; memories and programmable arrays; standard cell design methodologies; computer aided design (CAD) tools.

ELEC 6780/6786 ANALOG CIRCUIT DESIGN (3) LEC. 3. Circuit design techniques used for implementing analog integrated circuits in both CMOS and bipolar technologies.

ELEC 6810/6816 COMPUTED IMAGING SYSTEMS (3) LEC. 3. Introduction to computed imaging systems such as magnetic resonance imaging (MRI) and computed tomography (CT).

ELEC 6820/6826 MEMS TECHNOLOGY (3) LEC. 3. Departmental approval. Introduction to Micro-Electro-Mechanical Systems (MEMS), the study of the materials and microfabrication processes used to fabricate MEMS devices, the principles of operation of MEMS devices, and an introduction to the different application areas of MEMS devices.

ELEC 6970/6976 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 24 credit hours.

ELEC 7190/7196 ADVANCED RFIC DESIGN FOR WIRELESS COMMUNICATIONS (3) LEC. Pr. ELEC 5190 or ELEC 6190 or ELEC 6196. Wireless standards and multi-standard transceiver architectures, SiGe and CMOS RFIC designs for wireless transceiver building blocks, software defined radios, phase array radars, ultra-high speed data converters, and MIMO wireless transceivers.

ELEC 7250/7256 VLSI TESTING (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Exponential nature of the test problem, fault models, test generation algorithms, test generation for sequential circuits, fault simulation, testability measures, fault coverage, yield and defect levels, design-for-testability approaches.


ELEC 7320/7326 ADVANCED ELECTRODYNAMICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Cylindrical wave functions. Spherical wave functions. Scattering by cylinders and spheres. Perturbational and variational techniques.

ELEC 7340/7346 COMPUTATIONAL ELECTROMAGNETICS I (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Solution of electromagnetic scattering, radiation, and coupling problems using method of moments, finite-difference, finite-element, transmission-line matrix and other advanced computational methods.

ELEC 7350/7356 COMPUTATIONAL ELECTROMAGNETICS II (3) LEC. 3. Pr. ELEC 7310 or ELEC 7316. Solutions of electromagnetic scattering, radiation, and coupling problems using a variety of common asymptotic techniques.

ELEC 7410/7416 STOCHASTIC SIGNAL AND SYSTEM ANALYSIS (3) LEC. 3. Departmental approval. Applications of probability, random variables and stochastic processes in electrical engineering.

ELEC 7420/7426 ADAPTIVE SIGNAL PROCESSING (3) LEC. 3. Coreq. ELEC 7410. Least mean square and recursive least square algorithms; adaptive FIR and IIR filters, lattice filters, Kalman filters; adaptive system identification and its application in communications and control.

ELEC 7430/7436 ADVANCED COMMUNICATION THEORY (3) LEC. 3. Principles of modern communication systems. Elements of information theory, source encoding, efficient signaling with coded waveforms, convolutional codes; carrier recovery and synchronization under AGN channel; adaptive equalization; maximum likelihood estimation, Viterbi algorithm. Departmental Approval.

ELEC 7440/7446 WIRELESS COMMUNICATION THEORY (3) LEC. 3. Pr. ELEC 3400 or ELEC 7410 or ELEC 7416. The basic of design, analysis and performance limits of wireless communication systems.

ELEC 7450/7456 DIGITAL IMAGE PROCESSING (3) LEC. 3. Departmental approval. Digital image processing principles and applications such as enhancement, restoration and compression.

ELEC 7500/7506 STATE-VARIABLE ANALYSIS OF SYSTEMS (3) LEC. 3. Departmental approval. Matrices and linear spaces; state variable for linear continuous and discrete systems; applications in analysis and design of control systems.

ELEC 7560/7566 NONLINEAR SYSTEMS AND CONTROL (3) LEC. 3. Pr. ELEC 7500 or ELEC 7506. Departmental approval. Principles of nonlinear system modeling and analysis; nonlinear control systems design; nonlinear system state estimation.

ELEC 7610/7616 POWER SYSTEM DYNAMICS AND STABILITY (3) LEC. 3. Pr. (ELEC 5620 or ELEC 6620 or ELEC 6626) and (ELEC 5650 or ELEC 6650 or ELEC 6656). Departmental approval. Dynamic models of power systems and analysis of power system stability.

ELEC 7620/7626 POWER SYSTEM OPERATION (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Unit commitment, power system security, state estimation, power system control centers and real-time applications.

ELEC 7630/7636 ADVANCED ELECTRIC MACHINES (3) LEC. 3. Pr. ELEC 5630 or ELEC 6630 or ELEC 6636. Departmental approval. Advanced machine modeling, including Kron's generalized machine theory, Park's transformation, and generalized coordinate transformations. Derivation of traditional machine models. Machine non-linearities, including finite element analysis.

ELEC 7640/7646 POWER SYSTEM TRANSIENTS (3) LEC. 3. Pr. ELEC 5620 or ELEC 6620 or ELEC 6626. Departmental approval. Transients in electric power systems, including lightning and switching phenomena. Traveling waves on power transmission lines, BIL, BSL, line insulation. System modeling.

ELEC 7710/7716 THE FIELD-EFFECT TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern field-effect transistor: the state-of-the art, the MOS capacitor, the 4-terminal MOSFET, short and narrow-channel effects, reliability, scaling theory, modeling, silicon-on-insulator technology, heterostructure devices.

ELEC 7720/7726 THE BIPOLAR TRANSISTOR (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of the modern bipolar junction transistor; the state-of-the-art, terminal currents, solutions for arbitrary doping profiles, the polysilicon emitter contact, high-injector effects, dynamic operation, device models, heterojunction bipolar transistors.

ELEC 7730/7736 ADVANCED PLASMA PROCESSING FOR MICROELECTRONIC FABRICATION (3) LEC. 3. Pr. ELEC 5750 or ELEC 6750 or ELEC 6756. Departmental approval. Plasma reactor design and process optimization, plasma-assisted etching and deposition processes, plasma-assisted oxidation and surface modification processes, plasma polymerization, plasma-induced damages to semiconductor devices.

ELEC 7740/7746 ELECTRONIC PACKAGING (3) LEC. 3. Pr. ELEC 5740 or ELEC 6740 or ELEC 6746. Departmental approval. Design issues in the packaging of electronics. Emphasis is placed on physical design, electrical performance, thermal characteristics and mechanical stress-induced failures.

ELEC 7750/7756 LOW TEMPERATURE ELECTRONICS (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of electronic devices operating at reduced temperatures: the case for cryogenic computers, semiconductor physics at low temperatures, carrier freeze-out, cooled CMOS technology, cooled bipolar technology, superconductors, packaging.

ELEC 7760/7766 SILICON-BASED HETEROSTRUCTURE DEVICES AND CIRCUITS (3) LEC. 3. Pr. ELEC 5700 or ELEC 6700 or ELEC 6706. Departmental approval. Bandgap engineering, strained SiGe and Si, SiGe BiCMOS technology, noise, linearity, circuits applications.

ELEC 7770/7776 ADVANCED VLSI DESIGN (3) LEC. 3. Pr. ELEC 5770 or ELEC 6770 or ELEC 6776. Departmental approval. Review of CMOS logic circuits; impact of fabrication issues on design; high speed switching circuits; high performance memory structures; advanced clocking strategies and clock distribution; performance optimization; deep submicron design issues; ASIC design flow: logic synthesis, placement and routing; design verification; low power design.

ELEC 7780/7786 RF MICROELECTRONICS (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Techniques used in the design of monolithic integrated circuits for RF applications.

ELEC 7800/7806 ADVANCED COMPUTATIONAL TECHNIQUES FOR ELECTRICAL ENGINEERING (3) LEC. 3. Introduction to high level programming techniques in electrical engineering applications; topics include linear systems analysis, system identification, nonlinear dynamic systems, and electromagnetic applications. Departmental Approval.

ELEC 7830/7836 PHOTOVOLTAICS (3) LEC. 3. Departmental Approval. Theory, technology, design and application of photovoltaic devices and systems.

ELEC 7900 INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.
ELEC 7950 ELECTRICAL ENGINEERING SEMINAR (1-10) SEM. SU. Course may be repeated for a maximum of 10 credit hours.

ELEC 7970/7976 SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change of topic. Course may be repeated for a maximum of 24 credit hours.

ELEC 7990 RESEARCH AND THESIS (1-6) MST. Course may be repeated for a maximum of 6 credit hours.

ELEC 8120/8126 PRINCIPLES OF NETWORK PERFORMANCE ANALYSIS (3) LEC. 3. Pr. (ELEC 5120 or ELEC 6120 or ELEC 6126) and (ELEC 7410 or ELEC 7416). Data network performance analysis, queueing systems, admission control, network traffic modeling, network calculus, flow and congestion control, wireless network analysis, and network simulation.

ELEC 8410 SPECTRAL ESTIMATION AND SYSTEM IDENTIFICATION (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Elements of parameter estimation theory; Nonparametric spectral estimation: periodogram and spectral windows; Parametric approaches; applications; higher-order spectral analysis; input-output system identification.

ELEC 8420 DETECTION AND ESTIMATION THEORY (3) LEC. 3. Pr. ELEC 7410 or ELEC 7416. Decision theory concepts. Detection of deterministic and random signals in noise; parameter estimation. Bayesian and maximum likelihood approaches, non-random and random parameter estimation; signal estimation.


ELEC 8710 ADVANCED TOPICS IN SEMICONDUCTOR DEVICES (3) LEC. 3. Pr. ELEC 5710 or ELEC 6710 or ELEC 6716. Advanced treatment of selected topics in semiconductor devices. Course may be repeated for a maximum of 6 credit hours.

ELEC 8780 CONTEMPORARY TOPICS IN ELECTRICAL CIRCUIT DESIGN (3) LEC. 3. Pr. ELEC 5780 or ELEC 6780 or ELEC 6786. Departmental approval. Contemporary topics in electronic circuit design such as Delta-Sigma A/D and D/A conversion, switched capacitor circuitry, continuous time and discrete time filter design, communications electronics. Course may be repeated for a maximum of 6 credit hours.

ELEC 8900 ADVANCED INDEPENDENT STUDY (1-3) IND. Departmental approval. Supervised study in specialized areas of electrical and computer engineering.

ELEC 8970 ADVANCED SPECIAL TOPICS (1-5) LEC. Departmental approval. Study of a specialized area of electrical and computer engineering not covered by regularly offered courses. Course may be repeated with change in topics. Course may be repeated for a maximum of 9 credit hours.

ELEC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Elementary Education - CTEE

Courses

CTEE 3100 INTRODUCTION TO ELEMENTARY EDUCATION (3) LEC. 3. Admission to Teacher Education. Knowledge, skills, and dispositions necessary for elementary education, with emphasis on professional expectations and school structure.

CTEE 4010 CURRICULUM: SOCIAL SCIENCE (4) LEC. 30. LAB. 105. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of social sciences for elementary learners.

CTEE 4020 CURRICULUM: LANGUAGE ARTS (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4010. Admission to Teacher Education. Pedagogical content knowledge in the major concepts and modes of inquiry for integrated study of language arts for elementary learners.

CTEE 4030 CURRICULUM: NATURAL SCIENCE (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4040. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of science for elementary learners.

CTEE 4040 CURRICULUM: MATHEMATICS (4) LEC. 30. LAB. 105. Pr. P/C CTEE 4030. Admission to Teacher Education. Pedagogical content knowledge, principles, and standards in the major concepts and modes of inquiry for integrated study of mathematics for elementary learners.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>CTEE 4190</td>
<td>EFFECTIVE CLASSROOM MANAGEMENT IN THE ELEMENTARY SCHOOL (3)</td>
<td>LEC. 2, LAB. 2.</td>
<td>Admission to Teacher Education. Through exploration, discussion, reflection, and analysis students will study issues pertaining to inclusive/multicultural K-6 classrooms. Issues related to classroom management (e.g. behavior and time management), students with special needs, parent/community relations, legal mandates, technology, planning, and professionalism.</td>
</tr>
<tr>
<td>CTEE 4900</td>
<td>DIRECTED STUDIES (1-6)</td>
<td>IND. SU.</td>
<td>Departmental approval. Reading, research, or other work undertaken by a student focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>CTEE 4910</td>
<td>PRACTICUM (1-6)</td>
<td>AAB/PRA.</td>
<td>SU. Departmental approval. Students and faculty cooperatively select an appropriate field experience. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>CTEE 4920/4923</td>
<td>CLINICAL RESIDENCY (11) AAB/INT. 11. SU. Pr. P/C CTEE 4950 or P/C CTEE 4953.</td>
<td>Admission to Teacher Education. Supervised teaching in a public elementary school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Admission to internship. May count either CTEE 4920 or CTEE 4923.</td>
<td></td>
</tr>
<tr>
<td>CTEE 4950/4953</td>
<td>PROFESSIONAL DEVELOPMENT SEMINAR (1-4) AAB/SEM. 1. SU. Pr. P/C CTEE 4920 or P/C CTEE 4923.</td>
<td>Admission to Teacher Education. Reflection, exploration, and study of elementary education practices in kindergarten through grade six. May count either CTEE 4950 or CTEE 4953. Course may be repeated for a maximum of 4 credit hours.</td>
<td></td>
</tr>
<tr>
<td>CTEE 4967</td>
<td>HONORS SPECIAL PROBLEMS (1-3)</td>
<td>IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.</td>
<td></td>
</tr>
<tr>
<td>CTEE 4970</td>
<td>SPECIAL TOPICS (1-6)</td>
<td>AAB/LEC.</td>
<td>Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>CTEE 4997</td>
<td>HONORS THESIS (1-3)</td>
<td>IND. Pr. Honors College. Departmental approval. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.</td>
<td></td>
</tr>
<tr>
<td>CTEE 7010/7016</td>
<td>APPROACHES TO TEACHING (3)</td>
<td>LEC. 3.</td>
<td>Organizational patterns, planning and approaches to instruction in the elementary school.</td>
</tr>
<tr>
<td>CTEE 7410/7416</td>
<td>CURRICULUM AND TEACHING IN SOCIAL SCIENCE (GRADES K-6) (3)</td>
<td>LEC. 3.</td>
<td>Teaching practices and reappraisal of selecting experiences and content for curriculum improvement in (K-6) social science education. May count either CTEE 7410 or CTEE 7416.</td>
</tr>
<tr>
<td>CTEE 7420/7426</td>
<td>CURRICULUM AND TEACHING IN LANGUAGE ARTS (GRADES K-6) (3)</td>
<td>LEC. 3.</td>
<td>Teaching practices and reappraisal of selecting experiences and content for curriculum improvement in (K-6) language arts education. May count either CTEE 7420 or CTEE 7426.</td>
</tr>
<tr>
<td>CTEE 7430/7436</td>
<td>CURRICULUM AND TEACHING IN NATURAL SCIENCE (GRADES K-6) (3)</td>
<td>LEC. 3.</td>
<td>Teaching practices and reappraisal of selecting experiences and content for curriculum improvement in (K-6) natural science education. May count either CTEE 7430 or CTEE 7436.</td>
</tr>
<tr>
<td>CTEE 7440/7446</td>
<td>CURRICULUM AND TEACHING IN MATHEMATICS (GRADES K-6) (3)</td>
<td>LEC. 3.</td>
<td>Teaching practices and reappraisal of selecting experiences and content for curriculum improvement in (K-6) mathematics education. May count either CTEE 7440 or CTEE 7446.</td>
</tr>
<tr>
<td>CTEE 7490</td>
<td>THE ELEMENTARY SCHOOL PROGRAM (3)</td>
<td>LEC. 3.</td>
<td>Major curriculum areas and teaching practices in the modern elementary school. Implications of research and theory for the total elementary school program.</td>
</tr>
<tr>
<td>CTEE 7510/7516</td>
<td>RESEARCH STUDIES IN EDUCATION IN AREAS OF SPECIALIZATION (3)</td>
<td>LEC. 3.</td>
<td>A review, analysis and interpretation of data with emphasis on designing research to meet the changing needs of the school. May count either CTEE 7510 or CTEE 7516.</td>
</tr>
<tr>
<td>CTEE 7530/7536</td>
<td>ORGANIZATION OF PROGRAMS IN ELEMENTARY EDUCATION (3)</td>
<td>LEC. 3.</td>
<td>Organization and development of basic and supplementary materials for guiding teachers and school systems in improvement of curriculum and teaching practices. May count either CTEE 7530 or CTEE 7536.</td>
</tr>
<tr>
<td>CTEE 7540/7546</td>
<td>EVALUATION OF PROGRAMS IN AREAS OF SPECIALIZATION (3)</td>
<td>LEC. 3.</td>
<td>Evaluation methods and exploration of evaluation literature in areas of specialization. May count either CTEE 7540 or CTEE 7546.</td>
</tr>
</tbody>
</table>
CTEE 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTEE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB/PRA. SU. Departmental approval. Provides individual students with experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTEE 7970/7976 SPECIAL TOPICS (1-6) AAB. Departmental approval. Cooperative pursuit of selected concepts and theories, normally in small groups. May count either CTEE 7970 or CTEE 7979. Course may be repeated for a maximum of 6 credit hours.

CTEE 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 10 credit hours.

CTEE 8950 SEMINAR (3) SEM. 3. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTEE 8970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

CTEE 8980/8986 FIELD PROJECT (1-10) FLD. SU. Students conduct research on an educational problem and defend a field project report. Departmental approval. May count either CTEE 8980 or CTEE 8986. Course may be repeated for a maximum of 10 credit hours.

CTEE 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

Engineering - ENGR

Courses

ENGR 1100 ENGINEERING ORIENTATION (0) LEC. 1. SU. Introduction to the College of Engineering and its resources, exploration of engineering careers, orientation to campus resources and facilities, and assistance with academics and transition to college.

ENGR 1110/1113 INTRODUCTION TO ENGINEERING (2) LEC. 1. LAB. 3. Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation. May count either ENGR 1110 or ENGR 1113.

ENGR 1200 GRAPHICAL COMMUNICATION AND DESIGN (3) LEC. 2. LAB. 3. Pr. P/C COMP 1200. Graphical concepts and projective geometry relating to special visualization and communication in design, including technical sketching, instrument drawing and computer-aided drafting and design.

ENGR 2010 THERMODYNAMICS (3) LEC. 2. LAB. 3. Pr. (CHEM 1030 or CHEM 1110 or CHEM 1117) and (MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720) and (P/C PHYS 1600 or P/C PHYS 1607). Principles and applications of thermodynamics to engineering problems. Laboratory includes multi-disciplinary team projects on thermodynamics applications and fundamentals of engineering thermodynamics.

ENGR 2050/2053 STATICS (3) LEC. 3. Pr. PHYS 1600 or PHYS 1607 and P/C MATH 2630 or P/C MATH 2637. Principles of vectors, forces, moments, free body diagrams, force systems, 2-D and 3-D equilibrium, friction, geometric properties of plane areas.

ENGR 2070 MECHANICS OF MATERIALS (3) LEC. 3. Pr. (ENGR 2050 or ENGR 2053) and P/C MATH 2650. Principles of stress and strain; stress-strain relationships; uniaxially loaded members; torsion; bending; beam shear; shear, moment and thrust diagrams; transformed sections; column buckling.

ENGR 2100 FUNDAMENTALS OF ENGINEERING MECHANICS (3) LEC. 3. Pr. P/C PHYS 1600 or P/C PHYS 1607. Basic principles of two-dimensional force systems, free body diagrams, concepts of stress and strain, centroids of composite areas, kinematics and kinetics of particles and rigid bodies.

ENGR 2200 INTRODUCTION TO THERMODYNAMICS, FLUIDS AND HEAT TRANSFER (3) LEC. 3. Pr. CHEM 1030 and (PHYS 1610 or PHYS 1617). Principles and applications of thermodynamics, fluids and heat transfer.

ENGR 2350 DYNAMICS (3) LEC. 3. Pr. ENGR 2050 or ENGR 2053. Fundamental principles of dynamics including kinematics and kinetics of particles, kinematics and kinetics of rigid bodies, mass moments of inertia, three-dimensional dynamics of rigid bodies, and simple harmonic motion.
ENGR 2700 NUCLEAR POWER OPERATIONS, SYSTEM AND CAREERS (1) LEC. 1. SU. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617. Overview of nuclear power generation systems including civilian and government career options.

ENGR 3510 INTRODUCTION TO BUSINESS AND ENGINEERING (3) LEC. 3. Principles of business and engineering issues in new product and business development.

ENGR 3520 INTEGRATING BUSINESS AND ENGINEERING THEORY WITH PRACTICE (3) LEC. 2. LAB. 3. Case study problems from business and engineering practice.

ENGR 3560 LEADERSHIP FOR BUSINESS AND ENGINEERS (1) LEC. 1. Overview of leadership concepts and skills.

ENGR 3710 BASIC NUCLEAR I: NUCLEAR AND MECHANICAL SYSTEMS (4) LEC. 3. LAB. 1. Pr. P/C ENGR 2700 and (P/C PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607). Multidisciplinary course teaching fundamental nuclear and mechanical principles as they are utilized in the nuclear power generation industry.

ENGR 3720 BASIC NUCLEAR II: MATERIALS, ELECTRIC, ELECTRONICS (4) LEC. 3. LAB. 2.5. Pr. ENGR 2700 and PHYS 1500 or P/C PHYS 1600 or P/C PHYS 1607. Multidisciplinary course teaching fundamental electronic and electrical theory and materials theory as practiced in nuclear power generation industry.

ENGR 3970 SPECIAL TOPICS: ENGINEERING, TECHNOLOGY AND SOCIETY - SPAIN (1-4) AAB/LLB. Special topics of interest within a global engineering context. Course may be repeated for a maximum of 9 credit hours.

ENGR 4710 ADVANCED REACTOR OPERATIONS I: HEALTH AND SAFETY (3) LEC. 3. Pr. P/C ENGR 2700. Advanced safety topics within regulatory and training structure of nuclear power industry.

ENGR 4720 ADVANCED REACTOR OPERATIONS II: SAFE OPERATIONS (3) LEC. 3. Pr. P/C ENGR 2700. Nuclear power plant operations are discussed in detail, with a strong emphasis on safety compliance and industry's safety culture.

ENGR 4721 ADVANCED REACTOR PLANT OPERATIONS II: LAB (1) LAB. 2.5. Pr. P/C ENGR 4710. Nuclear power plant operations are discussed with a strong emphasis on safety compliance and industry's safety culture. Focus is hands-on practical factors.

ENGR 4957 ENGINEERING HONORS SEMINAR (3) SEM. 3. Pr. Honors College. Departmental approval. Topics of interest to honors students and engineering faculty. Interaction with successful engineering alumni.

ENGR 5540 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Pr. (BUSI 3510 or ENGR 3510) and (BUSI 3520 or ENGR 3520). Acceptance into the BET minor program. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 5550 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Must be in BET minor program. Processes to develop and present design proposal for cooperating industry. Credit will not be given for both BUSI 5970 and ENGR 5970.

ENGR 5560 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 1. LAB. 6. Pr. (BUSI 5540 or ENGR 5540) and (BUSI 5550 or ENGR 5550). Must be accepted into BET minor. Cross-functional team design projects for sponsoring industry.

ENGR 6000/6006 ADVANCED ENGINEERING ANALYSIS (3) LEC. 3. Pr. MATH 2660. Analytical solutions of linear and nonlinear problems involving transcendental equations, ODEs/PDEs, Taylor/Fourier/asymptotic series, functional expansions, power series, and approximation methods. May count either ENGR 6000 or ENGR 6006.

ENGR 6540/6546 ENTREPRENEURSHIP AND STRATEGIC MANAGEMENT OF TECHNOLOGY AND INNOVATION (4) LEC. 4. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6550/6556 PRODUCT/PROCESS DESIGN AND DEVELOPMENT I (2) LEC. 2. Develop student skills for starting a new business and making strategic decisions concerning technology.

ENGR 6560/6566 PRODUCT/PROCESS DESIGN AND DEVELOPMENT II (3) LEC. 3. Pr. (BUSI 5540 or ENGR 6540) and (BUSI 5550 or ENGR 6550). Cross-functional team design projects for sponsoring industry.

ENGR 7940/7946 MASTER OF ENGINEERING PROGRAM ASSESSMENT (0) LEC. 0. SU. The course will require that students describe how well the program helped them to attain the outcomes that they articulated in their application to the program. In addition to a reflective description, students will provide examples of work that demonstrate the skills or knowledge that they gained as part of the degree program. These work examples will then be evaluated using a standardized rubric for program assessment purposes, only.
English - ENGL

Courses

ENGL 1100/1103 ENGLISH COMPOSITION I (3) LEC. 3. English Composition Core. Intensive study of and practice in effective expository and argumentative writing. May not be taken concurrently with ENGL 1120 or ENGL 1127.

ENGL 1107 HONORS WRITING SEMINAR I (3) LEC. 3. Pr. Honors College. English Composition Core. Topics in writing for students in the Honors College.

ENGL 1120/1123 ENGLISH COMPOSITION II (3) LEC. 3. Pr. ENGL 1100 or ENGL 1103 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 1127 HONORS WRITING SEMINAR II (3) LEC. 3. Pr. Honors College. ENGL 1100 or ENGL 1107. English Composition Core. Emphasis on research.

ENGL 2000 INTRODUCTION TO CREATIVE WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the genres of creative writing.

ENGL 2010 INTRODUCTION TO PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Introduction to the disciplines of professional writing.

ENGL 2020 INTRODUCTION TO LITERARY STUDIES (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Introduces students to the academic study of literary texts in English with an emphasis on formulating an argument about a text, developing goals and strategies for research, and managing the different stages of the writing process.

ENGL 2050 WRITING IN A RESEARCH UNIVERSITY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1123 or ENGL 1127 or equivalent (SAT, AP, transfer credit). Investigation and practice with research writing in academic disciplines.

ENGL 2200/2203 WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2207 HONORS WORLD LITERATURE BEFORE 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from the ancient period to c. 1600.

ENGL 2210/2213 WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2217 HONORS WORLD LITERATURE AFTER 1600 (3) LEC. 3. Pr. Honors College. ENGL 1120 or ENGL 1127. Culturally diverse readings in world literature from c. 1600 to the present.

ENGL 2230/2233 BRITISH LITERATURE BEFORE 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of British literature from its beginnings to the end of the 18th century.

ENGL 2240/2243 BRITISH LITERATURE AFTER 1789 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of British literature from the end of the 18th century to the present.

ENGL 2250/2253 AMERICAN LITERATURE BEFORE 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of American literature from its beginnings to 1865.

ENGL 2260/2263 AMERICAN LITERATURE AFTER 1865 (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Survey of American literature from 1865 to the present.

ENGL 3040/3043 TECHNICAL WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Writing in engineering, scientific, and technical fields. Credit will not be given for both ENGL 3040 and ENGL 3080.

ENGL 3080/3083 BUSINESS WRITING (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Writing in business, management, or governmental service fields. Credit will not be given for ENGL 3080 and ENGL 3040.

ENGL 3110 SURVEY OF LINGUISTICS (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Structure of language, especially American English sounds, words, and syntax, along with study in such areas as dialects and language change.
ENGL 3120 SURVEY OF RHETORIC (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2207 or ENGL 2203 or ENGL 2210 or ENGL 2213 or ENGL 2217. Survey of rhetoric from Ancient Greece to the present.

ENGL 3130 SURVEY OF CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Introduction to critical methods and theoretical approaches to the study of literature.

ENGL 3360 THE BIBLE FOR STUDENTS OF LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260. Biblical backgrounds to English and American literature; the Bible as literature.

ENGL 3700 TOPICS IN CREATIVE WRITING (3) SEM. 3. Pr. (ENGL 1120 or ENGL 1123 or ENGL 1127) and ENGL 2000. A concentrated investigation of varying topics in Creative Writing.

ENGL 3710 SURVEY OF AFRICAN AMERICAN LITERATURE BEFORE 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. African American literature from its beginnings to 1900.

ENGL 3720 SURVEY OF AFRICAN AMERICAN LITERATURE AFTER 1900 (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. African American literature from 1900 to the present.

ENGL 3850 STUDY IN LONDON (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Study Abroad in London providing an introduction to London's and England's literature and culture.

ENGL 3870 WORLD ENGLISH LITERATURES (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English.

ENGL 3890 WRITING CENTER THEORY AND PRACTICE (3) SEM. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260. Introduction to writing center theory, pedagogy, and history.

ENGL 4000 ADVANCED COMPOSITION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Theory and practice of expository and argumentative writing.

ENGL 4010 TOPICS IN WRITING (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. An in-depth study of a specific topic of writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4020 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Pr. ENGL 2010 or Departmental approval. Introduction to technical and professional editing.

ENGL 4030 DOCUMENT DESIGN IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Document design in technical and professional communication.

ENGL 4040 PUBLIC WRITING (3) LAB. 3. Pr. ENGL 2010 or Departmental approval. Writing in the public sphere.

ENGL 4140 LANGUAGE VARIATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Social, regional, and contextual forces that contribute to dialect diversity.

ENGL 4150 TOPICS IN LANGUAGE STUDY (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Concentrated investigation of varying topics in linguistics or rhetoric. Course may be repeated for a maximum of 6 credit hours.

ENGL 4160 TECHNOLOGY, LITERACY, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217 or Departmental approval. Connections between technology, literacy, and culture, including instruction in advanced computer applications.
ENGL 4170 HISTORY OF THE ENGLISH LANGUAGE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2211 or ENGL 2217 or ENGL 2220 or ENGL 2220 or ENGL 2220 or ENGL 2223 or ENGL 2225 or ENGL 2225 or ENGL 2230 or ENGL 2230. Chronological development of the English language. May count ENGL 5410 or ENGL 4170.

ENGL 4180 RHETORICAL THEORY AND PRACTICE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2210 or ENGL 2217. Advanced study of topics in rhetorical theory and practice.

ENGL 4200 FICTION WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of fiction writing; reading, studying, and writing short stories.

ENGL 4210 FICTION WRITING II (3) LEC. 3. Pr. ENGL 4200. Advanced fiction writing.

ENGL 4220 POETRY WRITING I (3) LEC. 3. Pr. ENGL 2000. Introduction to the craft of poetry writing; reading, studying, and writing poetry.

ENGL 4230 POETRY WRITING II (3) LEC. 3. Pr. ENGL 4220. Advanced poetry writing.

ENGL 4240 SPECIAL PROJECT IN CREATIVE WRITING (3) LEC. 3. Pr. ENGL 4210 or ENGL 4230. Capstone course in creative writing. Course may be repeated for a maximum of 6 credit hours.

ENGL 4300 MEDIEVAL LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British and continental medieval literature.

ENGL 4310 RENAISSANCE ENGLISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1485-1660. Course may be repeated for a maximum of 6 credit hours.

ENGL 4320 RESTORATION AND 18TH-CENTURY LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1660-1800. Course may be repeated for a maximum of 6 credit hours.

ENGL 4330 AGE OF REVOLUTION IN BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1770-1830.

ENGL 4340 19TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1830-1910. Course may be repeated for a maximum of 6 credit hours.

ENGL 4350 20TH-CENTURY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature, 1910-1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4360 CONTEMPORARY BRITISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. British literature since 1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4370 IRISH LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Periods, movements, or major figures of the literature of Ireland.

ENGL 4400 EARLY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217. American literature from its beginnings to 1800.

ENGL 4410 19TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2200 or ENGL 2207 or ENGL 2210 or ENGL 2217. American literature 1800-1910. Course may be repeated for a maximum of 6 credit hours.
ENGL 4420 20TH-CENTURY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature 1910-1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4430 CONTEMPORARY AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. American literature since 1980. Course may be repeated for a maximum of 6 credit hours.

ENGL 4440 SOUTHERN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Literature of the American South.

ENGL 4450 TOPICS IN AFRICAN AMERICAN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Concentrated investigation of varying topics in African American literature and culture.

ENGL 4500 STUDIES IN POETRY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study in one or more kinds of poetry.

ENGL 4510 18TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of novels produced in the 18th century.

ENGL 4520 19TH-CENTURY NOVEL (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of novels produced in the 19th century.

ENGL 4530 20TH-CENTURY FICTION (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of fiction produced in the 20th century.

ENGL 4540 STUDIES IN DRAMA (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more periods or kinds of drama.

ENGL 4550 STUDIES IN FILM AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examining the interconnections between film and literature.

ENGL 4560 STUDIES IN CRITICAL THEORY (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Advanced study in one or more theoretical approaches to literature.

ENGL 4570 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Non-British and non-American literature written in English or studied in translation.

ENGL 4600 CHAUCER (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Major works of Chaucer in Middle English.

ENGL 4610 SHAKESPEARE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Shakespeare's works, career, and culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4620 MILTON (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Milton's principal poems, especially Paradise Lost, with some attention to his prose.

ENGL 4630 BRITISH AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more British authors. Course may be repeated for a maximum of 6 credit hours.
ENGL 4640 AMERICAN AUTHOR(S) (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more American authors. Course may be repeated for a maximum of 6 credit hours.

ENGL 4700 TOPICS IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Concentrated investigation of varying topics in literature. Course may be repeated for a maximum of 6 credit hours.

ENGL 4710 TOPICS IN GENDER AND LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examination of varying topics related to the intersection between literature and gender. Course may be repeated for a maximum of 6 credit hours.

ENGL 4720 TOPICS IN MINORITY VOICES IN LITERATURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Literature of one or more minority groups. Course may be repeated for a maximum of 6 credit hours.

ENGL 4730 TOPICS IN POPULAR CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. One or more topics in popular culture. Course may be repeated for a maximum of 6 credit hours.

ENGL 4740 ENVIRONMENT, LITERATURE, AND CULTURE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2210 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Topics related to the intersections between the environment, literature, and culture.

ENGL 4750 TOPICS IN MYTHOLOGY AND FOLKLORE (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Study of one or more topics in mythology or folklore. Course may be repeated for a maximum of 6 credit hours.

ENGL 4800 SEMINAR IN LITERATURE (3) LEC. 3. Pr. ENGL 3130. Research seminar in literature. Senior standing.

ENGL 4810 CAPSTONE IN PROFESSIONAL WRITING (3) LEC. 3. Pr. ENGL 2010. Advanced course in developing complex professional writing projects.

ENGL 4920 INTERNSHIP IN ENGLISH STUDIES (3) AAB/IND. 3. Pr. ENGL 1120 or ENGL 1127. Departmental approval. Supervised experience in applying reading, writing, and research skills to the workplace.

ENGL 4960 SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. 3.00 GPA. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student. Course may be repeated for a maximum of 6 credit hours.

ENGL 4967 HONORS SPECIAL PROBLEMS IN ENGLISH (3) IND. 3. Pr. Honors College. At least 5 courses in ENGL 4000-4999. Junior standing and Departmental approval. Individual reading programs determined by the instructor and student.

ENGL 4997 HONORS THESIS (3) AAB/IND. 3. Pr. Honors College. ENGL 4967. and Departmental approval. Honors thesis. Course may be repeated for a maximum of 6 credit hours.

ENGL 5840 APPROACHES TO ENGLISH GRAMMAR (3) LEC. 3. Pr. ENGL 2000 or ENGL 2010 or ENGL 2230 or ENGL 2240 or ENGL 2250 or ENGL 2260 or ENGL 2200 or ENGL 2203 or ENGL 2207 or ENGL 2210 or ENGL 2213 or ENGL 2217. Examination of several grammatical theories, with emphasis on English syntax.

ENGL 6840 APPROACHES TO ENGLISH GRAMMAR (3) LEC. 3. Examination of several grammatical theories, with emphasis on English syntax.

ENGL 7000 TECHNICAL AND PROFESSIONAL EDITING (3) LEC. 3. Research-based best practices in technical and professional editing.

ENGL 7010 TECHNICAL AND PROFESSIONAL COMMUNICATION: ISSUES AND APPROACHES (3) LEC. 3. Introduction to the history, practice, and profession of technical and professional communication.

ENGL 7020 PEDAGOGY IN WRITING STUDIES (3) LEC. 3. Methods, practices, and theories of technical and professional communication for prospective teachers.
ENGL 7030 STUDIES IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) LEC. 3. Extensive study of selected types of research and writing for special purposes and novel situations. Course may be repeated for a maximum of 6 credit hours.

ENGL 7040 ENGLISH COMPOSITION: ISSUES AND APPROACHES (3) LEC. 3. Theory, research, and practice in English composition.

ENGL 7050 STUDIES IN COMPOSITION (3) LEC. 3. Advanced study of an approach or an issue in composition studies. Course may be repeated for a maximum of 9 credit hours.

ENGL 7060 WEB DEVELOPMENT (3) LEC. 3. Research-based best practices in web development.

ENGL 7070 GRANT AND PROPOSAL WRITING (3) LEC. 3. Research-based best practices in grant and proposal writing.

ENGL 7080 DOCUMENT DESIGN (3) LEC. 3. Research-based best practices in document design.

ENGL 7090 TOPICS IN WRITING STUDIES (3) LEC. 3. Advanced study and practice in topics related to technical, scientific, business, and professional communication.

ENGL 7130 FICTION WRITING (3) LEC. 3. Workshop in the craft and writing of fiction. Course may be repeated for a maximum of 6 credit hours.

ENGL 7140 POETRY WRITING (3) LEC. 3. Workshop in the craft and writing of poetry. Course may be repeated for a maximum of 6 credit hours.

ENGL 7150 STUDIES IN MEDIEVAL LITERATURE (3) LEC. 3. Major works and genres in Middle English and related literary traditions. Course may be repeated for a maximum of 9 credit hours.

ENGL 7160 EARLY MODERN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7170 18TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7180 19TH-CENTURY STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7190 AMERICAN STUDIES (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7200 LITERARY MODERNISMS (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7210 CONTEMPORARY LITERATURE AND CULTURE (3) LEC. 3. Major literary movements, authors, and/or genres. Course may be repeated for a maximum of 9 credit hours.

ENGL 7280 STUDIES IN LINGUISTICS (3) LEC. 3. Selected topic in English linguistics, including historical syntax, dialectology, phonology. Course may be repeated for a maximum of 9 credit hours.

ENGL 7300 RHETORIC THEORY AND PRACTICE (3) LEC. 3. Issues and developments in rhetorical theory and analysis, with special attention to the rhetoric of written texts. Course may be repeated for a maximum of 9 credit hours.

ENGL 7770 AFRICAN AMERICAN LITERATURE (3) LEC. 3. Study of African American literature and literary theories of ethnicity and race. Course may be repeated for a maximum of 9 credit hours.

ENGL 7780 STUDIES IN RACE, GENDER, AND SEXUALITY (3) LEC. 3. Focused topics in literature and theory of ethnicity, sexuality, gender, race, class, or disability. Course may be repeated for a maximum of 9 credit hours.

ENGL 7790 LITERARY THEORY: ISSUES AND APPROACHES (3) LEC. 3. Overview of significant theoretical issues, approaches, and conversations in literary and cultural theory, historical and/or contemporary.

ENGL 7800 STUDIES IN LITERARY THEORY (3) LEC. 3. Close study of particular theoretical approaches to literary study, including cultural studies, postmodernism, textual criticism, anthropological approaches. Course may be repeated for a maximum of 6 credit hours.
ENGL 7810 STUDIES IN COMPARATIVE LITERATURE (3) LEC. 3. Comparative study of authors, genres, or issues from two or more cultures or critical perspectives. Course may be repeated for a maximum of 9 credit hours.

ENGL 7830 MAJORS AUTHOR(S) (3) LEC. 3. One or more major authors or a single work by a major author. Course may be repeated for a maximum of 9 credit hours.

ENGL 7850 STUDIES IN GENRE (3) LEC. 3. Study of one or more genres across literary periods. Course may be repeated for a maximum of 9 credit hours.

ENGL 7870 SPECIAL TOPICS IN ENGLISH STUDIES (3) LEC. 3. Special problems, topics, and materials in English studies not covered in other existing courses. Course may be repeated for a maximum of 9 credit hours.

ENGL 7910 PRACTICUM IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3) PRA. 3. Pr., Departmental approval. Supervised client-based experience in tasks commonly performed by technical communicators analyzed through current research in technical communication.

ENGL 7920 INTERNSHIP IN ENGLISH STUDIES (3) INT. 3. SU. Departmental approval. Supervised professional experience in workplace or university outreach settings.

ENGL 7930 DIRECTED INDIVIDUAL STUDY (1-3) IND. Available on a limited basis for qualified students; requires advance permission of the department graduate committee. Credits are to be arranged. Course may be repeated for a maximum of 6 credit hours.

ENGL 7940 PRACTICUM IN TEACHING COLLEGE ENGLISH (1) LEC. 1. SU. An introduction to the teaching of English at Auburn University. Course may be repeated for a maximum of 2 credit hours.

ENGL 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated for a maximum of 20 credit hours.

ENGL 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated for a maximum of 20 credit hours.

English for Spkrs Other Lang - CTES

Courses

CTES 5410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3. Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs. May count either CTES 5410 or CTES 6410.

CTES 6410 LANGUAGE MINORITY STUDENTS K-12 (3) LEC. 3. Non-major course to prepare elementary and secondary teachers to work effectively with English language learners (ELLs). Topics include instructional models for teaching ELLs. May count either CTES 5410 or CTES 6410.

CTES 7400/7406 TECHNOLOGY AND MEDIA IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Application of instructional technology in second language instruction, authentic materials in the ESL classroom. May count either CTES 7400 or CTES 7406.

CTES 7420/7426 APPLIED LINGUISTICS IN SECOND LANGUAGE ACQUISITION (3) LEC. 3. Provides basic knowledge of phonetics, morphology, syntax, semantics, pragmatics, psycholinguistics, sociolinguistics and language variation to teach English language learners. May count either CTES 7420 or CTES 7426.

CTES 7460/7466 TEACHING ENGLISH TO SPEAKERS OF OTHER LANGUAGES IN P-12 (3) LEC. 3. Teaching practices and curriculum selection in P-12 ESOL. May count either CTES 7460 or CTES 7466.

CTES 7470/7476 ISSUES IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES EDUCATION (ESOL) (3) LEC. 3. Examination of central issues in the teaching and learning of ESOL including language policy, language diversity and multiculturalism. May count either CTES 7470 or CTES 7476.

CTES 7480/7486 ASSESSMENT IN ENGLISH FOR SPEAKERS OF OTHER LANGUAGES (ESOL) (3) LEC. 3. Theoretical perspectives on assessment of English Language Learners. Developing, administering and analyzing assessment instruments. May count either CTES 7480 or CTES 7486.
CTES 7920/7926 CLINICAL RESIDENCY (3-9) AAB/INT. SU. Supervised teaching in a K-12 public school accompanied by scheduled discussions to analyze and evaluate the intern's experience. Course may be repeated for a maximum of 9 credit hours.

Entomology - ENTM

Courses

ENTM 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

ENTM 2040/2043 INSECTS: AN INTRODUCTION TO ENTOMOLOGY (3) LEC. 3. Life processes, importance, and occurrence of insects.

ENTM 3040 GENERAL ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Introduction to the biology and diversity of insects. An insect collection is required.

ENTM 4023/4020 ECONOMIC ENTOMOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Consideration of the biological aspects, life histories and control of insects.

ENTM 4920 ENTOMOLOGY INTERNSHIP (5) INT. 5. SU. Practical professional experience under the supervision of internship faculty and/or representatives of state, federal or private agency.

ENTM 4960 SPECIAL PROBLEMS IN ENTOMOLOGY (1-3) IND. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

ENTM 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

ENTM 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

ENTM 5010 ENTOMOLOGY FOR EDUCATORS (4) LEC. 4. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Biology and diversity of insects and related arthropods with applications for educators. An insect collection and an entomological exposition are required.

ENTM 5120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and (ENTM 3040 or ENTM 4020). or instructor approval. Students without the prerequisite ENTM course must be approved by the instructor or take ENTM 3040 or ENTM 4020 concurrently with ENTM 5120. Survey of insects, ticks, and mites of medical or veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 5140 AQUATIC INSECTS (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 4010. Biology and ecology of aquatic and semi-aquatic insects. Laboratory sessions focus on identification at the family and generic levels, and experience in collecting and field techniques.

ENTM 5150 ARACHNOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 5220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Ecological interactions of insects and their environment, with emphasis on is herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 5300 SYSTEMATIC ENTOMOLOGY (4) LEC. 3. LAB. 4. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Learn to use the tools of the taxonomist to identify common families of insects. A collection is required. Field trips will be taken.

ENTM 5330 INTEGRATED PEST MANAGEMENT (4) LEC. 3. LAB. 2. Pr. ENTM 3040 or ENTM 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 5360/5363 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 5370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.
ENTM 5440 INSECT MORPHOLOGY (4) LEC. 3. LAB. 4. Pr. ENTM 3040 and ENTM 4020. Departmental approval. Form and function in insects and related arthropods emphasizing morphological characteristics used in insect identification.

ENTM 5500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

ENTM 6010 ENTOMOLOGY FOR EDUCATORS (4) LEC. 4. LAB. 3. Pr. BIOL 1030 or BIOL 1037. Biology and diversity of insects and related arthropods with applications for educators. An insect collection and an entomological exposition are required.

ENTM 6120 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Survey of insects, ticks, and mites of veterinary importance, emphasizing role as vectors of disease agents and the biology of pathogen-transmission cycles. Labs focus on methods of vector sampling and surveillance, identification, and case studies of special topics. May count either ENTM 5120 or ENTM 6120.

ENTM 6140 AQUATIC INSECTS (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 4010. Departmental approval. Biology and ecology of aquatic and semi-aquatic insects. Laboratory sessions focus on identification at the family and generic levels, and experience in collecting and field techniques.

ENTM 6150 ARACHNOCY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Biology, behavior and systematics of all arachnid groups, with major emphasis on spiders and mites.

ENTM 6220 INSECT ECOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3060. Departmental approval. Ecological interactions of insects and their environment, with emphasis on herbivory, predation, parasitism and mutualism, as well as population and community dynamics.

ENTM 6300 SYSTEMATIC ENTOMOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Principles of systematics and identification of insects through orders, families, genera, and species. Collections are required. Credit will not be given for both ENTM 4300 and ENTM 7300.

ENTM 6330 INTEGRATED PEST MANAGEMENT (4) LEC. 3. LAB. 2. Pr. ENTM 3040 or ENTM 4020. Integrated management of insects by environmental, biological, genetic, chemical and legal means.

ENTM 6360/6366 LANDSCAPE ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. (BIOL 1020 or BIOL 1027) or (BIOL 1030 or BIOL 1037). Identification and management of arthropod pests in the landscape. Recognition of pests and damage to trees, turf and ornamental plants.

ENTM 6370 URBAN ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or ENTM 4020. Identification, biology and control of insect and other household arthropod pests.

ENTM 6440 INSECT MORPHOLOGY (5) LEC. 3. LAB. 6. Pr. ENTM 3040 or ENTM 4020. Departmental approval. Comparative external anatomy and generalized internal structures of insects. Characteristics used in taxonomy will be emphasized. Credit will not be given for both ENTM 5440 and ENTM 6440.

ENTM 6500 BEE BIOLOGY AND MANAGEMENT (3) LEC. 2. LAB. 2. Biology and management of bees, with an emphasis on honey bees and beekeeping. May count either ENTM 5500 or ENTM 6500.

ENTM 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.


ENTM 7190 PLANT AND ANIMAL INTERACTIONS (3) LEC. 3. Pr. BIOL 3060. Departmental approval. Ecological and evolutionary interrelationships emphasizing pollination biology, seed dispersal and plant-herbivore interactions.

ENTM 7200 INSECT PHYSIOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040. Departmental approval. Introduction to insect physiology stressing structure and function of each organ system. Methods used in physiological research will be emphasized.
ENTM 7330 MEDICAL-VETERINARY ENTOMOLOGY (4) LEC. 3. LAB. 3. Pr. ENTM 3040 or BIOL 6110. Departmental approval. Insects, mites, and other arthropods of medical or veterinary importance, identification of species, their biology and role as vectors of disease agents.

ENTM 7345 TROPICAL BIOLOGY: AN ECOLOGICAL APPROACH (8) LEC. 4. LAB. 12. Pr. At least 15 credits each with a minimum grade of B in BIOL 7000-7999. Departmental approval. The principles of ecology in the tropics.

ENTM 7900 DIRECTED STUDIES IN ENTOMOLOGY I (1-5) LEC. SU. Discussion groups on specific topics, assigned readings, on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Departmental approval. The teaching practicum will address the practical and theoretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.

ENTM 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

ENTM 7950 SEMINAR (1) SEM. 1. SU. Presentation and discussion of scientific literature of thesis research findings. Required of all M.S. candidates.

ENTM 7960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY I (1-5) IND. Departmental approval. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

ENTM 7990 RESEARCH AND THESIS (1-10) MST. Topics may focus on technical laboratory problems or field research related to arthropod biology. Admission to the M.S. Program. Course may be repeated with change in topics.

ENTM 8900 DIRECTED STUDIES IN ENTOMOLOGY II (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

ENTM 8910 TEACHING PRACTICUM (1-3) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

ENTM 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Pr. ENTM 3040 and ENTM 4020 or (PLPA 3000 or PLPA 3003). Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

ENTM 8950 SEMINAR (1) LEC. 1. SU. Presentation and discussion of scientific literature or dissertation research findings. Required of all Ph.D. students.

ENTM 8960 ADVANCED SPECIAL PROBLEMS IN ENTOMOLOGY II (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in entomology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

ENTM 8990 RESEARCH AND DISSERTATION (1-10) DSR. Admission to the Ph.D. Program. Course may be repeated with change in topics.

EntreprenFamily Business - ENFB

Courses

ENFB 3140 ESSENTIALS OF ENTREPRENEURSHIP (3) LEC. 3. Pr. ECON 2030 or ECON 2033 or ECON 2037. The application of basic business principles to the entrepreneurial environment. May count either ENFB 3140 or ENFB 4140.

ENFB 4160 FAMILY BUSINESS MANAGEMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Study of aspects of managing an established family business, on a day-to-day basis, and of planning for succession to the next generation.

ENFB 4170 MANAGING ENTREPRENEURIAL START-UPS (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Study of aspects of managing and marketing concepts and processes that can be utilized to launch new ventures or a new division within an existing business.
ENFB 4180 GROWTH STRATEGIES FOR EMERGING COMPANIES (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Study of the important aspects of starting and managing a franchise business.

ENFB 4190 NEW VENTURE CREATION (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Analysis of industrial, competitive, market and financial aspects of starting a business.

ENFB 4200 BUSINESS PLAN FOR THE NEW VENTURE (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140). Application of entire business education and experience to a practical, hands-on project.

ENFB 4210 CORPORATE VENTURING-ENTREPRENEURS IN ORGANIZATIONS (3) LEC. 3. Pr. (ECON 2030 or ECON 2033 or ECON 2037) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (MKTG 3310 or MKTG 3313 or MKTG 3317) and (FINC 3610 or FINC 3613 or FINC 3617) and (ENFB 3140 or ENFB 4140) and ENFB 4190. Study of the entrepreneurial process as it applies to the operations of a department or functional area within an established organization.

ENFB 4920 INTERNSHIP (1-6) INT. SU. Pr. 2.50 GPA. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

ENFB 4950 SEMINAR IN ENTREPRENEURSHIP AND FAMILY BUSINESS (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

ENFB 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 5980 SPECIAL PROBLEMS (1-3) IND. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

ENFB 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

ENFB 6960/6966 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

Environmental Design - ENVD

Courses

ENVD 2000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES I (3) LEC. 3. Pr. ARCH 1000 or INDD 1120 or BSCI 1100. Or ENVD major. Core knowledge of design and construction disciplines and business practices related to human-designed environments. Includes national and global perspectives and focus on interdisciplinary studies.

ENVD 2010 INTRODUCTION TO DESIGN AND DESIGN METHODS (3) LEC. 3. Introduces students to the importance of design and basic design methods.

ENVD 2040 DESIGN, INVENTION AND SOCIETY (3) LEC. 3. Role of design and invention in society from the ancient to the contemporary world.


ENVD 2200 READINGS IN LANDSCAPE ARCHITECTURE (3) SEM. 3. Investigates the idea of landscape through a range of texts, images, and built works that have helped form, and continue to shape, our understanding of the landscape. First year of B.ENVD.

ENVD 3000 ENVIRONMENTAL DESIGN CONCEPTS AND PRACTICES II (3) LEC. 3. Pr. ENVD 2100. Departmental approval. Advanced knowledge of design, construction and planning disciplines and practice. National/global environmental design issues, focus on interdisciplinary concepts, hybrid practices, & sustainability.
ENVD 3100 CIVIC ENGAGEMENT AND RESEARCH METHODS (3) LEC. 3. Pr. ENVD 3000. Departmental approval. Civic engagement and research methods for environmental design. This is a research prep course to develop research methods, projects, and community partnerships for summer ENVD 4100 workshop capstone.

ENVD 3200 SYSTEMS IN BUILT ENVIRONMENT I (3) SEM. 2.5. Pr. ENVD 2100. Focus on research of different systems in built environments, and different research methods that can be used in design in order to understand and represent them.

ENVD 3300 SYSTEMS IN BUILT ENVIRONMENT II (3) SEM. 2.5. Pr. ENVD 2100. Focuses on application of research from design and construction disciplines in built environment through testing and prototyping, thus exploring potential for application in a larger context.

ENVD 4000 ELEMENTS OF URBAN DESIGN (3) SEM. 3. Pr. ENVD 2100. ENVD 4000 provides environmental design students with an introduction to urban design theories, methods and processes through combination of lectures and hands-on instruction.

ENVD 4010 ELEMENTS OF DESIGN THINKING AND COMMUNICATION (3) LEC. 3. This is a 3-credit hour class that builds design communication skills through a series of projects that utilize both hand-rendering and digital media.

ENVD 4100 ENVIRONMENTAL DESIGN WORKSHOP II - CAPSTONE (6) LEC. 6. Pr. ENVD 3100. Environmental design knowledge & technical skill set using principles of collaboration, leadership & effectiveness training, hands-on experience, civic engagement & design communication skills.

ENVD 4500 PROFESSIONAL PRACTICE (3) SEM. 3. Pr. ENVD 3000. Enable students to learn elements of professional communication; create persuasive portfolio of their work; and to seek, and prepare for, internship and job opportunities.

ENVD 4970 SPECIAL TOPICS IN ENVIRONMENTAL DESIGN (3) LEC. 3, AAB. 0. Pr. MKTG 3310 or MKTG 3317. Topics include: digital production, portfolio making and design thinking.

ENVD 5030 STUDIES IN DESIGN THINKING AND ENTREPRENEURSHIP (3) SEM. 3. Study and application of design and innovation thinking in entrepreneurship, with a special emphasis on social entrepreneurship. May count either ENVD 5030 or ENVD 6030.

Environmental Science - ENVI

Courses

ENVI 1010 INTRODUCTION TO ENVIRONMENTAL SCIENCE (1) LEC. 1. Introduction to the environmental science field and the ENVI major. Course may be repeated for a maximum of 3 credit hours.

ENVI 1020 FUNDAMENTALS OF ENVIRONMENTAL SCIENCE (2) LEC. 2. Preference given to students for whom the course is required. Survey of fundamental concepts, issues, and concerns related to environmental science.

ENVI 2010 ENVIRONMENTAL SCIENCE SEMINAR (1) LEC. 1. Pr. ENGL 1120 or ENGL 1127. ENGL 1120 and departmental approval. Discussion of current issues in environmental science.

ENVI 3000 INTRODUCTION TO STREAM RESTORATION (4) LEC. 2. LAB. 4. Introduction to concepts necessary for stream restoration design, construction, and maintenance and how they relate to the physical, chemical and biological processes of streams. Students will participate in research associated with stream restoration by assessing steam stability and classifying streams.

ENVI 4950 ENVIRONMENTAL SCIENCE SENIOR SEMINAR (2) LEC. 2. Pr. (ENGL 1120 or ENGL 1127) and ENVI 1010 and ENVI 1020. Departmental approval. This course will cover oral and written professional presentations, assessment of students in the ENVI major via standardized testing, and student assessment via exit surveys.

ENVI 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

Finance - FINC

Courses

FINC 2400 PERSONAL FINANCE (3) LEC. 3. Plans for managing personal financing problems involving insurance, housing, household budgeting, investments, personal and bank loans, personal credit and time value of money.
FINC 3010 PROFESSIONAL DEVELOPMENT IN FINANCE (1) LEC. 1. SU. Pr. (P/C FINC 3610 or FINC 3613 or FINC 3617) and P/C BUSI 2010. Career planning and preparation for employment in the finance industry.

FINC 3100 FUNDAMENTALS OF GLOBAL TRADE (3) LEC. 3. COB academic standards. Export management skills, including basic global supply chain management and trade finance. Junior standing.

FINC 3200 RISK AND INSURANCE (3) LEC. 3. Essentials of risk management, with emphasis on the use of insurance, including the characteristics of property, liability, life and health insurance. Junior standing.

FINC 3250 PRINCIPLES OF REAL ESTATE (3) LEC. 3. Fundamental principles and practices as applied to the purchase, sale and lease and management of real estate. Junior standing.

FINC 3610/3613 PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2110 or ACCT 2117 or ACCT 2810 or ACCT 3110 or ACCT 3117. Corporate finance from the perspective of a financial manager. Topics include time value of money, valuation, and capital budgeting. May count either FINC 3610 or FINC 3810.

FINC 3617 HONORS PRINCIPLES OF BUSINESS FINANCE (3) LEC. 3. Pr. Honors College. ACCT 2117. Corporate finance from the perspective of a financial manager. Topics include financial planning and forecasting cash budgeting, capital budgeting, basic valuation, dividends. Fall, Spring. Junior standing.

FINC 3620/3623 SMALL BUSINESS FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Financial control, financial forecasting, working capital and sources of financing in a small and closely-held business environment.

FINC 3630/3633 ADVANCED BUSINESS FINANCE (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and (BUAL 2600 or STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010 or STAT 3610). C or better in FINC 3610. In-depth analysis of financial concepts including valuation capital budgeting, cost of capital, leasing, financial analysis, and capital structure.

FINC 3640 INVESTMENTS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Types of investment security markets, investment instruments, concepts and strategies for institutional and individual investors.

FINC 3700 FINANCIAL MARKETS INSTITUTIONS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Overview of the financial system, organization and regulation of financial markets and institutions, the behavior and structure of interest rates.

FINC 3750 FINANCIAL MODELING (3) LEC. 45. Pr. P/C FINC 3630 and P/C FINC 3640. Application of financial management and investments concepts through Excel modeling. Topics include capital budgeting, capital asset pricing, cost of capital, stock and bond valuation. Advanced topics include DCF modeling, portfolio optimization and VBA.

FINC 3810 FOUNDATIONS OF BUSINESS FINANCE (3) LEC. 3. Pr. ACCT 2810 or ACCT 2110 or ACCT 2117. Foundations of Business Finance is a broad based introductory course that will focus on finance functions and applications of finance principles. This course is not open to undergraduates majoring in business. Junior standing. May count either FINC 3610 or FINC 3810.

FINC 4210 PROPERTY AND LIABILITY INSURANCE (3) LEC. 3. Pr. FINC 3200. Commercial risks and the insurance contracts used to address these risks.

FINC 4220 LIFE INSURANCE (3) LEC. 3. Pr. FINC 3200. Departmental approval. Individual life, health, annuity contracts and other investments, with a focus on financial planning, estate planning, and business continuation arrangements.

FINC 4250 REAL ESTATE INVESTMENT (3) LEC. 3. Pr. (FINC 3610 or FINC 3613 or FINC 3617) and FINC 3250. Analysis and evaluation of real estate investments including cash flow measurement for both residential and commercial investment projects.

FINC 4520 INTERNATIONAL FINANCIAL MARKETS (3) LEC. 3. Pr. FINC 5510. Departmental approval.

FINC 4630 FINANCIAL STRATEGY (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113) and (FINC 3630 or FINC 3633). The advanced application of corporate finance through case analysis, company analysis, and current topics.

FINC 4650/4653 FINANCIAL STATEMENT ANALYSIS (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Evaluation and assessment of financial condition, performance, and reporting strategies of firms using relevant financial and market information.

FINC 4660 SECURITY ANALYSIS (3) LEC. 3. Pr. (ACCT 3110 or ACCT 3113) and (FINC 3630 or FINC 3633) and FINC 3640. Analysis, techniques and selection of securities to meet specific investment objectives. Focus on individual security analysis and portfolio management.
FINC 4700 MANAGEMENT OF FINANCIAL INSTITUTIONS (3) LEC. 3. Pr. FINC 3700. Management strategies for firms including management of credit, liquidity, capital and interest rate risks in a regulated environment.

FINC 4900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Advanced individual research and study in finance under the direction of a faculty member. Course may be repeated for a maximum of 6 credit hours.

FINC 4920 INTERNSHIP (1-6) AAB/INT. SU. Departmental approval. The internship program offers the opportunity to gain relevant and meaningful work experience. Course may be repeated for a maximum of 9 credit hours.

FINC 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Specialized topics and current developments and innovations in finance. Course may be repeated for a maximum of 6 credit hours.

FINC 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 6 credit hours.

FINC 5510 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 5670 Mergers, Acquisitions, and Restructuring (3) LEC. 3. Pr. FINC 3630 or FINC 3633. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. May count either FINC 5670 or FINC 6670/FINC 6676.

FINC 5680 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 3630 or FINC 3633 or FINC 3640 or FINC 3700. Examination of derivative securities with emphasis on applying derivative securities to the management of corporate financial risk.

FINC 5740 ADVANCED FINANCIAL ANALYSIS (3) LEC. 3. Pr. (FINC 3630 or FINC 3633) and P/C FINC 3640 and (P/C ACCT 3110 or P/C ACCT 3113). Departmental approval. Issues surrounding and methods for financial analysis of investments/firms, including: ethics, qualitative methods, economics, financial reporting/analysis, and portfolio management. May count FINC 5740 or FINC 6740.

FINC 6510/6516 MULTINATIONAL FINANCIAL MANAGEMENT (3) LEC. 3. Advantages and problems associated with the modern multinational corporation, including analysis of currency risk, hedging, and political risk.

FINC 6670/6676 Mergers, Acquisitions and Restructuring (3) LEC. 3. Pr. BUSI 7110 or BUSI 7116. Strategic analysis of corporate restructuring including valuation methods, control issues, takeover defense measures, and diversification issues. Departmental approval. May count either FINC 6670 or FINC 6676.

FINC 6680/6686 FINANCIAL ENGINEERING (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or BUSI 7110 or BUSI 7116. Departmental approval. Theory and pricing of derivative securities with emphasis on applying derivative securities in corporate financial risk management.

FINC 6740 ADVANCED FINANCIAL ANALYSIS (3) LEC. 3. Pr. (BUSI 7110 or BUSI 7116). Departmental approval. Issues surrounding and methods for financial analysis of investments/firms, including: ethics, qualitative methods, economics, financial reporting/analysis, and portfolio management. May count FINC 5740 or 6740.

FINC 7410/7416 BUSINESS RISK MANAGEMENT (3) LEC. 3. Departmental approval. An analysis of business risk and the risk management methods, including loss control, insurance, and other forms of risk financing, used to handle these risks.

FINC 7600/7606 ADVANCED CORPORATE FINANCE (3) LEC. 3. Pr. FINC 3610 or FINC 3613 or FINC 3617. Departmental approval. Intensive study of the theory and problems in corporate finance from an internal decision making point of view.

FINC 7620/7626 ADVANCED REAL ESTATE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Study of real estate markets including regulatory and legal issues, valuation of income producing property, financing sources, corporate real estate, investment performance measurement.

FINC 7630/7636 HEALTH CARE FINANCE (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110 or BUSI 7116. Departmental approval. Techniques and analysis of financial management in a healthcare setting. Emphasis on financial planning and forecasting, budgeting, capital investment analysis in the regulated healthcare marketplace.

FINC 7640/7646 ADVANCED INVESTMENTS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Types of investment securities, regulation and operation of securities markets and the theory and practice of investments.
FINC 7650/7656 APPLIED FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or BUSI 7110. Departmental approval. The integration of financial theory with practice through spreadsheets, case analysis, company analysis, and current topics in finance.

FINC 7660/7666 SECURITY ANALYSIS AND MANAGEMENT (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Advanced analytical methods for security valuation, managing investment portfolios, and developing appropriate investment strategies.

FINC 7690/7696 ADVANCED FINANCIAL SYSTEMS (3) LEC. 3. Pr. (FINC 7600 or FINC 7606) or (BUSI 7110 or BUSI 7116). Departmental approval. Analysis and examination of financial institutions and markets in an evolving regulatory and global marketplace for financial services and products.

FINC 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth research and study under the direction of a faculty member. Topics are variable within finance and finance-related areas. Course may be repeated for a maximum of 6 credit hours.

FINC 7970/7976 SPECIAL TOPICS (1-3) IND. Departmental approval. Specialized topics in finance and finance-related areas not otherwise covered in existing courses. Course may be repeated for a maximum of 6 credit hours.

FINC 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FINC 8620 THEORY OF FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Choice under certainty and uncertainty, time-state preference models, stochastic dominance, the mean-variance criterion, and asset pricing models Miller-Modigliani propositions would be developed.

FINC 8640 INVESTMENTS (3) SEM. 3. Pr. FINC 8620. This course focuses on current literature in Investments. Students should develop the insights necessary to identify problems and conduct research in Investments.

FINC 8650 SEMINAR IN CORPORATE FINANCE (3) SEM. 3. Pr. FINC 86250. This course focuses on current literature in Corporate Finance. Students should develop the insights necessary to identify problems and conduct research in Corporate Finance.

FINC 8690 FINANCIAL MARKETS AND INTERMEDIATION (3) LEC. 3. Pr. FINC 8620. This course focuses on current literature in financial markets and intermediation. Students should develop the insights necessary to identify problems and conduct research in this area.

FINC 8700 SPECIAL TOPICS IN FINANCE (3) LEC. 3. Pr. FINC 7600 or FINC 7606 or FINC 7640 or FINC 7646. Varies according to faculty and students interests. This could be a course like Options, Futures and Derivatives, or a course with several participating faculty members discussing their own research.

FINC 8880 SEMINAR (1) SEM. 1. Admission to the Ph.D. in Business with a Concentration in Finance. Seminar presentations by visiting scholars, Finance Faculty and Ph.D. students.

FINC 8990 RESEARCH AND DISSERTATION (1-12) DSR. Course may be repeated for a maximum of 60 credit hours.

Fisheries & Allied Aqua - FISH

Courses

FISH 1100 FISHERIES ORIENTATION (1) LEC. 1. SU. An introduction to the departmental programs and personnel and how to make the most of a future in fisheries.

FISH 1110 DIMENSIONS OF FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1) LEC. 1. Consideration of various aspects of fisheries, aquaculture, and aquatic sciences work, career options as related to individual interests, and career planning. Overview of the different research and extension areas of the School.

FISH 2000 GENERAL BIOLOGY OF FISHES AND AQUATIC ORGANISMS (1) LEC. 1. To introduce students to the anatomy and physiology of fishes, crustaceans, and mollusks to better prepare them to take advanced courses in the School of Fisheries, Aquaculture & Aquatic Sciences.

FISH 2020 GLOBAL AND REGIONAL PERSPECTIVES IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (2) LEC. 2. Overview of socioeconomic and ecological aspects of fisheries, aquaculture, and aquatic sciences. The course will cover human dimensions specific to commercial and recreational fisheries, aquaculture species, and the aquatic environment.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>FISH 3950</td>
<td>CAREERS IN FISHERIES (1)</td>
<td>LEC. 1. SU. Pr. FISH 2100 or departmental approval.</td>
<td>Consideration of various aspects of fisheries work, career options as related to individual interests, and career planning</td>
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<tr>
<td>FISH 4900</td>
<td>DIRECTED STUDIES IN FISHERIES (1-4)</td>
<td>IND. SU.</td>
<td>Individualized in depth study on a particular subject under the guidance of a professor. May include directed reading and research. Course may be repeated for a maximum of 4 credit hours.</td>
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<tr>
<td>FISH 4920</td>
<td>INTERNSHIP (1-5)</td>
<td>INT. SU.</td>
<td>Departmental approval. Discipline-related learning while employed with cooperating private industry or public agency. Course may be repeated for a maximum of 5 credit hours.</td>
</tr>
<tr>
<td>FISH 4960</td>
<td>SPECIAL PROBLEMS (1-4)</td>
<td>LEC.</td>
<td>Departmental approval. Individual and group problems investigations in fisheries and allied aquacultures. Course may be repeated for a maximum of 4 credit hours.</td>
</tr>
<tr>
<td>FISH 4967</td>
<td>HONORS SPECIAL PROBLEMS (1-4)</td>
<td>IND. Pr. Honors College. Departmental approval.</td>
<td>Course may be repeated for a maximum of 4 credit hours.</td>
</tr>
<tr>
<td>FISH 4980</td>
<td>UNDERGRADUATE RESEARCH (2-4)</td>
<td>IND. Departmental approval.</td>
<td>Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.</td>
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<tr>
<td>FISH 4997</td>
<td>HONORS THESIS (1-3)</td>
<td>IND. Pr. Honors College. Departmental approval.</td>
<td>Course may be repeated for a maximum of 3 credit hours.</td>
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<tr>
<td>FISH 5210</td>
<td>PRINCIPLES OF AQUACULTURE (3)</td>
<td>LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100.</td>
<td>Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.</td>
</tr>
<tr>
<td>FISH 5215</td>
<td>MARINE AQUACULTURE (2)</td>
<td>LEC. 1. LAB. 2.</td>
<td>Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.</td>
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<tr>
<td>FISH 5220</td>
<td>WATER SCIENCE (3)</td>
<td>LEC. 3. Pr. CHEM 1040 and FISH 2100.</td>
<td>Departmental approval. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems. Fall.</td>
</tr>
<tr>
<td>FISH 5230</td>
<td>CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4)</td>
<td>LEC. 3. LAB. 1.</td>
<td>Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.</td>
</tr>
<tr>
<td>FISH 5240</td>
<td>HATCHERY MANAGEMENT (4)</td>
<td>LEC. 2. LAB. 8. Pr. FISH 5210 or FISH 6210.</td>
<td>Study of warm-water hatchery techniques and application of those techniques in the field.</td>
</tr>
<tr>
<td>FISH 5245</td>
<td>SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2)</td>
<td>FLD. 40.</td>
<td>One year of college-level Biology or departmental consent. Overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. May count either FISH 5245 or FISH 6245.</td>
</tr>
<tr>
<td>FISH 5250</td>
<td>AQUACULTURE PRODUCTION (4)</td>
<td>LEC. 3. LAB. 4. Pr. FISH 5210.</td>
<td>Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.</td>
</tr>
<tr>
<td>FISH 5320</td>
<td>LIMNOLOGY (3)</td>
<td>LEC. 3. Pr. CHEM 1040 and (BIOL 1030 or BIOL 1037) and BIOL 3060.</td>
<td>Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.</td>
</tr>
<tr>
<td>FISH 5321</td>
<td>LIMNOLOGY LABORATORY (1)</td>
<td>LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and BIOL 3060 and (P/C FISH 5320 or P/C FISH 6320).</td>
<td>Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.</td>
</tr>
<tr>
<td>FISH 5380</td>
<td>GENERAL ICHTHYOLOGY (4)</td>
<td>LEC. 3. LAB. 6. Pr. BIOL 1030 or BIOL 1037.</td>
<td>Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.</td>
</tr>
<tr>
<td>FISH 5410</td>
<td>INTRODUCTION TO FISH HEALTH (3)</td>
<td>LEC. 3. Pr. BIOL 1030 or BIOL 1037.</td>
<td>Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.</td>
</tr>
<tr>
<td>FISH 5425</td>
<td>MARINE FISH DISEASES (4)</td>
<td>LEC. 7.5. LAB. 6. Pr. (BIOL 1030 or BIOL 1037) and BIOL 3200.</td>
<td>Departmental approval. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases. Taught at Dauphin Island Sea Lab.</td>
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</table>

FISH 5510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 5520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Pr. (BIOL 1030 or BIOL 1037) and FISH 2100. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 5530 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 5550 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Pr. CHEM 2030 and BIOL 3200. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 5570 FISHERIES AND AQUACULTURES EXTENSION METHODS (2) LEC. 2. Pr. (BIOL 1030 or BIOL 1037) and CHEM 1040 and FISH 2100. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 5710 AQUATIC MICROBIOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 5725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Departmental approval; Admission to the Gulf Coast Research Laboratory.

FISH 5735 PRINCIPLES OF MARINE AQUACULTURE (6) LEC. 6. Pr. At least 16 credits in BIOL 1000-8999. Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Acceptance at GCRL.

FISH 5745 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Departmental approval; Admission to GCRL.

FISH 5970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences. Course may be repeated for a maximum of 4 credit hours.

FISH 6210 PRINCIPLES OF AQUACULTURE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Principles underlying aquatic productivity and levels of management as demonstrated by present practices of aquaculture around the world.

FISH 6215 MARINE AQUACULTURE (2) LEC. 1. LAB. 2. Departmental approval. Introduction to culture of marine species with emphasis in nutrition and feeding, reproductive biology, production techniques, processing, marketing and economics. Taught at the Dauphin Island Sea Lab.

FISH 6220 WATER SCIENCE (3) LEC. 3. Graduate level standing in FISH or departmental approval. Properties of water, the water cycle, basic water chemistry and water quality with emphasis on water in managed ecosystems.

FISH 6230 CONSERVATION ECOLOGY OF FRESHWATER INVERTEBRATES (4) LEC. 3. LAB. 1. Foundational knowledge, ecological theory, and illustrative case-studies on conservation issues and solutions for freshwater invertebrates.

FISH 6240 HATCHERY MANAGEMENT (4) LEC. 2. LAB. 8. Pr. FISH 6210. Study of warm-water hatchery techniques and application of those techniques in the field.

FISH 6245 SHELLFISH AQUACULTURE IN THE GULF OF MEXICO (2) FLD. 40. This course will provide students with an overview of the various types of shellfish aquaculture practiced in the Gulf of Mexico, and an understanding of the implications for both for public stock enhancement and private production. May count either FISH 5245 or FISH 6245.

FISH 6250 AQUACULTURE PRODUCTION (4) LEC. 3. LAB. 4. Graduate level standing in FISH or departmental approval. Factors affecting growth and yield of aquacultural species, with implications toward farming commonly cultured species. Production techniques for commercially important finfish are discussed.
FISH 6320 LIMNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of freshwater communities.

FISH 6321 LIMNOLOGY LABORATORY (1) LAB. 4. Pr. (P/C FISH 5320 or P/C FISH 6320). Graduate level standing in FISH or departmental approval. Limnology is the study of the chemical, physical, geological, biological, and ecological processes that influence the structure and function of aquatic communities. May count either FISH 5321 or FISH 6321.

FISH 6380 GENERAL ICHTHYOLOGY (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Survey of the biodiversity of world and local fishes, with an overview of ecology, behavior, biology and conservation of fishes.

FISH 6410 INTRODUCTION TO FISH HEALTH (3) LEC. 3. Graduate level standing in FISH or departmental approval. Introduction to parasitic, bacterial and viral pathogens of wild and cultured finfish and shellfish.

FISH 6425 MARINE FISH DISEASES (4) LEC. 7.5. LAB. 6. Graduate level standing in FISH or departmental approval. Introduction to diseases of marine finfish and shellfish and practical techniques used to isolate and identify diseases.


FISH 6510 FISHERIES BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 4. Graduate level standing in FISH or departmental approval. This course provides a general overview and introduction to fisheries management with emphasis on freshwater examples. The laboratory will provide hands-on field experience. Credit will not be given for both FISH 5510 and FISH 6510.

FISH 6520 SMALL IMPOUNDMENT MANAGEMENT (3) LEC. 5. LAB. 10. Graduate level standing in FISH or departmental approval. Major aspects of primarily recreational fishing pond management, including construction, stocking, water quality management, harvest strategy, diagnosis of problems and communication of analyses.

FISH 6630 FACILITIES FOR AQUACULTURE (3) LEC. 2. LAB. 4. Principles and practice of site selection, design and construction of aquacultural facilities, with emphasis on impoundments and ponds. Odd years.

FISH 6650 FISH AND SEAFOOD PROCESSING TECHNOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Emphasis on important species, market forms, preservation techniques, and rules and regulations of the seafood industry.

FISH 6670 FISHERIES AND AQUACULTURE EXTENSION METHODS (2) LEC. 2. Concepts and practices pertaining to aquacultural extension organization, administration, program development and implementation.

FISH 6710 AQUATIC MICROBIOLOGY (3) LEC. 3. Graduate level standing in FISH or departmental approval. Overview of the diversity, genetics, physiology, and ecology of aquatic microorganisms, with an emphasis on bacteria, archaea and viruses.

FISH 6725 MARINE ICHTHYOLOGY (6) LEC. 6. Pr. BIOL 3060 and FISH 6380. General background in the biology of marine fishes and their taxonomy. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Departmental approval; Admission to Gulf Coast Research Laboratory.

FISH 6735 PRINCIPLES OF MARINE AQUACULTURE (6) LEC. 6. Pr. At least 16 credits each with a minimum grade of B in BIOL 6000-8999. Departmental approval. Principles and technologies for culture of commercially important marine organisms. Offered at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Acceptance at GCRL;

FISH 6745 MARINE FISHERIES MANAGEMENT (4) LEC. 4. Overview of practical marine fishery management problems. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, MS. Summer. Departmental approval; Admission to GCRL.

FISH 6970 TOPICS IN FISHERIES AND ALLIED AQUACULTURES (1-4) LEC. Instruction and discussion in a selected current topic in Fisheries, Aquaculture or Aquatic Sciences.


FISH 7240 RESOURCE USE AND ENVIRONMENTAL ISSUES IN AQUACULTURE (2) LEC. 2. Resource use, environmental effects, and sustainability of aquaculture with emphasis on approaches to improving efficiency and reducing negative environmental effects.

FISH 7270 CRUSTACEAN AND MOLLUSCAN AQUACULTURE (4) LEC. 3. LAB. 3. Pr. FISH 5210 or FISH 6210 or departmental approval. General biology and culture techniques of the major shrimp, crawfish and shellfish species cultured throughout the world.
FISH 7330 RESERVOIR LIMNOLOGY (3) LEC. 2. LAB. 5. Pr. FISH 5320 or FISH 6320. Departmental approval. Consideration of the ecological characteristics of reservoirs as they relate to modern concepts of ecosystem management. Even years.

FISH 7340 FISH ECOLOGY (3) LEC. 2. LAB. 3. Graduate level standing in FISH or departmental approval. Study of interactions among fish and their environment. Laboratory will emphasize critical literature reading and experimental approaches.

FISH 7350 META-ANALYSIS (2) LEC. 2. Meta-Analysis is a quantitative approach for synthesizing results from diverse research studies that address a similar hypothesis.

FISH 7360 MANAGEMENT OF AQUATIC FLORA IN FISHERIES AND AQUACULTURE (4) LEC. 3. LAB. 6. Graduate level standing in FISH or departmental approval. Role of aquatic vegetation in fish production, its utilization and control.


FISH 7410 MOLECULAR DIAGNOSIS: PRINCIPLES AND APPLICATIONS (3) LEC. 3. Introduction to molecular biology techniques currently used in disease diagnosis.

FISH 7420 FISH DISEASES (3) LEC. 3. Pr. BIOL 3200. Departmental approval. Viral, bacterial, fungal and parasitic diseases of fishes, including etiologic agents, geographical ranges, species susceptibility, clinical signs, clinical pathology, epidemiology and management.

FISH 7450 FISH PATHOLOGY (3) LEC. 2. LAB. 3. Pr. FISH 5410 or FISH 6410 or FISH 7420. Departmental approval. Morphological and physiological changes in fish with infectious or non-infectious diseases. Even years.

FISH 7460 CLINICAL FISH DISEASE DIAGNOSIS (1-3) LEC. Pr. FISH 6410 or FISH 7420 or Departmental approval. Practical experience in necropsy of diseased fish. Identification of causative agents and prescription of appropriate disease control.

FISH 7530 FISH POPULATION DYNAMICS (3) LEC. 2. LAB. 4. Pr. FISH 6510 or FISH 5510 and STAT 7040. Departmental approval. Derivation of fish population estimates, growth, recruitment and mortality; use of modeling techniques to assess exploited fish populations. Even years.

FISH 7540 QUANTITATIVE TECHNIQUES IN FISHERY ASSESSMENT (3) LEC. 2. LAB. 4. Pr. FISH 6510 or FISH 5510 and STAT 7000 and STAT 7040. Departmental approval. Quantitative techniques to assess and manage fish populations in freshwater. The laboratory will analyze actual fisheries data using SAS on personal computers. Odd years.

FISH 7550 SEQUENCE-BASED SCIENCE: TECHNOLOGY AND APPLICATION (2) LEC. 2. Pr. BIOL 6230. Technology and application of high-throughput sequencing approaches to scientific research.

FISH 7640 FISH NUTRITION (3) LEC. 3. Fundamental and applied aspects of fish nutrition, including nutrient requirements, physiology of food assimilation, feed preparation, and practical feeding.

FISH 7641 FISH NUTRITION LABORATORY (2) LAB. 6. Coreq. FISH 7640. Laboratory exercises in analysis of fish feeds and formulation and preparation of fish feeds.

FISH 7650 TRADITIONAL APPROACHES TO FISH GENETIC ENHANCEMENT (2) LEC. 2. Graduate level standing in FISH or departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, selective breeding, genetic management and inheritance.

FISH 7660 MOLECULAR GENETICS AND BIOTECHNOLOGY (4) LEC. 3. LAB. 3. Graduate level standing in FISH or departmental approval. Principles and application of DNA fingerprinting technologies, gene mapping, genetic information and analysis using internet tools, transgenic technologies.

FISH 7715 ADVANCED MARINE ECOLOGY (2) LEC. 2. Departmental approval. Mechanisms that control distribution of plants and animals at scales ranging from individual organism to ecosystem

FISH 7725 MARINE BIOGEOCHEMICAL PROCESSES (2) LEC. 2. Departmental approval. Marine biogeochemical cycling of carbon, nitrogen, sulfur, phosphorus and metals, with emphasis on estuarine systems.

FISH 7735 MARINE PLANKTON (3) LEC. 3. Pr. FISH 7755 or BIOL 7575. Taxonomy of phytoplankton, bacterioplankton and zooplankton in estuaries, coastal seas and open oceans. Dauphin Island Sea Lab.
FISH 7745 MARINE MICROBIAL ECOLOGY (3) LEC. 3. Departmental approval. Survey of microorganisms found in marine environment with emphasis on interaction of microorganisms with each other and with their environment.

FISH 7750 BIOTECHNOLOGICAL APPROACHES TO FISH GENETICS (2) LEC. 2. Pr. FISH 7650. Departmental approval. This course is intended to teach the philosophy of fish, shellfish and crustacean genetics, genetic management genetic engineering, genomic manipulation and genetic biotechnology.


FISH 7765 CHEMICAL OCEANOGRAPHY (3) LEC. 3. Departmental approval. In-depth examination of the chemistry of seawater and its relationship with biological, geological and physical processes in the oceans. Dauphin Island Sea Lab.

FISH 7775 FISHERIES OCEANOGRAPHY (2) LEC. 2. Departmental approval. An examination of the relationship between fish life history, recruitment dynamics, harvest potential, and oceanographic processes. Taught at the Dauphin Island Sea Lab.

FISH 7785 PHYSICAL OCEANOGRAPHY (4) LEC. 4. Departmental approval. Describes observed physical setting of the marine environment, and qualitatively explains how and why observed physical phenomena occur.

FISH 7900 DIRECTED STUDIES IN FISHERIES I (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 7920 INTERNSHIP IN FISHERIES AND AQUACULTURE (1-10) INT. SU. Departmental approval. Field experience in aquaculture, fisheries or aquatic resource management on farm or with research, extension or aquatic management agency. Course may be repeated for a maximum of 10 credit hours.

FISH 7930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 7950 GRADUATE RESEARCH SEMINAR (1) SEM. 1. SU. Oral presentation and discussion of research in the field of specialization. Course may be repeated for a maximum of 2 credit hours.

FISH 7960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) LEC. Individual or group project and research in consultation with faculty member on problem in fisheries and allied aquacultures. Course may be repeated for a maximum of 12 credit hours.

FISH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

FISH 8900 DIRECTED STUDIES IN FISHERIES II (1-4) IND. SU. Individualized in-depth study on a particular subject under the guidance of a professor. May include directed readings and research. Course may be repeated for a maximum of 4 credit hours.

FISH 8930 GRADUATE SEMINAR SERIES (1) LEC. 1. SU. Acquaint students with current research and related activities.

FISH 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Acquaint students with current research and related activities.

FISH 8960 SPECIAL PROBLEMS IN FISHERIES, AQUACULTURE, AND AQUATIC SCIENCES (1-4) LEC. Individualized work and research in consultation with faculty member on problem in fisheries and allied aquacultures. Course may be repeated for a maximum of 12 credit hours.

FISH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Flight Education - AVMF

Courses

AVMF 2141 FLIGHT ORIENTATION (1) LAB. 2. Basic flight experience for non-pilots to familiarize aviation majors, engineers, teachers, and other students desiring a limited exposure to flight. Includes ground discussion and airplane flight time. Special fee.


AVMF 2171 PRIVATE PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2150 or Departmental approval. Dual and solo flight instruction and discussion to prepare for first solo in a single-engine airplane. Special fee.
AVMF 2181 PRIVATE PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2171 or Departmental approval. Continuation of AVMF 2171 to prepare for FAA Private Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate and Student Pilot certificate.

AVMF 2230 PRINCIPLES OF INSTRUMENT FLIGHT (3) LEC. 3. Pr. AVMF 2181. Flight instruments, FAA regulations, air traffic procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating Airplane Aeronautical Knowledge Test (IRA).

AVMF 2241 INSTRUMENT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2230. Flight instruments, FAA regulations, air traffic control procedures, radio navigation, and aircraft operation and performance as applied to instrument flying. Preparation for the FAA Instrument Rating – Airplane Practical Test. Special fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2250 PRINCIPLES OF COMMERCIAL FLIGHT (3) LEC. 3. Pr. AVMF 2251. FAA regulations, high altitude operations, aerodynamics, commercial flight maneuvers, environmental, ice control, retractable landing gear, and aircraft performance as applied to commercial flying. Preparation for the FAA Commercial Pilot Aeronautical Knowledge Test (CAX).

AVMF 2251 INSTRUMENT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2241. Continuation of AVMF 2241 in preparation for the FAA Instrument Rating – Airplane Practical Test. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2261 COMMERCIAL PILOT FLIGHT TRAINING I (2) LAB. 6. Pr. AVMF 2251. Flight training toward FAA Commercial Pilot Certification. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 2271 COMMERCIAL PILOT FLIGHT TRAINING II (2) LAB. 6. Pr. AVMF 2261. Continuation of AVMF 2261 towards FAA Commercial Pilot Certification. Emphasis on advanced commercial maneuvers, and cross country flying. Special fee. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4271 MULTI-ENGINE FLIGHT TRAINING (2) LAB. 2. Pr. AVMF 2271. Specialized instruction in methods and techniques of multi-engine airplane operations. Sufficient ground and flight instruction is given towards an FAA Multi-Engine Airplane Rating. Special Fees. Requires at least a valid FAA 3rd Class Medical certificate.

AVMF 4280 PRINCIPLES OF FLIGHT INSTRUCTION (3) LEC. 3. Principles of teaching as applied to instructing, analyzing, and evaluating flight students. Emphasis is on preparation for the FAA Fundamentals of Instructing (FOI) and the Flight Instructor-Airplane (FIA) Aeronautical Knowledge Tests.


AVMF 4320 PRINCIPLES OF PROFESSIONAL FLIGHT (3) LEC. 3. Pr. AVMF 2230. Multi-engine transport aircraft systems and operating procedures (normal, abnormal, and emergency). Includes hydraulic, electric, pneumatic, air conditioning and pressurization, auxiliary power unit (APU), landing gear, and flight control systems. Special fee.

AVMF 4331 TRANSPORT AIRCRAFT FLIGHT TRAINING (2) LAB. 6. Includes instrument and night instruction, emergency procedures and actual air transportation operations. Special fees.


AVMF 4400 APPLIED AERODYNAMICS AND PROPULSION SYSTEMS (3) LEC. 3. Pr. PHYS 1000 or PHYS 1007. Private Pilot Certificate, or Departmental approval. The principles of aerodynamics and propulsion and how aerodynamic factors affecting lift, thrust, drag, in-air performance, stability and flight control.
Courses

FDSC 1000 INTRODUCTORY FOOD SCIENCE (3) LEC. 3. Overview of food science discipline including food selection, food composition, food safety and sanitation, food processing, packaging, commodity types, and food laws.

FDSC 4290 PROFESSIONAL DEVELOPMENT IN FOOD SCIENCE (1) LEC. 1. Preparing for careers; enhancing computer and communication skills; planning for professional advancement.

FDSC 4910 FOOD SCIENCE PRACTICUM (3) PRA. 3. Practical experience in food industry, governmental laboratories, or other food science sites.

FDSC 4920 FOOD SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the food industry. Course may be repeated for a maximum of 9 credit hours.

FDSC 4960 SPECIAL PROBLEMS IN FOOD SCIENCE (1-3) IND. 2.50 GPA or departmental approval. Individual or group projects with a faculty member in food science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

FDSC 4970 SPECIAL TOPICS (1-4) LEC. Instruction and discussion of current topics associated with food science. Departmental Approval. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

FDSC 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

FDSC 5150/5153 FOOD LAWS AND REGULATIONS (3) LEC. 3. Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both FDSC 5150 and FDSC 6150.

FDSC 5200/5203 DEVELOPING, IMPLEMENTING, AND AUDITING FOOD SAFETY PROGRAMS (3) LEC. 3. Theory and practice of food safety program design and implementation; includes internal and third-party audits. Credit will not be given for both FDSC 5200 and FDSC 6200.

FDSC 5430 FOOD CHEMISTRY (4) LEC. 3. LAB. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Chemistry of food components; chemical and physical changes of food during processing and storage. Credit will not be given for both FDSC 5430 and FDSC 6430. Spring.

FDSC 5450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3. LAB. 3. Pr. FDSC 5430. Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both FDSC 5450 and FDSC 6450.

FDSC 5640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. FDSC 5430. Food product development from concept to market. Credit will not be given for both FDSC 5640 and FDSC 6640. Spring.

FDSC 5660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 5700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count either ANSC 5700, FDSC 5700, ANSC 6700, or FDSC 6700.

FDSC 5730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results. May count one of the following: ANSC 5730, ANSC 6730, FDSC 5730, FDSC 6730.

FDSC 5770 FOOD PLANT SANITATION (4) LEC. 3. LAB. 3. Pr. BIOL 3200 or Departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit will not be given for both FDSC 5770 and FDSC 6770. Fall.

FDSC 6150/6156 FOOD LAWS AND REGULATIONS (3) LEC. 3. Federal and state laws and regulations and case history affecting food production, processing, packaging, marketing, and distribution of food and food productions. History of food law, enactment of laws and regulations, legal research and regulatory agencies. Course is taught exclusively online. Credit will not be given for both FDSC 6150 and FDSC 5150.
FDSC 6200/6206 DEVELOPING, IMPLEMENTING, AND AUDITING FOOD SAFETY PROGRAMS (3) LEC. 3. Theory and practice of food safety program design and implementation; includes internal and third-party audits. Credit will not be given for both FDSC 6200 and FDSC 5200.

FDSC 6430 FOOD CHEMISTRY (4) LEC. 3. LAB. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Chemistry of food components; chemical and physical changes of food during processing and storage. May count either FDSC 5430 or FDSC 6430. Spring.

FDSC 6450 FOOD ANALYSIS AND QUALITY CONTROL (4) LEC. 3. LAB. 3. Pr. FDSC 6430. Principles and application of chemical and instrumental food analyses; quality control procedures. Credit will not be given for both FDSC 6450 and FDSC 5450.

FDSC 6640 FOOD PRODUCT DEVELOPMENT (4) LEC. 2. LAB. 6. Pr. FDSC 6430. Development of food products from concept to market. Credit will not be given for both FDSC 6640 and FDSC 5640. Spring.

FDSC 6660 FOOD MICROBIOLOGY (4) LEC. 3. LAB. 3. Pr. BIOL 3200. Introduction to basic and applied microbiology in food; including how bacteria, viruses, parasites, yeasts and molds affect and are in turn affected by foods both positively and negatively. May count either FDSC 5660, BIOL 5660, FDSC 6660 or BIOL 6660.

FDSC 6700 MICROBIOLOGY OF MEATS AND OTHER FOODS (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037 or BIOL 3200. Microorganisms associated with meat and other foods production, spoilage, and safety with training in both traditional and modern detection techniques. May count one of the following: ANSC 5700, FDSC 5700, ANSC 6700, or FDSC 6700.

FDSC 6730 SENSORY EVALUATION (3) LEC. 2. LAB. 2. History and methods of sensory testing of food products, factors affecting results. May count one of the following: ANSC 5730, ANSC 6730, FDSC 5730, FDSC 6730.

FDSC 6770 FOOD PLANT SANITATION (4) LEC. 3. LAB. 3. Pr. BIOL 3200 or Departmental approval. Sanitary regulations and procedures for hazard control and quality assurance in food industry. Credit is not allowed for both FDSC 5770 and FDSC 6770. Fall.

FDSC 7200 CARBOHYDRATE CHEMISTRY AND FUNCTIONALITY IN FOODS (3) LEC. 3. Pr. FDSC 6430. Advanced theories and practices of food science in the areas of protein and fat.

FDSC 7210 FOOD PROTEINS AND FATS (3) LEC. 3. Pr. FDSC 6430. Advanced theories and practices of food science in the areas of protein and fat.

FDSC 7930 ADVANCED INDEPENDENT STUDY (1-6) IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

FDSC 7950 GRADUATE SEMINAR (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either POUL 7950 or FDSC 7950. Course may be repeated for a maximum of 3 credit hours.

FDSC 7960 SPECIAL PROBLEMS (1-4) IND/ST. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 8 credit hours.

FDSC 7970 SPECIAL TOPICS IN FOOD SCIENCE (1-4) LEC. Departmental approval. Instruction and discussion of current advanced topics associated with food science. Course may be repeated for a maximum of 8 credit hours.

FDSC 7980/7986 NONTHESIS RESEARCH (1-4) RES. Departmental approval. enrolled as FDSG MAg student. Research conducted as part of the Master of Agriculture degree.

FDSC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

FDSC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topic.

Foreign Languages - FLNG

Courses

FLNG 1000 ELEMENTARY FOREIGN LANGUAGE ABROAD (1-10) AAB/FLD. Pr., Departmental approval. For languages not currently taught in the department of Foreign Languages and Literatures, but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.
FLNG 1010 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Language and Literatures.

FLNG 1020/1023 ELEMENTARY FOREIGN LANGUAGE (4) LEC. 4. Pr. FLNG 1010 or Departmental approval. For languages not currently taught in the Department of Foreign Language and Literatures.

FLNG 2000 INTERMEDIATE FOREIGN LANGUAGE (1-10) AAB/LEC. Pr., Departmental approval. For languages not currently taught in the Department of Foreign Languages and Literatures, but taken through approved distance learning or Study Abroad programs. Credit awarded in consultation with department chair. Course may be repeated for a maximum of 10 credit hours.

FLNG 4997 HONORS THESIS (1-6) IND. Pr. Honors College or Departmental approval. Directed readings and research culminating in a thesis. Course may be repeated for a maximum of 6 credit hours.

**Foreign Lng-Asian Culture - FLAS**

**Courses**

FLAS 3450 TOPICS IN ASIAN CULTURE (3) LEC. 3. Study of traditional and/or modern Asian culture with special emphasis on cross-cultural and transnational interactions with in Asia, as well as with the west. Course may be repeated for a maximum of 6 credit hours.

**Foreign Lng-Chinese - FLCN**

**Courses**

FLCN 1000 ELEMENTARY CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Elementary coursework on approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 1010 ELEMENTARY CHINESE I (4) LEC. 4. Exposure to Chinese language and culture for students with little or no knowledge of Chinese.

FLCN 1020 ELEMENTARY CHINESE II (4) LEC. 4. Pr. FLCN 1010 or Departmental approval. Continued exposure to Chinese language and culture. Departmental approval. Fulfills College of Liberal Arts foreign language core requirement.

FLCN 2000 INTERMEDIATE CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by the department. Intermediate course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 2010 INTERMEDIATE CHINESE I (4) LEC. 4. Pr. FLCN 1020 or Departmental approval. Continued exposure to Chinese culture; introduction to intermediate language skills.

FLCN 2020 INTERMEDIATE CHINESE II (4) LEC. 4. Pr. FLCN 2010 or Departmental approval. Continued exposure to Chinese culture; intermediate language skills with emphasis on grammar.

FLCN 3000 ADVANCED CHINESE ABROAD (1-10) AAB/IND. Pr., Departmental approval. Variable credit, determined by department. Advanced course work in approved Study-Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLCN 3010 CHINESE COMPOSITION AND CONVERSATION (3-6) AAB/LEC. Pr. FLCN 2010 or Departmental approval. Intense practice in spoken and written Chinese, both text-and situation-based. Course may be repeated for a maximum of 6 credit hours.

FLCN 3020 CHINESE COMPOSITION AND CONVERSATION II (3) LEC. 3. Pr. FLCN 3010. In this course, students will continue to develop integrated Chinese language skills of listening, speaking, reading, and writing. There will be increased focus on reading and writing skills in Chinese and on learning grammar patterns needed to write in Chinese.

FLCN 3050 CHINESE CINEMA (3) LEC. 3. Major works of Chinese cinema from 1920s to present with emphasis on cultural and literary aspects.

FLCN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN CHINESE (1) IND. 1. Pr. FLCN 1020 or Departmental approval. Language component with reading and in-class discussion to complement a lecture course in English and in a discipline other than Chinese. Course may be repeated for a maximum of 3 credit hours.

FLCN 3450 TOPICS IN CHINESE LITERATURE AND CULTURE (3-6) AAB/LEC. Directed study of topics of interest. Course may be repeated for a maximum of 6 credit hours.
FLCN 3510 INTRODUCTION TO CHINESE CULTURE IN ENGLISH (3-6) LEC. Chinese culture as depicted in art, film, literature, history. Course may be repeated for a maximum of 6 credit hours.

FLCN 3930 DIRECTED STUDY IN CHINESE (1-6) IND. Pr. FLCN 2010. Directed study in area of special interest for the superior student in Chinese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-French - FLFR

Courses

FLFR 1000 ELEMENTARY FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in French. Course may be repeated for a maximum of 10 credit hours.

FLFR 1010 ELEMENTARY FRENCH I (4) LEC. 3. LAB. 2. Basic language skills with emphasis on conversation. Exposure to culture.

FLFR 1020 ELEMENTARY FRENCH II (4) LEC. 3. LAB. 2. Pr. LFRE score of 0241 or FLFR 1010. Basic language skills with emphasis on conversation. Exposure to culture. Fulfills College of Liberal Arts core foreign language requirement.

FLFR 1030 READING PROFICIENCY IN FRENCH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly materials in French related to their field of study. May not be used to satisfy undergraduate language requirements.

FLFR 2000 INTERMEDIATE FRENCH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level, taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLFR 2010 INTERMEDIATE FRENCH I (4) LEC. 3. LAB. 2. Pr. LFRE score of 0325 or FLFR 2020. Language skills, grammar review, readings in French culture, literature, and history.


FLFR 3000 JUNIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the French undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 3010 FRENCH PHONETICS AND DICTIO (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Basic principles of French phonetics through sound recognition discrimination and intensive practice.

FLFR 3030 FRENCH CONVERSATION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Intensive practice in spoken French, based on texts and everyday situations, especially in contemporary French society. Includes review of vocabulary.

FLFR 3040 FRENCH COMPOSITION (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

FLFR 3050 FRENCH CINEMA (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 2020. Sampling of important films from the beginnings of French cinema in 1895 to the present day, including the intellectual, historical, cultural, and literary matrix of each film.

FLFR 3100 INTRODUCTION TO FRENCH LITERATURE (3) LEC. 3. Pr. LFRE score of 0428 or FLFR 3040 or FLFR 3030 or Departmental approval. Grounding in basic analytical approaches, language, and organizational skills needed to discuss French literature effectively and coherently, orally or in writing.

FLFR 3110 FRENCH CIVILIZATION (3) LEC. 3. Pr. FLFR 2020 or Departmental approval. Cultural heritage of France as reflected in present-day life patterns, traditions, and institutions.

FLFR 3140 SURVEY OF FRENCH LITERATURE I (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. The Middle Ages to the 1800s, emphasizes coherent and effective writing in French.

FLFR 3150 SURVEY OF FRENCH LITERATURE II (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Readings in French literature prose, drama, and poetry from the 19th century to the present, centered on a theme or topic.
FLFR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN FRENCH (1) LEC. 1. Pr. FLFR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than French. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLFR 3310/3313 BUSINESS FRENCH (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428. Intensive practice in preparing commercial correspondence and reading contracts, agreements, and related documents in French. Emphasis will be placed on the acquisition of a business vocabulary.

FLFR 3510 TOPICS IN FRENCH LITERATURE AND CULTURE (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Topics drawing from French literature, history, fine arts, or culture of general interest to students with little or no previous study of French.

FLFR 3930 DIRECTED STUDIES (1-3) AAB/IND. Pr., Departmental approval. Directed study in an area of special interest to the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4000 SENIOR/ADVANCED FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior or advanced level, taken on an approved Study Abroad program. Students should consult with the undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 4020 ADVANCED GRAMMAR AND STYLISTICS (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Practice in writing and analyzing French texts, with emphasis on advanced grammar topics and stylistics.

FLFR 4030 FRENCH CONTINUING CONVERSATION (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in spoken French to maintain and upgrade proficiency. Major credit will not be given for FLFR or FLFT majors.

FLFR 4040 FRENCH CONTINUING COMPOSITION (3) LEC. 3. Pr. FLFR 3030 or FLFR 3040 or Departmental approval. Continuing practice in written French to maintain and upgrade proficiency.

FLFR 4310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. A grade of D or higher in FLFR 3000-3999 or Departmental approval. Practical exercises in preparing and translating trade correspondence and documents in French as well as assigned group work and case studies under simulated on-the-job pressures.

FLFR 4410 ADVANCED TOPICS IN FRENCH LITERATURE, CULTURE, OR LANGUAGE (3) LEC. 3. Pr. Completed 3 courses from FLFR 3000-3999 or LFRE minimum score of 428 or Departmental approval. Study of a special aspect or theme of the French language, literature, or culture. Course may be repeated for a maximum of 9 credit hours.

FLFR 4740 TRANSLATION (3) LEC. 3. Basic techniques and problem areas in translating from French into English and from English into French.

FLFR 4930 ADVANCED DIRECTED STUDY (1-3) IND. Pr. A least 3 courses in FLFR 3000-3999. Directed study in area of special interest for the superior student in French. Course may be repeated for a maximum of 6 credit hours.

FLFR 4980 FRENCH SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLFR 5310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Practice in managing, preparing, and translating international trade correspondence documents and related legal procedures in French. Development of case studies and other international trade group work in French and in English under simulated real-life pressures.

FLFR 5970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999. Pr., Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.

FLFR 5980 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLFR 3000-3999 or Departmental approval. Seminar in advanced languages skills or topics from French literary genres and movements.

FLFR 6310 FRENCH FOR INTERNATIONAL TRADE (3) LEC. 3. Departmental approval. Practice in handling, preparing, and translating international trade correspondence documents and related legal procedures in French.

FLFR 6970 SPECIAL TOPICS IN ADVANCED LANGUAGE SKILLS (3) LEC. 3. Departmental approval. Review of principal grammatical structures, development of skills through appropriate exercises and class assignments, and improvement of stylistic sensitivity by exposure to a variety of language samples.
FLFR 6980/6986 SEMINAR IN FRENCH LITERARY GENRES AND MOVEMENTS (3) AAB/SEM. 3. Seminar in advanced languages skills or topics from French literary genres and movements. Course may be repeated for a maximum of 9 credit hours.

FLFR 7000 GRADUATE FRENCH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken in an approved Study Abroad program. Students should consult with the French graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLFR 7010 ADVANCED FRENCH CIVILIZATION (3) LEC. 3. Pr., Departmental approval. In-depth study of French civilization with emphasis on the relationship of history, arts, and literature from prehistoric times to the present.

FLFR 7020 ADVANCED COMPOSITION AND STYLISTICS (3) LEC. 3. Pr., Departmental approval. Acquisition of advanced writing skills in French. Techniques and strategies of appropriate stylistic expression through analysis of various sources of texts, including literary, historical, commercial, and popular.

FLFR 7090 INTRODUCTION TO COLLEGE-LEVEL FRENCH INSTRUCTION (1) LEC. 1. SU. Pr., Departmental approval. Orientation for graduate students in French. Introduction to teaching at the college-level, including observation of performance and guidance by designated instructors.

FLFR 7430 FRENCH PRESS (3) LEC. 3. Pr., Departmental approval. Political, intellectual, and cultural events in France, Europe, and the world as reflected in major French daily and weekly publications.

FLFR 7740 ADVANCED TRANSLATION (3) LEC. 3. Pr., Departmental approval. Acquisition of skills for translation from French to English and from English to French using a wide variety of texts including historical, literary, commercial, and popular sources.

FLFR 7920 FOREIGN LANGUAGE CAREER INTERNSHIP (1-6) INT. Pr., Departmental approval. Experiential learning either in the business community or in university-sponsored programs outside the United States. Course may be repeated for a maximum of 6 credit hours.

FLFR 7930 DIRECTED STUDIES IN LANGUAGE SKILLS (3) IND. 3. Departmental approval. Pr., Course may be repeated for a maximum of 6 credit hours.

FLGR 1000 ELEMENTARY GERMAN ABROAD (1-10) IND. Pr., Departmental approval. Course work at the elementary level in an approved Study Abroad program. Credit may substitute for required 1000-level courses in German. Course may be repeated for a maximum of 10 credit hours.

FLGR 1010 ELEMENTARY GERMAN I (4) LEC. 3. LAB. 2. Fundamentals of German language skills stressed. Exposure to Germanic civilization. For students with no previous background or less than two years of high school German.

FLGR 1020 ELEMENTARY GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0241 or FLGR 1010 or acceptable score on the FL placement test. Review of basic German grammar and vocabulary. Fundamentals of German language skills with progressive emphasis on conversation. Fulfills the College of Liberal Arts foreign language core requirement.

FLGR 1030 READING PROFICIENCY IN GERMAN (3) LEC. 3. Instruction to enable graduate students to read and understand scholarly material in German related to their field of study requirements. May not be used to satisfy undergraduate language requirements. Fall.

FLGR 1100/1103 ACCELERATED ELEMENTARY GERMAN (6) LEC. 6. Basic concepts of German grammar, vocabulary, and culture. Fulfills the College of Liberal Arts foreign language requirement.

FLGR 2000 INTERMEDIATE GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.
FLGR 2010 INTERMEDIATE GERMAN I (4) LEC. 3. LAB. 2. Pr. LGER score of 0325 or FLGR 1020. or acceptable score on FL placement test. Language skills stressed; structural review and composition; readings in German literature and German civilization.

FLGR 2020 INTERMEDIATE GERMAN II (4) LEC. 3. LAB. 2. Pr. LGER score of 0372 or FLGR 2010. or acceptable score on FL placement test. Continued review of German grammar and syntax, vocabulary building. Additional work in composition; readings in German literature and civilization.

FLGR 3000 JUNIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 3010 BEGINNING GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Developing skills in written and spoken German. German grammar and syntax, vocabulary building. German phonology. Fall.

FLGR 3020 INTERMEDIATE GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Further development of skills in written and spoken German; continued review of selected topics of grammar and syntax, and vocabulary acquisition. Spring.

FLGR 3030 ADVANCED GERMAN COMPOSITION AND CONVERSATION (3) LEC. 3. Pr. LGER score of 0428 or FLGR 2020. or acceptable score on FL placement test. Introduction of linguistic principles governing mechanics of spoken German; emphasizes English-German contrast and pronunciation difficulties; further development of conversation skills.

FLGR 3050 GERMAN CINEMA (3-6) LEC. Sampling of important films from the 1920s to the present, including the intellectual, historical, cultural, and literary matrix of each film. Course may be repeated for a maximum of 6 credit hours.

FLGR 3100 INTRODUCTION TO GERMAN LITERATURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Basic literary genres and major figures in German literature from the 18th century to the present; literary methodologies and bibliographical tools. Required of all majors. Fall.

FLGR 3110 GERMAN CULTURE AND CIVILIZATION I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political, and cultural history of Germany from the Germanic tribes to 1870. Fall.

FLGR 3120 GERMAN CULTURE AND CIVILIZATION II (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Social, political and cultural history of Germany from 1870 to the present. Spring.

FLGR 3150 TOPICS IN GERMAN LITERATURE, LANGUAGE, AND CULTURE (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Critical study of specific literary, linguistic, and/or cultural topics related to Germany. Course may be repeated with change in topics.

FLGR 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN GERMAN (1) LEC. 1. Pr. FLGR 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than German. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLGR 3930 DIRECTED STUDIES IN GERMAN (1-3) IND. Pr. LGER score of 0428 or Departmental approval. Directed study in area of special interest for the superior student in German. Course may be repeated for a maximum of 9 credit hours.

FLGR 4000 SENIOR ADVANCED GERMAN ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken in an approved Study Abroad program. Students should consult with the German undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLGR 4110 MASTERPIECES OF GERMAN LITERATURE I (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of German Classicism, Romanticism, and Realism Naturalism. Fall.

FLGR 4120 MASTERPIECES OF GERMAN LITERATURE II (3) LEC. 3. Pr. FLGR 3010 or Departmental approval. Selected readings by representative authors from the periods of the early 20th century, Weimar Republic, and Postwar Germany.

FLGR 4150 GERMAN DRAMA (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438. or Departmental approval. Consideration, analysis, and criticism of selected German theater works by representative authors. Fall.

FLGR 4160 CONTEMPORARY GERMAN LITERATURE (3) LEC. 3. Pr. Completed 3 courses from FLGR 3000-3999 or LGER minimum score of 438 or Departmental approval. Consideration, analysis, and criticism of recent selected German literary works.
FLGR 4310 GERMAN FOR BUSINESS AND ECONOMICS I (3) LEC. 3. Pr. FLGR 2020 or Departmental approval. Emphasis on speaking, listening, reading and writing skills in professional, commercial German. Familiarization with German and European business practices. Fall.


FLGR 4330 GERMAN BUSINESS, MEDIA, AND SOCIETY (3) LEC. 3. Pr. FLGR 2020 or LGER score of 0428. German language for business, German media and society.

FLGR 4510 GERMAN LITERATURE TRANSLATION I (3) LEC. 3. Pr., Departmental approval. From Goethe to Thomas Mann. Reading and analysis of significant literary works by major German writers from 1750 to 1945.

FLGR 4520 GERMAN LITERATURE TRANSLATION II (3) LEC. 3. Pr., Departmental approval. Postwar German literature. Reading and analysis of significant literary works by major German writers from 1945 to the present.

FLGR 4910 PRACTICUM IN GERMAN (1-6) PRA. Pr., Departmental approval. Practical work experience related to major field. Number of credit hours and applicability toward major to be determined in consultation with the undergraduate director. Course may be repeated for a maximum of 6 credit hours.

FLGR 4950 SEMINAR IN GERMAN LITERATURE (3) SEM. 3. Pr. At least 3 credits in FLGR 3000-3999 or Departmental approval. Readings in German literature from selected periods or in selected genres.

FLGR 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written paper and oral exam. Fall, Spring.

**Foreign Lng-Global Cultures - FLGC**

**Courses**

FLGC 1150/1153 GLOBAL FLUENCY AND AWARENESS (3) LEC. 3. Introduction to non-native languages as representational reflections of two different cultural regions and impetus for in-depth analysis of global identities. May count either FLGC 1150 or FLGC 1153.

**Foreign Lng-Greek - FLGK**

**Courses**

FLGK 1010 ELEMENTARY CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Classical Greek. Introduction to the knowledge and skills necessary for reading ancient Greek.

FLGK 1020 ELEMENTARY CLASSICAL GREEK II (4) LEC. 3. LAB. 2. Pr. FLGK 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading ancient Greek. Fulfills College of Liberal Arts foreign language core requirement.

FLGK 2010 INTERMEDIATE CLASSICAL GREEK I (4) LEC. 3. LAB. 2. Pr. FLGK 1020 or Departmental approval. Introduction to reading ancient Greek. prose and poetry.


FLGK 3110 CLASSICAL GREEK LITERATURE (3) LEC. 3. LAB. 2. Pr. FLGK 2010 or Departmental approval. Advanced readings in ancient Greek prose and poetry. Course may be repeated with change in topics.

FLGK 3510 CLASSICAL GREEK LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Classical Greek cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLGK 3930 DIRECTED STUDIES IN ANCIENT GREEK LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of classical Greek text(s). Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topics.

**Foreign Lng-Italian - FLIT**
### Courses

**FLIT 1000 ELEMENTARY ITALIAN ABROAD (1-10)** LEC. Course work at the elementary level taken in an approved Study Abroad program. Students should consult the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

**FLIT 1010 ELEMENTARY ITALIAN I (4)** LEC. Basic language skills in Italian; exposure to culture.

**FLIT 1020 ELEMENTARY ITALIAN II (4)** LEC. Pr. FLIT 1010 or Departmental approval. Continuation of basic language skills; exposure to culture. Fulfills the College of Liberal Arts foreign language core requirement.

**FLIT 2000 INTERMEDIATE ITALIAN ABROAD (1-10)** LEC. Course work at the intermediate level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

**FLIT 2010 INTERMEDIATE ITALIAN I (4)** LEC. Pr. FLIT 1020 or Departmental approval. Special emphasis on conversation and Italian culture. Language skills stressed, grammar review. Fall.

**FLIT 2020 INTERMEDIATE ITALIAN II (4)** LEC. Pr. FLIT 2010 or Departmental approval. Special emphasis on reading skills and Italian culture. Review of Italian grammar for English speakers. Spring.

**FLIT 3000 JUNIOR ADVANCED ITALIAN ABROAD (1-9)** LEC. Course work at the junior or advanced level taken in an approved Study Abroad program. Students should consult with the Italian undergraduate advisor for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

**FLIT 3030 ITALIAN CONVERSATION (3)** LEC. Pr. FLIT 2010 or Departmental approval. Intensive practice in spoken Italian, based on texts and everyday situations, especially in contemporary Italian society; includes review of vocabulary.

**FLIT 3040 ITALIAN COMPOSITION (3)** LEC. Pr. FLIT 2020 or Departmental approval. Review of grammar and practice in writing on topics ranging from descriptions and personal opinions to current affairs and social problems.

**FLIT 3050 ITALIAN CINEMA (3)** LEC. Sampling of important films from the time of the telefoni bianchi (1937) to the present (major directors and trends), including the intellectual, historical, cultural, and literary matrix of each film.

**FLIT 3110 SPECIAL TOPICS IN ITALIAN (3)** LEC. Supplementary instruction in Italian language, literature, culture. Course may be repeated for a maximum of 9 credit hours.

**FLIT 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN ITALIAN (1)** LEC. Pr. FLIT 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Italian. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

**FLIT 3510 INTRODUCTION TO ITALIAN CULTURE IN ENGLISH (3)** LEC. Pr. ENGL 1120 or ENGL 1127. Italian culture, as reflected in arts, film, literature, history. Course may be repeated for a maximum of 9 credit hours.

**FLIT 3930 DIRECTED STUDIES IN ITALIAN (1-3)** IND. Directed study in area of special interest for the superior student in Italian. Course may be repeated with change in topics.

**FLIT 5970 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3)** LEC. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval.

**FLIT 6970/6976 SEMINAR IN ITALIAN LITERATURE, LINGUISTICS, AND CULTURE (3)** LEC. Opportunity to pursue topics of special interest, not treated in other course offerings. Each student will develop an individual plan of study, with faculty approval. Course may be repeated for a maximum of 9 credit hours.

### Foreign Lng-Japanese - FLJP

**Courses**

**FLJP 1000 ELEMENTARY JAPANESE ABROAD (1-10)** LEC. Course work at the elementary level taken on an approved Study Abroad program. Learning modern Japanese listening, writing, and reading in an integrated manner through an approved Study Abroad program. Course may be repeated for a maximum of 10 credit hours.

FLJP 1020 ELEMENTARY JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 1010 or Departmental approval. Stress on language skills; structural review and composition: readings in Japanese literature and exposure to Japanese culture and civilization.

FLJP 2000 INTERMEDIATE JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 2010 INTERMEDIATE JAPANESE I (4) LEC. 3. LAB. 2. Pr. FLJP 1020 or Departmental approval. Stress on language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 2020 INTERMEDIATE JAPANESE II (4) LEC. 3. LAB. 2. Pr. FLJP 2010 or Departmental approval. Continuation of FLJP 2010. Language skills; structural review and composition; readings in Japanese literature; and exposure to Japanese culture and civilization. Spring.

FLJP 3000 ADVANCED JAPANESE ABROAD (1-10) AAB/LEC. Pr. FLJP 1020 or Departmental approval. Continued development of proficiency in modern Japanese through an approved Study Abroad program; focus on speaking, listening, writing, and reading within cultural contexts. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLJP 3010 JAPANESE COMPOSITION AND CONVERSATION (3-6) AAB. Pr. FLJP 2010 or Departmental approval. Intensive practice of written and spoken Japanese, based on contemporary social situations and texts. Course may be repeated for a maximum of 6 credit hours.

FLJP 3050 JAPANESE CINEMA (3) LEC. 3. Introduction to Japanese films, with particular focus on representations of history from the 1930s to the present. Course may be repeated for a maximum of 6 credit hours.

FLJP 3450 TOPICS IN JAPANESE LITERATURE AND CULTURE (3-6) AAB/LEC. Critical study of specific Japanese literary and cultural topics. Course may be repeated for a maximum of 6 credit hours.

FLJP 3930 DIRECTED STUDY IN JAPANESE (3) LEC. 3. Pr. FLJP 2020. Directed study in area of special interest for the superior student in Japanese. Course may be repeated for a maximum of 6 credit hours.

Foreign Lng-Korean - FLKN

Courses

FLKN 1010 ELEMENTARY KOREAN I (4) LEC. 4. Course for beginners without any background in Korean. This class will help students learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 1020 ELEMENTARY KOREAN II (4) LEC. 4. Pr. FLKN 1010. Course to help students continue to learn all four skills of modern Korean: speaking, listening, writing, and reading.

FLKN 2010 INTERMEDIATE KOREAN I (4) LEC. 4. Pr. FLKN 1020. Students will continue learning all four skills of modern Korean--speaking, listening, writing, and reading—at the intermediate level.

Foreign Lng-Latin - FLLN

Courses

FLLN 1010 ELEMENTARY LATIN I (4) LEC. 3. LAB. 2. For students with little or no knowledge of Latin. Knowledge and skills necessary for reading classical Latin.

FLLN 1020 ELEMENTARY LATIN II (4) LEC. 3. LAB. 2. Pr. FLLN 1010 or Departmental approval. Introduction to the knowledge and skills necessary for reading classical Latin. Fulfills College of Liberal Arts core foreign language requirement.

FLLN 2010 INTERMEDIATE LATIN I (4) LEC. 3. LAB. 2. Pr. FLLN 1020. or four years of high school Latin or Departmental approval. Review of classical Latin grammar with reading of selections from Latin literature. Fall.

FLLN 3030 READING PROFICIENCY IN LATIN (3) LEC. 3. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Latin related to their field of study. May not be used to satisfy undergraduate language requirements. To prepare graduate students to pass the graduate proficiency exam in Latin. Students should check with their graduate director for departmental language requirements before enrolling.

FLLN 3110 LATIN LITERATURE (3) LEC. 3. Pr. FLLN 2010 or Departmental approval. Advanced readings in Latin prose and poetry. Course may be repeated with change in topic.

FLLN 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN LATIN (1) LEC. 1. Pr. FLLN 1020 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a language other than Latin. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLLN 3510 ROMAN LITERATURE AND CULTURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127. Roman cultural practices and ideology with a focus on literary evidence. Readings in English. Course may be repeated for a maximum of 6 credit hours.

FLLN 3930 DIRECTED STUDIES IN LATIN LITERATURE (1-3) IND. Pr., Departmental approval. Independent study of Latin texts. Topic proposed by student in conjunction with faculty advisor. Course may be repeated with change in topic.

**Foreign Lng-Russian - FRLU**

**Courses**

**FLRU 1010/1013 ELEMENTARY RUSSIAN I (4) LEC. 3. LAB. 2.** Fundamentals of Russian. Language skills; progressive emphasis on conversation; exposure to Russian culture and civilization.

**FLRU 1020/1023 ELEMENTARY RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FRLU 1010 or FRLU 1013.** Fundamentals of Russian. Stress on language skills; progressive emphasis on conversation; exposure to Russian culture and civilization. Fulfills College of Liberal Arts foreign language core requirement.

**FLRU 2010 INTERMEDIATE RUSSIAN I (4) LEC. 3. LAB. 2. Pr. FRLU 1020 or FRLU 1023 or Departmental approval.** Language skills; structural review and composition: continued exposure to Russian civilization.

**FLRU 2020 INTERMEDIATE RUSSIAN II (4) LEC. 3. LAB. 2. Pr. FRLU 2010 or Departmental approval.** Language skills; structural review and composition; continued exposure to Russian civilization.

**FLRU 2510 RUSSIAN CULTURE IN ENGLISH (3) LEC. 3.** Intensive exposure to Russian culture from the 10th century to the Revolution as reflected in the fine arts and literature.

**FLRU 2520 RUSSIA TODAY IN ENGLISH (3) LEC. 3.** Introduction to Russian culture from the Revolution to the present, as reflected in the fine arts and literature.

**Foreign Lng-Spanish - FLSP**

**Courses**

**FLSP 1000 ELEMENTARY SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval.** Course work at the elementary level in an approved Study Abroad program credit may substitute for required 1000-level courses in Spanish. Course may be repeated for a maximum of 10 credit hours.

**FLSP 1010/1013 ELEMENTARY SPANISH I (4) LEC. 3. LAB. 2.** Basic language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. For students with less than two years of high school Spanish.

**FLSP 1020/1023 ELEMENTARY SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0241 or FLSP 1010 or FLSP 1013.** or acceptable score on FL placement test. Fundamentals of Spanish language skills stressed with progressive emphasis on conversation. Exposure to Hispanic civilization. Fulfills College of Liberal Arts foreign language core requirement.
FLSP 1030 READING PROFICIENCY IN SPANISH (3) LEC. 3. SU. Pr., Departmental approval. Instruction to enable graduate students to read and understand scholarly material in Spanish related to their field of study. May not be used to satisfy undergraduate language requirements. Spring.

FLSP 2000 INTERMEDIATE SPANISH ABROAD (1-10) AAB/FLD. Pr., Departmental approval. Course work at the intermediate level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 2010 INTERMEDIATE SPANISH I (4) LEC. 3. LAB. 2. Pr. LSPA score of 0325 or FLSP 1020. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures. Fall, Spring.

FLSP 2017 HONORS INTERMEDIATE SPANISH I (4) LEC. 2. LAB. 2. Pr. FLSP 1020 or LSPA score of 0325. Review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 2020 INTERMEDIATE SPANISH II (4) LEC. 3. LAB. 2. Pr. LSPA score of 0372 or FLSP 2010. Continued review of grammatical structures, development of reading and writing skills, and increased understanding of Hispanic cultures.

FLSP 3000 JUNIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the junior or advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 10 credit hours.

FLSP 3010 SPANISH PHONETICS (3) LEC. 45, AAB/LEC. 0. Pr. LSPA score of 0428 or FLSP 2020. Training in practical phonetics with an emphasis on pronunciation correctives. Fall, Spring.

FLSP 3050 SPANISH SYNTAX (3) LEC. 3. Pr. FLSP 2020. In this course, the function of the different parts of speech (e.g., prepositions, adverbs, determiners, pronouns, verbs, conjunctions) will be examined, and students will learn to diagram simple and complex hierarchical sentence structure using syntactic trees.

FLSP 3100 COMMUNICATIVE SKILLS IN SPANISH I (3) LEC. 3. Pr. LSPA score of 0428 or FLSP 2020. The first in a two semester sequence designed to improve speaking and writing, with additional emphasis placed on the acquisition of vocabulary and grammar, listening and reading comprehension. Uses literary and cultural texts to develop cultural awareness.

FLSP 3110 CULTURES OF SPAIN (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Spain. This class explores the ethnic and linguistic diversity of the country, the historical events that forged contemporary Spain, and the cultural plurality of the country.

FLSP 3130 TOPICS IN HISPANIC FILM (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Study of film as a window into Hispanic cultures, both Spanish and Spanish American. Course may be repeated for a maximum of 6 credit hours.

FLSP 3140 TOPICS IN HISPANIC MUSIC (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Study of the interrelationship of Hispanic music and Spanish and Spanish-American cultures. Course may be repeated for a maximum of 6 credit hours.
FLSP 3150 TOPICS IN HISPANIC MEDIA (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080. Develops students' cultural awareness through a series of written assignments organized around major journalistic and academic genres. We will investigate contemporary issues as presented in the media of Spain, Latin America and U.S. Latino communities. Course may be repeated for a maximum of 6 credit hours.

FLSP 3200 LANGUAGES ACROSS THE CURRICULUM SEMINAR IN SPANISH (1) LEC. 1. Pr. FLSP 2010 or Departmental approval. Language component with readings and in-class discussions to complement a lecture course in English and in a discipline other than Spanish. Parallel enrollment is recommended. Course may be repeated for a maximum of 9 credit hours.

FLSP 3210 CULTURES OF SPANISH AMERICA (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Spanish America. This class explores the cultural, ethnic and linguistic diversity of the Spanish American countries, and the historical events that forged them.

FLSP 3220 HISPANIC CULTURES IN THE U. S. (3) LEC. 3. Pr. FLSP 3080. An introduction to the social and cultural diversity of Hispanic U.S. This class explores the diversity in ethnicity, traditions, and arts of Hispanics in the country, the historical events that forged such diversity, and their cultural plurality.

FLSP 3310 SPANISH TRANSLATION AND INTERPRETATION (3) LEC. 3. Pr. FLSP 3070. Introduction to the techniques of English/Spanish and Spanish/English translation in a commercial environment, including correspondence, technical documents, advertising and oral translation. Fall.

FLSP 3930 DIRECTED STUDY IN SPANISH (3) IND. 3. Pr. FLSP 3000. Development of an advanced-level of Spanish proficiency in listening, speaking, reading, and writing. Course may be repeated for a maximum of 6 credit hours.

FLSP 4000 SENIOR ADVANCED SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the senior/advanced level taken on an approved Study Abroad program. Students should consult with the Spanish undergraduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 4010 ORAL PROFICIENCY IN SPANISH (3) LEC. 3. Pr. FLSP 3070. Proficiency oriented course designed to further develop speaking and comprehension skills in Spanish in a variety of topics.

FLSP 4020 CONTINUING SPANISH SYNTAX (1-3) AAB/IND. Departmental approval. Continuing practice in Spanish syntax. Course may be repeated for a maximum of 3 credit hours.

FLSP 4030 SPANISH LINGUISTICS (3) LEC. 3. Pr. FLSP 3070. This course introduces students to Spanish linguistics and the basic concepts of some of its principal branches. The primary areas include phonetics and phonology, syntax, morphology, semantics, pragmatics, history of the Spanish language, and linguistics as a cognitive science.

FLSP 4110 MASTERPIECES OF SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100. Major works of Spanish literature from medieval times to the present. Fall.

FLSP 4120 TOPICS IN SPANISH LITERATURE (3) LEC. 3. Pr. FLSP 3100. Readings in Spanish literature. Course may be repeated with change in topic. Spring.

FLSP 4210 MASTERPIECES OF SPANISH-AMER LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100. Major works of Spanish American literature from colonial times to the present. Fall.

FLSP 4220 TOPICS IN SPANISH-AMERICAN LITERATURE (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3100. Readings in Spanish-American Literature. Course may be repeated with a change in topic. Spring.


FLSP 4330 TOPICS IN HISPANIC COMMERCIAL WORLD (3) LEC. 3. Pr. FLSP 3070. Study of an aspect of Spanish business terminology or documentation. Course may be repeated with change in topic. Course may be repeated for a maximum of 6 credit hours.

FLSP 4420 TOPICS IN HISPANIC LITERATURE AND CULTURE (3) LEC. 3. Pr. FLSP 3060 and FLSP 3080 or Departmental approval. Analysis of the cultural milieu influencing artistic creativity within a historical period. Course may be repeated for a maximum of 6 credit hours.

FLSP 4510 SPANISH LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or Departmental approval. Major works of Spanish literature in English translation.
FLSP 4520 SPANISH-AMERICAN LITERATURE IN TRANSLATION (3) LEC. 3. Pr. ENGL 1120 or ENGL 1127 or Departmental approval. Major works of Spanish-American literature in English translation.

FLSP 4910 PRACTICUM IN SPANISH (1-3) AAB/PRA. Pr., Departmental approval. Practical work experience related to the major field. Course may be repeated for a maximum of 3 credit hours.

FLSP 4980 SENIOR CAPSTONE (1) IND. 1. SU. Assessment of language skills through written and oral exams. Fall, Spring.

FLSP 5010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. FLSP 3070. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 5020 ADVANCED SPANISH SYNTAX (3) LEC. 3, AAB/LEC. 0. Pr. FLSP 3070. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 5030 ADVANCED CULTURE AND LITERATURE OF THE SPANISH SPEAKING WORLD (3) LEC. 3. Pr. FLSP 3070 and FLSP 3080. A grade of C or better in at least 4 courses FLSP 3000-3999 or departmental approval. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 6010 ADVANCED SPANISH PHONETICS (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish phonetics with specific course materials determined by needs of students.

FLSP 6020 ADVANCED SPANISH SYNTAX (3) LEC. 3. Pr. At least 4 courses each with a minimum grade of D in FLSP 3000-3999. Four courses or Departmental approval. Advanced training in Spanish syntax and stylistics with specific course materials determined by needs of students.

FLSP 6030 ADVANCED CULTURE AND LITERATURE OF SPANISH SPEAKING WORLD (3) LEC. 3. Advanced training in Culture and literature of the Spanish speaking world with specific course materials determined by faculty. Course may be repeated for a maximum of 6 credit hours.

FLSP 7000 GRADUATE SPANISH ABROAD (1-9) AAB/FLD. Pr., Departmental approval. Course work at the graduate level taken on an approved Study Abroad program. Students should consult with the Spanish graduate director for an estimation of credit prior to going abroad. Course may be repeated for a maximum of 9 credit hours.

FLSP 7010 HISTORY OF THE SPANISH LANGUAGE (3) LEC. 3. Diachronic study of the development of the Spanish language from its Latin origins to the present.

FLSP 7020 SPANISH LINGUISTICS (3) LEC. 3. Synchronic study of the Spanish language focusing on phonology, morphology, syntax, and lexicon, taking into consideration dialectal differences.

FLSP 7030 APPLIED SPANISH LINGUISTICS (3) LEC. 3. Critical study of current research in applied linguistics regarding the acquisition of Spanish by non-native speakers, with emphasis on the problems faced by adult English-speaking individuals.

FLSP 7050 LITERARY CRITICISM AND THEORY (3) LEC. 3. Contemporary literary criticism and theory as it relates to Spanish and Spanish-American literature.

FLSP 7060 RESEARCH METHODS (1) LEC. 1. SU. Methods of scholarly investigation in literary history and criticism. Credit may not be used to satisfy degree requirements.

FLSP 7090 INTRODUCTION TO COLLEGE LEVEL SPANISH INSTRUCTION (3) LEC. 3. Instruction for GTAs, including critical observation in performance and guidance by a designated supervisory professor. Required of all students who hold a graduate teaching assistantship.

FLSP 7100 SPANISH MEDIEVAL LITERATURE I (3) LEC. 3. Critical and historical study of medieval Spanish literature through representative texts from the various genres of the period beginning with the origins of Spanish literature until 1299.

FLSP 7110 SPANISH MEDIEVAL LITERATURE II (3) LEC. 3. Study of medieval Spanish literature through representative texts from the various genres of the period 1300-1500.

FLSP 7120 16TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres from around 1492 to the end of the 16th century.
FLSP 7130 17TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of representative literary works in all genres in the 17th century with emphasis on Baroque literature.


FLSP 7150 HISPANIC COLONIAL LITERATURE OF THE UNITED STATES (3) LEC. 3. Literature about the colonial Hispanic exploration and colonization of the United States from the 16th to 19th centuries.

FLSP 7160 20TH-CENTURY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of 20th-century Peninsular literature from the Generation of 98 to Spanish post-war literature through representative works in all genres.

FLSP 7170 CONTEMPORARY SPANISH LITERATURE (3) LEC. 3. Critical and historical study of contemporary literature from the Spanish Civil War to the present through representative works in all genres.

FLSP 7210 COLONIAL SPANISH-AMERICAN LITERATURE (3) LEC. 3. Study of representative literary genres and authors of Vice Regal America from Spanish transcription of pre-Columbian works to those just prior to the Wars of Independence.

FLSP 7220 SPANISH-AMERICAN POETRY I (3) LEC. 3. Critical and historical study of Spanish-American poetry from 1824 to the first generation of modernism.

FLSP 7230 SPANISH-AMERICAN POETRY II (3) LEC. 3. Critical and historical study of Spanish-American poetry from post-modernism to the present.

FLSP 7240 SPANISH-AMERICAN POST-COLONIAL PROSE TEXTS TO THE NEW NARRATIVE (3) LEC. 3. Critical and historical study of representative essayists and fiction writers of the 19th and 20th centuries predating the New Narrative.

FLSP 7250 THE NEW NARRATIVE IN SPANISH-AMERICAN FICTION: MODERNIST AND POST-MODERNIST TEXTS (3) LEC. 3. Critical and historical study of major works of modernist and post-modernist fiction that achieved international acclaim during the second half of the 20th century.

FLSP 7270 SPANISH AMERICAN THEATER I (3) LEC. 3. Critical and historical study of the Spanish-American theater, with emphasis on the period prior to 1900.

FLSP 7280 SPANISH AMERICAN THEATER II (3) LEC. 3. Critical and historical study of the Spanish-American theater from 1900 to present.

FLSP 7300 DON QUIJOTE (3) LEC. 3. Critical study of Cervantes' masterpiece.

FLSP 7970/7976 SPECIAL TOPICS IN LINGUISTICS, LITERATURE AND CULTURE (3) AAB/SEM. 3. Pr., BA in Spanish or BS in Foreign Language Education in Spanish. In-depth study of an author or authors and analysis of the cultural milieu influencing their creativity or investigation of a specific linguistic phenomenon in Spanish. Course may be repeated with a change in topic. Course may be repeated with change in topics.

FLSP 7990 RESEARCH AND THESIS (1-10) MST. Directed readings and research culminating in a thesis. Course may be repeated with change in topic.

Forest Engineering - FOEN

Courses

FOEN 3040 FOREST SURVEYING (2) PRA. 2. Basic land surveying concepts and procedures as applied to Forestry. Use of basic surveying instruments and calculations for land areas, boundaries, and topographic features. Summer.

FOEN 4730 APPLICATION OF TIMBER HARVESTING TECHNIQUES (2) LEC. 1. LAB. 3. Pr. FOEN 5700. Business considerations including safety, regulations, contracts, deeds and cost accounting and analysis combined with equipment operation and maintenance. Fall.

FOEN 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Faculty supervision of individual student investigations of specialized problems in forest engineering. Course may be repeated for a maximum of 6 credit hours.
FOEN 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Topics of an undergraduate nature pertinent to Forest Engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 3 credit hours.

FOEN 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of a specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 8 credit hours.

FOEN 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and Honors Thesis. Fall, Spring, and Summer. Course may be repeated for a maximum of 3 credit hours.

FOEN 5230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2. LAB. 3. Pr. ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction. Fall.

FOEN 5700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact. Fall.

FOEN 5710 OPERATIONS ANALYSIS IN BIOSYSTEMS AND FORESTRY (3) LEC. 2. LAB. 3. Pr. BSEN 2210 and (STAT 3010 or STAT 2510). Junior standing. Junior standing or greater. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling. Spring.

FOEN 6230 ENGINEERED WOOD STRUCTURE DESIGN (3) LEC. 2. LAB. 3. Pr. ENGR 2070. Load, deflection criteria; engineering characteristics of wood; designing wood components and mechanical connections; shear walls and diaphragms; trusses; bridges; post-frame construction. Fall.

FOEN 6700 HARVESTING (3) LEC. 2. LAB. 3. Pr. FORY 3180. Analysis of the administration of timber harvest, equipment choice, planning methods, movement of timber products, machine and system costs, balancing of harvesting systems, logging safety, and environmental impact. Spring.

FOEN 6710 OPERATIONS ANALYSIS IN BIOSYSTEMS AND FORESTRY (3) LEC. 2. LAB. 3. Analysis methods for timber harvesting productivity and costs including gathering of time and production data, preparation of data for analysis and statistical modeling. Spring.

FOEN 7930 DIRECTED STUDIES (1-3) IND. Departmental approval. Faculty supervision of individual student investigations of advanced specialized problems in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 3 credit hours.

FOEN 7970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Individual or small group study of an advanced specialized area in forest engineering. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

Forest Products - FOPR

Courses

FOPR 4930 DIRECTED STUDY (1-3) IND. Departmental approval. Study of timely topics in forest products on an as needed or as available basis. Fall, Spring, and Summer. Course may be repeated for a maximum of 3 credit hours.

FOPR 6050 BIOMASS PROCESSING CHEMISTRY AND BIOENERGY (3) LEC. 3. Departmental approval. Wood and fiber morphology, cellulose, hemicellulose and lignin chemistry; biodegradations of cellulose, hemicellulose and lignin. Emphasis on bioenergy and bio-products.

FOPR 6250 BIOMEMBRANES (3) LEC. 3. Relationships between various biomass feedstock properties and the physical, chemical, and mechanical properties of the biocomposite from various manufacturing processes.


FOPR 7060 ADVANCED FOREST PRODUCTS PRODUCTION AND OPERATIONS MANAGEMENT (3) LEC. 3. Pr. FOPR 5350 or FOPR 6350. Analysis of production/operations management problem situations in wood products manufacturing through systems approach and quantitative modeling techniques. Spring.

FOPR 7930 DIRECTED STUDIES (1-3) IND. Departmental approval. Study of timely topics in forest products on an as needed or as available basis. Fall, Spring, and Summer. Course may be repeated for a maximum of 9 credit hours.

FOPR 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Fall, Spring, and Summer. Course may be repeated for a maximum of 12 credit hours.

FOPR 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged. Course may be repeated with change in topics.

FOPR 8930 DIRECTED STUDIES (1-3) IND. Departmental approval. Study of timely topics in forest products on an as needed or as available basis. Course may be repeated for a maximum of 9 credit hours.

FOPR 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in forest products or wood science involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

FOPR 8990 RESEARCH AND DISSERTATION (1-15) DSR. Credit to be arranged. Course may be repeated with change in topics.

Forestry & Wildlife Sci. - FOWS

Courses

FOWS 1010 INTRODUCTION TO RENEWABLE NATURAL RESOURCES (1) LEC. 1. Introduction to the wealth and breadth of renewable natural resources in the state, region, nation, and world. Speakers cover topics in forestry, wildlife, water, and soil. Fall, Spring.

FOWS 2033 INTRO TO ENVIRON EDUCATION (3) LEC. 3. Students will learn about the historical and theoretical foundations of environmental education while participating in experiential learning exercises.

FOWS 2060 INTRODUCTION TO FORESTED LANDSCAPES (2) LEC. 2. Pr. BIOL 1020 or BIOL 1027. This course will serve as an introduction to forest tree biology, forest types of North America, forest ecology and tree identification. The overall course objective is to introduce students to important concepts in forest ecosystem science and management.

FOWS 3015 INTERNATIONAL ISSUES IN NATURAL RESOURCE MANAGEMENT (3) FLD. 3. Examination of contemporary natural and cultural resource management practices and conservation programs through national and international program placements. Spring, Summer and Fall.

FOWS 3025 INTERNATIONAL ISSUES IN COMMUNITY DEVELOPMENT (3) FLD. 3. Examination of contemporary natural and cultural resource management practices and conservation programs through national and international program placements. Spring, Summer and Fall.

FOWS 3800 INTRODUCTION TO THE ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MA (1) LEC. 1. This course is intended to prepare students for the study abroad trip to South Africa and Madagascar (FOWS 3810). Students will gain knowledge as to cultural practices of South Africa and Madagascar, issues faced by communities and the role forests play in livelihoods and human health. Knowledge and theoretical approaches to various issues to ensure the well-being of people, animals and environment through collaborative multidisciplinary problem solving will be introduced and discussed.

FOWS 3810 ROLE OF FORESTS ON HUMAN HEALTH AND LIVELIHOODS IN SOUTH AFRICA AND MADAGASCAR (4) AAB. 4. Pr. FOWS 3800. This is a study abroad course, students will travel to South Africa and Madagascar to learn about the importance of trees for rural community livelihood and human health. Using the knowledge obtained in the pre-requisite theoretical course (FOWS 3800) students will interact with communities and researchers in South Africa and Madagascar to witness and learn about putting theory into action. Students will witness how issues, discussed in FOWS 3800, are addressed through collaborative, multi-disciplinary problem solving that results in unique approaches to ensure the wellbeing of people, animals and the environment.

FOWS 3950 UNDERGRADUATE SEMINAR (1) LEC. 1. Students will practice speaking in front of a scientific audience, learn to research topics, and organize presentations for professional audiences, faculty, and other students.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>LEC.</th>
<th>Prerequisites</th>
<th>Notes</th>
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<tbody>
<tr>
<td>FOWS 4310</td>
<td>ECOTOURISM (3)</td>
<td>3</td>
<td>Principles, business considerations, and issues surrounding ecotourism, with emphasis on critique and connections to other industries. Spring.</td>
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<tr>
<td>FOWS 4970</td>
<td>SPECIAL TOPICS (1-4)</td>
<td></td>
<td>Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and sustainable management. Course may be repeated for a maximum of 8 credit hours.</td>
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<tr>
<td>FOWS 4980</td>
<td>UNDERGRADUATE RESEARCH (1-4)</td>
<td></td>
<td>Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 4 credit hours.</td>
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<tr>
<td>FOWS 5140</td>
<td>WATERSHED SERVICES (2)</td>
<td>2</td>
<td>This class examines the livelihoods and ecological impacts of Costa Rica’s program of payments for watershed services. Travel required. Senior. Fall. May count either FOWS 5140 or FOWS 6140.</td>
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<tr>
<td>FOWS 5220</td>
<td>LANDSCAPE ECOLOGY (3)</td>
<td>3</td>
<td>Pr. BIOL 3060 or FORY 4230. Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. Spring Even Years. May count either FOWS 5220 or FOWS 6220.</td>
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<tr>
<td>FOWS 5270</td>
<td>NATURAL RESOURCE POLICY (3)</td>
<td>3</td>
<td>Departmental approval. Examination of attitudes, philosophies and policies that govern management of the natural resource. Spring.</td>
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<tr>
<td>FOWS 5320</td>
<td>ENVIRONMENTAL SERVICES (3)</td>
<td>3</td>
<td>Environmental services provided by ecosystems, with emphasis on human well-being and livelihood, and emerging market mechanisms. Spring.</td>
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<tr>
<td>FOWS 5453</td>
<td>CONFLICT AND COLLABORATION IN NATURAL RESOURCES MANAGEMENT (3)</td>
<td>45</td>
<td>Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.</td>
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<tr>
<td>FOWS 5620</td>
<td>NATURAL RESOURCE FINANCE AND INVESTMENT (3)</td>
<td>3</td>
<td>Pr. (ECON 2020 or ECON 2023 or ECON 2027). Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. May count one of: FORY 6620, FOWS 5620, FOWS 6620.</td>
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<tr>
<td>FOWS 6140</td>
<td>WATERSHED SERVICES (2)</td>
<td>2</td>
<td>This class examines the livelihoods and ecological impacts of Costa Rica’s program of payments for watershed services. Travel required. Graduate Standing. Fall. May count either FOWS 5140 or FOWS 6140.</td>
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</tr>
<tr>
<td>FOWS 6220</td>
<td>LANDSCAPE ECOLOGY (3)</td>
<td>3</td>
<td>Ecological effects and management of heterogeneous spatial pattern on ecosystems over large areas. Spring Even Years. May count either FOWS 5220 or FOWS 6220.</td>
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<td>FOWS 6270</td>
<td>NATURAL RESOURCE POLICY (3)</td>
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<tr>
<td>FOWS 6320</td>
<td>ENVIRONMENTAL SERVICES (3)</td>
<td>3</td>
<td>Environmental services provided by ecosystems, with emphasis on human well-being and livelihood, and emerging market mechanisms. Spring.</td>
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<tr>
<td>FOWS 6456</td>
<td>CONFLICT AND COLLABORATION IN NATURAL RESOURCES MANAGEMENT (3)</td>
<td>45</td>
<td>Overview of issues, theories, and approaches to conflict management and collaboration in natural resources. Topics include conflict management, collaborative processes, and negotiation; tools and frameworks for analyzing conflict; and evolving management approaches to natural resource conflict.</td>
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<tr>
<td>FOWS 6620</td>
<td>NATURAL RESOURCE FINANCE AND INVESTMENT (3)</td>
<td>3</td>
<td>Principles of corporate and real estate finance as applied to natural resources and the place of natural resources in individual and institutional portfolios. Spring. May count either FORY 5620 or FORY 6620.</td>
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<tr>
<td>FOWS 7006</td>
<td>INFLUENCES OF NATURAL AND ALTERED ENVIRONMENTS ON ONE HEALTH (3)</td>
<td>3</td>
<td>The course will emphasize relationships among natural environments, anthropogenic influences on those environments, and vectors of human and animal diseases.</td>
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<tr>
<td>FOWS 7106</td>
<td>HUMAN DIMENSIONS OF ONE HEALTH (2)</td>
<td>2</td>
<td>Discussion platform for advanced concepts regarding the human dimensions aspects of One Health. The information will be based on human behavior and how it applies within a One Health framework.</td>
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<tr>
<td>FOWS 7150</td>
<td>SPATIAL STATISTICS FOR NATURAL RESOURCES (3)</td>
<td>3</td>
<td>LAB. 1. Applications of spatial statistics in the natural resources. Three types of spatial data including point pattern data, geostatistical data and lattice (areal) data will be covered to introduce basic concepts, theories and methodology of spatial (spatial-tempo) data analyses and modeling.</td>
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</table>
FOWS 7206 DISEASE ECOLOGY (3) DSL. 3. Discusses the critical importance of relationships between human and animal diseases and the ecology of vectors, pathogens and the environment.

FOWS 7216 RESTORATION ECOLOGY (3) DSL. 3. Overview of the history, science, ethics, and current practice of restoration ecology to recognize and understand the need for restoration.

FOWS 7226 FOREST HISTORY OF ALABAMA AND THE SOUTHEASTERN UNITED STATES (3) DSL. 3. This course will focus on the natural, human and societal factors that influenced forests and land management in the southeastern United States from the 1700s to present. FOWS 7220 or FOWS 7226.

FOWS 7236 FOREST STAND DYNAMICS (3) DSL. 3. Forest stand dynamics studies the changes in stand structure over time. Examines phases of stand development and how we can help and aid forest, wildlife and restoration management decisions.

FOWS 7246 FIRE ECOLOGY (3) DSL. 3. Examines history of fire management, fire behavior, fuel management and models, ignition techniques, fire suppression techniques, urban interface, smoke management, fire weather, elements of a prescribed burn plan, fire and wildlife, and outreach.

FOWS 7256 LONGLEAF PINE ECOLOGY, MANAGEMENT, AND RESTORATION (3) DSL. 3. Covers the ecology of the once-dominant species, the role fire played in maintaining these ecosystems, management possibilities, conversion to longleaf pine, and an overview of the current restoration efforts.

FOWS 7266 FOREST WETLANDS RESTORATION ECOLOGY (3) DSL. 3. This course will cover the history and policy of wetlands destruction and restoration, wetland classification and inventory, techniques for assessing wetland functions, and techniques for forest wetlands restoration.

FOWS 7306 CURRENT TOPICS IN ONE HEALTH (1) DSL. 1. An undergraduate degree in a Biology-related field. The One Health concept refers to connections among health of people, animals and ecosystems and is used as a framework for addressing health related problems. Course explores the concept from the perspective of current and relevant health issues.

FOWS 7480 ADVANCED NATURAL RESOURCE POLICY (3) LEC. 3. Pr. FORY 5400 or FORY 6400. Policy process and players, theory and evolution of property rights, public choice theory, land ethics, policy analysis, programs and statutory laws, forest policy in an international context. Spring odd years.

FOWS 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Students develop ability and confidence in making oral presentations based upon research and provide constructive criticism of their peers' presentations.

Forestry - FORY

Courses

FORY 3010 FOREST SOILS (3) LEC. 2. LAB. 3. Pr. CHEM 1010 or CHEM 1030. Overview of forest soil composition, formation, biota, classification, chemistry, ecology, and management.

FORY 3020 FOREST BIOLOGY (3) LEC. 1. LAB. 3. Field exposure to important principles of forest biology and some examples of their applications to forest resources; identification of major tree species and critical analysis of forest stand structure. Summer.

FORY 3050 FIELD MENSURATION (4) LEC. 1. LAB. 3. Basic concepts and procedures for measuring trees, stands and other forest resources; units of measure, log rules, volume tables, condition class mapping and timber estimation. Summer.

FORY 3060 INTRODUCTION TO FOREST MANAGEMENT STRATEGIES (1) LEC. 1. LAB. 3. Biological, social, and economic principles underlying forest management strategies, the diversity of forestry enterprises, and the complexities facing forest managers. Summer.

FORY 3100 DENDROLOGY (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) or FORY 3020. or higher. Taxonomy and identification of important forest trees of the U.S., including cover types of forest regions. Fall.

FORY 3180 FOREST RESOURCE SAMPLING (3) LEC. 2. LAB. 3. Pr. FORY 3050. Theoretical and empirical estimates of tree and log volumes, tree taper, and yield tables. Sampling design and analysis to estimate current conditions of timber stands.

FORY 3200 FOREST TREE PHYSIOLOGY (3) LEC. 3. Pr. FORY 3020. Relationship between cultural, environmental and genetic factors that affect metabolism and growth of individual trees. Fall.
FORY 3500 FORESTRY FOR SMALL WOODLAND OWNERS (3) LEC. 3. An appreciation of forest trees and the environment, the environmental functions of trees, and the economic potential of a balanced land-use plan. Spring.

FORY 3640 TAXATION OF TIMBER AND OTHER NATURAL RESOURCES (2) LEC. 2. Income taxation of natural resources, including passive loss rules, depletion and capital gains, and an introduction to taxation of businesses. Fall.


FORY 4230 FOREST ECOLOGY (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Forests as functional systems, the biotic and abiotic environment, temporal changes in ecosystem structure and function, application of ecological information. Spring.

FORY 4260 LONGLEAF PINE: HISTORY, ECOLOGY, MANAGEMENT, AND RESTORATION (2) LEC. 2. History of forestry in the south, focusing on the longleaf pine ecosystem. Also, information on species that are part of the longleaf ecosystem, comparisons with other southern pines, and management and restoration techniques.

FORY 4440 FOREST FIRE MANAGEMENT (3) LEC. 1. LAB. 5. Pr. FORY 4230 or BIOL 3060. The management of fire, both as a tool and wildfire suppression in the management of forested ecosystems. Emphasis placed on experience, technique and administration. Spring.

FORY 4450 FOREST SECTOR ECONOMICS (3) LEC. 3. Pr. FORY 5400. Status, trend, employment and other fundamentals of forest industry. Timber supply and demand, forest products supply and demand, technological change, international trade. Spring.

FORY 4500 NATURAL RESOURCES LAW AND ECONOMICS (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Economic causes, rationale, and consequences of natural resources. Summer.

FORY 4820 FORESTRY IN THE PRIVATE SECTOR (2) SEM. 4. Management systems and practices used in wood purchasing, timber harvesting and timberland management including public relations, forest sustainability, certification and personal business skills. Spring.

FORY 4830 INDUSTRIAL WOOD PROCUREMENT PRACTICUM (1) PRA. 2. SU. Pr. FORY 3050. Strategies, field and office procedures involved in purchasing wood for an industrial forestry firm. Taught as a weekend field exercise at Solon Dixon Forest Education Center. Course may be repeated for a maximum of 2 credit hours.

FORY 4930 DIRECTED STUDY (1-3) AAB/IND. Departmental approval. Fall, Spring, and Summer. Course may be repeated for a maximum of 6 credit hours.

FORY 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Topics of an undergraduate nature pertinent to Forestry. Course may be repeated for a maximum of 3 credit hours.

FORY 4970 SPECIAL TOPICS (1-4) AAB/LEC. Course may be repeated for a maximum of 8 credit hours.

FORY 4980 SENIOR CAPSTONE PROJECT (1-4) LAB. Pr. FORY 5230 and FORY 5410. Integrated study of Forest Resource Management using a case-study approach through development of a comprehensive plan related to the declared emphasis. Spring. Course may be repeated for a maximum of 4 credit hours.

FORY 4990 SCHOLARS PROJECT (1-3) IND. Departmental approval. A problem in the student's area of interest. To promote independent work, library research, field work, data analysis or other tasks. Course may be repeated for a maximum of 3 credit hours.

FORY 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.


FORY 5150 FOREST HEALTH (3) LEC. 3. Pr. FORY 3020 or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products. Fall.

FORY 5151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 5150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151. Fall.
FORY 5230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 5140 or BIOL 3060 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives. Fall.

FORY 5310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.


FORY 5410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. FORY 5400 and FORY 4190. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies. Fall.

FORY 5440 INTERNATIONAL FORESTRY (3) LEC. 3. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 5470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussion of the basic components of a GIS and how GIS are used in forestry applications.

FORY 5480 GIS DATABASE DESIGN AND ANALYSIS (2) LEC. 2. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring.

FORY 5520 CHOICE OF BUSINESS ENTITY (3) LEC. 3. Characteristics of business entities and the criteria to choose between sole proprietorships, partnerships, limited liability companies and corporations. May count either FORY 5520 or FORY 6520.

FORY 5530 ESTATE PLANNING (3) LEC. 3. Probate process; disposition of assets; wills and trusts; the transfer tax system; and strategies to minimize the taxable estate. May count either FORY 5530 or 6530.

FORY 5540/5543 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and waste. May count either FORY 5540 or FORY 6540.

FORY 5550/5553 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 5620 FOREST FINANCE AND INVESTMENT (3) LEC. 3. Pr. ECON 2020 or ECON 2023 or ECON 2027. Principles of corporate and real estate finance as applied to commercial timberland and its place in individual and institutional portfolios. Spring. May count either FORY 5620 or FORY 6620.

FORY 5650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3220. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented. Spring.


FORY 6150 FOREST HEALTH (3) LEC. 3. Pr. FORY 3020 or BIOL 3060. Importance, taxonomy, identification and integrated pest management strategies of principle disease, insect and abiotic disorders of forest and shade trees from seedlings to maturity and forest products. Fall.

FORY 6151 FOREST HEALTH LABORATORY (1) LAB. 1. Coreq. FORY 6150. Identification of basic diseases and insects that affect forest health along with identification of their damage; the processes of pathogen infection and symptomology; and the process of wood decay studied in a laboratory and field environment. Credit will not be given for both FORY 5151 and FORY 6151.

FORY 6230 SILVICULTURE (4) LEC. 3. LAB. 3. Pr. FORY 4230 or BIOL 3060 or BIOL 5140 or BIOL 6140 or BSEN 3230. Principles and methods of controlling establishment, growth and quality of forest stands. Application of ecological principles to manipulation of forest ecosystems to meet specific objectives. Fall.

FORY 6310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

FORY 6410 FOREST MANAGEMENT AND ADMINISTRATION (3) LEC. 2. LAB. 3. Pr. (FORY 5400 or FORY 6400) and FORY 4190. Quantitative approaches to decision making in Forestry with an emphasis on the interests of large scale firms and agencies. Fall.

FORY 6440 INTERNATIONAL FORESTRY (3) LEC. 30. Survey global forest location, characteristics, management systems, international forest products trade, current issues, and international forest governance.

FORY 6470 GIS APPLICATIONS IN NATURAL RESOURCES (2) LEC. 1. LAB. 3. Basic understanding of GIS through discussions of the components of a GIS and how GIS are used in natural resource applications.

FORY 6480 GIS DATABASE DESIGN AND ANALYSIS (2) LEC. 2. Departmental approval. Geographic information system database planning, design, creation, management and analysis using a project oriented approach. Spring.

FORY 6520 CHOICE OF BUSINESS ENTITY (3) LEC. 3. Characteristics of business entities and the criteria to choose between sole proprietorships, partnerships, limited liability companies and corporations. May count either FORY 5520 or FORY 6520.

FORY 6530 ESTATE PLANNING (3) LEC. 3. Probate process; disposition of assets; wills and trusts; the transfer tax system; and strategies to minimize the taxable estate. May count either FORY 5530 or FORY 6530.

FORY 6540 ENVIRONMENTAL LAW (3) LEC. 3. A review of environmental law including common and administrative law, land use, and Federal statues on water, air, toxins and wastes. May count either FORY 5540 or FORY 6540.

FORY 6550 PROPERTY LAW (3) LEC. 3. Land ownership, transfer and management including trespass, nuisance, adverse possession, easements, concurrent ownership, land use regulations and regulatory takings. May count either FORY 4550 or FORY 5550/6550.

FORY 6650 URBAN FORESTRY (3) LEC. 2. LAB. 3. Pr. FORY 3100 or HORT 3220. Principles and concepts of tree establishment, management and health in an urban environment. Case studies of urban forestry programs are presented. Spring.

FORY 7110 FOREST BIOGEOCHEMISTRY (3) LEC. 2. LAB. 3. Pr. FORY 6230. Fundamental and applied aspects of forest biogeochemical processes at scales of the individual tree, forest community, and forest ecosystem.

FORY 7160 ECOSYSTEM RESPONSES TO CHEMICAL CLIMATE CHANGE (3) LEC. 2. LAB. 3. Plant responses to changes in the chemical climate. Emphasis on sources, effects, methodologies used and ecosystem and global effects. Even years.

FORY 7170 ECOPHYSIOLOGY OF FOREST TREES (3) LEC. 3. Pr. BIOL 3100 or FORY 3200. Interactions among the environment, silvicultural practices, physiological mechanisms and tree growth. Integration of root, shoot and foliar functions and leaf, tree and stand level processes. Spring odd years.

FORY 7210 ECOSYSTEM ECOLOGY (3) LEC. 3. Pr. BIOL 3060 or FORY 4230 or BIOL 5140 or BIOL 6140. To create a conceptual model of the terrestrial ecosystem including spatial distributions over time; and the impact of human activity and natural disturbance. Spring.

FORY 7250 ADVANCED ECOSYSTEM MODELING (3) LEC. 3. Pr. FORY 4230 or BIOL 3060. Exploration of the theory and rationale in modeling the structure and functions of ecological ecosystems.

FORY 7326 FOREST GROWTH, SILVICULTURE, AND MANAGEMENT (3) DSL. 3. Understanding of forest growth and yield, measurements, management practices and methods, and optimization techniques necessary to make management decisions that maximize objectives.

FORY 7330 ECOLOGY AND SILVICULTURE OF EASTERN HARDWOOD FORESTS (3) LEC. 2. LAB. 3. Pr. FORY 4230. Silvicultural characteristics of major hardwood species and community composition, dynamics, site relationships, and silviculture of Southern and Eastern deciduous forests, emphasizing oaks. Fall odd years.

FORY 7406 FOREST VALUATION AND ECONOMICS (3) DSL. 3. Forest valuation and the economic theory of forest resource allocation. Topics covered include forest valuation and appraisal, analysis of consumer behavior, production, market structure and the role of government, economics of forest management and policy, international trade, and financial analysis.
FORY 7450 FOREST SECTOR ECONOMICS (4) LEC. 4. Pr. FORY 5400 or FORY 6400. Fundamentals of forest industry, timber supply and demand, forest products supply and demand, technological change, international trade and development, sophisticated forest sector modelling. Spring.

FORY 7460 LAND ECONOMICS (3) LEC. 3. Evolution of the role of economics in forestry, policy and production analysis methods, non-market valuation, and regional analysis. Spring.

FORY 7510/7516 RESEARCH METHODS (2) LEC. 1. LAB. 3. Overview of the scientific method and its application in forestry/natural resources research. Evaluation and preparation of project proposals with emphasis on research quality and written communication skills. Fall.

FORY 7550 WATERSHED HYDROLOGY (3) LEC. 3. Departmental approval. In depth focus on components of the hydrologic cycle in forested landscapes and how changes in the landscape and management practices impact the hydrologic regime in the watershed. Spring.

FORY 7560 MODELING ENVIRONMENTAL CHANGE AT MULTIPLE SCALES (3) LEC. 2. LAB. 1. Pr. FORY 7550 and (FORY 5470 or FORY 5480 or GEOG 5830). Modeling fundamentals to solve environmental change problems at multiples scales driven by (i) climate variability/change and (ii) land use/cover change. Problems will be tackled at both temporal (event-based and continuous) and spatial (small and large watersheds) scales to predict streamflow and water quality and develop abatement strategies.

FORY 7580 NATURAL RESOURCE POLICY ANALYSIS AND ADMINISTRATION (3) LEC. 3. The policy-making process, the history of natural resource and environmental policy, and applied techniques in policy analysis. Summer.

FORY 7626 FOREST FINANCE, ACCOUNTING AND TAXATION (3) DSL. 3. Course will provide students with an overview of core concepts in finance, accounting and taxation and how these concepts can be specifically applied to various types of forest operations.

FORY 7850 URBAN FORESTRY SEMINAR (1) SEM. 1. Presentation and discussion of research, scientific papers and issues related to urban forest establishment, care and planning. Credit will not be given for both FORY 7850 and HORT 7850. Fall.

FORY 7910 PRACTICUM IN COLLEGE TEACHING (1) PRA. 1. SU. Techniques and practice of collegiate teaching at the level of Graduate Assistant. Students work under direct supervision and tutelage of the instructor. Fall, Spring, and Summer.

FORY 7930 DIRECTED STUDIES (1-3) AAB/IND. Course may be repeated for a maximum of 9 credit hours.

FORY 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and a report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 7980 MASTER OF NATURAL RESOURCES PAPER (2) IND. In-depth study involving library review, data collection and/or data analysis. Departmental Program.

FORY 7990 RESEARCH AND THESIS (1-15) MST. Credit to be arranged.

FORY 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

FORY 8970 SPECIAL TOPICS (1-4) IND. Departmental approval. Analysis of a problem in Forestry or wood utilization involving library research, laboratory or field work and report on the findings. Course may be repeated for a maximum of 12 credit hours.

FORY 8990 RESEARCH AND DISSERTATION (1-15) DSR. Credit to be arranged.

Foundations Of Educ - FOUN

Courses

FOUN 3000 DIVERSITY OF LEARNERS AND SETTINGS (3) LEC. 2. LAB. 3. Exploration of socio-cultural factors and individual differences; understanding diversity and communication with students with different cultural backgrounds, abilities, and values; combines class-based as well as community-based discovery learning, known as service learning, that links theory and practice and involves students.

FOUN 3100/3103 CHILD DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT (6) LEC. 5. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. With grades of “C” or better. Cognitive, psychosocial, and moral aspects of child development; integration of development, learning, motivation, assessment, and evaluation in context of instructional planning. May count either FOUN 3100 or FOUN 3103.
FOUN 3110/3113 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT I (3) LEC. 2. LAB. 3. Pr. EDUC 3000 or (FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. An integrated approach to the effective instruction of the adolescent learner in context.

FOUN 3120 ADOLESCENT DEVELOPMENT, LEARNING, MOTIVATION AND ASSESSMENT II (3) LEC. 3. Pr. (FOUN 3110 or FOUN 3113 or CTSE 4090 or CTSE 4070 or CTSE 4073) and (EDUC 3000 or FOUN 3000 and RSED 3000 or RSED 3003). Admission to Teacher Education. Study of the adolescent development, learning, motivation, evaluation, and assessment concepts central to effective instruction. May count either FOUN 3120 or FOUN 3123.

FOUN 7000/7006 CULTURAL FOUNDATIONS OF EDUCATION (3) LEC. 3. Advanced study of culture and its impact on the development and structure of education and schooling. Utilizing historical, philosophical, anthropological, and sociological perspectives, contemporary issues regarding the nature and practice of schooling will be examined. May count either FOUN 7000 or FOUN 7006.

FOUN 7010/7016 HISTORY OF AMERICAN EDUCATION (3) LEC. 3. Examination of ideas, actors, and events which influenced the emergence of the formal school system, beginning with early American forms of education. May count either FOUN 7010 or FOUN 7016.

FOUN 7020/7026 SOCIAL AND CULTURAL DIVERSITY IN AMERICAN EDUCATION (3) LEC. 3. Advanced study of education's response to cultural pluralism. The impact of religious, ethnic, social, and racial diversity on the structure of the American public school will be examined. May count either FOUN 7020 or FOUN 7026.

FOUN 7030/7036 MODERNITY, PHILOSOPHY AND THE CURRICULUM (3) LEC. 3. Advanced study of the philosophical assumptions of curriculum development within the context of modernity. May count either FOUN 7030 or FOUN 7036.

FOUN 7040 PHILOSOPHY AND EDUCATIONAL RESEARCH (3) LEC. 3. Advanced philosophical study of educational research within the context of education's professional culture.

FOUN 7900 DIRECTED STUDIES (1-6) IND. SU. Special study in which the student's learning efforts are guided toward desired objectives. Course may be repeated for a maximum of 6 credit hours.

FOUN 7930 TEACHING APPRENTICESHIP (3) IND. 3. Departmental approval. A structured opportunity for students to explore social foundations of education concepts and pedagogies in the college classroom. Course may be repeated for a maximum of 6 credit hours.

FOUN 7970 SPECIAL TOPICS IN FOUNDATIONS OF EDUCATION (3-6) LEC. Consideration of historical, philosophical, social, psychological, measurement, statistics or research issues, and their impact on education. Course may be repeated for a maximum of 6 credit hours.

FOUN 8010/8016 MODERN EDUCATION AND COMPARATIVE PERSPECTIVES (3) LEC. 3. Advanced comparative study of selected contemporary educational issues within the American and international urban context.

FOUN 8990 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertations. Courses may be repeated for a maximum for 10 hours. Course may be repeated with change in topics.

**Geography - GEOG**

**Courses**

**GEOG 1010/1013 GLOBAL GEOGRAPHY (3) LEC. 3.** Social Science I Core. Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

**GEOG 1017 HONORS GLOBAL GEOGRAPHY (3) LEC. 3. Pr. Honors College.** Spatial and locational context for analyzing change in the contemporary world, including elements of both physical and cultural environments.

**GEOG 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1.** Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

**GEOG 2010 HUMAN GEOGRAPHY (3) LEC. 3.** Spatial perspectives on modern society such as population change, economics, politics, urban development, and local culture, and geography's approach to solving problems using case studies and issues.

**GEOG 2020 PHYSICAL GEOGRAPHY (3) LEC. 3.** Selected elements of the earth's physical system to include such items as landforms, basic weather elements, soils and vegetation.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Lectures</th>
<th>Laboratory</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 2800</td>
<td>Geographic Methods and Techniques (4)</td>
<td>LEC. 3</td>
<td>LAB. 2</td>
<td></td>
<td>Pr. COMP 1000 or COMP 1003. Departmental approval.</td>
</tr>
<tr>
<td>GEOG 2850</td>
<td>Map Reading and Analysis (3)</td>
<td>LEC. 2</td>
<td>LAB. 2</td>
<td></td>
<td>Introduction to basic concepts and techniques used to interpret map symbols and to analyze geographic patterns.</td>
</tr>
<tr>
<td>GEOG 3000</td>
<td>Sports Geography (3)</td>
<td>LEC. 3</td>
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<td></td>
<td>Geographical basis of sports at different spatial scales, including locational strategies, sportive nationalism, and the urban political economy of sports.</td>
</tr>
<tr>
<td>GEOG 3110</td>
<td>United States and Canada (3)</td>
<td>LEC. 3</td>
<td></td>
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<td>Survey of the region incorporating physical and cultural elements, providing a synthesis of the economic and political processes of the U.S. and Canada.</td>
</tr>
<tr>
<td>GEOG 3120</td>
<td>Alabama and the Southeast (3)</td>
<td>LEC. 3</td>
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<td></td>
<td>Study of the physical and cultural environments of the state.</td>
</tr>
<tr>
<td>GEOG 3130</td>
<td>Latin America (3)</td>
<td>LEC. 3</td>
<td></td>
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<td>Survey of physical and human landscape of the region including historical geography, natural resources, economic development and problems and prospects affecting major countries.</td>
</tr>
<tr>
<td>GEOG 3140</td>
<td>Africa (3)</td>
<td>LEC. 3</td>
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<td>Analysis of the relationships among diverse population groups and the physical environments of sub-Saharan Africa.</td>
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<tr>
<td>GEOG 3150</td>
<td>Europe (3)</td>
<td>LEC. 3</td>
<td></td>
<td></td>
<td>Survey of physical and human landscape of the region including historical geography, natural resources, economic development, and problems and prospects affecting several of the major countries.</td>
</tr>
<tr>
<td>GEOG 3160</td>
<td>Asia (3)</td>
<td>LEC. 3</td>
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<td></td>
<td>Survey of the physical and cultural landscape of Asia, including its development and spatial distribution of resources, with a focus on major countries.</td>
</tr>
<tr>
<td>GEOG 3300</td>
<td>International Travel and Tourism (3)</td>
<td>LEC. 3</td>
<td></td>
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<td>Environmental and cultural patterns that characterize places attractive to tourists. Provides realistic situations for developing travel plans and programs.</td>
</tr>
<tr>
<td>GEOG 3810</td>
<td>Cartography and Graphics (4)</td>
<td>LEC. 3</td>
<td>LAB. 2</td>
<td></td>
<td>Pr. GEOG 2800. Departmental approval. Techniques of map production including relevant computer graphics applications and related laboratory exercises.</td>
</tr>
<tr>
<td>GEOG 4740</td>
<td>Senior Seminar (2)</td>
<td>SEM. 2</td>
<td></td>
<td></td>
<td>Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count GEOG 4740 or GEOL 4740.</td>
</tr>
<tr>
<td>GEOG 4920</td>
<td>Internship (3)</td>
<td>LEC. 3</td>
<td></td>
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<td>Opportunity to apply classroom experience to real job setting. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>GEOG 4930</td>
<td>Directed Studies (1-4)</td>
<td>IND.</td>
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<td>Departmental approval. Conferences, reading, research and/or reports may fulfill course requirement. Course may be repeated for a maximum of 4 credit hours.</td>
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<tr>
<td>GEOG 5010</td>
<td>Urban Geography and Sustainability (3)</td>
<td>LEC. 3</td>
<td></td>
<td></td>
<td>Senior standing or Departmental approval. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.</td>
</tr>
<tr>
<td>GEOG 5210</td>
<td>Climatology (3)</td>
<td>LEC. 3</td>
<td></td>
<td></td>
<td>Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth’s climate system (e.g. surface-atmosphere energy budget, the hydrologic cycle, and atmospheric motion) as well as climate change and sea level rise.</td>
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<tr>
<td>GEOG 5220</td>
<td>Geomorphology (3)</td>
<td>LEC. 2</td>
<td>LAB. 2</td>
<td></td>
<td>Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Study of the origin of landforms with emphasis on the eologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.</td>
</tr>
<tr>
<td>GEOG 5300</td>
<td>Advanced Regional Studies in Geography (3)</td>
<td>LEC. 3</td>
<td></td>
<td></td>
<td>Departmental approval. Spatial patterns of socio-economic development of Latin America and the Caribbean.</td>
</tr>
<tr>
<td>GEOG 5310</td>
<td>Geography of Rural Change (3)</td>
<td>LEC. 3</td>
<td></td>
<td></td>
<td>Examination of the patterns and processes associated with population levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.</td>
</tr>
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GEOG 5350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 5380 POLITICAL GEOGRAPHY (3) LEC. 3. Examination of political processes over space, from local to the global levels. The course examines the development of political space, geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 5400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.


GEOG 5510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation of the inter-relationships between humans and their natural or physical environments.

GEOG 5550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 5600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 5700 QUANTITATIVE METHODS AND SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Pr., STAT 2510 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 5720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOG 5800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills, evaluates written materials in geography, reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 5820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 5830/5833 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.

GEOG 5850 GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. Introducing the concepts and implementations of the geographic information analysis and integrate GIS with real-world applications. This is a follow-up course of GEOG 5830/GEOG/6830.

GEOG 5860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOG 3810. Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 5870 ADVANCED REMOTE SENSING (3) LEC. 2. LAB. 2. Pr. GEOG 5820. Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 5880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 5830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and process. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 5970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.
GEOG 6010 URBAN GEOGRAPHY AND SUSTAINABILITY (3) LEC. 3. An introduction to the field of urban geography and urban sustainability. Basic principles and processes that constitute the growth of urban areas, history, impact of urbanization, adaptation and mitigation towards a sustainable future.

GEOG 6210 CLIMATOLOGY (3) LEC. 3. Pr., Senior standing or departmental approval. An introduction to the field of climatology. Basic principles and process that constitute the earth's climate system (e.g. surface-atmosphere energy budget, the hydrologic cycle, and atmospheric motion, as well as climate change and sea level rise.

GEOG 6220 GEOMORPHOLOGY (3) LEC. 3. Basic concepts, terms, and techniques used to identify landforms and their evolutionary processes. Credit will not be given for both GEOG 5220 and GEOG 6220.

GEOG 6300 ADVANCED REGIONAL STUDIES IN GEOGRAPHY (3) LEC. 3. Departmental approval. Spatial patterns of socio-economic development of Latin America and the Caribbean.

GEOG 6310 GEOGRAPHY OF RURAL CHANGE (3) LEC. 3. Examination of the patterns and processes associated with population levels and distributions, natural resource management systems, economic development, and cultural landscapes of rural communities. Credit will not be given for both GEOG 5310 and GEOG 6310.

GEOG 6350 ECONOMIC GEOGRAPHY (3) LEC. 3. Departmental approval. Economic Geography in a global context. Spatial aspects of resource use, agricultural development, manufacturing production and services.

GEOG 6380 POLITICAL GEOGRAPHY (3) LEC. 3. Pr. GEOG 5800. Examination of political processes over space, from local to the global levels. The course examines the development of political space, the geographies of voting, the role of identity in shaping nationalism, and the geopolitical relationship between power and place.

GEOG 6400 GEOGRAPHY OF NATURAL HAZARDS (3) LEC. 3. Geography of natural hazards and their impacts on society. Credit will not be given for both GEOG 5400 and GEOG 6400.

GEOG 6500 GEOGRAPHY OF ENVIRONMENTAL MANAGEMENT (3) LEC. 3. Departmental approval. Understanding and application of the theories and methods for the United States' version of environmental impact assessment.

GEOG 6510 HUMAN-ENVIRONMENT INTERACTION (3) LEC. 3. Departmental approval. Investigation the inter-relationships between humans and their natural or physical environments.

GEOG 6550 GEOGRAPHY OF WATER RESOURCES (3) LEC. 3. Study of water use, management, law, and conflicts at local and international scales. May count either GEOG 5550 or GEOG 6550.

GEOG 6600 GLOBAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. Departmental approval. Global environmental problems such as climate change, ozone and deforestation and international public agencies and private volunteer movements protecting our global commons.

GEOG 6700 QUANT METH & SPATIAL ANALYSIS (3) LEC. 3. Pr. STAT 2510 or STAT 2513 or similar statistics course. Applications of quantitative methods and spatial statistics to environmental, urban and economic systems and implementations of these techniques in GIS and statistical software. Credit will not be given for both GEOG 5700 and GEOG 6700.

GEOG 6710 GEOGRAPHIC FIELD METHODS (3) LEC. 1. LAB. 4. Geographic methods and techniques used to conduct field research investigations of human and physical characteristics of the landscape. Credit will not be given for both GEOG 5710 and GEOG 6710.

GEOG 6720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOG 6800 GEOGRAPHIC THOUGHT (3) LEC. 3. Departmental approval. Develops effective thinking skills; evaluates written materials in geography; Reviews geographical research and produces written reports and papers related to geographic issues.

GEOG 6820 AERIAL PHOTOGRAPHY AND REMOTE SENSING (4) LEC. 3. LAB. 2. Departmental approval. Aerial photo and satellite digital interpretation, photogrammetry, remote sensing technology and photogrammetry and related laboratory exercises.

GEOG 6830/6836 GEOGRAPHIC INFORMATION SYSTEMS (4) LEC. 3. LAB. 2. Departmental approval. Introduction to concepts and techniques used in developing a geographic information system (GIS) for evaluating spatial distribution patterns and spatial relationships.
GEOG 6850 GEOGRAPHIC INFORMATION SYSTEMS APPLICATIONS (3) LEC. 3. LAB. 3. Pr. GEOG 5830 or GEOG 6830. Introducing the concepts and implementations of the geographic information analysis and integrate GIS with real-world applications. This is a follow-up course of GEOG 5830/GEOG/6830.

GEOG 6860 ADVANCED CONCEPTS IN CARTOGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOG 3810. Advanced techniques of map design and production including relevant computer graphics applications and related laboratory exercises. Credit will not be given for both GEOG 5860 and GEOG 6860.

GEOG 6870 ADVANCED REMOTE SENSING (3) LEC. 2. LAB. 2. Pr. GEOG 6820. Explores advanced topics of remote sensing for use in research and analysis. Credit will not be given for both GEOG 5870 and GEOG 6870.

GEOG 6880 ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (3) LEC. 2. LAB. 2. Pr. GEOG 6830. Advanced concepts and techniques used in the collection and analysis of data for evaluating spatial patterns and processes. Credit will not be given for both GEOG 5880 and GEOG 6880.

GEOG 6970 SEMINAR IN GEOGRAPHY (3) LEC. 3. Departmental approval. Development of modern geographic thinking with attention to applied research topics. Course may be repeated for a maximum of 6 credit hours.

GEOG 7930 DIRECTED STUDIES (1-3) IND/RES. Departmental approval. Individualized literature, field and/or laboratory research not available through regularly offered coursework. Subject matter and credit hours shall be determined by student and directing faculty. Course may be repeated for a maximum of 3 credit hours.

GEOG 7980 CAPSTONE RESEARCH (1-3) RES. SU. Departmental approval. enrolled as GEOG MS non-thesis student. Literature, field and/or laboratory research directed toward the completion of capstone project for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOG 7990 M.S. RESEARCH AND THESIS (1-10) RES. Research and Thesis. Course may be repeated with change in topics.

Geology - GEOL

Courses

GEOL 1100/1103 DYNAMIC EARTH (4) LEC. 3. LAB. 2. Coreq. GEOL 1101. Science Core. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and landforms. Study of geologic maps. Credit will not be given for both GEOL 1100 and GEOL 3150.

GEOL 1101 DYNAMIC EARTH LABORATORY (0) LAB. 2. Coreq. GEOL 1100. General physical geology. Survey of the important minerals and rocks. Origin and classification of geologic structures, earthquakes, and land forms study of geologic maps.

GEOL 1107 HONORS DYNAMIC EARTH (4) LEC. 3. LAB. 2. Pr. Honors College. Coreq. GEOL 1108. General physical geology for Honors students and for Geology majors. Topics similar to GEOL 1110 but covered in greater depth. Science Core.

GEOL 1108 HONORS DYNAMIC EARTH LABORATORY (0) LAB. 2. Pr. Honors College or Departmental approval. Coreq. GEOL 1107. General physical geology for Honors students and for Geology majors. Topics similar to those in GEOL 1101 but covered in more depth. Science Core.

GEOL 1110/1113 EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Coreq. GEOL 1111. Science Core. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans.

GEOL 1111 EARTH AND LIFE THROUGH TIME LABORATORY (0) LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Coreq. GEOL 1110. Examination of rock, fossil, and related data sets bearing on the geological development of the earth with emphasis on North America.

GEOL 1117 HONORS EARTH AND LIFE THROUGH TIME (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107 or Departmental approval. Coreq. GEOL 1118. Physical and biological history of the Earth, with emphasis on the interaction between life, the atmosphere, rocks, and oceans. For Honors students and Geology majors. Science Core.

GEOL 1118 HONORS EARTH AND LIFE THROUGH TIME LABORATORY (0) LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107 or Departmental approval. Coreq. GEOL 1117. General historical geology for Honors students and Geology majors. Topics similar to those in GEOL 1111 but covered in greater depth. Science Core.
GEOL 1200 MARINE TECHNICAL METHODS (2) LAB. 8. Departmental approval. Introduction to procedures utilized aboard marine research vessels; physical, biological and geological measurements and sampling techniques. Taught only at Dauphin Island Sea Lab. Summer.

GEOL 1220 COASTAL CLIMATOLOGY (2) LEC. 7. Departmental approval. Controlling factors and features of world climates, with attention to coastal areas; application and interpretation of climate data. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 2000 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Introduction to career opportunities in the Geosciences; goal selection and charting a pathway to success as a professional. Includes writing skills, research and funding opportunities, internships, creation of resumes and ePortfolios, and job applications.

GEOL 2010/2013 MINERALOGY AND OPTICAL CRYSTALLOGRAPHY (5) LEC. 4. LAB. 2. Departmental approval. Physical and chemical properties of minerals, classification and roles with emphasis on natural systems, materials science, health, and environment. Credit will not be given for both GEOL 2010 and GEOL 2013.

GEOL 2020 MARINE GEOLOGY (4) LEC. 2. LAB. 4. Departmental approval. Geology of ocean basins; special emphasis on continental shelves, their sediments and the sedimentary process at work there. Taught only at Dauphin Island Sea Lab. Summer only.


GEOL 2100 ENVIRONMENTAL GEOLOGY (4) LEC. 3. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Emphasis on geology as an environmental science; applied geology, geological hazards and environmental regulations as applied to geologic environmental remediation.


GEOL 3100 TERRESTRIAL VEGETATION THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 2200 and (BIOL 1020 or BIOL 1027). Plants are primary producers and are the foundation upon which the global ecosystem is based. This course focuses on the development, evolution, and application of the plant fossil record to problems in earth history.

GEOL 3150 ENGINEERING GEOLOGY (3) LEC. 2. LAB. 2. Fundamental geologic principles, materials, and processes that affect engineering projects and programs. Emphasis on pre-construction geological analysis to recognize potential hazards and problems. Credit will not be given for both GEOL 3150 and GEOL 1100.

GEOL 3200 INTRODUCTION TO PALEOBIOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 1110 or GEOL 1113 or GEOL 1117. The nature of the fossil record, applications of that data to geological and biological questions with emphasis on the concepts using examples from all biotic groups.

GEOL 3300 EVOLUTION AND EXTINCTION OF THE DINOSAURIA (3) LEC. 2. LAB. 2. Pr. GEOL 1100 or GEOL 1103 or GEOL 1107. Departmental approval. Survey of the dinosaurs, their evolution and extinction. Southeastern U.S. dinosaurs.


GEOL 3650 FIELD CAMP (6) LEC. 1. LAB. 10. Pr. GEOL 3400. Instruments and methods used in geological field mapping, interpretation of sedimentary, igneous and metamorphic rocks and deformational analysis. Summer only.

GEOL 4010 SEDIMENTARY PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050. Departmental approval. Detailed description and classification of sediments and sedimentary rocks with emphasis on interpretation of origins, transport histories, depositional environments and diagenetic histories.


GEOL 4210 ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3400. The origin, distribution and classification of mineral deposits formed by igneous, metamorphic and sedimentary processes. Introduction of methods of exploration and development.
GEOL 4260 INTRODUCTION TO GEOCHEMISTRY (3) LEC. 3. Pr. CHEM 1040 and GEOL 2050. Principles governing the distribution of major, minor and trace elements within the earth; differentiation of elements due to geologic processes and the hydrosphere.

GEOL 4300 GEODYNAMICS (3) LEC. 3. Pr. GEOL 3400 and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Structure and dynamics of the earth deduced from seismology, gravity, heat flow and magnetism.

GEOL 4740 SENIOR SEMINAR (2) SEM. 2. Geology majors with upperclass standing. Individual research by geoscience undergraduates is coupled with improved written and oral communication skills along with resume and ePortfolio development. May count either GEOL 4740 or GEOG 4740.

GEOL 4920 INTERNSHIP (1-3) INT. SU. Geology majors with upper-class standing (juniors or seniors). An opportunity to apply classroom experience to a real job setting. Course may be repeated for a maximum of 6 credit hours.

GEOL 4930 DIRECTED STUDIES IN UNDERGRADUATE RESEARCH (1-3) AAB. Departmental approval. Directed studies in areas of geology not covered by an existing course or to supplement knowledge gained from an existing course. Course may be repeated for a maximum of 3 credit hours.

GEOL 4970 SPECIAL TOPICS IN GEOLOGY (1-4) ST1. Instruction and discussion of selected topics in geosciences. Course may be repeated for a maximum of 8 credit hours.

GEOL 4980 UNDERGRADUATE RESEARCH METHODS (1-3) IND. Departmental approval. Active participation in original research under supervision of a senior investigator. Course may be repeated for a maximum of 3 credit hours.

GEOL 4997 HONORS THESIS (2-4) LEC. 3. Pr. Honors College. May incorporate library, field or laboratory research in any proportion. Written thesis and thesis defense required. Course may be repeated for a maximum of 4 credit hours.

GEOL 5060 INTRODUCTION TO MICROPALYONTOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 3200 and (BIOL 1030 or BIOL 1037). A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 5100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 5220 GEOMORPHOLOGY (3) LEC. 2. LAB. 1. Study of the origin of landforms with emphasis on the geologic processes and structures that generate the landforms and applications of landform analysis. Two all-day weekend trips are required. Two one-hour classes and one two-hour laboratory per week.

GEOL 5240 COASTAL GEOMORPHOLOGY (2) LEC. 5. LAB. 4. Departmental approval. Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 5300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. P/C GEOL 4010. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 5400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 5440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction in the theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). The course provides an understanding the EMPA as a research tool for evaluating the composition and structure of a wide range of materials.

GEOL 5500 PETROLEUM GEOLOGY (3) LEC. 3. Pr. GEOL 4010. Coverage of petroleum source rocks, migration, reservoir rock characters, and trapping mechanisms. Overview of exploration methods including well-log analysis and seismic interpretation.

GEOL 5600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.
GEOL 5720 PANAMA STUDY ABROAD-CLIMATE CHANGE AND ENVIRONMENT (3) LEC. 3. Pr., Departmental approval. Four-week course intended to give students a general understanding of the potential impacts of climate change on Panama's environment via a mix of lectures, hands-on activities and field trips.

GEOL 6060 INTRODUCTION TO MICROPALOEONTOLOGY (3) LEC. 3. LAB. 1. A survey of major groups of fossils small enough to require a microscope for their study. Foraminifera, radiolaria, and ostracodes are emphasized; minor groups of interest include conodonts, diatoms, dinoflagellates, acritarchs, and chitinozoans. Includes laboratory, discussion sessions, and field work.

GEOL 6100 HYDROGEOLOGY (3) LEC. 2. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107) and CHEM 1030 and (MATH 1610 or MATH 1613 or MATH 1617) and PHYS 1500. Departmental approval. Fundamentals of groundwater flow in porous media, hydrodynamic dispersion, determination of aquifer properties and geological aspects of groundwater occurrences.

GEOL 6220 GEOMORPHOLOGY (3) LEC. 2. LAB. 2. Study of origin of landforms with emphasis on geologic processes and structures that generate landforms; includes the applications of landform analysis. May count either GEOL 6220 or GEOG 6220.

GEOL 6240 COASTAL GEOMORPHOLOGY (2) LEC. 5. LAB. 4. Departmental approval. Introduction to coastal sediment processes and applied coastal geomorphology; emphasis on waves, tides, sediments and their impact of anthropogenic influences. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 6300 BASIN ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 4010. Departmental approval. Study of analytical techniques of sedimentary basin fills, including thermal history, litho and biofacies analyses, depositional systems, subsurface logs, seismic reflection, provenance history, evolution, sedimentation and subsidence history.

GEOL 6400 PRINCIPLES OF EARTH SCIENCE (3) LEC. 2. LAB. 2. Departmental approval. A special course for in-service and future teachers only. Internal and surficial geologic processes, meteorology and oceanography.

GEOL 6440 ELECTRON MICROPROBE ANALYSIS (3) LEC. 2. LAB. 1. Pr. CHEM 1040 and PHYS 1510. Instruction to theory and application of EMPA (electron microprobe analysis) and SEM (scanning electron microscopy). Provides an understanding of EMPA as a research tool for evaluating composition and structure of wide range of materials. GEOL 5440 or GEOL 6440.


GEOL 6600 APPLIED GEOPHYSICS (4) LEC. 3. LAB. 2. Pr. (GEOL 1100 or GEOL 1103 or GEOL 1107 or GEOL 3150) and (MATH 1620 or MATH 1623 or MATH 1627) and PHYS 1510. Departmental approval. Overview of geophysical methods with applications to resource, tectonic and environmental analyses. Seismic refraction and reflection, gravity, magnetics, electrical and electromagnetic methods will be included.

GEOL 7100 GEOCOMMUNICATION (3) LEC. 3. Departmental approval. Instruction and practice in written and oral communication skills necessary for a successful career in the geosciences; emphasis on preparation of scientific articles, technical reports, abstracts, and thesis; preparation and delivery of oral presentations.


GEOL 7200 TECTONICS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. Emphasis will be placed on plate tectonics and driving forces, evolution of collisional, transform and extensional systems, and dynamic indicators of past and current tectonic processes.

GEOL 7220 GEOGRAPHIC INFORMATION SYSTEMS AND MARINE RESEARCH (3) LEC. 10. LAB. 15. Departmental approval. Introduction to geographical information system (GIS) techniques with a focus on application in the marine environment. Taught only at Dauphin Island Sea Lab. Summer only.

GEOL 7260 AQUEOUS AND ENVIRONMENTAL GEOCHEMISTRY (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. 
Departmental approval. Study of water-rock reactions that control the chemical composition of groundwater; aqueous geochemistry of 
trace elements; groundwater pollution, remediation and geomic robiology.

GEOL 7286 CLIMATE CHANGE LITERACY AND COMMUNICATION (3) DSL. 3. Must be a graduate student, or obtain departmental 
consent after undergraduate student meets Auburn University criteria for taking a 7000-level course. Investigates the discipline-based 
geoscience education lenses of people’s understanding (cognitive), emotional influences (affect), and actions (behavior) about climate 
change literacy. Critically analyzes misconceptions, mental models, cultural influences, risk perceptions and the best practices for 
addressing these barriers. May count either GEOL 7280 or GEOL 7286.

GEOL 7300 CYCLES THROUGH EARTH HISTORY (3) LEC. 2. LAB. 2. Pr. GEOL 4100 and GEOL 4260. Discussion of the 
fundamental processes controlling sedimentary cycles at different physical, biotic, and temporal scales.

GEOL 7310 ISSUES IN PALEONTOLOGY (3) LEC. 3. Pr. GEOL 3200. Advanced applications of paleontological data sets to topics 
that may include taphonomy, biogeochemistry, evolution, asystematic functional morphology, paleoecology, paleoclimatology and 
biostratigraphy.

GEOL 7400 ADVANCED ECONOMIC GEOLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 4210. Departmental approval. The practical and 
thetical aspects of economic geology as applied to exploration and development of natural resources.

GEOL 7410 GEOLOGY OF ORGANIC MATTER (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. Departmental approval. The 
origins, classifications, taphonomy of organic matter, modern and ancient processes and environments of deposition of organic-rich 
strata, including hydrocarbon- source rocks and coals. Laboratory and field trips required.

GEOL 7450 MINERAL RESOURCES AND THE ENVIRONMENT (3) LEC. 2. LAB. 2. Pr. CHEM 1040 and GEOL 2050. Overview of 
geology and geographic distribution of mineral resources; economic aspects affecting their extraction; environmental impacts and cost 
of mineral resource extraction.

GEOL 7500 PALEOClimatoloGY (3) LEC. 3. Explores how Earth’s climate has evolved dynamically over time, varying within 
resticted boundaries that allowed life to exist and evolve. Explores interactions among Earth’s surface abiotic and biotic components, 
and includes plate tectonics, atmospheric chemistry and physics, and ocean productivity.

GEOL 7550 ADVANCED GEOPHYSICAL METHODS (3) LEC. 2. LAB. 2. Pr. GEOL 6600. Departmental approval. Advanced 
treatment of geophysical methods, data interpretation and modeling. Applications to resource development and environmental 
assessments will be explored, with emphasis on seismic methods.

GEOL 7600 PETROLOGY (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 4010. Departmental approval. The description, classification, 
formative processes, and petrologic interpretation of igneous, metamorphic and sedimentary rocks.

GEOL 7610 STRUCTURAL AND METAMORPHIC ANALYSIS (3) LEC. 2. LAB. 2. Pr. GEOL 2050 and GEOL 3400 and GEOL 3650. 
Quantitative analysis of dynamic, kinematic and chemical responses of rocks and minerals to crustal movements and dynamo thermal 
metamorphism.

GEOL 7650 FACIES ANALYSIS AND SEQUENCE STRATIGRAPHY (3) LEC. 2. LAB. 2. Pr. GEOL 4010 and GEOL 4110. 
Departmental approval. Systematic analysis of modern and ancient deposition facies, and their interpretation in a sequence stratigraphic 
context. Laboratory and field trips required.

GEOL 7700 ANALYTICAL ISOtOPE GEOCHEMISTRY (3) LEC. 2. LAB. 1. Pr. CHEM 1040 or PHYS 1510 or MATH 1620. Biweekly 
lectures will teach the theory and principles of isotope geochemistry and mass spectrometry, leading to applications in geoscience 
research. Lab sessions and problem sets will support lectures and emphasize work with various mass spectrometers in the Department 
of Geosciences.

GEOL 7930 DIRECTED STUDIES (1-3) LEC. 3. Departmental approval. Directed studies. May incorporate literature, field and/or 
laboratory research in any proportion. Subject matter and credit hours shall be determined by student and directing faculty. Course may 
be repeated for a maximum of 3 credit hours.

GEOL 7980 CAPSTONE PROJECT (1-3) LEC. SU. Literature, field and/or laboratory research directed towards completion of 
capstone project required for non-thesis option. Course may be repeated for a maximum of 3 credit hours.

GEOL 7990 RESEARCH AND THESIS (1-10) MST. Departmental Approval. Course may be repeated with change in topics.
**GEOL 8900 DIRECTED STUDY (3)** IND. 3. Provides exposure to discipline-specific research procedures in Earth System Science. Students will work closely with their mentors to explore an Earth-system problem through directed readings, literature searches, field work, laboratory experimentation, and quantitative analysis.

**Geospatial and Env Informatics - GSEI**

**Courses**

**GSEI 1200 DIGITAL EARTH (3)** LEC. 2. LAB. 2. Introduction to geospatial technologies, spatial thinking, and job markets in these areas. Exploration of location-based services, global positioning systems, geographic information systems, remote sensing, virtual globes, and web based mapping. Skills and techniques for spatial thinking and environmental analysis.

**GSEI 2070 INTRODUCTION TO ENVIRONMENTAL INFORMATICS (3)** LEC. 2. LAB. 2. Pr. GSEI 1200. Introduction to the environment as a system of linked, interactive components. Application of information science to environmental management. Skills and techniques required for collecting, collating, archiving, modeling, analyzing, visualizing, and communicating information in support of natural resource management.

**GSEI 4360 ENVIRONMENTAL MODELING (3)** LEC. 2. LAB. 2. Pr. FORY 5470 and FORY 5480 and GSEI 1200. Fundamental concepts, strategies, methods, or techniques of environmental systems modeling and simulation. Models will be constructed using STELLA, an intuitive modeling package that requires little prior experience with computer modeling.

**GSEI 4430 APPLICATIONS IN ENVIRONMENTAL INFORMATICS (3)** LEC. 2. LAB. 2. Pr. GSEI 1200 and FORY 5470. Applications of earth observations to forestry, wildlife, environment and natural resources including water, land and atmosphere.

**GSEI 5150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3)** LEC. 3. Pr. GSEI 1200 or GSEI 2070 and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513). Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and spatial prediction.

**GSEI 6150 SPATIAL STATISTICS FOR NATURAL RESOURCES (3)** LAB. 3. Applications of spatial statistics in natural resources. Introduction of basic concepts, theories, and methodologies of spatial and spatio-temporal data analyses and modeling. Topics include spatial correlation, spatial interpolation, detection of clusters/hotspots/patterns of interest, and spatial prediction.

**GSEI 7200 LAND PROCESSES AND CLIMATE INTERACTIONS (3)** LEC. 2. LAB. 2. This is an advanced graduate level course designed to teach the modeling of land surface processes and study its impact on local, regional and global climate. Students will also perform global/regional climate model simulations using supercomputers.

**GSEI 7500 DIGITAL EARTH AND BIG DATA (3)** LEC. 2. LAB. 2. This is an advanced graduate-level course designed to teach the modeling of digital earth and study its impact on local, regional and global climate. Students will also perform global/regional geographic model simulations using supercomputers.

**GSEI 7600 CLIMATE MODELING (3)** LEC. 2. LAB. 2. Teaches modeling of the Earth’s climate system. Students will also perform global climate model simulations using supercomputers, and analyze climate model outputs using NCAR Command Language.

**Global Studies/Human Sciences - GSHS**

**Courses**

**GSHS 2000 GLOBAL STUDIES HUMAN SCIENCES (3)** LEC. 3. An introduction to global studies with emphasis on topics relevant to Human Sciences majors.

**GSHS 3000 GLOBAL STUDIES IN HUMAN SCIENCES LECTURE SERIES (1)** LEC. 1. Pr. GSHS 2000. Invited speakers and lectures will explore global studies topics from a human sciences perspective.

**GSHS 4920 GLOBAL STUDIES INTERNSHIP (12)** INT. 450. Pr. GSHS 2000 and GSHS 3000. Supervised professional internship in an international setting. Senior standing and 2.25 GPA.

**GSHS 5000 GLOBAL STUDIES IN HUMAN SCIENCES CAPSTONE (3)** LEC. 3. Pr. GSHS 2000 and GSHS 3000 and GSHS 4920. A capstone course designed to bring global studies issues that are relevant to the human sciences field into focus through problem-based learning.
Graduate Studies - GRAD

Courses

GRAD 5AA0 AUTHORIZED DROP BELOW FULL-TIME (0) IND.

GRAD 6AA0 AUTHORIZED FOR FULL-COURSE OF STUDY (0) IND. Departmental approval. Course should not be printed in bulletin or in the schedule of classes booklet.

GRAD 7000 CLEARING REGISTRATION (0) LEC. May be used to register graduate students to graduate who have finished all graduation requirements by the last day of the previous semester, to remove incomplete grades, or to complete comprehensive examination for non-thesis students.

GRAD 7010/7016 GRADUATE LEARNING COMMUNITY (0) LEC. Guided discussion of current topics in graduate education. May count either GRAD 7010 or GRAD 7016. Course may be repeated for a maximum of 6 credit hours.

GRAD 7AA0 THESIS OR PROJECT COMPLETION (0) IND. Coreq., Minimum of one (1) hour of 7910/6, 7920/6, 7950/6 or 7980 or 7990 or enrollment in GRAD 7000. Open to thesis option graduate students, non-thesis students engaged in research for special projects, or students completing practica or internships. No grade.

GRAD 8100 PROFESSIONAL DEVELOPMENT (0) LEC. 1. SU. This course introduces graduate students to a variety of non-academic professional environments. Course participants engage in active learning and peer review exercises to develop their personal portfolios and learn about scientific integrity, research skills, and other areas of professional development.

GRAD 8940 PREPARING FUTURE FACULTY SEMINAR I (1) LEC. 1. SU. Departmental approval. This course introduces graduate students to a variety of faculty roles and work environments. Seminar participants prepare teaching philosophy and research statements, engage in micro-teaching and peer review, discuss evolving definitions of scholarship, and engage in other professional activities. Students participate in seminars and workshops to discuss faculty teaching and research roles and responsibilities, campus life and faculty governance at differing types of academic institutions.

GRAD 8950 PREPARING FUTURE FACULTY SEMINAR II (1) PRA/SEM. 1. SU. Pr. GRAD 8940. This course is a continuation of PFF Seminar 1. It introduces graduate students to a variety of faculty roles and work environments. Seminar participants prepare online professional portfolios, present present instruction and critique job talks and learn about the role of technology in teaching. Students participate in seminars and workshops to discuss faculty teaching, research, service and outreach roles and responsibilities, campus life and faculty governance at differing types of academic institutions.

GRAD 8970 EVIDENCE-BASED TEACHING IN STEM SEMINAR (1) SEM. 1.5. SU. Permission from instructor. This 1-hour seminar will help students apply core principles and learning outcomes related to evidence-based teaching including teaching as research, learning communities, and learning through diversity. Course may be repeated for a maximum of 3 credit hours.

GRAD 8AA0 DISSERTATION COMPLETION (0) IND. Restricted to doctoral students. No grade. Additional prerequisite: minimum of 1 hour of 8910, 8920, 8950, 8980, or 8990.

GRAD 8XX0 AU/AUM JOINT PROGRAM IN PUBLIC ADMINISTRATION (0) IND. Joint Program in Public Administration. AU registration for PUB doctoral students who are registered concurrently at AUM. Enrollment at AUM.

Graphic Design - GDES

Courses

GDES 1110 FOUNDATION DRAWING (4) STU. 8. Coreq. GDES 1210. PGDE majors only; school approval. Representational drawing with various media. Emphasis on accurate observation, pictorial organization, depiction of space as well as on concept development and creativity.

GDES 1210 FOUNDATION DESIGN I (4) LEC. 1, STU. 6. Coreq. GDES 1110. PGDE majors only; school approval. Elements and principles of basic two-dimensional design. Emphasis on composition, color theory, and craftsmanship.

GDES 1220 FOUNDATION DESIGN II (4) LEC. 1, STU. 6. Pr. GDES 1210. Elements and principles of design with emphasis on basic three dimensional design. Emphasis on spatial organization, color, and media exploration, planning and craft.

GDES 2220 TYPOGRAPHICS I (4) LEC. 1, STU. 6. Pr. GDES 1110 and GDES 1220 and (ARTS 2100 and ARTS 2150). Coreq. GDES 2210. Historical development and practical applications of typography for design, layout, and other contemporary formats. School approval.

GDES 2230 INTRODUCTION TO GRAPHIC DESIGN (4) STU. 8. Pr. GDES 2210 and GDES 2220. Design, layout, and image-making procedures for creative problem-solving in graphic design, with emphasis on presentation, creativity, and visualization. School approval. Portfolio review required.


GDES 2250 TYPOGRAPHICS II (4) STU. 8. Pr. GDES 2230. Experimental application of typography for design and layout, exploring contemporary techniques. Historical understanding expected. Emphasis on presentation and visualization of concepts.

GDES 2260 KINETIC TYPOGRAPHY (4) LEC. 4. Pr. GDES 2230. Focuses on how motion affects meaning and how new meaning can be developed through time, space, and sound.

GDES 2270 ADVANCED INTERACTIVE MEDIA (4) STU. 8. Pr. GDES 3240. Focuses on the principles and methodologies used throughout the interactive design industry for creating screen-based dynamic media. Students develop a conceptual framework for real world applications, exploring industrial, social and cultural issues.

GDES 2280 IMAGE I (4) STU. 8. Pr. GDES 2230. Application of illustration techniques and concepts to various graphic formats. Development of personal skills and an individual style.

GDES 2290 IMAGE III (4) STU. 8. Pr. GDES 2230. Exploration of two dimensional and three dimensional imaging techniques and concepts. Development of personal skills and an individual style.
GDES 4900 DIRECTED STUDIES FOR GRAPHIC DESIGN (2-3) AAB. Pr. GDES 2210 and GDES 2220. Directed Studies in Graphic Design focuses on individualized study in Graphic Design. Student must have a 3.0 average in GDES course curriculum and departmental approval. Topics may include Graphic Design, Imaging, Web Design. Course may be repeated for a maximum of 9 credit hours.

GDES 4970 SPECIAL TOPICS FOR GRAPHIC DESIGN (4) LEC. 1, LST/ST1. 6. Pr. GDES 2230 and GDES 3710. Special Topics in Graphic Design focuses on topics in graphic design that are additional to the regular curriculum. Specific course topics are developed by the instructor. Student must have a 3.0 average in GDES GDES course curriculum. Course may be repeated for a maximum of 12 credit hours.

GDES 4990 SENIOR PROJECT FOR GRAPHIC DES (5) STU. 10. Pr. GDES 4250. Coreq. GDES 4991. A directed terminal studio project with choice of subject and medium. Project will be exhibited and a faculty committee will award a letter grade. Must be taken in student’s final semester.

GDES 4991 RESEARCH, WRITING AND PRESENTATION (1) LEC. 1. Pr. GDES 4250. Coreq. GDES 4990. Addresses research, writing and presentation requirement associated with the student’s terminal studio project. Must be taken in student’s final semester.

Health Administration - HADM

Courses
HADM 2100/2103 MEDICAL TERMINOLOGY (3) LEC. 3. Prefixes, suffixes, and word roots used in the language of medicine; medical vocabulary and terms related to the health care field.

HADM 3000 GATEWAY TO HEALTH CARE ADMINISTRATION (3) LEC. 3. Basic concepts and principles of health care administration.

HADM 3300 HEALTH CARE POLICY (3) LEC. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617) and (P/C HADM 2100 or P/C HADM 2103). Political policies that affect health care services.

HADM 3700 HEALTH LAW (3) LEC. 3. Legal issues that arise between patients and health care providers.

HADM 3800 HEALTH CARE ANALYTICS (3) LEC. 3. Pr. (STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610) and (MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680 or MATH 1683) and (ACCT 2110 or ACCT 2117). Majors only. This course focuses on using big data to drive decision making and improve health care quality through data aggregation and validation, strategic management data manipulation and technical reporting implementation.

HADM 4000 DEVELOPING CARE ORGANIZATIONS (3) LEC. 3. Pr. HADM 3300 and HADM 3800. Health Services Administration major only. Organizational strategies for effective interfacing of medical, nursing, allied health and administrative staff with patient needs.

HADM 4200 HEALTH CARE INSURANCE AND REIMBURSEMENT (3) LEC. 3. Pr. HADM 3000 and HADM 3700 and HADM 3800. Health Services Administration major only. Health insurance operations, principles, payment methods and contracts.

HADM 4800 HEALTH ADMINISTRATION AND REGULATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Government regulatory programs affecting administration of health services organizations.

HADM 4810 CHANGE IN HEALTH ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Changes in modern technology, cultural diversity, and governmental policies on the administration of health services organizations.

HADM 4820 LONG-TERM CARE ADMINISTRATION (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Analysis of the components (e.g. nursing homes, home health care) of the long-term care system for the elderly.

HADM 4830 COMPARATIVE HEALTH CARE SYSTEMS (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Comparative Study and analysis of health care systems around the world.

HADM 4850 LONG-TERM CARE POLICY (3) LEC. 3. Pr. HADM 4000. Health Services Administration major only. Policy issues surrounding the provision of long-term care to the elderly.

HADM 4880 HEALTH INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HADM 4000 and HADM 4200. Health Services Administration major only. Overview and utilization of health care information technology in health care administration.
HADM 4893 ELECTRONIC HEALTH RECORD APPLICATIONS (3) DSL. 3. Pr. HADM 4000 and HADM 3000 and HADM 3300 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683 or MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. This course covers the definition, benefits, regulations, standards, functionality, and impact of Electronic Health Records (EHR) in the healthcare environment. The course provides the student with a thorough understanding of the terminology of EHR systems as well as practical experience with the clinical and administrative use of EHRs in a medical settings.

HADM 4920 INTERNSHIP (6) AAB/INT. 6. SU. Pr. HADM 4000 and HADM 4200 and FINC 3810 or (FINC 3610 or FINC 3613 or FINC 3617) and (HRMN 3420 or HRMN 3423) or (MNGT 3423 or MNGT 3420). Health Services Administration major only. Internship in selected areas of Health Administration.

HADM 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. HADM 3000 and ACCT 2100 and (MATH 1680 or MATH 1683) and (MATH 1610 or MATH 1613 or MATH 1617) and (STAT 2010 or STAT 2017) or (STAT 2510 or STAT 2513) or STAT 2610. Health Services Administration major only. This course is designed to facilitate an independent study in an area of special interest of the student and a sponsoring faculty member. Course may be repeated for a maximum of 3 credit hours.

HADM 4950 CAPSTONE SEMINAR (3) LEC. 3. Pr. HADM 4000 and HADM 4200 and (FINC 3810 or FINC 3610 or FINC 3613 or FINC 3617). Health Services Administration major only. Integrates knowledge from courses and internship; applies managerial and research skills to the completion of a research project and the organization of a research symposium.

HADM 4960 SPECIAL PROBLEMS IN HEALTH ADMINISTRATION (1-6) IND. Pr. HADM 3300. Directed readings in Health Administration. Course may be repeated for a maximum of 6 credit hours.

HADM 4970 SPECIAL TOPICS (3) ST1. 3. Pr. HADM 3000 and (ACCT 2110 or ACCT 2117) and (MATH 1680 or MATH 1683) or (MATH 1610 or MATH 1613 or MATH 1617). Health Services Administration major only. Special Topics courses are used to inform and educate students about new and emerging changes within the health care field. The Topics addressed change to coincide with changes in the health care environment.

Health Outcomes Research & Pol - HORP

Courses

HORP 7510 HEALTH SERVICES DELIVERY AND EVALUATION (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Introduction to basic methods and frameworks for undertaking research and program evaluation within health services organizations and systems.

HORP 7520 SOCIAL AND BEHAVIORAL THEORY IN HEALTH (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option Introduction to the basic theories of behavior and intervention used in practice and research to evaluate changes in health, humanistic, and economic outcomes among patients.

HORP 7530 PHARMACEUTICAL ECONOMICS, OUTCOMES, AND POLICY (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. The graduate-level course is intended to introduce students to concepts relevant to pharmaceutical outcomes, economics, and policy. The course provides foundational knowledge surrounding healthcare.

HORP 7540 PHARMAEPIDEMOLOGY: METHODS AND APPLICATIONS (3) LEC. 3. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. STAT 6110 or equivalent SAS training. The course covers topics in pharmacoepidemiology focusing on the methods and applications of analyzing large healthcare claims databases and electronic medical records.

HORP 7720 MOTIVATIONAL INTERVIEWING FOR HEALTH BEHAVIORS (3) LEC. 2, IND/LEC. 1. Enrollment in the MS or PhD Program in Pharmaceutical Science with Health Outcomes Research and Policy Option or Departmental approval. Concepts, current research applications, and intervention development training in motivational interviewing for health behavior change interventions.

HORP 7820 RESEARCH METHODS AND DESIGN HEALTH SCIENCE I (2) LEC. 2. Departmental approval. Application of scientific methods in health care.

HORP 7830 RESEARCH METHODS IN THE HEALTH SCIENCES (3) LEC. 3. Pr. PYPC 7820 or HORP 7820. Application of the principles and concepts obtained in PYPC 7820/HORP 7820.

HORP 7840 MEDICATION INFORMATION SYSTEMS (3) LEC. 3. Health system informatics theories and methodologies. Demonstration of how information reduces uncertainty in health-care decision-making.
HORP 7860 THE PHARMACIST’S ROLE IN IMPROVING PATIENT ADHERENCE (3) LEC. 3. Pr. PYPC 7820. Theories and methodologies involved in adherence to medication regimens.

HORP 7870 SOCIAL, BEHAVIORAL, AND ADMINISTRATIVE ASPECTS OF PHARMACY PRACTICE (3) LEC. 3. Theories and applications in social, behavioral, and administrative aspects of pharmacy practice and medication use systems.

HORP 7950 SEMINAR (1) SEM. 1. SU. 1 CR; may be repeated multiple times for credit. Required of all Pharmaceutical Science MS students with Health Outcomes Research and Policy Option. Course may be repeated for a maximum of 6 credit hours.

HORP 7960 SPECIAL PROBLEMS IN PHARMACY CARE SYSTEMS (2-3) LEC. Departmental approval. Special problems. Course may be repeated for a maximum of 6 credit hours.

HORP 7980 NON-THESIS RESEARCH (1-3) RES. SU. Pharmaceutical Sciences Non-Thesis MS Graduate Student and approval from the Graduate Program Coordinator. The specific research topic and its credit hour(s) will be decided by the student's research advisor, in collaboration with the student and the student's research advisory committee. Course may be repeated for a maximum of 4 credit hours.

HORP 7990 RESEARCH AND THESIS (1-10) MST. Credit hours to be arranged. Course may be repeated with change in topics.

HIED 7200 ORGANIZATIONAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Theory and practice of higher education organizations with emphasis on supervision and management of personnel.

HIED 7210/7216 LEADERSHIP IN HIGHER EDUCATION (3) LEC. 3. Exploration, discussion and application of theories, concepts and principles of leadership applied to higher education organizations. May count either EDLD 7210 or HIED 7210.

HIED 7220 HIGHER EDUCATION MANAGEMENT (3) LEC. 3. Procedures and practices in school educational management.

HIED 7230/7236 STUDENT SERVICES ADMINISTRATION POSTSECONDARY EDUCATION (3) LEC. 3. Organization, administration and evaluation of student personnel services in postsecondary education.

HIED 7240 LEGAL ISSUES IN HIGHER EDUCATION (3) LEC. 3. Constitutional and statutory provisions for education and an analysis of judicial decisions affecting higher education.

HIED 7250 COLLEGE STUDENT DEVELOPMENT (3) LEC. 3. Overview of major developmental theories affecting college students.

HIED 7260 COUNSELING AND ADVISING IN HIGHER EDUCATION (3) LEC. 3. Introduces counseling and advising theory and application for student services professionals in higher education.

HIED 7270/7276 OVERVIEW OF POSTSECONDARY EDUCATION (3) LEC. 3. Overview of the history and evolution of postsecondary education in North America. May count either HIED 7270 or HIED 7276.

HIED 7400 SPORT MARKETING AND PUBLIC RELATIONS (3) LEC. 3. Marketing and public relations of sport organizations as associated with higher education institutions.

HIED 7410 SPORT ETHICS (3) LEC. 3. Covers ethical issues in sport organizations as associated with higher education institutions.

HIED 7900 DIRECTED STUDIES (1-6) IND. SU. Independent study directed toward desired objectives. Includes evaluation by professor and student at regular intervals. Course may be repeated for a maximum of 9 credit hours.
HIED 7910 PRACTICUM (3) PRA. 3. Departmental approval. Experience in the management of specific administrative offices. Course may be repeated for a maximum of 6 credit hours.

HIED 7920 INTERNSHIP (1-6) INT. SU. Departmental approval. Supervised internship experiences in a school, college or other appropriate setting. Evaluation and analysis of the internship experience. Course may be repeated for a maximum of 6 credit hours.

HIED 7970 SPECIAL TOPICS (1-6) LEC. 1-6. Current or advanced topics within area of specialization. Course may be repeated for a maximum of 6 credit hours.

HIED 8200 ASSESSMENT AND EVALUATION IN HIGHER EDUCATION (3) LEC. 3. Study of assessment and evaluation practices that enable learning organizations to use data for decision-making.

HIED 8230 PLANNING AND BUDGETING IN HIGHER EDUCATION (3) LEC. 3. Components and implementation of a comprehensive, ongoing planning and budgeting program in higher education.

HIED 8270 FINANCIAL MANAGEMENT IN HIGHER EDUCATION (3) LEC. 3. Educational finance including revenues, expenditures, cost, budgeting and accounting, and the local, state and federal role in supporting education.

HIED 8480 INSTITUTIONAL RESEARCH IN HIGHER EDUCATION (3) LEC. 3. Components of institutional research and assessment that support comprehensive planning, analysis, decision support and management needs of the higher educational institution. May count either EDLD 8480 or HIED 8480.

HIED 8500 THE PROFESSORIATE (3) LEC. 3. Study of differences and similarities in faculty roles, work, and career paths using various disciplinary and institutional lenses.

HIED 8510 SEMINAR IN COLLEGE TEACHING (3) LEC/SEM. 3. Overview of major issues in higher education and methods of instruction in college teaching. Involves use of experiential learning, group and collaborative activities.

HIED 8950 SEMINAR (3) LEC. 3. Presentation by graduate students of research projects and/or analysis of procedures and finding. Course may be repeated for a maximum of 6 credit hours.

HIED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Individualized support and direction for students writing their dissertation. Course may be repeated for a maximum of 10 credit hours.

**History - HIST**

**Courses**

HIST 1000 AUBURN IN THE WORLD: INDUSTRY AND SOCIETY (4) LEC. 3. LAB. 1. Part of the Auburn Global International Accelerator Program, HIST1000 exposes first-year students to Auburn, Alabama, and regional history from a wide range of perspectives, among them social, cultural, and environmental changes, economics, technology, and politics.

HIST 1010/1013 WORLD HISTORY I (3) LEC. 3. History Core. Survey of world history from early humanity to the late 18th century. Examines the record of human political, social, cultural, religious, and economic activities across time, regions, civilizations, and cultures. May count either HIST 1010 or HIST 1013.

HIST 1017 HONORS WORLD HISTORY I (3) LEC. 3. Pr. Honors College. History Core. A survey of world history from early humanity to the late 18th century.

HIST 1020 WORLD HISTORY II (3) LEC. 3. History Core. Survey of world history since the Industrial Revolution.

HIST 1027 HONORS WORLD HISTORY II (3) LEC. 3. Pr. Honors College. History Core. Survey of world history since the Industrial Revolution.

HIST 1210 TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1217 HONORS TECHNOLOGY AND CIVILIZATION I (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology in history from prehistoric times to the beginning of the Industrial Revolution.

HIST 1220 TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. History Core. Survey of the role of technology from the Industrial Revolution to the present day.
HIST 1227 HONORS TECHNOLOGY AND CIVILIZATION II (3) LEC. 3. Pr. Honors College. History Core. Survey of the role of technology from the Industrial Revolution to the present day.

HIST 2010/2013 SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Social, political, and economic development of the United States from earliest occupation through Reconstruction. May count either HIST 2010 or HIST 2013.

HIST 2017 HONORS SURVEY OF UNITED STATES HISTORY TO 1877 (3) LEC. 3. Pr. Honors College. Social, political, and economic development of the United States from earliest occupation through Reconstruction.

HIST 2020 SURVEY OF UNITED STATES HISTORY SINCE 1877 (3) LEC. 3. Social, political, and economic development of the United States from the end of Reconstruction to the present.

HIST 2070 SURVEY OF EUROPEAN HISTORY FROM THE RENAISSANCE TO 1789 (3) LEC. 3. Survey of European history from the first outbreak of the bubonic plague to the eve of the French Revolution.

HIST 2080 SURVEY OF EUROPEAN HISTORY FROM 1789 PRESENT (3) LEC. 3. European history from the French Revolution to the present.

HIST 2100 SURVEY OF LATIN AMERICAN HISTORY (3) LEC. 3. Latin American history from its Amerindian beginnings to the present.

HIST 2110 SURVEY OF ASIAN HISTORY (3) LEC. 3. Asian history from prehistoric times to the present.

HIST 2120 SURVEY OF MODERN AFRICAN HISTORY (3) LEC. 3. Modern African history, from the end of the slave trade to the rise of nationalism and independence.

HIST 2130 SURVEY OF MIDDLE EASTERN HISTORY (3) LEC. 3. Introduction to the history and culture of the Middle East.

HIST 3000 HISTORY OF SOUTHEASTERN INDIANS (3) LEC. 3. History of the southeastern Indians from pre-contact to removal, including native culture, cultural change, trade, imperial rivalries, and wars.

HIST 3010 HISTORY OF ALABAMA (3) LEC. 3. Broad study of Alabama history since its European settlement.

HIST 3020 HISTORY OF WOMEN IN THE UNITED STATES (3) LEC. 3. History of women in America from colonial period to the present; explores differences of region, race, and class.

HIST 3030 AFRICAN-AMERICAN HISTORY (3) LEC. 3. History of African Americans from African origins to the modern era, focusing on enslavement, emancipation and the struggle for equal rights.

HIST 3040 AMERICAN RELIGIOUS HISTORY (3) LEC. 3. Religious ideas and institutions from the colonial period to the present, including how religion has intersected with political and social history.

HIST 3050 HISTORY OF POLITICAL PARTIES IN THE UNITED STATES (3) LEC. 3. Political parties and party systems from the Constitution to the present, including party organization, campaign techniques and presidential leadership.

HIST 3060 ISSUES IN AFRICAN-AMERICAN HISTORY (3) LEC. 3. Issues and personalities in African-American history. Course may be repeated for a maximum of 6 credit hours.

HIST 3070 HISTORY OF UNITED STATES AIR POWER (3) LEC. 3. Development of air and spacecraft as weapons of war including doctrines, technology, major leaders and great events of air power.

HIST 3080 THE CIVIL RIGHTS MOVEMENT (3) LEC. 3. History of the civil rights movement and its place in the broader African-American struggle for freedom. Social, political, and cultural history, with geographic and chronological focus on the United States South in the post-World War II period.

HIST 3090 HISTORY OF APPALACHIA (3) LEC. 3. Survey of the history of the Appalachian region from before European contact to the present.

HIST 3100 THE CIVIL WAR IN AMERICAN MEMORY (3) LEC. 3. A survey of the ways that Americans have remembered their civil war from 1865 to the present.

HIST 3300 GRECO-ROMAN CIVILIZATION (3) LEC. 3. Classical civilizations of the Greeks and Romans as well as the Egyptian and Persian civilizations that influenced them.
HIST 3310 EUROPE IN THE MIDDLE AGES (3) LEC. 3. Survey of the thousand years that has been called the birth of Europe.

HIST 3320 HISTORY OF IRELAND (3) LEC. 3. History of Ireland from its beginnings to the present, including discussion of the present.

HIST 3330 ISSUES IN THE HISTORY OF GERMANY AND CENTRAL EUROPE (3) LEC. 3. Variable topics in the history of Germans, Slavs, and other Central Europeans from the Era of Enlightened Absolutism through the fall of the Berlin Wall. Course may be repeated for a maximum of 6 credit hours.

HIST 3340 ISSUES IN THE HISTORY OF MODERN FRANCE (3) LEC. 3. Focus on specific issues, themes, or topics within the political, social, or cultural history of France between the 18th and 20th centuries. Themes will vary.

HIST 3350 SURVEY OF RUSSIAN HISTORY (3) LEC. 3. Russian history from the earliest development of a state in the area of Kiev down to the present Russian Federation.

HIST 3360 CONTEMPORARY RUSSIA SINCE WORLD WAR II (3) LEC. 3. Developments in contemporary Russia since World War II.

HIST 3370 EUROPE AND THE WORLD (3) LEC. 3. Variable topics in the history of European interactions with non-European peoples, cultures, politics, and societies.

HIST 3500 HISTORY OF AVIATION (3) LEC. 3. History of aviation from the beginnings of human flight to the present.

HIST 3510 HISTORY OF SPACE TRAVEL (3) LEC. 3. Historical origins of the space age and United States space policy, including patterns that define the present and constrain the future of humans and machines.

HIST 3520 SCIENTIFIC REVOLUTIONS (3) LEC. 3. History of science, focusing on the concept of scientific revolutions in their social and intellectual context.

HIST 3530 SCIENCE FICTION AS INTELLECTUAL HISTORY (3) LEC. 3. Interaction between science, technology, and other aspects of modern culture as dramatized in classic and contemporary works of science fiction.

HIST 3540 ISSUES IN TECHNOLOGY AND CULTURE (3) LEC. 3. Issues such as the automobile, environment, industrialization, and popular culture relating to the role technology plays in society and culture. Course may be repeated for a maximum of 6 credit hours.

HIST 3550 AMERICAN ENVIRONMENTAL HISTORY (3) LEC. 3. Environmental history of the United States from colonial era to present.

HIST 3560 TECHNOLOGY AND GENDER HISTORY (3) LEC. 3. Exploration of the relationship between gender and technology in comparative cultural, social, and historical perspectives from 18th century to present.

HIST 3570 THE AUTOMOBILE IN HISTORY (3) LEC. 3. Global history of the automobile, including technological developments as well as role of the automobile in culture.

HIST 3600 ISSUES IN WOMEN’S AND GENDER HISTORY (3) LEC. 3. Topics in the history of women and gender. Course may be repeated for a maximum of 6 credit hours.

HIST 3610 PRIVATE LIVES AND PUBLIC PLACES (3) LEC. 3. Examination of the shifting boundaries between the public and private in history including topics such as work, family, sexuality, and the state. Course may be repeated for a maximum of 6 credit hours.

HIST 3620 LANDSCAPE AND CULTURE (3) LEC. 3. Social and cultural history of architecture and built-space in Europe and/or the United States.

HIST 3630 HISTORY OF MEXICO (3) LEC. 3. History of Mexico in the 19th and 20th centuries.

HIST 3640 WORLD MILITARY HISTORY (3) LEC. 3. Economic, social, political, and technological roots of the ways of war employed by different civilizations throughout the ages.

HIST 3650 20TH-CENTURY WORLD WARS (3) LEC. 3. Causes, conduct, and consequences of World Wars I and II.

HIST 3660 WORLD NAVAL HISTORY (3) LEC. 3. Naval history from its origins in ancient times to the present, including the evolution of strategy and tactics, and the influences of, foreign policy and technological change.
HIST 3670 CONTEMPORARY HISTORY (3) LEC. 3. Examination of developments in the contemporary world to provide historical background on developments in selected areas or nations across the globe.

HIST 3800 HISTORIAN'S CRAFT (3) LEC. 3. Historical research methods and an introduction to historiography. For history majors only.

HIST 3920 HISTORY INTERNSHIP (3) LEC. 3. Pr., Departmental approval. Supervised on-the-job experience at archives, historical museums, historic preservation authorities, historical editing projects, and similar historical agencies.

HIST 3930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval and; 3.0 overall GPA. Individual reading or research projects in a specific area of history. Course may be repeated for a maximum of 3 credit hours.

HIST 3970 SPECIAL TOPICS (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 4950 SENIOR THESIS: HISTORICAL RESEARCH AND WRITING (3) LEC. 3. Pr. HIST 3800. with minimum grade of "C." Writing an original paper based on research in primary source materials.

HIST 4967 HONORS SPECIAL PROBLEMS (3) LEC. 3. Pr. Honors College. Secondary literature on specialized topics in history.

HIST 4997 HONORS THESIS (3) LEC. 3. Pr. Honors College. Writing an original paper based on research in primary materials.

HIST 5000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the North American colonies from European settlement to 1763.

HIST 5010 AMERICAN REVOLUTION AND EARLY NATION: 1763-1800 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Revolutionary era and the foundations of the United States, including the struggle with England, Declaration of Independence, Revolutionary War, Confederation, Constitution, and Federalist-Republican conflicts.

HIST 5020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the early nation, including the influences of Thomas War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflicts.

HIST 5030 SOUTH TO 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 5040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Sectional conflict, Civil War, and Reconstruction including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 5050 THE SOUTH SINCE 1877 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.

HIST 5060 MAKING MODERN AMERICA: 1877-1929 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of the American economy, rise of big business, agrarian and labor protests, immigration, race relations, role of women, and role of government.

HIST 5070 MODERN UNITED STATES HISTORY: 1929 TO THE PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. United States history since 1929 with particular emphasis on the economy, changing role of government, America's role in world affairs and social changes.

HIST 5080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3. Pr. HIST 3080 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination of United States diplomatic history since the Spanish-American War.

HIST 5300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.
HIST 5310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 5320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Pr. HIST 3800. Departmental approval. Students not majoring in history must obtain a waiver from the department. Cultural, economic, and social developments as well as the politics and international relations of the major European states.

HIST 5330 20TH CENTURY EUROPE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Europe from the outbreak of World War I to the end of the Cold War.

HIST 5340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Development of European culture and the interactions of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 5350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Analysis of the revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930's.

HIST 5360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the Roman period to the Tudor dynasty.

HIST 5370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from 1485 to the early 18th century.

HIST 5380 MODERN BRITISH HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. British history from the political unification of England and Scotland to the present.

HIST 5500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. The Industrial Revolution of 18th, 19th and 20th centuries, with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 5580 THE HISTORY OF FLIGHT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of flight in political, economic, social, and cultural perspective.

HIST 5600 MODERN EAST ASIA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China and Japan from 1800-2000.

HIST 5610 COLONIAL LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. European expansion into the western hemisphere from its Iberian background through the fall of the Spanish and Portuguese empires in the 19th century.

HIST 5620 MODERN LATIN AMERICA (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. History of Latin America in the 19th and 20th centuries, using a thematic approach arranged chronologically.

HIST 5640 HISTORY OF ISLAM (3) LEC. 3. Pr. HIST 3800. HIST 3800 with grade of “C” or better. This course examines the history of Islam and Islamic Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 5650 HISTORY OF MODERN SOUTH ASIA (3) LEC. 3. Pr. HIST 3800. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 5660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in China from 1800-2000.

HIST 5670 HISTORY OF MODERN JAPAN: 1800-PRESENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Examination and analysis of the political, social, economic, and intellectual changes in Japan from 1800-2000.
HIST 5680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Pr. HIST 3800. Students not majoring in history must obtain a waiver from the department. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 5710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 5810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 5820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in history must obtain a waiver from the department. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 5970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Pr. HIST 3800 or Departmental approval. Students not majoring in the history must obtain a waiver from the department. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 6000 AMERICAN COLONIAL HISTORY (3) LEC. 3. Development of the North American colonies from European settlement to 1763.


HIST 6020 EARLY AMERICAN REPUBLIC: 1800-1850 (3) LEC. 3. Development of the early nation, including the influences of Thomas Jefferson, War of 1812, Jacksonian democracy, Indian removal, Old South and slavery, westward movement, and political party conflict.

HIST 6030 SOUTH TO 1877 (3) LEC. 3. Development of the Old South, from southeastern Indians and European contact through Reconstruction, including slavery, white social classes, women, and politics.

HIST 6040 CIVIL WAR ERA: 1850-1877 (3) LEC. 3. Sectional conflict, Civil War, and Reconstruction, including sectional differences, political crises, secession, Civil War campaigns, emancipation, and presidential and congressional Reconstruction.

HIST 6050 THE SOUTH SINCE 1877 (3) LEC. 3. Examination of the South since 1877, with emphasis on social, economic, cultural, political, and ideological developments.


HIST 6070 MODERN UNITED STATES HISTORY: 1929 PRESENT (3) LEC. 3. United States history since 1929, with particular emphasis on the economy, changing role of government, America’s role in world affairs, and social changes.

HIST 6080 20TH CENTURY UNITED STATES DIPLOMACY (3) LEC. 3. Examination of United States diplomatic history since the Spanish-American War.

HIST 6300 EARLY MODERN EUROPE: 1348-1715 (3) LEC. 3. Major topics in European history 1348-1715, including religious and cultural change and the relationship between state and society.

HIST 6310 ENLIGHTENMENT AND REVOLUTIONARY EUROPE: 1715-1815 (3) LEC. 3. Culture, society, and politics of the 18th century; origins and consequences of the French Revolution; examination of the Napoleonic period.

HIST 6320 19TH CENTURY EUROPE: 1815-1918 (3) LEC. 3. Cultural, economic, and social developments as well as the politics and international relations of the major European states between 1815-1918.

HIST 6330 20TH CENTURY EUROPE (3) LEC. 3. History of Europe from the outbreak of World War I to the end of the Cold War.
HIST 6340 EUROPEAN CULTURAL AND INTELLECTUAL HISTORY (3) LEC. 3. Development of European culture and the interactions of culture, ideas, and social institutions from the early Enlightenment to the present.

HIST 6350 REVOLUTIONARY RUSSIA: 1861-1939 (3) LEC. 3. Analysis of the revolutions of 1917, beginning with emancipation of serfs and ending with purges of the 1930s.

HIST 6360 MEDIEVAL BRITISH HISTORY (3) LEC. 3. British history from the Roman period to the Tudor dynasty.

HIST 6370 EARLY MODERN BRITISH HISTORY (3) LEC. 3. British history from 1485 to the early 18th century.

HIST 6380 MODERN BRITISH HISTORY (3) LEC. 3. British history from the political unification of England and Scotland to the present.

HIST 6500 THE GREAT TRANSFORMATION: THE INDUSTRIAL REVOLUTION (3) LEC. 3. The Industrial Revolution of 18th, 19th, and 20th centuries with a major focus on England and the United States and some discussion of Europe and Asia.

HIST 6580 TOPICS IN THE HISTORY OF FLIGHT (3) LEC. 3. The history of flight in political, economic, social, and cultural perspective.

HIST 6600 MODERN EAST ASIA (3) LEC. 3. Examination and analysis of the political, social, economic, and intellectual changes in China and Japan from 1800-2000.

HIST 6610 COLONIAL LATIN AMERICA (3) LEC. 3. European expansion into the western hemisphere from its Iberian background through 19th century, fall of the Spanish and Portuguese empires.

HIST 6620 MODERN LATIN AMERICA (3) LEC. 3. History of Latin America in 19th and 20th centuries using a thematic approach arranged chronologically.

HIST 6640 HISTORY OF ISLAM (3) LEC. 3. This course examines the history of Islam and Islamic civilization from the seventh century to the present. Topics include theology, politics, society, and culture.

HIST 6650 HISTORY OF MODERN SOUTH ASIA, 1750-PRESENT (3) LEC. 3. Development of the Indo-Islamic culture, the British rule of India, and the creation of Muslim Pakistan and secular India. Attention to role of individuals and events in history of nation-building.

HIST 6660 HISTORY OF MODERN CHINA: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic and intellectual changes in China from 1800-2000.

HIST 6670 HISTORY OF MODERN JAPAN: 1800-PRESENT (3) LEC. 3. Examination and analysis of the political, social, economic, and intellectual changes in Japan from 1800-2000.

HIST 6680 AFRICA FROM 1800 TO PRESENT (3) LEC. 3. Topics include state formation, ending of Atlantic slave trade and African slave trade and slavery, rise and fall of colonial rule, and current problems facing independent countries.

HIST 6710 FUNDAMENTALS OF ARCHIVAL THEORY AND PRACTICE (3) LEC. 3. Fundamentals of archival theory and practice; the relationship between archives and records management; and the role of records and archives in society.

HIST 6810 FUNDAMENTALS OF PUBLIC HISTORY (3) LEC. 3. Overview of the public history field in its diverse venues and manifestations; ways in which historians engage various publics. Projects assigned to help students understand and experience how public historians carry out their work and responsibilities.

HIST 6820 HISTORIC PRESERVATION AND CULTURAL RESOURCE MANAGEMENT (3) LEC. 3. Overview of historic preservation and cultural resource management in the United States and beyond. Considers modern preservation in terms of individuals, societies, and cultures and their relationships to the built environment and cultural landscape.

HIST 6970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 6 credit hours.

HIST 7100 INTRODUCTORY SEMINAR IN AMERICAN HISTORIOGRAPHY (3) SEM. 3. Major historiographical trends in general American history and in particular sub-fields.

HIST 7110 SEMINAR IN AMERICAN COLONIAL HISTORY (3) SEM. 3. Development of the British North American colonies, including discussions concerning Indians, English background, exploration, settlement, rebellions, religion, slavery, imperial rivalries, and women.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 7120</td>
<td>SEMINAR IN AMERICAN REVOLUTION AND EARLY NATION (3) SEM. 3.</td>
<td></td>
<td>Birth of the American nation and its re-birth under the Constitution.</td>
</tr>
<tr>
<td>HIST 7130</td>
<td>SEMINAR IN EARLY AMERICAN REPUBLIC (3) SEM. 3.</td>
<td></td>
<td>Issues in the Early Republic, including political transformations, sectional conflict, women and gender roles, industrialization, and reform movements.</td>
</tr>
<tr>
<td>HIST 7140</td>
<td>SEMINAR IN OLD SOUTH (3) SEM. 3.</td>
<td></td>
<td>History of the Old South, including discussions of colonial settlement, slavery, political transformations, sectional conflict, women and gender roles, and religion.</td>
</tr>
<tr>
<td>HIST 7150</td>
<td>SEMINAR IN CIVIL WAR ERA (3) SEM. 3.</td>
<td></td>
<td>Sectional conflict, Civil War, and Reconstruction, including political, military and social development.</td>
</tr>
<tr>
<td>HIST 7160</td>
<td>SEMINAR IN NEW SOUTH (3) SEM. 3.</td>
<td></td>
<td>The South in United States history since 1877.</td>
</tr>
<tr>
<td>HIST 7170</td>
<td>SEMINAR IN UNITED STATES PROGRESSIVE ERA (3) SEM. 3.</td>
<td></td>
<td>In-depth history of the United States between 1877-1929.</td>
</tr>
<tr>
<td>HIST 7180</td>
<td>SEMINAR IN MODERN UNITED STATES HISTORY (3) LEC. 3.</td>
<td></td>
<td>Broad introduction to United States history since 1929.</td>
</tr>
<tr>
<td>HIST 7190</td>
<td>SEMINAR IN AFRICAN-AMERICAN HISTORY (3) SEM. 3.</td>
<td></td>
<td>Analysis of the major historiographical works on the social, political, and economic history of African Americans.</td>
</tr>
<tr>
<td>HIST 7200</td>
<td>SEMINAR IN UNITED STATES WOMEN'S HISTORY (3) SEM. 3.</td>
<td></td>
<td>Change and continuity in the lives of American women.</td>
</tr>
<tr>
<td>HIST 7210</td>
<td>SEMINAR IN AMERICAN RELIGIOUS HISTORY (3) SEM. 3.</td>
<td></td>
<td>Role of religion in American history; recent writing on religion; and sociological and anthropological theories of religion.</td>
</tr>
<tr>
<td>HIST 7220</td>
<td>DEVELOPMENT IN CIVIL RIGHTS MOVEMENT (3) LEC. 3.</td>
<td></td>
<td>In-depth study of the civil rights movement, with emphasis on the United States South in the post-World War II period. Major topics, basic literature, and historiographical debates examined.</td>
</tr>
<tr>
<td>HIST 7400</td>
<td>INTRODUCTORY SEMINAR IN EUROPEAN HISTORIOGRAPHY (3) SEM. 3.</td>
<td></td>
<td>Major topics and historiographical debates in European history from the Early Modern period to the 20th century.</td>
</tr>
<tr>
<td>HIST 7410</td>
<td>SEMINAR IN EARLY MODERN EUROPE (3) SEM. 3.</td>
<td></td>
<td>Topics in the history of continental Europe, 1348-1715, including religious and cultural change and the relationship between state and society.</td>
</tr>
<tr>
<td>HIST 7420</td>
<td>SEMINAR IN POPULAR CULTURE IN EARLY MODERN EUROPE (3) SEM. 3.</td>
<td></td>
<td>Major themes in the popular culture of Early Modern Europe, 1450-1800.</td>
</tr>
<tr>
<td>HIST 7430</td>
<td>SEMINAR IN RUSSIAN SOCIETY IN REVOLUTION (3) SEM. 3.</td>
<td></td>
<td>Examination of the literature, concepts, and history of the transformation of Russian society between 1861 and 1939.</td>
</tr>
<tr>
<td>HIST 7440</td>
<td>SEMINAR IN MODERN EUROPEAN CULTURAL POLITICS (3) SEM. 3.</td>
<td></td>
<td>Traditional and revisionist approaches to the study of the political uses of culture in 19th and 20th century Europe.</td>
</tr>
<tr>
<td>HIST 7450</td>
<td>SEMINAR IN THE FRENCH REVOLUTION (3) SEM. 3.</td>
<td></td>
<td>Historiography in the French Revolution's origins and legacy.</td>
</tr>
<tr>
<td>HIST 7460</td>
<td>SEMINAR IN EARLY MODERN BRITAIN (3) SEM. 3.</td>
<td></td>
<td>Main themes and events of British history between 1603 and the 1760s.</td>
</tr>
<tr>
<td>HIST 7470</td>
<td>SEMINAR IN EUROPEAN INTERNATIONAL HISTORY (3) SEM. 3.</td>
<td></td>
<td>Relations among the European powers 1870-1945.</td>
</tr>
<tr>
<td>HIST 7510</td>
<td>INTRODUCTORY SEMINAR IN HISTORIOGRAPHY OF TECHNOLOGY (3) SEM. 3.</td>
<td></td>
<td>Problems and issues in the history of technology; reviews important, literature.</td>
</tr>
<tr>
<td>HIST 7520</td>
<td>SEMINAR IN POLITICS AND TECHNOLOGY IN THE SPACE AGE (3) SEM. 3.</td>
<td></td>
<td>Political and technological context of the space age.</td>
</tr>
<tr>
<td>HIST 7530</td>
<td>SEMINAR IN SOUTHERN INDUSTRIALIZATION (3) SEM. 3.</td>
<td></td>
<td>Significant scholarly works and primary sources dealing with the history of industrialization and technology in the American South.</td>
</tr>
<tr>
<td>HIST 7540</td>
<td>SEMINAR IN AEROSPACE HISTORY (3) SEM. 3.</td>
<td></td>
<td>Central problems, issues, and literature in aerospace history.</td>
</tr>
</tbody>
</table>
HIST 7550 SEMINAR IN SCIENCE AND SOCIETY (3) SEM. 3. Exploration of the interactions between science and politics in the 20th century.

HIST 7560 SEMINAR IN THE INDUSTRIAL REVOLUTION (3) SEM. 3. Central questions and historiography relating to the Industrial Revolution.

HIST 7570 TECHNOLOGY IN SOCIAL AND CULTURAL HISTORY (3) SEM. 3. Literature in the history of technology from a social and cultural perspective.

HIST 7630 SEMINAR IN LATIN AMERICAN HISTORY (3) SEM. 3. Research tools, major issues, and sources in Latin American history.

HIST 7690 SEMINAR IN MODERN WORLD HISTORY (3) SEM. 3. Examination of world historiography and theory, with topical readings on comparative themes such as imperialism and colonialism, catch-up industrialization, decolonization, the Atlantic world, gender systems, religious diasporas, trade, and exploration.

HIST 7700 SEMINAR IN HISTORICAL METHODS (3) SEM. 3. Methodology and theory of historical research. Preparation of a significant original research paper.

HIST 7710 GRADUATE RESEARCH AND WRITING SEMINAR (3) SEM. 3. Pr. HIST 7700. A writing-intensive course designed to sharpen graduate students’ research and writing skills.

HIST 7720 SEMINAR IN ARCHIVAL THEORY AND PRACTICE (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Development of archival theory in the major functional areas of archival practice, including appraisal, acquisition, description, preservation, reference and access, outreach, and advocacy.

HIST 7730 SEMINAR IN THE HISTORY OF RECORDS AND ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Origins, organization, and development of records, record keeping systems, and archival institutions in Europe and North America.

HIST 7740 MANAGEMENT OF ARCHIVES AND RELATED ORGANIZATIONS (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Theory and practice of management in archives, libraries, museums, special collections and related organizations.

HIST 7750 ADVANCED APPRAISAL OF ARCHIVAL MATERIALS (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Only graduate students in History, or Archival Studies or Public History Graduate Certificate programs. Theory and practice in the selection and appraisal of materials in archives, libraries, museums, special collections and related organizations.

HIST 7760 DEVELOPING DIGITAL ARCHIVES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Only graduate students in History or Archival Studies Certificate program. Theory and practice of developing digital collections in archives, libraries, museums, special collections and related organizations.

HIST 7770 ISSUES IN ARCHIVAL STUDIES (3) SEM. 3. Pr. HIST 5710 or HIST 6710. Special topics in archival studies offered in conjunction with member institutions of the Archival Education Collaborative. Course may be repeated for a maximum of 9 credit hours.

HIST 7800 RESEARCH SEMINAR IN UNITED STATES HISTORY TO 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7810 RESEARCH SEMINAR IN UNITED STATES HISTORY SINCE 1865 (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7820 RESEARCH SEMINAR IN EARLY MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7830 RESEARCH SEMINAR IN MODERN EUROPEAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7840 RESEARCH SEMINAR IN HISTORY OF TECHNOLOGY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper that should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.
HIST 7850 RESEARCH SEMINAR IN LATIN AMERICAN HISTORY (3) SEM. 3. Research and writing of an original paper based on primary sources. Paper should be of publishable or near-publishable quality. Course may be repeated for a maximum of 6 credit hours.

HIST 7910 PUBLIC HISTORY INTERNSHIP (3) PRA. 3. Pr. HIST 6810 and P/C HIST 7700. Application of principles of public history practice within a functioning venue or site under supervision of public historian; final written report required. Course may be repeated for a maximum of 6 credit hours.

HIST 7920 ARCHIVAL INTERNSHIP (1-6) INT. Pr. HIST 6710 or Departmental approval. Application of the principles of archival practice within the context of a functioning archival repository under the supervision of professional archivists. Course may be repeated for a maximum of 6 credit hours.

HIST 7970 SPECIAL TOPICS IN HISTORY (3) LEC. 3. Topics vary. Course may be repeated for a maximum of 9 credit hours.

HIST 7990 RESEARCH AND THESIS (1-10) MST. Research and writing of the MA thesis. Course may be repeated with change in topic.

HIST 8000 READING COURSE IN AMERICAN HISTORY TO 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history to 1877. Course may be repeated for a maximum of 6 credit hours.

HIST 8010 READING COURSE IN AMERICAN HISTORY SINCE 1877 (3) PRL. 3. Pr., Departmental approval. Selected topics in American history since 1877 Course may be repeated for a maximum of 6 credit hours.

HIST 8300 READING COURSE IN EUROPEAN HISTORY TO 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history to 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8310 READING COURSE IN EUROPEAN HISTORY SINCE 1815 (3) PRL. 3. Pr., Departmental approval. Selected topics in European history since 1815. Course may be repeated for a maximum of 6 credit hours.

HIST 8500 READING COURSE IN THE HISTORY OF TECHNOLOGY (3) PRL. 3. Pr., Departmental approval. Selected topics in the history of technology. Course may be repeated for a maximum of 6 credit hours.

HIST 8600 READING COURSE IN LATIN AMERICAN HISTORY (3) PRL. 3. Pr., Departmental approval. Selected topics in Latin American history. Course may be repeated for a maximum of 6 credit hours.

HIST 8610 READING COURSE IN WORLD HISTORY (3) LEC. 3. Pr., Departmental approval. Directed readings in modern world history, focusing on one or two geographic areas or themes.

HIST 8700 HISTORIOGRAPHY AND THEORY OF HISTORY (3) SEM. 3. Exploration of the nature of history by tracing changing conceptions of historical thought and practice from their origins to the present.

HIST 8710 INTRODUCTION TO THE TEACHING OF HISTORY (1) SEM. 1. SU. Introduction to some of the challenges involved in teaching history at the college level.

HIST 8990 RESEARCH AND DISSERTATION (1-10) DSR. Research and writing of the PhD dissertation. Course may be repeated with change in topics.

**Honor - HONR**

**Courses**

HONR 1007 HONORS TECHNOLOGY AND CULTURE I (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. From an interdisciplinary perspective, this course examines the intersections of technology & technology & culture in a variety of social, historical, professional, and global setting.

HONR 1017 HONORS TECHNOLOGY AND CULTURE II (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. From an interdisciplinary perspective, this course examines the intersections of technology & technology & culture in a variety of social, historical, professional, and global settings.

HONR 1027 HONORS SUSTAINABILITY AND THE MODERN WORLD I (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Interdisciplinary exploration into concept of sustainability as theory and practice.
HONR 1037 HONORS SUSTAINABILITY AND THE MODERN WORLD II (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Interdisciplinary exploration into concept of sustainability as theory and practice.

HONR 1077 HONORS FRESHMAN EXPLORATION (1) LEC. 1. SU. Pr. Honors College. Honors Interdisciplinary Track or Honor's College Participant. Colloquium that introduces new Honors College students to the College and helps students become better informed about its resources and services.

HONR 1087 HONORS LYCEUM (1) LEC. 1. SU. Pr. Honors Interdisciplinary Track or Honor's College Participant. Weekly academic lectures followed by discussion and interaction. Course may be repeated for a maximum of 2 credit hours.

HONR 2077 HONORS FORUM (1) LEC. 1. SU. Pr. Honors College. Attendance at co-curricular events held in and around the Auburn campus and community. Course may be repeated for a maximum of 3 credit hours.

HONR 2087 HONORS BOOK CLUB (1) LEC. 1. SU. Pr. Honors College. Honors Interdisciplinary Track or Honor's College Participant. Moderated discussions of significant ideas found in recent reowned books. Each discussion group is led by an experienced teacher or university leader. Course may be repeated for a maximum of 2 credit hours.

HONR 2717 HONORS HUMAN ODYSSEY 1 (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Examines the human endeavor from pre-history through the 18th century by exploring connections between the sciences, the social sciences, and humanities.

HONR 2727 HONORS HUMAN ODYSSEY LL (3) LEC. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Examines the human endeavor from pre-history from the 18th century to the present by exploring connections between the sciences and humanities.

HONR 3007 HONORS SEMINAR (3) AAB/SEM. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant or departmental approval. In fulfillment of the Honors Apogee, this seminar involves critical reading and research in advanced topics having both intra- and interdisciplinary implications and applications. Course may be repeated for a maximum of 6 credit hours.

HONR 3087 HONORS COLLEGE STUDY & TRAVEL (1-3) LEC. Pr. Honors College. Concentrated study in US or abroad. Course may be repeated for a maximum of 3 credit hours.

HONR 3987 HONORS RESEARCH SEMINAR (3) IND. 3. Directed research in an area of speciality within a specified area.

HONR 4007 HONORS APOGEE PROJECT (3) IND. 3. Pr. Honors Interdisciplinary Track or Honor's College Participant. Advanced directed study, usually based in a student's undergraduate research, leading to the completion of an Honors Apogee Experience, the capstone of the Honors College. Course may be repeated for a maximum of 6 credit hours.

Horticulture - HORT

Courses

HORT 1010 INTRODUCTION TO HORTICULTURE (1) LEC. 1. Introduces scientific and practical aspects of pomology, olericulture, floriculture and landscape horticulture. Also presents the broad scope of career opportunities in the field of horticultural science. Fall.

HORT 2010 FRUIT AND NUT PRODUCTION (4) LEC. 3. LAB. 3. Introductory course in cultural practices and economics associated with commercial fruit and nut production. Fall.

HORT 2020/2023 HORTICULTURE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. BIOL 1010 or BIOL 1030 or BIOL 1037. Techniques of plant propagation and cultural methods for successful fruit and vegetable production. Fall.

HORT 2030 VEGETABLE PRODUCTION (3) LEC. 3. Principles, practices, establishment, production, maintenance, harvesting, storage and marketing of commercial vegetable crops.

HORT 2040/2043 ORGANIC GARDENING (3) LEC. 3. Principles, production practices, maintenance, harvesting and marketing of organically and traditionally home-grown vegetables.

HORT 2050/2053 FOOD FOR THOUGHT (3) LEC. 3. Study of history of food plants, including their impact on world culture, variety of uses, economic botany, production systems, and impact on societies. Fall.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Attributes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORT 2060</td>
<td>HYDROPONICS: PRINCIPLES AND TECHNIQUES OF SOILLESS PLANT PRODUCTION (3) LEC. 3.</td>
<td></td>
<td>This course is a survey of the science of hydroponic plant production and is focused on commercial and home vegetable crop production. Specific topics include plant growth and nutrition in hydroponic growing systems, challenges and opportunities, and system design.</td>
</tr>
<tr>
<td>HORT 2210</td>
<td>LANDSCAPE GARDENING (4) LEC. 2. LAB. 4.</td>
<td></td>
<td>Principles of landscape gardening applied to residential and small-scale commercial grounds. Involves plant identification and use, basic landscape design, and landscape installation and management concepts. Summer and Fall.</td>
</tr>
<tr>
<td>HORT 2240</td>
<td>PLANT PROPAGATION (3) LEC. 2. LAB. 3. Pr. P/C BIOL 1030 or BIOL 1037.</td>
<td></td>
<td>Basic principles and practices involved in the propagation of horticulture plants. Departmental approval. Fall and Spring.</td>
</tr>
<tr>
<td>HORT 2250</td>
<td>ART OF FLORAL DESIGN (3) LEC. 2. LAB. 2.</td>
<td></td>
<td>Basic art principles and design elements and their use with flowers and foliage; history and utilization of flowers within society.</td>
</tr>
<tr>
<td>HORT 3000</td>
<td>GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (BIOL 1030 or BIOL 1037) and CHEM</td>
<td></td>
<td>Growth and development of plants with concepts applied to the practice of Horticultural Science. Summer and Fall.</td>
</tr>
<tr>
<td>HORT 3110</td>
<td>PLANTS AND PEOPLE: A HISTORY OF GARDENS IN CULTURAL CONTEXT (3) LEC. 3.</td>
<td></td>
<td>Heritage and traditions influencing the development of public and private garden styles, context, and function including cultural expressions, plant use, and impact of noted designers and horticulturists throughout history.</td>
</tr>
<tr>
<td>HORT 3210</td>
<td>SMALL TREES, SHRUBS AND VINES (4) LEC. 2. LAB. 6. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030</td>
<td></td>
<td>Identification, culture and landscape use of small trees, shrubs and vines. Spring and Summer.</td>
</tr>
<tr>
<td>HORT 3220</td>
<td>ARBORICULTURE (4) LEC. 2. LAB. 6. Pr. BIOL 1030 or BIOL 1037.</td>
<td></td>
<td>Identification, culture and use of ornamental trees in landscape plantings. Departmental approval. Fall.</td>
</tr>
<tr>
<td>HORT 3280</td>
<td>LANDSCAPE CONSTRUCTION (4) LEC. 2. LAB. 4.</td>
<td></td>
<td>Principles and practices used in the interpretation and implementation of landscape construction and planting plans.</td>
</tr>
<tr>
<td>HORT 3800</td>
<td>CAREERS IN HORTICULTURE (1) LEC. 1. SU.</td>
<td></td>
<td>Current developments and career opportunities in horticulture. Fall.</td>
</tr>
<tr>
<td>HORT 3840</td>
<td>STUDY/TRAVEL IN HORTICULTURE (1-10) AAB/FLD.</td>
<td></td>
<td>Study of horticultural or fruit and vegetable science, landscape design, nursery and greenhouse management in U.S. or international location. Course may be repeated for a maximum of 10 credit hours.</td>
</tr>
<tr>
<td>HORT 3920</td>
<td>HORTICULTURE INTERNSHIP (4) INT. 4.</td>
<td></td>
<td>Practical on-the-job training for selected commercial horticultural companies. Course may be repeated for a maximum of 8 credit hours.</td>
</tr>
<tr>
<td>HORT 3950</td>
<td>CAREERS IN HORTICULTURE (1) LEC. 1. SU.</td>
<td></td>
<td>Current developments and career opportunities in horticulture. Fall.</td>
</tr>
<tr>
<td>HORT 4000</td>
<td>PESTICIDE MANAGEMENT IN HORTICULTURE (3) LEC. 3. Pr. ENTM 4020 and (PLPA 3000 or PLPA 3003).</td>
<td></td>
<td>Proper management of pesticides in horticulture; decision making skills in relation to control strategies; environmental issues relevant to horticulture; safety considerations; scouting and application techniques. Fall.</td>
</tr>
<tr>
<td>HORT 4100</td>
<td>HERBACEOUS ORNAMENTALS (4) LEC. 2. LAB. 4. Pr. (BIOL 1020 or BIOL 1027) and (BIOL 1030 or BIOL</td>
<td></td>
<td>Identification, culture, and use of herbaceous annuals and perennials, bulbs, herbs, and ornamental grasses. Consideration of flower bed and border preparation, care and maintenance. Spring and Summer.</td>
</tr>
<tr>
<td>HORT 4250</td>
<td>INTERMEDIATE FRUIT &amp; VEG PROD (3) LEC. 3. Pr. (HORT 2040 or HORT 2043) or HORT 2030.</td>
<td></td>
<td>Intermediate horticulture course in which students apply knowledge gained in the classroom to hands-on fruit and vegetable gardening practices.</td>
</tr>
<tr>
<td>HORT 4270</td>
<td>INTERMEDIATE LANDSCAPE DESIGN (4) LEC. 2. LAB. 4. Pr. HORT 3210 or HORT 3220 or HORT 4100.</td>
<td></td>
<td>A study of the design principles and elements and technical skills used to create a functional and aesthetically pleasing residential landscape design.</td>
</tr>
<tr>
<td>HORT 4300</td>
<td>COMP AIDED PLANTING DESIGN (3) LEC. 3. Coreq. HORT 4270.</td>
<td></td>
<td>Graphic concepts relating to spatial visualization and communication and project cost estimation using computer aided drafting and project management software developed for landscape professionals. Spring.</td>
</tr>
<tr>
<td>HORT 4930</td>
<td>DIRECTED STUDIES (1-3) AAB/IND. Departmental approval. Directed Studies related to research, teaching or outreach educational programs in Horticulture. Course may be repeated for a maximum of 6 credit hours.</td>
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</tbody>
</table>
HORT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 4970 SPECIAL TOPICS (1-3) IND. Principles, methods and techniques for understanding various horticultural disciplines. Course may be repeated for a maximum of 6 credit hours.

HORT 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

HORT 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

HORT 5110 TREE FRUIT CULTURE (3) LEC. 2. LAB. 2. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Departmental approval. Summer, odd years. May count either HORT 5110 or HORT 6110.

HORT 5120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. HORT 3000. Principles and practices involved in the production and marketing of small fruits and pecans. Departmental approval. May count either HORT 5120 or HORT 6120.

HORT 5130 SUSTAINABLE VEGETABLE CROP PRODUCTION (3) LEC. 2. LAB. 3. Pr. (BIOL 1030 or BIOL 1037) and HORT 3000. Best management practices and quality of vegetable crops. Departmental approval. Spring.

HORT 5140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 3. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Departmental approval. Spring.

HORT 5150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220 or Departmental approval. The following topics will be covered: financing, location, design, stocking, selling, personnel management, advertising and maintaining plants. May count either HORT 5150 or HORT 6150.

HORT 5210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043) and (PLPA 3000 or PLPA 3003). Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 5220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and CHEM 1030 and HORT 2240 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Management, culture and economics of commercial greenhouse production. Fall.


HORT 5240/5243 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 2. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens.

HORT 5280 ADVANCED LANDSCAPE DESIGN (3) LEC. 3. Pr. HORT 4270. Departmental approval. Continuation of HORT 4270 with an emphasis on design projects.

HORT 5910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Course may be repeated for a maximum of 8 credit hours.

HORT 6110 TREE FRUIT CULTURE (3) LEC. 2. LAB. 2. Pr. HORT 3000. Manipulation of growth and development of tree fruit crops by cultural methods. Departmental approval. Summer, odd years. May count either HORT 5110 or HORT 6110.

HORT 6120 SMALL FRUIT AND PECAN CULTURE (4) LEC. 2. LAB. 4. Pr. Principles and practices involved in the production and marketing of small fruits and pecans. Departmental approval. Spring, even years. May count either HORT 5120 or HORT 6120.


HORT 6140 POST-HARVEST BIOLOGY AND TECHNOLOGY (3) LEC. 2. LAB. 2. Pr. (PLPA 3000 or PLPA 3003) and HORT 3000. Physiological changes occurring in fruits, vegetables and other horticultural products after harvest. Spring.
HORT 6150 RETAIL GARDEN CENTER MANAGEMENT (3) LEC. 2. LAB. 3. Pr. HORT 3210 or HORT 3220. Departmental approval. Topics included: financing, location, design, stocking, selling, personnel management, advertising, and maintaining plants. Graduate students will evaluate garden centers and provide feedback for improvement.

HORT 6210 LANDSCAPE BIDDING, INSTALLATION AND MAINTENANCE (4) LEC. 3. LAB. 3. Pr. (CSES 2040 or CSES 2043) and (PLPA 3000 or PLPA 3003) or (AGRN 2040 or AGRN 2043). Principles and practices of the bidding, installation and maintenance of commercial and residential landscapes. Spring.

HORT 6220 GREENHOUSE MANAGEMENT SCIENCE (4) LEC. 3. LAB. 2. Pr. HORT 3000 and CHEM 1030 and HORT 2240 and (CSES 2040 or CSES 2043) or (AGRN 2040 or AGRN 2043). Management, culture and economics of commercial greenhouse production. Fall.


HORT 6240 PUBLIC GARDEN MANAGEMENT (3) LEC. 1. LAB. 2. Understanding personnel structure and responsibilities; plant care and management; and the educational, entertainment, and conservation missions of public gardens.

HORT 6280 ADVANCED LANDSCAPE DESIGN (3) LEC. 5. Pr. HORT 4270. Departmental approval. Continuation of HORT 4270 with an emphasis on design projects.

HORT 6910 HORTICULTURE PRACTICUM (4) LEC. 1. LAB. 6. Practical application of a broad range of horticultural subject-matter knowledge and skills. May count either HORT 5910 or HORT 6910. Course may be repeated for a maximum of 8 credit hours.

HORT 7010 EXPERIMENTAL METHODS IN HORTICULTURE (4) LEC. 2. LAB. 3. Principles and methodologies of horticultural research, experimental design, preparation of project and grant proposals, and development of publication skills. Departmental approval. Fall.

HORT 7040 ADVANCED GROWTH AND DEVELOPMENT OF HORTICULTURAL PLANTS (3) LEC. 3. Pr. (HORT 3000 or BIOL 3100) and BIOL 3101. Plant growth and development from seed germination, through maturity and senescence. Summer, even years.

HORT 7050 NUTRITIONAL REQUIREMENTS OF HORTICULTURAL PLANTS (3) LEC. 3. LAB. 2. Pr. HORT 3000. Nutritional requirements of horticulture crops and factors affecting these requirements. Departmental approval. Summer, odd years.

HORT 7070 PLANT BIOTECHNOLOGY (4) LEC. 2. LAB. 3. Pr. BIOL 3000 or BIOL 3003. Plant biotechnology, including plant tissue culture technologies and genetic transformation and applications to horticultural crop improvement. Departmental approval. Spring, odd years.

HORT 7080 ENVIRONMENTAL PLANT STRESS (3) LEC. 4. Pr. HORT 3000. Departmental approval. Mechanisms related to adaptation of plants to environmental stresses.

HORT 7840 GRADUATE STUDY/TRAVEL IN HORTICULTURE (1-4) LEC. Departmental approval. Programmed activities to enhance national/international awareness and enable students to understand horticultural practices in diverse areas. Course may be repeated for a maximum of 8 credit hours.

HORT 7850 URBAN FORESTRY SEMINAR (1) LEC. 3. SU. Presentation and discussion of research, scientific papers and issues related to urban forestry establishment, care and planning. Credit will not be given for HORT 7850 and FORY 7850.

HORT 7920 GRADUATE INTERNSHIP (1-4) INT. Departmental approval. Supervised professional experience in horticulture

HORT 7950 SEMINAR (1) SEM. SU. Graduate students are required to attend all seminars. Course may be repeated with change in topics.

HORT 7960 SPECIAL PROBLEMS (1-3) IND. 3. Conferences, problems and assigned readings in horticulture. Course may be repeated for a maximum of 6 credit hours.

HORT 7970 SPECIAL TOPICS IN HORTICULTURE (1-3) LEC. Principles, methods and techniques involved in gaining an understanding of different horticultural disciplines. Course may be repeated for a maximum of 3 credit hours.

HORT 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

HORT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.
Hospitality Management - HOSP

Courses

HOSP 1010 INTRODUCTION TO HOSPITALITY MANAGEMENT (2) LEC. 2. Overview of the hotel, restaurant, club, and travel industries and their interaction.

HOSP 2300 HOSPITALITY LAW (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010). or Departmental Approval. Legal systems and laws relevant to the management of restaurants, hotels, private clubs and other hospitality operations. Spring.

HOSP 2350 CULINARY FUNDAMENTALS (3) LEC. 3. LAB. 1. Pr. (HRMT 1010 or HOSP 1010) and NTRI 2000. HRMT Major or Departmental Approval. Introduction to culinary science, methods and techniques used in the classical Garde Manger.

HOSP 2400 FOOD PRODUCTION IN HOSPITALITY (4) LEC. 3. LAB. 3. Pr. (HRMT 1010 or HOSP 1010) and (NTRI 2000 or NTRI 2003 or NTRI 2007) and BIOL 1000. Hospitality Major Only or Departmental Approval. Skills, competencies and knowledge to manage a variety of food production and service facilities. Fall, Spring.

HOSP 2500 LODGING OPERATION (2) LEC. 2. Lodging operations management, with emphasis on guest cycle.

HOSP 2600 EVENT OPERATIONS (3) LEC. 3. An analysis of each component pertinent to the planning and operations of a hospitality event. Topics such as strategic planning, event design, logistics, staging, marketing, and event evaluation will be discussed.

HOSP 2910 HOSPITALITY PRACTICUM (1) PRA. 3. Pr. HRMT 1010 or HOSP 1010. Hospitality Major Only. Rotational perspective on the management and operation of the Auburn University Hotel and Conference Center.

HOSP 2940 PROFESSIONAL DEVELOPMENT IN HOSPITALITY (1) LEC. 1. Hospitality Management Major or departmental approval. Job-seeking and career development skills, based upon individual needs.

HOSP 3200 HOSPITALITY FINANCIAL MANAGEMENT (3) LEC. 3. Pr. (ACCT 2810 or ACCT 2110 or ACCT 2117). Hospitality Management Major only. Financial systems and statements in the hospitality industry. Spring.

HOSP 3400 HOSPITALITY MARKETING (3) LEC. 3. Pr. (P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317). Junior standing. Junior standing and Hospitality Major Only or Departmental Approval. Service marketing concepts and issues as applied to the global hospitality industry. Fall.

HOSP 3550 FUNDAMENTALS OF BAKING (3) LEC. 3. LAB. 3. Pr. HRMT 1010 or HOSP 1010 and NTRI 2000. HRMT Major Only or Departmental Approval. This course will address the scientific foundations of food production as well as the fundamentals of the practice of baking necessary to produce quality baked products.

HOSP 3750 PATISSERIE AND CONFECTIONARY (3) LEC. 3. LAB. 3. Pr. HRMT 2400 or HOSP 2400 or HRMT 2350 or HOSP 2400 or HOSP 2350. HRMT Major Only or Departmental Approval. This course includes the study of classical culinary terms, safety and sanitation practices. Emphasis will be placed on hot, cold, frozen and contemporary plated desserts. Students will study classical techniques and presentations, creating popular international desserts.

HOSP 3800 HOSPITALITY INFORMATION TECHNOLOGY (3) LEC. 3. Pr. HOSP 1010. Hospitality Major only or Departmental Approval. Strategic and operational issues surrounding introduction of technology in hospitality. Spring.

HOSP 4200 HOSPITALITY FACILITIES MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400) and HRMT 2500. Departmental approval. Design and operation of hospitality facilities. Fall.

HOSP 4300 FOOD AND BEVERAGE MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400). Control system design, implementation, and management in food and beverage operations. Fall.

HOSP 4350 ADVANCED RESTAURANT MANAGEMENT (3) LEC. 3. Pr. (HRMT 2400 or HOSP 2400 and HRMT 4300 or HOSP 4300). Advanced concepts and managerial issues of restaurant management.

HOSP 4480 GLOBAL GASTRONOMY (3) LEC. 3. LAB. 3. Pr. HRMT 2400 or HOSP 2400 and HRMT 2350. HOSP Major or Departmental Approval. The study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Additionally, food will be explored from a historical, cultural, economic and geopolitical perspective in each of the regions/countries studied.
HOSP 4500 STRATEGIC HOSPITALITY MANAGEMENT (3) LEC. 3. Pr. (HRMT 1010 or HOSP 1010) and (MNGT 3100 or MNGT 3103 or MNGT 3107) or MNGT 3810. Hospitality Major only or Departmental Approval. Development and implementation of strategic management in hospitality. Spring.

HOSP 4510 SPECIAL EVENTS (3) LEC. 3. Pr. HRMT 2600 or HOSP 2600. Hospitality Major Only or Departmental Approval. This course teaches students all the intricacies of special events. Students learn about the different types of special events and how different they are from each other. Students should be able to plan, organize and manage.

HOSP 4600 BEVERAGE APPRECIATION (3) LEC. 3. 21 Years Old. Junior standing. Hospitality Major Only or Departmental Approval. Production, selection, service, and sensory evaluation of alcoholic and non-alcoholic beverages.

HOSP 4800 SENIOR LECTURE SERIES (1) LEC. 1. SU. Hospitality Management Major Only; Junior or Senior Standing. Successful leaders share their experiences with career development, industry related topics and issues, successful management strategies and leadership. Spring.

HOSP 4920 INTERNSHIP IN HOSPITALITY (4) INT. 4. Pr. HRMT 2910 or HOSP 2910. HRMT major, 2.2 cumulative gpa. 600 hours (during collegiate experience) work experience in hospitality. Application of principles and theories of hospitality in a professional hospitality setting.

HOSP 5460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 5461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 1010 or HOSP 1010 and HOSP 5460 or HRMT 5460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 5530 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Junior standing. Hospitality Major only or departmental approval. Role of quality service in attaining and retaining customers with emphasis on organizational strategic mission. May count HOSP 5530 or 6530/6536. Spring.

HOSP 5540 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for managing conference coordination. Credit will not be given for HOSP 5540 and HOSP 6540/6546.

HOSP 5550 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities and problems associated with club management. Credit will not be given for HOSP 5550 and HOSP 6550/6556.

HOSP 5570 GLOBAL HOSPITALITY (3) LEC. 3. Junior Standing; Hospitality Management Major only or Departmental Approval. Contemporary issues confronting the global hospitality industry. Management and marketing operations emphasized. Credit will not be given for HOSP 5570 and HOSP 6570/6576.

HOSP 5590 RECREATIONAL FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. HRMT 2400 or HOSP 2400 or Departmental approval. Methods and systems of managing foodservice operations recreational facilities. Credit is not allowed for both HOSP 5590 and HOSP 6590/6596.

HOSP 6460 CATERING AND EVENT MANAGEMENT (1) LEC. 1. Departmental approval. Exploring advanced management topics in catering and event planning including risk, liability, crisis and other challenges faced by the industry.

HOSP 6461 CATERING AND EVENT MANAGEMENT (2) LAB. 4. Pr. HRMT 6460 or HOSP 6460. Departmental approval. Provides students with a leadership practical experience in the planning, coordinating and execution of The Hospitality GALA and to provide a forum whereby they work alongside industry professionals.

HOSP 6530/6536 SCIENCE OF QUALITY SERVICE IN HOSPITALITY (3) LEC. 3. Departmental approval. This course introduces students to the important role that quality service plays in attaining and retaining customers in the pursuit of an organizations strategic mission. Credit will not be given for HOSP 6530/6536 and HOSP 5530.

HOSP 6540/6546 CONFERENCE COORDINATION (3) LEC. 3. Departmental approval. Systems for the management of the conference coordination segment of the hospitality industry. Credit will not be given for HOSP 6540/6546 and HOSP 5540.

HOSP 6550/6556 CLUB MANAGEMENT (3) LEC. 3. Departmental approval. Unique features, opportunities, and problems associated with resort and club management. Credit will not be given for HOSP 6550/6556 and HOSP 5550.
HOSP 6570/6576 GLOBAL HOSPITALITY (3) LEC. 3. Departmental approval. Contemporary issues confronting the global hospitality industry. Credit will not be given for HOSP 6570/6576 and HOSP 5570.

HOSP 6590/6596 RECREATIONAL FOODSERVICE MANAGEMENT (3) LEC. 3. Departmental approval. Methods and systems of managing foodservice operations in recreational facilities. Credit will not be given for both HOSP 6590/6596 and HOSP 5590.

HOSP 7000/7006 HOSPITALITY ENTERPRISE (3) LEC. 3. Emphasizes aspects of hospitality enterprise including developmental, motivational, financial and human resource issues through contemporary academic literature. Credit will not be given for both HOSP 7000 and HOSP 7006.

HOSP 7010/7016 ADVANCED TOURISM ANALYSIS (3) LEC. 3. This course acquaints students with selected theories, methods, techniques, current issues, practices, and principles that govern tourism behavior. Credit will be given for both HOSP 7010 and HOSP 7016.

HOSP 7106 THE BUSINESS OF BREWING (3) DSL. 3.

HOSP 7116 BREWING MATERIALS (3) DSL. 3. This course provides students with an introduction to all types of brewing ingredients including grain, hops, and adjuncts. Baccalaureate degree and 21 years of age.

HOSP 7126 SCIENCE OF BREWING I (3) DSL. 3. Theoretical and applied brewing science, recipe formulation, yeast biology and genetics part I. Baccalaureate degree and 21 years of age.

HOSP 7136 SCIENCE OF BREWING 2 (3) DSL. 3. Theoretical and applied brewing science, recipe, formulation, yeast biology and genetics part 2. Baccalaureate Degree, 21 years of age.

HOSP 7146 FACILITIES AND OPERATIONS (3) LEC. 3. This course will focus on the facilities required to produce a high quality, safe and sanitary product. Baccalaureate Degree, 21 years of age.

HOSP 7910/7916 PRACTICUM IN BREWING SCIENCE (1-3) PRA. SU. Departmental approval. Application of principles and theories of brewing in an industry setting. Course may be repeated for a maximum of 3 credit hours.

HOSP 7920/7926 PROFESSIONAL INTERNSHIP IN HOSPITALITY MANAGEMENT (1-3) INT. SU. Departmental approval. Application and analysis of principles and theories of hospitality in a professional hospitality setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 3 credit hours.

HOSP 8860/8866 CURRENT ISSUES IN HOSPITALITY MANAGEMENT (3) LEC. 3. Analysis of current issues in the hospitality industry with emphasis on management.

HOSP 8870 ADVANCED HOSPITALITY MANAGEMENT RESEARCH AND APPLICATIONS (3) LEC. 3. Comprehensive review of the academic research process in the context of hospitality management.

HOSP 8880 THEORETICAL DEVELOPMENTS FOR HOSPITALITY (3) LEC. 3. The nature of hospitality theory and its development.

Human Dev & Family Studies - HDFS

Courses

HDFS 1850 CURRENT ISSUES IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Current issues facing families and children evaluated in the light of scientific research.

HDFS 2000 MARRIAGE AND FAMILY IN A GLOBAL CONTEXT (3) LEC. 3. Examination of marriage and family systems, including their interface with the broader socio-cultural context. Fall, Spring.

HDFS 2010/2013 LIFESPAN HUMAN DEVELOPMENT IN FAMILY CONTEXT (3) LEC. 3. Human development within the context of the family and across the family life cycle with a focus on significant life transitions. Fall, Spring. Credit will not be given for both HDFS 2010 and HDFS 2013.

HDFS 2030 PROFESSIONAL DEVELOPMENT AND ETHICS (3) LEC. 3. Appraisal of career potential, formulation of a professional code of ethics, and exploration of career options. Fall, Spring.
HDFS 2040/2043 ANALYTICS FOR THE SOCIAL AND BEHAVIORAL SCIENCES (4) LEC. 3. LAB. 1. Pr. (MATH 1100 or MATH 1120 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1610 or MATH 1613 or MATH 1617). Introduction to basic data analysis used in social and behavioral science research, including descriptive and inferential techniques and elements of research design. May count either HDFS 2040, HDFS 2043 or PSYC 2130.

HDFS 3010/3013 CHILD DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. Social, emotional, physical and intellectual development in early and middle childhood with a special focus on family relationships. Fall, Spring. Credit can not be given for both HDFS 3010 and HDFS 3013.

HDFS 3030 ADOLESCENT DEVELOPMENT IN THE FAMILY (3) LEC. 3. Pr. 2.25 GPA. HDFS 2010 or HDFS 2013. 2.25 GPA. Analysis of adolescent development with emphasis on family context and developmental outcomes employing an ecological framework.

HDFS 3040 HUMAN SEXUALITY OVER THE FAMILY LIFE CYCLE (3) LEC. 3. Pr. HDFS 2000 or (SOCY 1000 or SOCY 1007) or (PSYC 2010 or PSYC 2013 or PSYC 2017). Human sexuality from a life-cycle perspective, emphasizing developmental, familial and societal factors.

HDFS 3050 ADULT DEVELOPMENT AND AGING (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Exploration of the transformations in physical, cognitive, psychological and social functioning beginning in young adulthood and continuing through old age.

HDFS 3060 PATTERNS OF FAMILY INTERACTION (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of family process and interaction, emphasizing major conceptual frameworks of family development. Fall, Spring.

HDFS 3080 DEVELOPMENT OF INTERPERSONAL RELATIONSHIPS (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of the competencies necessary for development of successful interpersonal relationships. Fall, Spring.

HDFS 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

HDFS 3460 EFFECTIVE GUIDANCE AND INTERACTION WITH YOUNG CHILDREN (3) LEC. 1. LAB. 4. Pr. HDFS 3010 or HDFS 3013. Child development and teacher child relationship knowledge applied to interactions with young children. Three hours per week at Auburn University Early Learning Center for lab. Fall, Spring.

HDFS 3470 LEARNING EXPERIENCES FOR YOUNG CHILDREN (4) LEC. 2. LAB. 6. Pr. HDFS 3460 and (HDFS 3010 or HDFS 3013). Child development knowledge applied to preschool curriculum planning with 6 hours a week of supervised participation at Auburn University Early Learning Center. Spring.

HDFS 3910 PRACTICUM (1-6) PRA. SU. Pr., Departmental approval. Directed experience in a professional setting. A) Human Development; B) Family Studies; C) Marriage and Family Therapy. Course may be repeated for a maximum of 6 credit hours.

HDFS 3930 SERVICE LEARNING IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-6) AAB/LEC. Pr., Departmental approval. Application of HDFS-relevant knowledge to real-life situations through active participation in a directed community service experience. A.) Auburn University Early Learning Center; B.) Harris Early Learning Center of Birmingham; C.) Other Community Placements. Course may be repeated for a maximum of 6 credit hours.

HDFS 3980 UNDERGRADUATE RESEARCH AND STUDY (1-5) AAB/LEC. SU. Directed research under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

HDFS 4380 STUDY AND TRAVEL IN HUMAN DEVELOPMENT AND FAMILY STUDIES (2-6) AAB/FLD. Pr. (CAHS 2000 or CADS 2000 or CADS 2003 or CADS 2007) and HDFS 2000 and (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007). Departmental approval. Study or work in the United States or internationally. Course may be repeated for a maximum of 6 credit hours.

HDFS 4500/4503 HOSPITALIZED CHILDREN AND THEIR FAMILIES (3) LEC. 3. Pr. HDFS 3010 or HDFS 3013. Junior standing. Junior standing in HDFS major or a major in a related field. Theories and research about children and their families in hospital settings. Credit will not be given for both HDFS 4500 and HDFS 4503.

HDFS 4510/4513 THERAPEUTIC PLAY (3) LEC. 3. Pr. HDFS 3010 or HDFS 3013. Theories and research on play, play's use in many contexts, and the many therapeutic qualities of play will be discussed. May count either HDFS 4510 or HDFS 4513.

HDFS 4520 DYING, DEATH AND BEREAVEMENT (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Exploration of end of life issues from individual, relational and cultural perspectives.
HDFS 4660 RESOURCE MANAGEMENT FOR INDIVIDUALS, COUPLES, AND FAMILIES (3) LEC. 3. An understanding of the decisions individuals and families make about developing and allocating resources.

HDFS 4670 PARENT EDUCATION (3) LEC. 3. Pr. HDFS 2010 or HDFS 2013. Principles of working with parents on individual and group bases.

HDFS 4680 FAMILY IN CROSS-CULTURAL PERSPECTIVE (3) LEC. 3. Pr. 2.25 GPA. HDFS 2000. Examination of family function and diversity in cultures and family systems around the world.

HDFS 4700 GENDER ROLES AND CLOSE RELATIONSHIPS (3) LEC. 3. Pr. HDFS 2000 or SOCY 1000 or SOCY 1007 or PSYC 2010 or PSYC 2013 or PSYC 2017. Analysis of changing roles and their effects on romantic, marital, and parent-child relationships.

HDFS 4920 INTERNSHIP IN HUMAN DEVELOPMENT AND FAMILY STUDIES (12) INT. HDFS major with current background check, all required coursework for the major complete, a grade of C or better in all HDFS major core classes at the 3000-level or higher, and an overall minimum GPA of 2.25. Internship applications must be submitted 2 semesters in advance. A computer and internet access is required.

HDFS 4950 ADVANCED SEMINAR (3) LEC. 3. Pr., Departmental approval. Topical seminar in HDFS. A) Advanced Research B) Child Development; C) Family Studies; D) Marriage and Family Therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 4960 SPECIAL PROBLEMS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) IND. SU. Pr., Departmental approval. Supervised readings in one or more topical areas. Course may be repeated for a maximum of 3 credit hours.

HDFS 4980 ADVANCED UNDERGRADUATE RESEARCH IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-5) IND. Pr., Departmental approval, Junior standing. Conduct research under the direction of a human development and family studies faculty member on a topic of mutual interest. Course may be repeated for a maximum of 5 credit hours.

HDFS 4997 HONORS THESIS (2-6) IND. SU. Pr. Honors College. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

HDFS 5200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Junior standing. Application of research to the development and evaluation of programming for children and families.

HDFS 5300 HDFS AND SOCIAL POLICY (3) LEC. 3. Junior standing. Examination and critique of social policies from a family perspective.

HDFS 5970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Junior standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 6200 APPLIED RESEARCH AND EVALUATION METHODS (3) LEC. 3. Graduate standing. Application of research to the development and evaluation of programming for children and families.

HDFS 6300 HDFS AND SOCIAL POLICY (3) LEC. 3. Graduate standing. Examination and critique of social from a family perspective.

HDFS 6970 SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Graduate standing. Study of topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 7000 ADOLESCENT DEVELOPMENT (3) LEC. 3. Critical examination of empirical research and theories of adolescent development.

HDFS 7010 CHILD AND ADOLESCENT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical examination of research on development from birth through adolescence.

HDFS 7020 ADULT DEVELOPMENT IN CONTEXT (3) LEC. 3. Survey and critical evaluation of research on development in the adult and aging periods of the life cycle.

HDFS 7040 FAMILY PROCESSES (3) LEC. 3. An orientation to family theories and their role in contemporary studies of family processes.

HDFS 7050 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES (3) LEC. 3. Pr., Departmental approval. Survey of principles and methods for studying individuals, dyadic relationships and families.
HDFS 7051 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES LAB (1) LAB. 1. Coreq. HDFS 7050. Lab devoted to principles and methods for studying individuals, dyadic relationships and families.

HDFS 7060 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II (3) LEC. 3. Pr. HDFS 7050. Pr., Departmental approval. Survey of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7061 RESEARCH METHODS FOR HUMAN DEVELOPMENT AND FAMILY STUDIES II LABORATORY (1) LAB. 1. Pr. HDFS 7050. Coreq. HDFS 7060. Pr., Departmental approval. Lab devoted to the application of principles and advanced methods for studying individuals, dyadic relationships, and families.

HDFS 7600 MARRIAGE AND FAMILY THERAPY THEORY I (3) LEC. 3. Pr., Departmental approval. Overview of theoretical and historical foundations, classic and contemporary therapy models, and integrative frameworks for marriage and family therapy. Fall.

HDFS 7601 MARRIAGE AND FAMILY THERAPY THEORY LABORATORY I (1) LAB. 3. Pr., Departmental approval. Basic clinical skills and self-of-the-therapist issues. Fall.

HDFS 7610 MARRIAGE AND FAMILY THERAPY THEORY II (3) LEC. 3. Pr., Departmental approval. Current theory and conceptual issues in the practice of marriage and family therapy. Fall.


HDFS 7650 MARRIAGE AND FAMILY THERAPY PROFESSIONAL ISSUES (3) LEC. 3. Pr., Departmental approval. Professional, ethical, and legal issues associated with the practice of marriage and family therapy. Summer.

HDFS 7900 DIRECTED STUDIES (1-3) AAB/IND. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage & Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7910 PRACTICUM (1-9) AAB/PRA. SU. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy; G) Teaching. Course may be repeated for a maximum of 9 credit hours.

HDFS 7920 MARRIAGE AND FAMILY THERAPY INTERNSHIP (3) INT. Pr., Departmental approval. Clinical practice of marriage and family therapy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7930 SEMINAR IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) SEM. Pr., Departmental approval. A) Infancy/Childhood; B) Adolescence/Young Adulthood; C) Adulthood/Aging; D) Family as a Micsosystem; E) Family and Mesosystem; F) Family in the Macrosystem; G) Child and Family Program Planning and Evaluation. Course may be repeated for a maximum of 16 credit hours.

HDFS 7940 DIRECTED FIELD EXPERIENCE (1-9) AAB/FLD. SU. Pr., Departmental approval. A) Child Care and Programs for Young Children; B) Family Relations; C) Human Development; D) Marriage and Family Therapy; E) Parent Education; F) Social Policy. Course may be repeated for a maximum of 9 credit hours.

HDFS 7970 SPECIAL TOPICS IN HDFS (1-4) LEC. Students will learn about key issues in sleep research, especially with those related to family functioning and social/emotional, behavioral, and physical health. Students will have assigned readings to prepare them for discussions during the lectures. Course may be repeated for a maximum of 18 credit hours.

HDFS 7990 RESEARCH AND THESIS (1-10) AAB/MST.
HDFS 8010 RELATIONSHIP DEVELOPMENT AND PROCESS IN CHILDHOOD AND ADOLESCENCE (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in childhood adolescence.

HDFS 8020 RELATIONSHIP DEVELOPMENT AND PROCESS IN ADULTHOOD (3) LEC. 3. Theoretical and empirical themes focused on processes and dynamics of relationships in adulthood and aging.

HDFS 8050 ADVANCED RESEARCH METHODS: COVARIANCE STRUCTURE ANALYSIS (3) LEC. 3. Pr. HDFS 7060. In-depth examination of research methods, designs, and data analytic strategies commonly used in child and family research.

HDFS 8051 ADVANCED RESEARCH METHODS (1) LAB. 1. Pr. HDFS 7060. Coreq. HDFS 8050. Lab designed to enhance the application of advanced research methods and data analytic strategies used in HDFS research.

HDFS 8060 MULTILEVEL MODELING (3) LEC. 3. Pr. HDFS 7060. In depth examination of multilevel modeling as an analytic strategy for research in nested data structures.

HDFS 8061 APPLIED LONGITUDINAL METHODS IN HUMAN DEVELOPMENT AND FAMILY STUDIES LAB (1) LAB. 1. Pr. HDFS 7060. Coreq. HDFS 8060. Lab designed to enhance the examination of longitudinal methodology as an analytic strategy used in HDFS research.

HDFS 8070 MEDIATION AND MODERATION ANALYSIS (3) LEC. 3. Pr. HDFS 7060. Methods for evaluating mediation and moderation hypotheses by addressing both study designs and statistical analyses.

HDFS 8070 SURVIVAL ANALYSIS (SA) AND LATENT CLASS ANALYSIS (LCA) (3) SEM. 3. Pr. HDFS 7060. Methodological advances in longitudinal and categorical analysis have provided promising avenues for researchers interested in answering questions about event occurrence and latent classes. These two analytic techniques will be the focus of this course.

HDFS 8080 QUALITATIVE METHODS IN THE SOCIAL SCIENCES (3) LEC. 3. This course prepares graduate students to conduct and evaluate qualitative research in social science disciplines.

HDFS 8970 ADVANCED SPECIAL TOPICS IN HUMAN DEVELOPMENT AND FAMILY STUDIES (1-3) LEC. Departmental approval. Study of advanced topics of special interest beyond the current departmental offerings. Course may be repeated for a maximum of 9 credit hours.

HDFS 8990 RESEARCH AND DISSERTATION (1-10) DSR.

Human Resource Mngt - HRMN

Courses

HRMN 3420/3423 HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Management of human resources dealing with selection, training, placement, appraisal, compensation, and employee representation.

HRMN 4430 LABOR RELATIONS (3) LEC. 3. General survey of the development of collective bargaining, major provisions of labor law, and bargaining issues of craft and industrial unions.

HRMN 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

HRMN 4950 SEMINAR IN HUMAN RESOURCE MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

HRMN 5460 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 5470 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Modern compensation systems, strategic planning, wage and salary management, benefits administration and pay incentive development.

HRMN 5480 LABOR RELATIONS LAW (3) LEC. 3. Legal principles and issues under the Labor Management Relations Act and related laws. Case problem analysis.
HRMN 5510 HUMAN RESOURCE PLANNING, DEVELOPMENT, AND APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice and design of managerial systems in these functions.

HRMN 5520 HUMAN RESOURCES AND ORGANIZATIONAL RESEARCH (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 2010 or STAT 217 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Human resource problems studied through a project involving data collection, analysis and a research report.

HRMN 5540 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 217 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 5550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 5960 SPECIAL PROBLEMS (1-3) IND. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

HRMN 6460/6466 HUMAN RESOURCE LEGISLATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Legislation that impacts the management of human resources within the organization.

HRMN 6470/6476 EMPLOYEE COMPENSATION (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Study of the theory, procedures, techniques, and practices used to administer modern organization compensation systems.

HRMN 6480/6486 LABOR RELATIONS LAW (3) LEC. 3. Study of legal principles under the Labor Management Relations Act and related labor laws. Case problems and current legal issues are analyzed.

HRMN 6510/6516 HR PLANNING DEV & APPRAISAL (3) LEC. 3. Pr. HRMN 3420 or HRMN 3423. Theory, practice, and design of managerial systems and these functions.

HRMN 6520/6526 HUMAN RESOURCE AND ORGANIZATIONAL RESEARCH (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 217 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Study of human resource problems through a primary research project involving data collection, analysis, and written research report.

HRMN 6540/6546 HUMAN RESOURCES SELECTION AND PLACEMENT (3) LEC. 3. Pr. (HRMN 3420 or HRMN 3423) and (BUAL 2600 or STAT 217 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). A review of contemporary issues involved in administering a program for selecting employees.

HRMN 6550 HUMAN RESOURCE INFORMATION SYSTEMS (3) LEC. 3. Importance, nature, and application of a modern human resource information systems.

HRMN 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

HRMN 6960/6966 SPECIAL PROBLEMS (3) IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

HRMN 7080/7086 ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Advanced study of the role of personnel and human resource management. Topics include employee selection, performance appraisal, compensation, training, and development.


HRMN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research on thesis or research project. Course may be repeated with change in topics.
Courses

HUSC 1010/1013 INTRODUCTION TO HUMAN SCIENCES (2) LEC. 2. An introduction course to provide an understanding of the discipline of Human Sciences, history, and career opportunities.


HUSC 3380/3383 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (2) LEC. 2. Departmental approval. Coreq. HUSC 4380 and HUSC 4010 and HUSC 4940. Pre-departure orientation for student participating in the Joseph S. Bruno Auburn Abroad program in Ariccia, Italy. May also be taken by students exploring study abroad opportunities through the alternative International Minor in Human Sciences. Ungapped 2.5 gpa

HUSC 4000 HUNGER STUDIES CAPSTONE (3) LEC. 3. Pr. HUSC 2000 or HUSC 2003 or HUSC 2007. Examination of global and domestic hunger issues from multidisciplinary perspectives.

HUSC 4010 CHS AT AU IN ITALY: INTEGRATED GLOBAL STUDIES (6) LEC. 6. Pr. (P/C HUSC 3380 or P/C HUSC 3383) or P/C HUSC 4380 or P/C HUSC 4940. Departmental approval. Coreq. HUSC 4380 and HUSC 3383 and HUSC 4940 and HUSC 3380. Multi-faceted cultural experience focused on individuals/ families in the context of history and Italian culture.

HUSC 4380 AUBURN ABROAD IN ITALY STUDY AND TRAVEL (2) AAB/FLD. 2. Pr. (P/C HUSC 3380 or P/C HUSC 3383) and P/C HUSC 4010 and P/C HUSC 4940. Coreq. HUSC 3380 and HUSC 3383 and HUSC 4010 and HUSC 4940. Broaden world views, increase cultural awareness, and demonstrate an ability to function global through the Auburn Abroad in Italy program. Ungapped 2.25 gpa

HUSC 4480 GLOBAL STUDY TRAVEL IN HUMAN SCIENCES (1-12) AAB. Sophomore/Junior/Senior Standing or Departmental approval application required. Student international study travel to study topics relevant to human sciences and quality of life issues. Course may be repeated for a maximum of 12 credit hours.

HUSC 4940 CHS AT AU IN ITALY: DIRECTED FIELD EXPERIENCES (6) AAB/FLD. 6. Pr. (P/C HUSC 3380 or P/C HUSC 3383) or P/C HUSC 4010 or P/C HUSC 4380 or departmental approval. Coreq. HUSC 4010 and HUSC 3383 and HUSC 4380 and HUSC 3380. Supplemental lectures for HUSC 4010 provided through field trips and participation in Italian culture experiences. Ungapped 2.5 gpa

HUSC 5930 SOCIETY AND HEALTH (3) LEC. 45. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities.

HUSC 5940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-12) AAB/LEC. Pr. 2.25 GPA. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 12 credit hours.

HUSC 5950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (2) SEM. 30. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. Course may be repeated for a maximum of 4 credit hours.

HUSC 6930 SOCIETY AND HEALTH (3) LEC. 45. This course provide an overview of population-level theories of health and introduces students to concepts in society and health, with a focus on major themes related to social determinants of health and health inequities.

HUSC 6940 STUDY AND TRAVEL IN HUMAN SCIENCES (1-6) AAB/LEC. Provide students with opportunities to reach beyond the classroom to study topics that are relevant to human sciences and quality of life issues. Application required; additional requirements may apply. Course may be repeated for a maximum of 6 credit hours.

HUSC 6950 SEMINAR ON HEALTH ECOLOGY AND EQUITY (2) SEM. 30. This is a seminar course that features distinguished lecturers. This course provides knowledge on special topics in health ecology and equity, delving into specific research programs. Course may be repeated for a maximum of 10 credit hours.
H USC 7910 CHS AT AU IN ITALY PROGRAM ADMINISTRATION PRACTICUM (6) AAB/PRA. 6. SU. Graduate status and acceptance to the Joseph S. Bruno Auburn Abroad in Italy program. One course in interpersonal communications or consent of instructor. Directed practical experience administering an undergraduate study abroad program.

Industrial & Sys Eng - INSY

Courses

INSY 3010 PROGRAMMING AND DATABASE APPLICATIONS FOR ISE (3) LEC. 3. Pr. COMP 1200. Programming and database applications for ISE students. Focus is on algorithm development as related to optimization, probability, statistics, and data analysis.

INSY 3020 OCCUPATIONAL SAFETY ERGONOMICS (3) LEC. 3. Basic principles of occupational safety engineering and ergonomics in the evaluation and design of occupation work areas and processes that include human operators.

INSY 3021 METHODS ENGINEERING AND WORK MEASUREMENT (3) LEC. 2. LAB. 3. Coreq. INSY 3020. Develops the student's ability to design workplaces and methods while providing an understanding of the work measurements process. Enables students to generate much of the basic methods data utilized in most industrial engineering projects.

INSY 3030 CAD FOR ENGINEERS WITH INDUSTRIAL APPLICATIONS (1) LAB. 3. Pr. COMP 1200 or COMP 1210 or COMP 1217 or COMP 3000 or ENGR 1110 or ENGR 1113. Use of computer technology to aid engineering design in industrial applications, e.g. represent and modify mechanical parts, diagrams, schematics, tools, equipment, office and plant layouts, etc.

INSY 3400 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660 and STAT 3600. with a grade of C or better in STAT 3600. Modeling and analysis of decision-making and operations subject to randomness including decision analysis, stochastic dynamic programming, Markov chains, and queuing theory.

INSY 3410 DETERMINISTIC OPERATIONS RESEARCH (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and MATH 2660. Formulation, solution, interpretation, and implementation of mathematical models in operations research including linear programming, integer programming and network flows.

INSY 3420 SIMULATION (3) LEC. 2. LAB. 3. Pr. INSY 3400 and (COMP 3010 or COMP 3013 or INSY 3010) and STAT 3610. with a grade of C or better in INSY 3400. Simulation procedures for solving complex systems analysis problems. Emphasis on random processes, model building and construction of computer simulation models.

INSY 3600 ENGINEERING ECONOMY (3) LEC. 3. Pr. ENGR 1110 or ENGR 1113. Principles required in engineering economic studies.

INSY 3700 OPERATIONS PLANNING AND CONTROL (3) LEC. 3. Pr. INSY 3400 and INSY 3410 and STAT 3610. with a grade of C or better in both INSY 3400 and INSY 3410. Analytical methods for operations planning and control, including forecasting systems, production planning, inventory control systems, scheduling systems, and project management.

INSY 3800 MANUFACTURING SYSTEMS I (3) LEC. 2. LAB. 3. Introduction to the design, analysis, and operation of manufacturing systems, the first course in a required two-course sequence including Manufacturing Systems II.

INSY 4330 STATISTICAL QUALITY DESIGN AND CONTROL (3) LEC. 3. Pr. STAT 3610. Statistical process control and methods for quality improvement. Acceptance sampling for attributes and for variables.

INSY 4500 PROFESSIONAL PRACTICE (1) LEC. Discussion and activities in current problems, the global context of, professional practice, professional opportunities and lifelong learning in Industrial and Systems Engineering. Senior standing in INSY.

INSY 4700 MANUFACTURING SYSTEMS II (3) LEC. 3. Pr. INSY 3420 and INSY 3600 and INSY 3700 and INSY 3800. Continuation of the design, analysis, and operation of manufacturing systems, the second course in a required two-course sequence including Manufacturing Systems I.

INSY 4800 SENIOR DESIGN (3) LAB. 9. Pr. INSY 3021. Coreq. INSY 4700. Capstone course in which undergraduate course-work principles are brought to bear upon a design problem in a cooperating industry or institution.

INSY 4960 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under faculty supervision involving special problems in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.
INSY 4970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-10) AAB. Departmental approval. Special topics in Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 10 credit hours.

INSY 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student endeavor consisting of direct research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

INSY 5010 SAFETY ENGINEERING I (3) LEC. 3. Pr. INSY 3020. Departmental approval. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design, and maintenance, and operation of effective safety programs. Credit will not be given for both INSY 5010 and INSY 6010/6016.

INSY 5240 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Pr. INSY 3700. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240/6246.

INSY 5250 SCHEDULING AND PROJECT MANAGEMENT (3) LEC. 3. Pr. INSY 3700. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250/6256.

INSY 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. INSY 4330 or departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both INSY 5330 and INSY 6330/6336.

INSY 5500 INFORMATION TECHNOLOGY FOR OPERATIONS (3) LEC. 3. Pr. (COMP 3010 or COMP 3013). Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process. Credit will not be given for both INSY 5500 and INSY 6500/6506.

INSY 5550 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Pr. COMP 3010 or COMP 3013. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550/6556.

INSY 5600 MANUFACTURING AND PRODUCTION ECONOMICS (3) LEC. 3. Pr. INSY 3600. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600/6606.

INSY 5630 REAL OPTIONS AND DECISION ANALYSIS (3) LEC. 3. Pr. INSY 3600 and STAT 3600. Analysis of engineering and business decisions under risk and contemporary risk management methods including statistical decision theory and real options. Credit will not be given for both INSY 5630 and INSY 6630/6636.

INSY 5753 INFORMATION TECHNOLOGY AUDITING (3) DSL. 3. Pr. ISMN 5730. In-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO.

INSY 5800 LEAN PRODUCTION (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800/6806.

INSY 5830 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830/6836.

INSY 5840 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multidisciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia, and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840/6846.

INSY 5850 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850/6856.
INSY 5860 AUTOMOTIVE MANUFACTURING SYSTEMS (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assembly plant. Credit will not be given for both INSY 5860 and INSY 6860/6866.

INSY 6010/6016 SAFETY ENGINEERING I (3) LEC. 3. Occupational safety engineering and management with emphasis on control of hazardous materials, fire prevention, safety considerations in production facility design and maintenance, and operation of effective safety programs. Departmental approval. Credit will not be given for both INSY 5010 and INSY 6010.

INSY 6240/6246 PRODUCTION AND INVENTORY CONTROL SYSTEMS (3) LEC. 3. Analysis and design of production and inventory control systems with emphasis on quantitative methods, algorithms, and information technology. Credit will not be given for both INSY 5240 and INSY 6240.

INSY 6250/6256 SCHEDULING AND PROJECT MANAGEMENT (3) LEC. 3. Sequencing and scheduling methods and models are presented, with special emphasis on scheduling and controlling projects. Credit will not be given for both INSY 5250 and INSY 6250.

INSY 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Departmental approval. Covers statistical tools needed for implementation of “Six Sigma”, “Lean Six Sigma” and “Design for Six Sigma”. Credit will not be given for both INSY 5330 and INSY 6330/6336.

INSY 6500/6506 INFORMATION TECHNOLOGY FOR OPERATIONS (3) LEC. 3. Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process. Credit will not be given for both INSY 5500 and INSY 6500.

INSY 6550/6556 DECISION SUPPORT SYSTEMS FOR OPERATIONS (3) LEC. 3. Fundamentals for modeling, designing, and implementing decision support systems for the operation of manufacturing and service industries. Credit will not be given for both INSY 5550 and INSY 6550.

INSY 6600/6606 MANUFACTURING AND PRODUCTION ECONOMICS (3) LEC. 3. Continuation of INSY 3600. Emphasis on design economics and cost estimating techniques and applications to various manufacturing and service operations. Credit will not be given for both INSY 5600 and INSY 6600.

INSY 6630/6636 REAL OPTIONS/DECISION ANALYSIS (3) LEC. 3. Analysis of engineering and business decisions under risk and contemporary risk management methods including statistical decision theory and real options. Credit will not be given for both INSY 5630 and INSY 6630/6636.

INSY 6800/6806 LEAN PRODUCTION (3) LEC. 3. Manufacturing system design based on a strategy of linked cells providing a continuous flow of materials. Evaluation strategies and analysis tools are studied. Credit will not be given for both INSY 5800 and INSY 6800.

INSY 6830/6836 VEHICLE TECHNOLOGY AND TRENDS (3) LEC. 3. Investigation of the advances in automotive technology and the impact of future technologies on the design and manufacture of the automobile. Credit will not be given for both INSY 5830 and INSY 6830.

INSY 6840/6846 CONTROL OF THE MANUFACTURING FLOOR AND PROCESSES (3) LEC. 2. LAB. 3. Students work within multidisciplinary teams to apply the principles of Computer Aided Manufacturing and the Toyota Production System (TPS) on the modern automated floor. Laboratory features CNC Controls, Robots, Programmable Logic Controllers (PLC) and Kanban system. DELMIA Catia and MasterCAM. Credit will not be given for both INSY 5840 and INSY 6840.

INSY 6850/6856 ELECTRONICS MANUFACTURING SYSTEMS (3) LEC. 3. Introduction to electronics packaging and electronics manufacturing technologies including current and future trends, design and quality, and manufacturing for high volume. Credit will not be given for both INSY 5850 and INSY 6850.

INSY 6860/6866 AUTOMOTIVE MANUFACTURING SYSTEMS (3) LEC. 3. History of automotive manufacturing and the automotive manufacturing systems for a typical automotive assembly plant. Credit will not be given for both INSY 5860 and INSY 6860.

INSY 7020/7026 SAFETY ENGINEERING II (3) LEC. 3. Pr. (INSY 6010 or INSY 6016). Systems safety analysis techniques including human error and reliability, fault trees, and cost benefit analysis.

INSY 7050/7056 INDUSTRIAL HYGIENE AND ENVIRONMENTAL HAZARDS (3) LEC. 3. Introduction to the basic concepts of industrial hygiene with emphasis on the industrial hygiene/safety interface and on the evaluation and control of noise and vibration stress.

INSY 7060/7066 ERGONOMICS I (3) LEC. 3. Overview of the human body systems and evaluation of the physiological response of the human body to occupational activities with emphasis on task design.

INSY 7070/7076 ERGONOMICS II (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Use of biomechanics in the evaluation and design of work activities. Emphasis is placed on biomechanical modeling, manual materials handling, tool design, and repetitive motion trauma.

INSY 7080/7086 HUMAN FACTORS ENGINEERING (3) LEC. 3. Examination of human factors, ergonomics and safety research methodologies. Emphasis is on human information input, output and control processes with the objective of optimizing integration of the human into simple and complex systems.

INSY 7081 HUMAN FACTORS LABORATORY (1) LAB. 3. Coreq. INSY 7080. Laboratory experience in testing human factors principles and concepts covered in INSY 7080. Experience in proper writing of laboratory reports.

INSY 7100/7106 ADAPTIVE OPTIMIZATION (3) LEC. 3. Departmental approval. Adaptive search methods inspired by nature for continuous and combinatorial optimization. Methods include simulated annealing, genetic algorithms, evolutionary strategies, tabu search and ant colony systems.

INSY 7120/7126 DATA ANALYTICS FOR OPERATIONS (3) LEC. 3. Pr. INSY 6500. or equivalent. This course covers the broad topics of predictive analytics, data visualization, and big data in the context of operations analysis. Focus will be on the application of modern computer tools with previously learned statistical and mathematical modeling tools, culminating in a semester project.

INSY 7130/7136 DATA MINING TECHNIQUES AND APPLICATIONS FOR OPERATIONS (3) LEC. 3. Pr. INSY 6500. or equivalent. This introductory course will cover the most common techniques for extracting useful information and models from numerical or categorical data. Techniques include clustering and classification, regression and spline models, kriging, and artificial neural networks. Also considered are data pre-processing, model building and model validation. Modeling and validation under conditions of sparse data will be addressed as well. Applications include those in finance, manufacturing, health care, and more.

INSY 7190 OCCUPATIONAL SAFETY AND HEALTH FORUM I (1) LEC. 1.

INSY 7200/7206 ENGINEERING APPLICATIONS OF FUZZY SYSTEMS AND NEURAL NETWORKS (3) LEC. 3. Departmental approval. Introduction to fuzzy systems and neural networks with emphasis on their uses in engineering applications in clustering, modeling, optimization, control, forecasting, and classification.

INSY 7230/7236 ADVANCED LAYOUT AND LOCATION (3) LEC. 3. Facility layout algorithms and the facility design process. Facility location models and their relationship to strategic organization goals.

INSY 7240/7246 PRODUCTION AND INVENTORY CONTROL THEORY (3) LEC. 3. Theoretical foundations for the analysis and design of production and inventory control systems with emphasis on quantitative methods and current areas of research.


INSY 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Advanced concepts of experimental design including blocked designs, analysis of variance, regression approach, and fractional factorial in base-2 designs. Emphasis throughout is on developing and improving industrial products and processes. Credit will not be given for both INSY 7300 and STAT 7300.

INSY 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both INSY 7310 and STAT 7310.

INSY 7330/7336 OFF-LINE AND ON-LINE QUALITY CONTROL (3) LEC. 3. Pr. STAT 7010 or (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Departmental approval. Taguchi's quality loss functions. Taguchi's orthogonal arrays and their relationships to fractional factorial designs. Taguchi's parameter and tolerance designs, on-line process control concepts and methods. Process capability. CUSUM charts and other process control charts.
INSY 7380/7386 RELIABILITY ENGINEERING (3) LEC. 3. Pr. STAT 7600 or (STAT 7300 or STAT 7306) or (INSY 7300 or INSY 7306). Reliability, maintenance, replacement with emphasis on failure-rate estimation and life testing. Hazard functions, parameter estimation and reliability testing including exponential and Weibull distributions. Markov models and repairable systems. Credit is not given for both INSY 7380 and STAT 7780. Departmental permission.

INSY 7390 OCCUPATIONAL SAFETY AND HEALTH FORUM II (1) LEC. 1. Pr. INSY 7190. Continuation of OSH Forum I (contemporary interdisciplinary issues in occupational safety and health). Emphasis is placed on leadership and mentoring of other OSH students (INSY 7190).

INSY 7400/7406 SIMULATION MODELING AND ANALYSIS (3) LEC. 3. Introduction to discrete event modeling and simulation. Fundamental concepts of Monte Carlo and discrete event simulation and the application of those concepts using commercial simulation software.

INSY 7420/7426 LINEAR PROGRAMMING AND NETWORK FLOWS (3) LEC. 3. Linear programming and network flows emphasizing algorithms and theory.

INSY 7430/7436 INTEGER AND NONLINEAR PROGRAMMING (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Departmental approval. Integer and non linear programming, emphasizing algorithms and theory.

INSY 7440/7446 DYNAMIC PROGRAMMING (3) LEC. 3. Departmental approval. Aspects of sequential decision making with emphasis on formulation and solution using the dynamic programming algorithm. Approximation methods for problems involving large state spaces. Solution techniques for problems under uncertainty.

INSY 7470/7476 SEARCH METHODS FOR OPTIMIZATION (3) LEC. 3. Single and multivariate search techniques and strategies that are used in finding the optimum of discrete and continuous functions.

INSY 7490 OCCUPATIONAL SAFETY AND HEALTH PRACTICUM II (1) LEC. 1. Pr. INSY 7290. Investigation of real-world interdisciplinary OSH problems. Analysis and presentation of OSH concerns and solutions. Emphasis is placed on leadership and mentoring of other OSH students (INSY 7290).

INSY 7500/7506 ADVANCED SIMULATION (3) LEC. 3. Pr. INSY 7400 or INSY 7406. Coverage of advanced simulation and simulation language design concepts. Includes advanced input/output analysis, modeling concepts, and language design/implementation concepts.

INSY 7550/7556 STOCHASTIC OPERATIONS RESEARCH (3) LEC. 3. Stochastic operations research models with emphasis on model formation, solution and interpretation of results. Emphasis on stochastic processes, queuing theory and their applications.


INSY 7710/7716 LIFE CYCLE ENGINEERING (3) LEC. 3. The life cycle engineering course focuses on various life cycle methodologies and tools like life cycle design, product life cycle, life cycle assessment (LCA) and inventory (LCI), service, reuse, re-manufacturing, sustainable design, risk assessment and management and other related topics. May count either INSY 7710 or INSY 7716.

INSY 7720/7726 SYSTEMS ENGINEERING I (3) LEC. 3. Processes and tools for engineering large-scale, complex complex systems: architecture, requirements, risk management, evaluation, concept exploration, decision-making, tradeoff studies, life cycle models, decomposition, system coupling, test, verification, validation, system modeling, business process re-engineering, sensitivity analysis, teamwork, process maturity and documentation. May count either INSY 7720 or INSY 7726.

INSY 7730/7736 PRODUCT DESIGN, DEVELOPMENT, AND TEST (3) LEC. 3. This class teaches modern tools and methods for product design, development, and test of highly complex and large systems including technical specification, reliability, maintainability, manufacturability, testability, marketing, costs, etc. May count either INSY 7730 or INSY 7736.

INSY 7740/7746 PRODUCT LAUNCH, MANUFACTURING, AND DELIVERY (3) LEC. 3. This course teaches students the issues, strategies, and approaches related to launching, manufacturing, and delivering new products or services including customer focus, marketing, manufacturing and launch strategies, delivery and related tools and techniques.
INSY 7750/7756 INTELLECTUAL PROPERTY, LEGAL, AND VENTURE CAPITAL (3) LEC. 3. This course teaches students the US law of intellectual property with major emphasis on patents. Students also learn venture capital including stages of funding, funding presentations, various requirements of funding, types of partnership, exit plans, etc. May count either INSY 7750 or INSY 7756.

INSY 7940 INDUSTRIAL AND SYSTEMS ENGINEERING PROBLEMS (1-5) IND. Departmental approval. Individual student endeavor under staff supervision involving special problems of an advanced undergraduate or graduate nature in Industrial and Systems Engineering. Interested student must submit written proposal to department head. Course may be repeated for a maximum of 5 credit hours.

INSY 7950/7956 SEMINAR (1) LEC. 1. SU. Presentation and discussion of ISE research by graduate students, faculty and guests. Must be taken at least one term and cannot be used in the plan of study to apply towards the minimum number of hours for a degree.

INSY 7970/7976 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. 1. LAB. 1. Departmental approval. Special topics of a graduate nature pertinent to Industrial and Systems Engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 7980/7986 MASTER'S IN INDUSTRIAL AND SYSTEMS ENGINEERING PROJECT (1-5) IND. SU. Non-thesis master's project. Course may be repeated for a maximum of 5 credit hours.

INSY 7990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

INSY 8010 ADVANCED SAFETY ENGINEERING (3) LEC. 3. Pr. INSY 7020 or INSY 7026. Topics of current interest in occupational safety research. Occupational safety research methodology and research priorities.

INSY 8060/8066 ADVANCED ERGONOMICS (3) LEC. 3. Pr. INSY 7060 or INSY 7066. Topics of current interest in occupational ergonomics and human factors research. Occupational ergonomics and human factors research methodology and research priorities.

INSY 8250 SCHEDULING THEORY (3) LEC. 3. Pr. (INSY 6250 or INSY 6256) and (INSY 7420 or INSY 7426). The theory for various scheduling methods and models is presented. Emphasis is on current research in the scheduling area.

INSY 8420/8426 TOPICS IN OPTIMIZATION (3) LEC. 3. Pr. INSY 7420 or INSY 7426. Basic concepts and theory of optimization, including saddlepoint conditions for differentiable and non-differentiable programs, duality, approximation, decomposition and partitioning, illustrated by application to specific algorithms.

INSY 8970 INDUSTRIAL AND SYSTEMS ENGINEERING SPECIAL TOPICS (1-5) LEC. Departmental approval. Special topics of an advanced graduate nature pertinent to industrial and systems engineering. Specific prerequisites will be determined and announced for each offering. Course may be repeated for a maximum of 5 credit hours.

INSY 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Industrial Design - INDD

Courses

INDD 1120 INDUSTRIAL DESIGN IN MODERN SOCIETY (3) LEC. 3. Survey of design and its impact upon modern society. Review of methods, products, marketing, patents, education, and career opportunities.

INDD 1310 SYNTHESIS OF DRAWING (10) LEC. 3, LST. 12. Developing mechanical and production design drawings, with in-depth study of perspective systems. Product design communication with emphasis on drawing, development, and presentation.

INDD 1320 PROTOTYPE FABRICATION (3) LEC. 2. LAB. 2. Coreq. INDD 1310. Fabrication of three-dimensional models utilizing various materials and machineries. Includes model making, creative modeling, study models, presentation models, mock-ups and prototypes.

INDD 1400 CAREERS IN INDUSTRIAL DESIGN (2) LEC. 2. Survey of careers in the field of industrial design demonstrated through case studies, product examples and biographies.

INDD 2110 TWO DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, LST. 10. Transference of abstract principles of design to fabrication of simple tools. Emphasis on expression of functional objects.

INDD 2120 COMPUTER AND DESIGN COMMUNICATIONS (3) LEC. 2. LAB. 2. Alternative modes of communicating design ideas via computer. Executing design ideas for two-dimensional design fundamentals and mechanical design drawings.
INDD 2130 PRESENTATION RENDERING (3) LEC. 2. LAB. 2. Concept development using drawing and rendering skills with different media for ideas communication and presentation.

INDD 2210 THREE DIMENSIONAL INDUSTRIAL DESIGN PRINCIPLES (6) LEC. 2, AAB/LST. 10. Pr. INDD 2110. Analysis of design fundamentals through three dimensional form. Analyzing function, utility, convenience, safety, maintenance and sustainable design.

INDD 2220 ANTHROPOMETRY (3) LEC. 3. Pr. INDD 2110. Body measurements, movements and human capacity in relation to design with introduction to ergonomy and human physiology as it relates to design. School approval.

INDD 2230 HISTORY OF INDUSTRIAL DESIGN (3) LEC. 3. Pr. INDD 2110. Survey humankind's production of artifacts, from prehistory to present. Emphasis on ideas that mass produced artifacts mirror history and everyday culture.

INDD 3110 EXHIBIT AND PACKAGING (6) LEC. 1, LST. 8. Pr. INDD 2210. Display systems using models, concepts development, rendering, packaging, identity programs and professional presentations.


INDD 3130 BASIC PHOTOGRAPHY FOR INDUSTRIAL DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2210. Photography in design and art environments. Techniques of developing, printing and enlarging. Lighting techniques for portfolio photography, including lighting, studio photography, composition.

INDD 3210 PRODUCT DESIGN (6) LEC. 2, LST. 10. Pr. INDD 3110. Product design utilizing design methodology from proposal to working pre-prototype, including planning, research, development, model-making, manufacturing and documentation.

INDD 3220 MATERIALS AND TECHNOLOGY (3) LEC. 3. Pr. INDD 3120. Characteristics and utility of materials such as plastic, metal, and ceramics in manufacture and the study of machine/tool processes used by industry.

INDD 3230 ADVANCED COMPUTER AIDED DESIGN (3) LEC. 2. LAB. 2. Pr. INDD 2120. Introduction to CAD software emphasizing three-dimensional modeling. Students will learn drawing functions. Concepts of three-dimensional relationship of objects discussed.

INDD 4110 ADVANCED PRODUCT DESIGN (6) LEC. 2, AAB/LST. 10. Pr. INDD 3120 and INDD 3210. Design or redesign of products and systems of advanced complexity.

INDD 4120 ADVANCED COMPUTER AIDED DESIGN II (3) LEC. 3. Pr. INDD 3230. This course builds on concepts learned in INDD 3230, with emphasis on form creation, modeling and troubleshooting and the use of digital techniques to produce three dimensional models.

INDD 4210 INDUSTRIAL DESIGN THESIS (6) LEC. 2, AAB/LST. 10. Pr. INDD 4110. Product design projects involving all design phases; including planning, research, development, finalization, specification, and documentation.

INDD 4220 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Business aspects of industrial design, including property, design contract, letters of agreement, business planning and design marketing.

INDD 4907 HONORS READING (1-3) LEC. Course may be repeated for a maximum of 3 credit hours.

INDD 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

INDD 5010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind's production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 5030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussion. Focus on the socio-cultural relevancy of the artifacts.

INDD 5120 PROFESSIONAL PORTFOLIO (3) LEC. 3. Pr. INDD 3110 and INDD 3210. Design and development of a portfolio and promotional material presenting the student's work to entry-level professional standards.

INDD 5960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.
INDD 6010 HISTORY OF INDUSTRIAL DESIGN II (3) LEC. 3. A survey of humankind’s production of artifacts, from prehistory to contemporary times, with an emphasis on the idea that mass produced artifacts mirror the meanings of historical events and everyday culture.

INDD 6030 CASE STUDIES IN DESIGN (3) LEC. 3. Design projects undertaken by industry studied by examination of artifacts and records, and by class discussions. Focus on the socio-cultural relevancy of the artifacts.

INDD 6120 PORTFOLIO (3) LEC. 3. Preparation of professional portfolio for graduation and employment.

INDD 6960 SPECIAL PROBLEMS (1-5) AAB. Development of individual projects. Research, design and reports on approved topics. Course may be repeated for a maximum of 15 credit hours.

INDD 7010 DESIGN ORIENTATION (3) LEC. 3. Introduction to the Industrial Design graduate program: degree options, study directions, research methods, and areas. Students are required to develop a research/project proposal.

INDD 7020 COMPUTER/INDUSTRIAL DESIGN (3) LEC. 3. Synthesizing studies in research, analysis, and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7610 PRINCIPLES OF INDUSTRIAL DESIGN (3) LEC. 3. Detailed study of the communication principles of form qualities with emphasis of these aesthetic principles to the technical and human factors of artifacts.

INDD 7620 DESIGN MANAGEMENT (3) LEC. 3. Detailed study of the industrial design project management and development with emphasis on the interrelational management concepts of research, product planning, production and marketing.

INDD 7630 HUMAN FACTORS IN DESIGN (3) LEC. 3. Theoretical and empirical examination of human factors (Anthropometrics, Biotechnology, Engineering Psychology, Behavioral Cybermetrics, Ergonomics) as applied to man-machine environmental systems.

INDD 7640 AESTHETICS IN DESIGN (3) LEC. 3. Aesthetics in the context of the designed environment encompassing: non-verbal communication; object language semiotics; gestalt and perception systems; information aesthetics, and consumer product safety.

INDD 7650 DESIGN THEORIES (3) LEC. 3. Examination of design theories and philosophies related to technical artifacts in man-machine systems. Comparative studies of unifying theories in art, science, design, technology and the humanities.

INDD 7660 INDUSTRIAL DESIGN METHODOLOGY (3) LEC. 3. Industrial design methodologies and specific methods employed in research, analysis, synthesis, and evaluation in comprehensive design problems.

INDD 7670 SYSTEMS DESIGN (3) LEC. 3. Systems approach and interdisciplinary team work to design problems inquires into details of sub-systems, components and parts, with emphasis on the relation of the performance of technical systems to optional human factor effects.

INDD 7910 INDUSTRY PRACTICUM (5) AAB/STU. 5. This course will demand the application of acquired skill to the resolution of product design based issues within an industry collaboration studio over the period of one semester.

INDD 7980 NON-THESIS DESIGN (3) STU. 3. Synthesizing studies in research, analysis and application based on interdisciplinary concept. Emphasis on the relation of products and systems to those who use them.

INDD 7990 DESIGN THESIS (1-5) AAB/RES. Credit to be arranged. Course may be repeated with a change in topic.

Information Systems Management - ISMN

Courses

ISMN 3010 PROFESSIONAL DEVELOPMENT IN INFORMATION SYSTEMS (1) LEC. 1. SU. Pr. P/C ISMN 3140 and P/C BUSI 2010. Career planning and preparation for employment as an information systems management professional.

ISMN 3040 BUSINESS TELECOM MANAGEMENT (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Voice communications and technology and data communications (LAN, WAN, internet broadband), networks, protocols, standards, legislation and project development and management.

ISMN 3070 BUSINESS SYSTEM LOGIC AND MODELING (3) LEC. 3. Concepts, techniques, and tools for discovering, specifying, and modeling business logic are introduced, explored, and applied.
ISMN 3080 PROGRAMMING AND COMPUTER APPLICATIONS (3) LEC. 3. Visual and object-oriented business programming languages are introduced and explored.

ISMN 3140/3143 INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS (2) LEC. 2. The fundamental principles of the structure and management of information systems.

ISMN 3830 DATABASE MANAGEMENT SYSTEMS (3) LEC. 3. Business applications software in a database environment, complex data, and file structures, systems design consideration of global and distributed databases.

ISMN 3840 ANALYSIS OF BUSINESS SYSTEMS (3) LEC. 3. The study and application of tools, techniques, and methodologies to analyze, understand, and model business systems.

ISMN 4090 DIGITAL BUSINESS DESIGN (3) LEC. 3. Pr. ISMN 3830 or MNGT 3830 or MNGT 3833. Students bring together knowledge of digital technologies and their skills in business design and development to create innovative, leading-edge processes, products, and services for today's modern organizations.

ISMN 4850 COMPETITIVE STRATEGIES THROUGH INFORMATION (3) LEC. 3. Emphasizes how competitive strategies for companies are formulated and implemented using a combination of information technologies.

ISMN 4870 DATABASE SERVER FUNDAMENTALS (3) LEC. 3. Pr. ISMN 3830. Database servers as core components of developing n-Tier information technology are discussed. Practical exercises used to demonstrate the process of using QSQL to manage database through data manipulation language and data definition language. Advanced database objects are introduced.

ISMN 4880 MGT INFO SYSTEMS PROJECTS (3) LEC. 3. Pr. ISMN 4090. Coreq. ISMN 3830. Synthesizes theory and principles of management information systems (MIS) using real-life, hands-on-projects.

ISMN 4920 INTERNSHIP (3) AAB/INT. 3. SU. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

ISMN 4950 SEMINAR IN INFORMATION SYSTEMS MANAGEMENT (1-10) SEM. Course may be repeated for a maximum of 10 credit hours.

ISMN 5040 ADVANCED BUSINESS DATA COMMUNICATIONS (3) LEC. 3. Pr. ISMN 3140 or ISMN 3143. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.

ISMN 5270 CURRENT ISSUES IN IS FOR ORGS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 5290/5293 ADVANCED BUSINESS APPLICATION DEVELOPMENT (3) LEC. 3. Pr. BUAL 5650 or BUAL 5600. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/9293.

ISMN 5360/5363 APPLICATION OF GEOSPATIAL INFORMATION SYSTEMS FOR BUSINESS (3) LEC. 3. GIS involves the use of GIS and desktop mapping technology to aid in processes such as disaster recovery, facility planning and management, market segmentation, and community growth. The student will learn how to strategically use GIS to facilitate organizational performance. Credit will not be given for both ISMN 5360/5363 and ISMN 6360/6366.

ISMN 5370/5373 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 5380/5383 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as an tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 5390/5393 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both ISMN 5390/5393 and ISMN 6390/6396.
ISMN 5620 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Overview of business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 5630 CLIENTSIDE INTERNET PGM (3) LEC. 3. Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 5640 SERVERSIDE INTERNET PGM (3) LEC. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 5650 APPLICATION DEVELOPMENT WITH EMERGING TECHNOLOGIES (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 5680 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 5690 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 5720/5723 ELECTRONIC COMMERCE (3) LEC. 3. A managerial and interdisciplinary investigation into the many different business activities done on the Internet including buying and selling products and services, servicing customers, collaborating with stakeholders inside and outside the organization, social networking, and learning, among others. Students will come away with a broad knowledge of electronic commerce and its implications to modern business life and social life. Credit will not be given for both ISMN 5720/5723 and ISMN 6720/6726.

ISMN 5730/5733 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality, and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 5740/5743 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 5750/5753 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. Pr. (ISMN 5730 or ISMN 5670). This course presents indepth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. Credit will not be given for both ISMN 5750/5753 and ISMN 6750/6756.

ISMN 5770 INFORMATION SYSTEMS ETHICS (3) LEC. 3. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1040) and (ISMN 3140 or ISMN 3143). Information systems ethics, including: fundamentals; professional and user standards; and issues related to privacy, freedom of expression, intellectual property, and software development. Credit will not be given for both ISMN 5770 and ISMN 6770/6776.

ISMN 5870 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 5900 DIRECTED STUDIES (1-3) AAB/IND. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 5960 SPECIAL PROBLEMS (3) IND. 3. Independent study investigating current literature in information systems management. Course may be repeated for a maximum of 6 credit hours.

ISMN 6040/6046 TELECOMMUNICATIONS MANAGEMENT (3) LEC. 3. Discussion of the importance of telecommunications to an organization, including technology required, use strategy, and management. Credit will not be given for both ISMN 5040 and ISMN 6040/6046.
ISMN 6270/6276 CURRENT ISSUES IN INFORMATION SYSTEMS FOR ORGANIZATIONS (3) LEC. 3. This course covers current issues in Information Systems Management and Technology. As such, topics may differ from semester to semester. The objective of the course is to allow students to become familiar with issues such as emerging technologies, information systems and their role in vertical portals, and the role of information systems in industry. Course is designed to enable students to take it twice with subject change. Course may be repeated for a maximum of 6 credit hours.

ISMN 6286 INFORMATION SYSTEMS ARCHITECTURE IN THE SMALL AND MEDIUM-SIZE ENTERPRISE (3) LEC. 3. Pr. ISMN 3040 and ISMN 3070. This course is an exposure into the current business applications of open source software. The course consists of 1) A research component focusing on current trends and practices within the culture of Open Source Software as well as the current and potential impact on business and 2) a hands-on laboratory component in which students explore the application of Open Source Software as a business tool. Equivalent courses at the graduate level. Credit will not be given for both ISMN 5280 and ISMN 6280/6286.

ISMN 6290/6296 ADVANCED PROGRAMMING APPLICATION DEVELOPMENT (3) LEC. 3. Department approval. Programming languages and skills, with emphasis on designing and implementing computer-based business solutions. Credit will not be given for both ISMN 5290/5293 and ISMN 6290/9293.

ISMN 6370/6376 PROJECT MANAGEMENT (3) LEC. 3. Tools and techniques of information technology project management including leading project management software. Credit will not be given for both ISMN 5370/5373 and ISMN 6370/6373.

ISMN 6380/6386 SOCIAL MEDIA AS A TOOL FOR BUSINESS STRATEGY (3) LEC. 3. Learn how to use social media as a tool to integrate business processes and enhance business performance. Credit will not be given for both ISMN 5380/5383 and ISMN 6380/6386.

ISMN 6390/6396 INTEGRATING BUSINESS PROCESSES WITH ERP (3) LEC. 3. Examination of how integrating business processes in ERP environment promotes strategic alignment and performance gains for an organization. Credit will not be given for both ISMN 5390/5393 and ISMN 6390/6396.

ISMN 6620/6626 BUSINESS APPLICATIONS WITH OPEN SOURCE SOFTWARE (3) LEC. 3. Evaluates business solutions with open source software. Students will have a hands-on opportunity to learn to administer and manage open source software and to become comfortable deploying/employing popular OSS applications as business solutions.

ISMN 6630/6636 CLIENTSIDE INTERNET PROGRAMMING (3) LEC. 3. Fundamentals of client-side Internet programming using technologies such as HTML, JavaScript, Cascading Style Sheets, and XML. Credit will not be given for both ISMN 5630 and ISMN 6630/6636.

ISMN 6640/6646 SERVERSIDE INTERNET PG (3) LEC. 3. Fundamentals of server-side Internet programming using technologies such as PHP, MySQL, and XML. Credit will not be given for both ISMN 5640 and ISMN 6640/6646.

ISMN 6650/6656 APPLICATION DEVELOPMENT WITH EMERGING TECHNOLOGIES (3) LEC. 3. Fundamentals of developing comprehensive, component-based local and Internet business applications. Credit will not be given for both ISMN 5650 and ISMN 6650/6656.

ISMN 6670/6676 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Organizational issues of security and methodologies for information assurance will be discussed from a managerial perspective.

ISMN 6680/6686 ADVANCED DATA BASE ADMINISTRATION AND DEVELOPMENT (3) LEC. 3. Pr. ISMN 3830 or ISMN 7830 or ISMN 7836. Key tasks and functions required of a database administrator in a business environment. Credit will not be given for both ISMN 5680 and ISMN 6680/6686.

ISMN 6690/6696 KNOWLEDGE MANAGEMENT AND ORGANIZATIONAL LEARNING (3) LEC. 3. Introduction to knowledge management and its role in organizational decision-making and learning. Studies of issues related to management, creation, and use of knowledge as well as issues related to system design and implementation. Credit will not be given for both ISMN 5690 and ISMN 6690/6696.

ISMN 6710/6716 INFORMATION RISK ANALYSIS (3) LEC. 3. Departmental approval. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions.
ISMN 6720/6726 ELECTRONIC COMMERCE (3) LEC. 3. A managerial and interdisciplinary investigation into the many different business activities done on the Internet including buying and selling products and services, servicing customers, collaborating with stakeholders inside and outside the organization, social networking, and learning, among others. Students will come away with a broad knowledge of electronic commerce and its implications to modern business life and social life. Credit will not be given for both ISMN 5720/5723 and ISMN 6720/6726.

ISMN 6730/6736 SECURITY AND INFORMATION ASSURANCE (3) LEC. 3. This course covers the fundamentals of computer security and information assurance from a management perspective. The student will be exposed to security and information assurance topics such as security policies, confidentiality and ethics. Credit will not be given for both ISMN 5730/5733 and ISMN 6730/6736.

ISMN 6740/6746 INFORMATION RISK ANALYSIS (3) LEC. 3. Indepth instruction on the range of skills required of persons engaged in the performance of risk analysis functions. Credit will not be given for both ISMN 5740/5743 and ISMN 6740/6746.

ISMN 6750/6756 INFORMATION TECHNOLOGY AUDITING (3) LEC. 3. This course presents in-depth instruction on the range of skills required of persons engaged in the performance of IT audit. The skills include those required by but not limited to a technology analyst, data scientist, or CIO. May count either ISMN 5750 or ISMN 6750.

ISMN 6770/6776 INFORMATION SYSTEMS ETHICS (3) LEC. 3. Pr. (PHIL 1020 or PHIL 1023 or PHIL 1027 or PHIL 1040) and (ISMN 3140 or ISMN 3143). Information systems ethics, including: fundamentals; professional and user standards; and issues related to privacy, freedom of expression, intellectual property, and software development. Credit will not be given for both ISMN 5770 and ISMN 6770/6776.

ISMN 6870/6876 BUSINESS INTELLIGENCE APPLICATIONS (3) LEC. 3. Pr. ISMN 3830 or BUAL 5650. Key tasks, tools, techniques and methodologies supporting the application of Business Intelligence Systems in organizations, and related management issues. Credit will not be given for both ISMN 5870 and ISMN 6870/6876.

ISMN 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. Independent study on current topics in information systems management. Course may be repeated for a maximum of 9 credit hours.

ISMN 6960/6966 SPECIAL PROBLEMS (3) IND. 3. General information systems management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 9 credit hours.

ISMN 7020/7026 BUSINESS TELECOMMUNICATIONS AND NETWORKS (3) LEC. 3. Provides an understanding of voice and data communications, e.g., networks (LAN, internet), protocols standards, legislation and project development, so that managers, might utilize telecommunications effectively.

ISMN 7140/7146 MANAGING END USER COMPUTING (3) LEC. 3. Studies MIS from user's perspective, and compares it with the roles of the professional department. Course covers support of desktop applications, data usage, and communications.

ISMN 7360/7366 INTEGRATING THEORY AND PRACTICE FOR TECHNOLOGY MANAGERS (3) LEC. 3. A study of the technical and non-technical forces that influence the decision-making process in companies by the use of innovative instructional material.

ISMN 7380/7386 INTEGRATING INFORMATION TECHNOLOGIES TO PROVIDE COMPETITIVE ADVANTAGE (3) LEC. 3. How to integrate effectively information technologies in formulating and implementing competitive strategies for companies.

ISMN 7660/7666 INFORMATION SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. General systems theory, information systems logical and physical analysis, structured and object-oriented methodologies and prototyping, system documentation, general design and use of CASE tools.

ISMN 7670/7676 ELECTRONIC COMMERCE (3) LEC. 3. The tools, skills, technologies, and business and social implications of the emergence of electronic commerce in cyberspace.

ISMN 7730/7736 MANAGEMENT OF INNOVATION (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. The process of product and service innovation on two levels: managing product design and general strategies for managing multiple innovation streams.

ISMN 7760/7766 QUANT METHODS IN OPS MNGT (3) LEC. 3.

ISMN 7810/7816 STRUCTURED DECISION MAKING (3) LEC. 3. Introduction to business decision structuring and aiding, including multiple criteria and group-decision making methodology.

ISMN 7830/7836 ADVANCED DATABASE MANAGEMENT SYSTEMS PROJECTS (3) LEC. 3. Database management systems using database methodologies to support business applications, including requirements for distributed databases.
ISMN 7870/7876 EXPERT SYSTEMS IN BUSINESS (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Study of expert systems and other knowledge-based systems in the organization, including relevant concepts, methodologies, architectures, strategies, and issues.

ISMN 7880/7886 ADV MNGT OF INFO SYS (3) LEC. 3. In-depth inquiry and analysis of advanced information technologies in organizations.

ISMN 7890/7896 INFORMATION RESOURCE MNGT (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Management of information systems resources, unique management problems in a computer information systems environment. Strategic and competitive analysis of information technology.

ISMN 7980/7986 MMIS PROJECT (1-10) IND. SU. Departmental approval. Independent exploration of an approved topic/problem that allows the student to demonstrate the application of knowledge and capabilities gained during the program. Approval of the project and assessment of its deliverables by the student's advisory committee is required. Course may be repeated for a maximum of 10 credit hours.

ISMN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research on thesis or research project. Course may be repeated with change in topics.

ISMN 8010 IS MANAGEMENT RESEARCH SEM. I (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation MIS research.

ISMN 8020 IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Preparation in conceptualization, conduct, and presentation of applied and case studies research in MIS.

ISMN 8030 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH I (3) SEM. 3. Research methodologies used in conducting research with emphasis on empirical research methods.

ISMN 8040 DOCTORAL SEMINAR IN INFORMATION SYSTEMS RESEARCH II (3) SEM. 3. Research methodologies used in conducting research with emphasis on conceptual and empirical research methods.

ISMN 8500 ADVANCED IS MANAGEMENT RESEARCH SEMINAR I (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the management of technology and technological innovation, with the primary focus on information technology and research.

ISMN 8660 ADVANCED IS MANAGEMENT RESEARCH SEMINAR II (3) SEM. 3. Departmental approval. Theoretical foundations and research directions in the alignment of information technology strategy to business objectives and goals.

ISMN 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Must be degree seeking PhD student in the Business with concentration in IS program.

Integrated Textile & Appar - ITAS

Courses
ITAS 7200 INTEGRATED TEXTILE AND APPAREL COMPLEX (3) LEC. 3. Departmental approval. Components, linkages, concepts and trends in an integrated, global textile/apparel/retail industry. Fall.

ITAS 8950 INDUSTRY ISSUES SEMINAR (1) LEC. 1. SU. Departmental approval. Research presentations and discussions on issues facing the global textile industrial complex. Course may be repeated for a maximum of 6 credit hours.

ITAS 8960 CURRENT ISSUES IN INTEGRATED TEXTILE AND APPAREL SCIENCE (2) LEC. 2. Departmental approval. Directed readings on current issues in the global textile industrial complex. Spring. Course may be repeated for a maximum of 6 credit hours.

ITAS 8970 ADVANCED TOPICS IN INTEGRATED TEXTILE AND APPAREL QUALITY CONTROL (3) LEC. 3. Departmental approval. Quality related topics integrated for textile and apparel operations. Spring.

ITAS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Integrd Design & Construction - INDC

Interdepartmental Education - EDUC
Courses

EDUC 1010 ORIENTATION TO TEACHER EDUCATION (0) LEC. 0. SU. Orientation to the teaching profession.

EDUC 5970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

EDUC 6970 SPECIAL TOPICS (1-9) LEC. Opportunity for study of current topics related to the field of education in general. Course may be repeated for a maximum of 9 credit hours.

Interdept Pharmacy - PYDI

Courses

PYDI 4980 INTRODUCTION TO UNDERGRADUATE RESEARCH IN PHARMACY (1-3) IND. SU. Departmental approval. Individual problems course. Students will work under the direction of a faculty member on some problem of mutual interest. Course may be repeated for a maximum of 6 credit hours.

PYDI 9000/9006 DRUGS AND DISEASES I (5) LEC. 5. Integrated study of pathophysiology and chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Fall.

PYDI 9010/9016 PATIENT CENTERED SKILLS (2) LEC. 2. Development of methods for developing positive, therapeutic relationships with patients through the application of communications skills (empathy, assertiveness training, effective listening, etc.) and other behavioral interventions. Fall.

PYDI 9020 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE I (2) LAB. 6. This course integrates the skills necessary for the provision of pharmaceutical care. Source material introduces and integrates knowledge and skills focusing on patient assessment and communication. Fall.

PYDI 9100/9106 DRUGS AND DISEASES II (5) LEC. 5. Pr. PYDI 9000 or PYDI 9006 or PYDI 5000 or PYDI 5000. Presents, in an integrated manner, pathophysiology and chemical, pharmacological and biotechnology principles to explain the action of drugs; continuation of PYDI 9000/PYDI9006. Spring.

PYDI 9110/9116 PHARMACY LAW AND ETHICS (2) LEC. 2. Basic legal and ethical principles of pharmaceutical care and their effect on the patient drug use process. Spring.

PYDI 9120 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE II (2) LAB. 6. Pr. PYDI 9020 or PYDI 5020. This course integrates pharmaceutical care skills. Source material introduces and integrates knowledge and skills focusing on pharmaceutical calculations, communication, physical assessment and use of clinical literature. Spring.

PYDI 9136 DRUG LITERATURE EVALUATION (2) DSL. 2. Development of the ability to effectively and efficiently retrieve drug information and critically evaluate and interpret studies published in medical and pharmaceutical literature. Spring.

PYDI 9140/9146 PRINCIPLES OF PHARMACOKINETICS (3) LEC. 3. Pr. PYDI 9000 or PYDI 9006 or PYDI 5000. To prepare students to use pharmacokinetic information and measurements to evaluate drug therapy and recommend appropriate dosing strategies for drug administration and monitoring. Spring.

PYDI 9200/9206 DRUGS AND DISEASES III (8) LEC. 8. Pr. (PYDI 9100 or PYDI 9106 or PYDI 5100) and (PYDI 9140 or PYDI 9146 or PYDI 5140). Presentation in an integrated manner of and pathophysiology chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Continuation of PYDI 9100/PYDI 9106. Fall.

PYDI 9210/9216 PHARMACY PRACTICE DEVELOPMENT, MANAGEMENT, AND EVALUATION I (3) LEC. 3. Overview of the development, management, and evaluation of systems that support the provision of pharmaceutical care for patients in multiple health systems. Fall.

PYDI 9220 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE III (2) LAB. 6. Pr. PYDI 9120 or PYDI 5120. Integrates the provision of pharmaceutical care and pharmacy-specific skills related to drug-related problems. Supportive skills for the pharmaceutical sciences and other integrated skills are a major emphasis. Fall.

PYDI 9230/9236 DRUG PRODUCTS I (3) LEC. 3. Pr. (PYDI 9100 or PYDI 5100 or PYDI 9106 or PYDI 5106) and (PYDI 9120 or PYDI 5120). Physical-chemical and biopharmaceutical principles and technologies used in the preparation of pharmaceutical dosage forms and novel drug delivery systems. Fall.
PYDI 9290 PHARMACY PRACTICE EXPERIENCE III (2) PRA. 2. SU. Pr. PYDI 9190 or PYDI 5190. Third in six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients.

PYDI 9300/9306 DRUGS AND DISEASES IV (8) LEC. 8. Pr. PYDI 9200 or PYDI 9206 or PYDI 5200. Presentation, in an integrated manner, of pathophysiology and chemical, pharmacological, biotechnology, and pharmacokinetic principles to explain the action of drugs. Continuation of PYDI 9200/PYDI 9206. Spring.

PYDI 9310/9316 PHARMACY PRACTICE DEVELOPMENT, MANAGEMENT, AND EVALUATION II (3) LEC. 3. Pr. PYDI 9210 or PYDI 9216 or PYPC 5210. An overview of the development, management, and evaluation of systems that support the provision of pharmaceutical care for patients in multiple health systems. Continuation of PYDI 9210/PYDI 9216. Spring.

PYDI 9320 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE IV (2) LAB. 6. Pr. PYDI 9220 or PYDI 5220. Continuation of PYDI 9200. Spring.

PYDI 9330/9336 DRUG PRODUCTS II (3) LEC. 3. Pr. (PYDI 9230 or PYDI 9236 or PYPS 5230) and PYDI 9200 or PYDI 5200 or PYDI 9206 and PYDI 9220 or PYDI 5220. Physical-chemical and biopharmaceutical principles and technologies used in the preparation of pharmaceutical dosage forms and novel drug delivery systems. Continuation of PYDI 9230/PYDI 9236. Spring.

PYDI 9390 PHARMACY PRACTICE EXPERIENCE IV (2) PRA. 2. SU. Pr. PYDI 9290. Fourth in a six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community based patients. Spring.

PYDI 9420 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE V (2) LAB. 6. Continuation of PYDI 9320 Fall.

PYDI 9470 INTEGRATED PHARMACOTHERAPY I (6) RCT. 6. Application of the basic, clinical, and socio-behavioral sciences to identifying, preventing and solving health and drug related problems. Fall.

PYDI 9480 INTEGRATED PHARMACOTHERAPY II (6) RCT. 6. Continuation of PYDI 9470. Fall.

PYDI 9490 PHARMACY PRACTICE EXPERIENCE V (2) PRA. 2. SU. Fifth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Fall.

PYDI 9510 GERIATRIC CARE (2) LEC. 25. This course focuses on environmental, psychological, and physiological characteristics that are unique to, or more prevalent among, geriatric patients. Students will be required to evaluate how pharmacists can impact care through interprofessional teams while optimizing the patient's quality of life.

PYDI 9520 CONTEMPORARY ASPECTS OF PHARMACY PRACTICE VI (2) LAB. 6. Pr. PYDI 9420 or PYDI 5420. Continuation of PYDI 9420.

PYDI 9570 INTEGRATED PHARMACOTHERAPY III (6) RCT. 6. Pr. PYDI 5480 or PYDI 9480. Continuation of PYDI 9480. Spring.

PYDI 9580 INTEGRATED PHARMACOTHERAPY IV (6) RCT. 6. Pr. PYDI 5480 or PYDI 9480. Continuation of PYDI 9570. Spring

PYDI 9590 PHARMACY PRACTICE EXPERIENCE VI (2) PRA. 2. SU. Pr. PYDI 9490 or PYDI 5490. Sixth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community based patients along with patient care team management responsibilities. Spring.

PYDI 9600 DRUG INFORMATION-SELECTIVE (5) PRA. 5. Advanced practice experience in providing drug information services to health care providers. Fall, Spring, Summer.

PYDI 9610 COMMUNITY PHARMACEUTICAL CARE (5) PRA. 5. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities. Fall, Spring, Summer.

PYDI 9620 MEDICINE I (5) PRA. 5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Fall, Spring, Summer.

PYDI 9630 MEDICINE II - SELECTIVE (5) PRA. 5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Additional experience beyond PYDI 9620. Fall, Spring, Summer.

PYDI 9640 PRIMARY/AMBULATORY CARE I (5) PRA. 5. Advanced practice experience in providing care to patients as they initially access the health care system. Fall, Spring, Summer.
PYDI 9650 PRIMARY/AMBULATORY CARE II (5) PRA. 5. Advanced practice experience in providing pharmaceutical care to patients as they initially access the health care system. Continuation of PYDI 9640. Fall, Spring, Summer.

PYDI 9660 HEALTH SYSTEM PRACTICE (5) PRA. 5. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services. Fall, Spring, Summer.

PYDI 9670 PRACTICE ELECTIVE I (5) PRA. 5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYDI 9680 PRACTICE ELECTIVE II (5) PRA. 5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYDI 9690 PROFESSIONAL SEMINAR (1) PRA. 2. SU. Student will demonstrate the ability to evaluate and synthesize pertinent literature, and effectively communicate pharmacotherapy-related material in one platform (seminar) presentation. Spring.

PYDI 9700 ADVANCED PRACTICE EXPERIENCE PROFESSIONAL COMMUNICATION (0) PRA. SU. Students will synthesize pertinent literature, and communicate pharmacotherapy-related material in patient, journal club, in-service, and written presentations. Spring.


PYDI 9720/9726 MOTIVATIONAL INTERVIEWING (2) LEC. 2. Pr. PYDI 9010 or PYDI 9016 or PYPC 5010 or PYPC 5016. Basic and advanced training and exploration of motivational interviewing. Fall

PYDI 9730/9736 DRUGS IN PREGNANCY (2) LEC. 2. Medication issues related to pregnancy and lactation. Fall.

PYDI 9740/9746 PEDIATRIC PHARMACOTHERAPY (2) LEC. 2. Medication issues related to the pediatric population. Fall.

PYDI 9750/9756 ANTITHROMBOTIC/THROMBOLYTIC THERAPY (2) LEC. 2. Provides the student with a working knowledge of both basic and advanced pharmacotherapeutics issues related to antithrombotic and thrombolytic therapy. Spring.

PYDI 9770/9776 WOMEN'S HEALTH ISSUES (2) LEC. 2. Understanding factors that affect women's premature morbidity and mortality.

PYDI 9780/9786 ACUTE CARE PHARMACOTHERAPY (2) LEC. 2. This course is designed to orient the pharmacy student to the acute care environment and familiarize them with patient disease states and pharmacotherapy associated with the acutely ill patient. Spring.

PYDI 9790/9796 PSYCHIATRIC PHARMACOTHERAPY (2) LEC. 2. To expose pharmacy students to psychiatry and to develop a working knowledge of both basic and advanced pharmacotherapeutic issues related to psychopharmacology. Spring.

PYDI 9800 SURVEY OF MULTI-MODALITY MOLECULAR IMAGING FOR PHARM.D. (2) LEC. 2. State-of-the-art survey of molecular imaging techniques and clinical imaging modalities that are available and their use to monitor the progression of various human diseases.

PYDI 9810/9816 EVIDENCE-BASED PHARMACOTHERAPY (2) LEC. 2. Student pharmacists will become more proficient at literature evaluation and application of evidence-based pharmacotherapy/medicine to patient care. Spring.

PYDI 9960/9966 SPECIAL PROBLEMS IN PHARMACY (1-3) IND. Independent study of problems related to pharmacy under the direction of a faculty member. Departmental approval. Fall. Spring. Course may be repeated for a maximum of 6 credit hours.

PYDI 9970/9976 SPECIAL TOPICS IN PHARMACY (2) LEC. 2. Instruction and discussion in a selected current topic in Pharmacy. Fall, Spring. Course may be repeated for a maximum of 4 credit hours.

**Interdisciplinary Studies - IDSC**

**Courses**

IDSC 1010 LIFE, CAREER, AND EVERYTHING (3) LEC. 3. This course provides an in-depth exploration of each student's strengths and interests, and includes a series of exercises and experiences designed to guide the student in the selection of a degree path.
IDSC 2000 CONTEMPORARY KOREA (3) LEC. 3. Overview of the human, physical, and technological context of the Republic of South Korea through a combination of lectures, readings, presentations, and discussions, utilizing the expertise of Auburn colleagues across the disciplines.

IDSC 2190/2193 FOUNDATIONS OF INTERDISCIPLINARY UNIVERSITY STUDIES (3) LEC. 3. Provides students with an introduction to (1) the major approaches and applications of interdisciplinary studies, (2) an examination of disciplinary and interdisciplinary thinking; and (3) an introduction to concepts and methods of interdisciplinary study.

IDSC 3210 ADVANCED INTERDISCIPLINARY PROBLEM SOLVING (3) LEC. 2. LAB. 2. Pr. IDSC 1010 and IDSC 2190 or IDSC 2193. This is a synthesis course designed to provide students with practice in applying interdisciplinary methods to the solution of real-world problems and to prepare them to communicate those solutions to a diverse audience.

IDSC 4920 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) INT. 3. Pr. (IDSC 1010 and IDSC 2190 or IDSC 2193) and IDSC 3210. Capstone course designed to apply Interdisciplinary Degree Coursework to an internship project. Course may be repeated for a maximum of 6 credit hours.

IDSC 4930 INTERDISCIPLINARY CAPSTONE EXPERIENCE (3) LEC. 2. LAB. 2. Pr. (IDSC 1010 and IDSC 2190 or IDSC 2193) and IDSC 3210. Capstone course designed to apply Interdisciplinary Degree Coursework to a senior thesis project. Course may be repeated for a maximum of 6 credit hours.

IDSC 5950/5953 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

IDSC 6950/6956 GRADUATE FOOD SYSTEMS SEMINAR (1) SEM. 1. This is a required course for graduate students in the Food Systems Graduate Certificate Program. Discussion and presentation of integrated and interdisciplinary food system topics. Course may be repeated for a maximum of 2 credit hours.

**Interior Architecture - ARIA**

**Courses**


ARIA 2160 ELEMENTS OF INTERIOR ARCHITECTURE II (3) LEC. 3. The theory of design principles, aesthetics and concepts. Graphic drawings and models of interior spaces explored. Projects outside of class.


ARIA 4020 STUDIO 6A INTERIOR ARCHITECTURE (6) LEC. 2, LST. 10. Pr. ARCH 3020 and ARCH 3320 and (ARCH 2110 or ARCH 2117) and BSCI 3400. Parallels Architecture Studio 6, with emphasis on the development of interior architecture and spaces within an urban context. Consideration will be given to adaptive reuse.

ARIA 4030 INTERIOR ARCHITECTURE THESIS (6) LEC. 3, LST. 10. Pr. ARCH 4020. Coreq. ARIA 4080. Interior design project of the student's choice, under the direction of a faculty member.

ARIA 4080 INTERIOR ARCHITECTURE THESIS RESEARCH (2) LEC. 2. Pr. ARCH 4020. Research and writing of thesis documents, to include programming, site, and case studies.

ARIA 4450 INTERIOR ARCHITECTURE PROFESSIONAL PRACTICE (2) LEC. 2. Pr. ARCH 4020. Prepares student to enter professional office with an understanding of the skills, concepts and technical knowledge expected.

ARIA 4680 HISTORY AND THEORY OF INTERIOR ARCHITECTURE (3) LEC. 3. Pr. ARCH 4020. The theory and history of interior spaces, their social, material, and aesthetic development and their artifacts.

**Intl Programs-Special Topics - INTL**
Courses

INTL 1800 ORAL PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3. SU. Departmental approval. International students develop lecture note-taking skills, classroom oral presentation skills on general and specific subjects, and debating skills. None for degree-enrolled students; for transient students.

INTL 1820 CLASSROOM COMMUNICATION SKILLS FOR INTERNATIONAL TEACHING ASSISTANTS (3) LEC. 3. SU. Oral language skills required for effective classroom communication.

INTL 1830 WRITING PROFICIENCY IN ENGLISH FOR INTERNATIONAL STUDENTS (3) LEC. 3. SU. Skills that international students need to undertake successful research writing in English.

INTL 1840 READING SKILLS FOR ESL (3) LEC. 3. SU. Comprehend extensive university-level readings, identify author's audience, purpose, viewpoint and tone, read 250 words per minute. None for degree-enrolled student; for transient students, one of the following: pBT TOEFL of 500, iBT TOEFL of 61, IELTS of 6.

INTL 1970 SPECIAL TOPICS IN INTERNATIONAL SUSTAINABILITY (2) LEC. 2. A pre-Freshman international experience for select students. Open to all majors. Historical and contemporary sustainability issues are examined. Will also be used for Spring Break programs.

INTL 3930 DIRECTED INTERNATIONAL STUDY (3) AAB. 45. Pr. INTL 1500 and INTL 2500 or Departmental approval. Directed study-abroad experiences at the upper-division level to provide students with field learning experiences that build upon the coursework students receive on-campus. Students travel from two to four weeks with a faculty member learning about regional and global issues.

Journalism - JRNL

Courses

JRNL 1100 JOURNALISM FUNDAMENTALS (3) LEC. 3. Emphasis on Associated Press Stylebook, word usage, and spelling for students interested in print, broadcast, public relations, and web-based writing.

JRNL 1AA0 JOURNALISM FUNDAMENTALS ENTRANCE EXAM (0) LAB. 1.5. SU. JRNL 1AA0 is an exam option for students who are required to take JRNL 1100. The course will test students on spelling, grammar, Associated Press Style and word usage to mirror content covered in the in-person course. This course is not repeatable.

JRNL 2210/2213 NEWSWRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0. With a minimum grade of "B" in JRNL 1100. Introduction to newswriting techniques, with emphasis on learning news values, recognizing parts of a story, and writing stories that meet standards of accuracy, grammar, style, spelling, law, and ethics.

JRNL 2310 REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. With a minimum grade of "B" in JRNL 1100. Preparation for careers in gathering and telling the news. Course emphasizes the writing of accurate, clear, and meaningful news stories for print and digital formats.

JRNL 2320 ADVISING STUDENT PUBLICATIONS (3) LEC. 3. Primarily for non-journalism and non-communication majors. Role and responsibilities of the publication adviser in high school and college.

JRNL 3010 DIGITAL NEWS PRODUCTION (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0. With a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of digital video production. Emphasis on techniques used in producing newscasts for broadcast, web and mobile devices.

JRNL 3020 DIGITAL NEWS REPORTING (3) LEC. 3. Pr. JRNL 1100 and JRNL 1AA0 and JRNL 3010 and (CMJN 2100 or CMJN 2103). With a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Writing and reporting digital news stories on deadline for broadcast, online, social media, and mobile outlets.

JRNL 3103 GLOBAL JOURNALISM AND MEDIA SYSTEMS (3) DSL. 3. The Internet and social media have created a world more connected than ever. Examines the economic, political, technological, and cultural changes that impact media and journalism globally.

JRNL 3110 INTRODUCTION TO APPLIED JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (CMJN 2100 or CMJN 2103). With a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIV or MDIA. Introduction to how a media organization operates; provides an opportunity for students to gain practical, hands-on journalism experience.
JRNL 3220 MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to writing colorful, human-interest non-fiction pieces that illustrate drama and impact. Students will learn how to pitch their ideas to editors in print and digital markets.

JRNL 3410 PHOTOJOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Uses, techniques, and processes of digital photography for the newspaper, magazine, and web-based industries. Operations of digital SLRs and Photoshop and techniques for variety of assignments are addressed.

JRNL 3470 EDITING AND DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to the basics of design, layout, headline writing, typography, use of color, and selection of images for visual impact. Students will learn how to design news, sports, and magazine layouts, using Adobe InDesign and Photoshop.

JRNL 3510 MULTIMEDIA JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and JRNL 2210. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Introduction to multimedia journalistic storytelling. Reporting and production course where students use various technologies to produce journalism stories for digital platforms.

JRNL 3530 SPORTS REPORTING (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 or (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Sports reporting for print, broadcast, and online media, with emphasis on interviewing athletes, covering sporting events, and learning about issues surrounding sports.

JRNL 4230 ADVANCED REPORTING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3220 and JRNL 3020) or (JRNL 3220 and JRNL 3530) or (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Developing and writing news stories under deadline pressure; investigative and interpretative reporting.

JRNL 4320 ENTREPRENEURIAL JOURNALISM (3) LEC. 3. Pr. JRNL 1100 and (CMJN 2100 or CMJN 2103), with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Emphasis on content, advertising, audience, and marketing in news organizations and applying entrepreneurial principles to journalism start-ups.

JRNL 4410 JOURNALISM HISTORY (3) LEC. 3. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues.

JRNL 4417 HONORS JOURNALISM HISTORY (3) LEC. 3. Pr. Honors College. Issues facing the American press, from colonial times to the present, with emphasis on regional and state issues. Credit will not be given for both JRNL 4410 and JRNL 4417.

JRNL 4470 ADVANCED MAGAZINE AND FEATURE WRITING (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and JRNL 3220 and (JRNL 3020 or JRNL 3530). with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Emphasis on creating long-form, non-fiction articles for print and digital publications through graceful and innovative writing techniques and skillful reporting.

JRNL 4480 ADVANCED PUBLICATION DESIGN (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and CMJN 2100 or CMJN 2103 and JRNL 2210 and JRNL 3470. with a minimum grade of "B" in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA, MDIV or Departmental approval. Desktop publishing to produce print publications, including brochures and newsletters, and with exposure to web page, advertising, and magazine design.


JRNL 4870 COMMUNITY JOURNALISM (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100. Civic role of community journalists.

JRNL 4920 JOURNALISM INTERNSHIP (3) INT. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and JRNL 2210 and JRNL 2310 and (JRNL 3020 or JRNL 3220 or JRNL 3530) and (JRNL 3010 or JRNL 3110 or JRNL 3410 or JRNL 3470 or JRNL 3510). With a minimum grade of "B" in JRNL 1100 and one specialized reporting course and one journalism production course and Declared major in JRNL. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting. Admission to internship program.
JRNL 4930 DIRECTED STUDIES (1-4) IND. Research and analysis of specific areas of journalism. Course may be repeated for a maximum of 6 credit hours.

JRNL 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. 3. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

JRNL 4970 SPECIAL TOPICS IN JOURNALISM (3) AAB. 3. Pr. JRNL 1100 or JRNL 1AA0 and JRNL 2210. with a minimum grade of B in JRNL 1100 and Declared major in AGCO, COMM, JRNL, PRCM, MDIA or MDIV. Study of narrowly defined journalism topics not already covered in the current JRNL curriculum. Course may be repeated for a maximum of 6 credit hours.

JRNL 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

Kinesiology - KINE

Courses

KINE 1100/1103 WELLNESS (2) LEC. 1. LAB. 2. Basic concepts and principles of wellness with laboratory experiences for the self-appraisal of health-related physical fitness. May count either KINE 1100 or KINE 1103.

KINE 2003 PILLARS OF HEALTH: A JOURNEY TO OPTIMAL HEALTH & WELLBEING (3) LAB. 4. Students will learn and apply Mindfulness-Based Stress Reduction (MBSR) techniques and practices that have been shown, scientifically, to reduce stress and act as an aid to many health conditions that arise or are exacerbated by stress. On-campus labs are required.

KINE 2250/2253 MOTOR DEVELOPMENT ACROSS THE LIFESPAN (2) LEC. 2. Develops understanding and skills concerning the broad concept of motor development across the lifespan. May count either KINE 2250 or KINE 2253.

KINE 2251 MOTOR DEVELOPMENT ACROSS THE LIFESPAN LABORATORY (1) LAB. 2. SU. Pr. (P/C KINE 2250 or P/C KINE 2253). Develops understanding and skills concerning the broad concept of motor development across the lifespan.

KINE 2503 SPORT OPTIMIZATION I (3) LEC. 2. LAB. 2. Basic concepts associated with the assessment of sport performance for the purpose of optimization.

KINE 2513 SPORT OPTIMIZATION 2 (3) LEC. 2. LAB. 2. Pr. KINE 2503 or HLHP 2500 or HLHP 2503. Concepts associated with the assessment and interpretation of sport performance for the purpose of optimization.

KINE 2703 HEALTH CRISIS IN CHILDREN AND YOUTH (3) LEC. 3. Explores the scope of the childhood obesity epidemic and the health consequences of being overweight or obese during the pediatric years and long-term implications during adulthood.

KINE 2723 KEEPING KIDS HEALTHY, ACTIVE, AND FIT (3) LEC. 3. Practical and application approach toward developing comprehensive programming that aims to promote physical activity and fitness in preschool- and school-age children.

KINE 2800/2803 INTRODUCTION TO KINESIOLOGY (3) LEC. 3. People, history and programs that have led to the current status of physical education, exercise science and health promotion.

KINE 3003 MEDICAL TERMINOLOGY FOR ALLIED HEALTH PROFESSIONS (3) LEC. 3. Focus on medical terminology/abbreviations used in allied health care and application to health care documentation. Web-based delivery.

KINE 3010/3013 INSTRUCTION AND TECHNOLOGY IN KINESIOLOGY (2) LEC. 1. LAB. 2. Communication skills, instructional strategies and technological competencies related to conveying information in the Kinesiology disciplines. May count either KINE 3010 or KINE 3013.

KINE 3020/3023 SCIENTIFIC FOUNDATIONS OF KINESIOLOGY (4) LEC. 4. Overview of the biomechanical, physiological and psychological foundations of human movement. Core biology. May count either KINE 3020 or KINE 3023.

KINE 3030 INTRODUCTION TO PERSONAL TRAINING (3) LEC. 3. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.
KINE 3031 INTRODUCTION TO PERSONAL TRAINING LABORATORY (3) LAB. 6. Pr. P/C KINE 3030. Theoretical knowledge and skills in preparation of national certification in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.

KINE 3043 HISTORY OF AMERICAN PHYSICAL CULTURE (3) LEC. 3. Appreciation of the historical and cultural aspects of health, exercise, fitness and sports activities in modern American society.

KINE 3050/3053 CARE AND PREVENTION OF INJURIES (3) LEC. 3. Students will understand how to implement proper procedures in sports medicine care, create/lead emergency action plans, prevent injury/illness occurrence, care for basic injuries/illnesses, and analyze environmental conditions for safety, and provide important information to sports medicine health professionals. May count either KINE 3050 or KINE 3053.

KINE 3100/3103 ADAPTIVE SPORTS (3) LEC. 3. An introduction to various competitive and recreational activities for persons with disabilities. May count either KINE 3100 or KINE 3103.

KINE 3113 PARALYMPIC SPORT (3) LEC. 3. An introduction to the Paralympic Games including the Games development, rules, and current issues related to media, marketing, and social rights.

KINE 3200 SKILLS AND CONCEPTS OF RHYTHMIC ACTIVITIES (3) LEC. 2. LAB. 2. Skillful performance in gymnastics and other rhythmic activities and an understanding of the basic movement concepts in those activities.

KINE 3210 SKILLS AND CONCEPTS OF SPORT (3) LEC. 2. LAB. 2. Skillful performance in games and sports and an understanding of the tactics in those activities. Admission to Teacher Education.

KINE 3230 TEACHING MOTOR SKILLS (3) LEC. 2. LAB. 2. Introduction to motor skills that students learn during their elementary school years in physical education.

KINE 3250 SKILL ACQUISITION FOR SCHOOL-AGED CHILDREN (3) LEC. 2. LAB. 2. Pr. (HLHP 2250 or HLHP 2253 or KINE 2250 or KINE 2253) and (HLHP 3020 or HLHP 3023 or KINE 3020 or KINE 3023). Principles of skill acquisition applied to instructional settings in teaching and coaching.

KINE 3260 PHYSICAL EDUCATION FOR INDIVIDUALS WITH DISABILITIES (3) LEC. 2. LAB. 2. Pr. (KINE 2250 and KINE 2251 or KINE 2253) or (HLHP 2250 or HLHP 2251 or HLHP 2253). Program needs of individuals with disabilities in physical education and physical activity settings.

KINE 3300 INSTRUCTIONAL STRATEGIES IN PHYSICAL EDUCATION (3) LEC. 2. LAB. 2. Pr. HLHP 3010 or HLHP 3013 or KINE 3010 or KINE 3013. Admission to Teacher Education. Instructional and class management strategies appropriate to teach quality elementary and secondary physical education Admission to Teacher Education.

KINE 3400 HEALTH PROMOTION IN THE WORKPLACE (3) LEC. 3. Planning, implementation, evaluation and marketing of health promotion programs.

KINE 3413 REGISTERED YOGA TEACHER LEVEL I (3) LEC. 2. LAB. 2. Basic principles of teaching yoga. Concepts include the poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3413 & KINE 3423 completes a Yoga Teacher Certification.

KINE 3423 REGISTERED YOGA TEACHER LEVEL II (3) LEC. 2. LAB. 2. Pr. KINE 3413 or HLHP 3410 or HLHP 3413. Advanced principles of teaching yoga. Focus on poses, breathing, relaxation, meditation and other yoga techniques. Completion of KINE 3413 and KINE 3423 completes a Yoga Teacher Certification.

KINE 3443 COMPLEMENTARY THERAPIES AND INTEGRATIVE HEALTH (3) DSL. 3. An introduction to complementary therapies and integrative health including the basic concepts, foundation, clinical applications, and scientific evidence of specific holistic therapeutic practices.

KINE 3453 ACUPUNCTURE, ACUPRESSURE AND EXERCISE (3) LEC. 3. A practical approach to the application and implication of acupuncture/acupressure used in conjunction with exercise and other holistic strategies for overall health.

KINE 3620 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Coreq. KINE 3621. Understanding of anatomical, neuromuscular, and biomechanical principles of human movement. Application of these concepts, as well as methods of motion analysis, will enable the student to evaluate human movement in greater detail.
KINE 3621 BIOMECHANICAL ANALYSIS OF HUMAN MOVEMENT LABORATORY (1) LAB. 2. Coreq. KINE 3620. Laboratory experience focuses on application of knowledge of anatomical, neuromuscular, and biomechanical principles of human movement. Content emphasizes understanding the science of exercise, how to apply and interpret common mechanical measures, and writing about findings using basic scientific writing techniques.

KINE 3650 MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Coreq. KINE 3651. Understanding of the basic psychological and physiological involved in the learning and control of skillful human movement.

KINE 3651 MOTOR LEARNING AND PERFORMANCE LABORATORY (1) LAB. 2. Coreq. KINE 3650. Lab experience will allow students to gain first-hand experience with modern experimental methods, data collection, and basic analysis tools in motor learning research and develop an understanding of the experience of human research participants in kinesiology research.

KINE 3680 PHYSIOLOGY OF EXERCISE (3) LEC. 3. Departmental approval. Coreq. KINE 3681. Energetics of exercise and physiological responses and adaptions of various organ systems (muscular, circulatory, respiratory, etc.) to acute and chronic exercise in different environments.

KINE 3681 PHYSIOLOGY OF EXERCISE LAB (1) LAB. 2. Coreq. KINE 3680. Applying knowledge of basic energy, musculoskeletal, nervous, and cardiovascular systems using various testing procedures. Focus on understanding the science of exercise, interpreting common physiological fitness tests, and how to write about findings using basic scientific writing techniques.

KINE 3820/3823 PRINCIPLES OF SPORT COACHING (3) LEC. 3. Departmental approval. May count either KINE 3820 or KINE 3823.

KINE 3830 THEORY AND PRACTICE OF SPORTS OFFICiating (3) LEC. 3. Instruction and practice of officiating a variety of sport activities.

KINE 3843 COACHING THE MENTAL SIDE OF SPORTS (3) LEC. 3. Understand athletes’ psychology and how to provide them with mental skills to enhance their performance in athletics, academics, and life.

KINE 3873 LEGAL AND ILLEGAL SPORTS SUPPLEMENTS (3) LEC. 3. Introductory approach to the safety, efficacy, and legality of popular legal and illegal sports supplements.

KINE 4133 THE NEUROBIOLOGY OF PLAY (3) LEC. 3. This course is an introduction to psychological and neuroscientific research on play and games. We will focus on play behavior in human beings, but will incorporate comparative evidence from play in other animals. Using an interdisciplinary approach, we will draw.

KINE 4200 PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. HLHP 3300. Understanding of the skill theme approach based on skill themes, movement concepts and levels of skill proficiency. Credit will not be given for both KINE 4200 and KINE 4360. Admission to Teacher Education.

KINE 4300 PHYSICAL EDUCATION IN SECONDARY SCHOOLS (4) LEC. 2. LAB. 4. Pr. (KINE 3300 or HLHP 3300 or HLHP 3303). Constructing and implementing appropriate lifetime sports and fitness programs for middle and secondary school students. Admission to Teacher Education.

KINE 4350 TEACHING FOR LIFETIME PHYSICAL ACTIVITY (3) LEC. 2. LAB. 2. Pr. (HLHP 3020 or HLHP 3023 or KINE 3020 or KINE 3023). Admission to Teacher Education. Coreq. KINE 3300. Skills and knowledge to conduct comprehensive fitness education programs in schools. Admission to Teacher Education.

KINE 4360 HEALTH EDUCATION AND PHYSICAL EDUCATION IN ELEMENTARY SCHOOLS (3) LEC. 2. LAB. 2. Admission to Teacher Education. Critical topics in health education and physical education for prospective elementary education teachers. Credit will not be given for both KINE 4360 and KINE 4200. Admission to Teacher Education.

KINE 4400/4403 APPLIED ANATOMY FOR THE ALLIED HEALTH PROFESSIONAL (3) LEC. 3. Study of skeletal anatomy with an applied approach. May count either KINE 4400 or KINE 4403.

KINE 4450/4453 PHYSICAL ACTIVITY AND PUBLIC HEALTH (3) LEC. 3. Departmental approval. Basic principles of epidemiology; health benefits of physical activity; strategies to promote physical activity at the individual and community levels.

KINE 4500 INDIVIDUAL AND GROUP FITNESS INSTRUCTION (3) LEC. 3. Principles of exercise prescription and field assessment techniques to develop, implement and evaluate individual and group exercise programs.
KINE 4560/4563 SPORT TECHNIQUE AND MOVEMENT ANALYSIS (3) LEC. 3. Skills and knowledge for observing, evaluating, and correcting movement patterns. May count either KINE 4560 or KINE 4563.

KINE 4600 STRENGTH DEVELOPMENT (3) LEC. 3. Basic concepts and principles of strength development.

KINE 4620/4623 EXERCISE AND SPORT PSYCHOLOGY (3) LEC. 3. Role of psychological factors in sport, exercise and physical activity.

KINE 4630/4633 STRENGTH AND CONDITIONING PREPARATION (3) LEC. 3. Pr. KINE 4600. Preparation as a National Strength and Conditioning Specialist. May count either KINE 4630 or KINE 4633.

KINE 4640 PHYSICAL CONDITIONING AND SPEED (3) LEC. 3. Basic concepts and principles of physical conditioning and speed.

KINE 4690/4693 CORRECTIVE EXERCISE SPECIALIST PREPARATION (3) LEC. 3. Pr. KINE 3620 and P/C KINE 3621. Preparation for the National Academy of Sports Medicine corrective exercise specialist examination. May count either KINE 4690 or KINE 4693.

KINE 4720 MEASUREMENT AND QUANTITATIVE ANALYSIS IN EXERCISE SCIENCE (3) LEC. 3. Pr. (KINE 3020 or KINE 3023 or HLHP 3020 or HLHP 3023) and (STAT 2510 or STAT 2513). Departmental approval. Concepts and statistics related to assessing human performance.

KINE 4760 INTRODUCTION TO EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. (Biol 1020 and Biol 1021 or Biol 1027) and Biol 2500 and (Chem 1030 and Chem 1031) and Phys 1500. (Biol 1020 grade of C or higher; Biol 1021, grade of C or higher; OR Biol 1027 grade of C or higher;) AND (Biol 2500, grade of C or higher;) AND (Chem 1030 - grade of C or higher/Chem 1031, grade of C or higher;) AND (Phys 1500, grade of C or higher). Research literature, experimental design and research interpretation in exercise science.

KINE 4780 EXERCISE SCIENCE RESEARCH (3) LEC. 3. Pr. KINE 4760. Development of a research proposal including the introduction, review of literature, methods, experimental design and statistics.

KINE 4860/4863 EXERCISE PROGRAMMING FOR SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription, programming and field assessment techniques to develop, implement and evaluate exercise programs for special populations. May count either KINE 4860 or KINE 4863.

KINE 4880 TRAINING AND CONDITIONING PROGRAMMING (3) LEC. 3. Pr. (KINE 4600 or HLHP 4600 or HLHP 4640) and KINE 4640. Skills and knowledge related to sport specific annual training regimens.

KINE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 6 credit hours.

KINE 4910 PRACTICUM (1-6) AAB/PRA. SU. Departmental approval. Application of basic concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 4920 CLINICAL RESIDENCY (10) AAB/IND. 10. SU. Coreq. KINE 5353 and KINE 5350. Culminating supervised work experience in school settings for K-12 Physical Education. Students must be cleared and approved for Clinical Residency by College of Education criteria.

KINE 4930/4933 PHYSICAL ACTIVITY AND HEALTH INTERNSHIP (1-12) INT. SU. Pr. KINE 5550 and KINE 5551. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. May count either KINE 4930 or KINE 4933. Course may be repeated for a maximum of 12 credit hours.

KINE 4940/4943 FITNESS, CONDITIONING AND PERFORMANCE INTERNSHIP (1-12) INT. SU. Pr. KINE 4690 or KINE 4693 and KINE 4880. Opportunity to explore a particular job or career path within the field, allowing students to apply theory and methodology learned in their undergraduate studies in a work environment under qualified supervision. Site must be approved by internship coordinator. May count either KINE 4940 or KINE 4943. Course may be repeated for a maximum of 12 credit hours.

KINE 4970 SPECIAL TOPICS (1-3) AAB. Advanced presentation of critical issues in physical education, health promotion or exercise science. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

KINE 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental Approval. Directed research within the area of specialty within the School. Course may be repeated for a maximum of 6 credit hours.
KINE 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Departmental approval. Course may be repeated for a maximum of 3 credit hours.

KINE 5200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 5250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 5300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Pr. (HLHP 4200 or HLHP 4203 or KINE 4200) and (HLHP 4300 or KINE 4300). Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 5350/5356 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. (P/C KINE 4920 or P/C HLHP 4920 or P/C HLHP 4923 or P/C KINE 4923). Admission to Teacher Education. Development of appropriate measurement tools to assess student learning. May count either KINE 5350 or KINE 5353.

KINE 5400 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3. Pr. (HLHP 3680 or KINE 3680). Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. May count KINE 5400, KINE 6400, or KINE 6406.

KINE 5500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (3) LEC. 3. Pr. KINE 3680 and KINE 3681. Coreq. KINE 5501. Concepts in physiological testing, test selection, and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction. CPR certification must be obtained prior to the end of the course. May count either KINE 5500 or KINE 6500.

KINE 5501 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION LABORATORY (1) LAB. 2. Pr. KINE 3680 and KINE 3681. Application of concepts in physiological testing, test selection and interpretation of assessments in normal and special populations for the purpose of exercise prescription and chronic disease risk reduction.

KINE 5550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (1) LEC. 1. Pr. KINE 5500 and KINE 5501. Coreq. KINE 5551. A review of American College of Sports Medicine (ACSM) health and fitness testing and evaluation including; cardiorespiratory, muscular fitness, body composition, balance and flexibility testing, interpretation of exercise test results, exercise prescription and health risk classification.

KINE 5551 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION LABORATORY (2) LAB. 4. Pr. KINE 5500 and KINE 5501. Coreq. KINE 5550. Practical experience in health and fitness testing and evaluation including: cardiorespiratory, muscular fitness, body composition and flexibility testing, interpretation of exercise test results, exercise prescription and health risk classification. CPR certification must be current.

KINE 5600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Pr. (HLHP 3680 or KINE 3680). Physiological adaptations to training and conditioning for optimizing sport performance. May count either KINE 5600 or KINE 6600.

KINE 5820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 5920 INTERNSHIP (1-12) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Two hours of work experience per week for each hour course credit. Course may be repeated for a maximum of 12 credit hours.

KINE 6200 RESEARCH PROJECT IN PHYSICAL EDUCATION (3) LEC. 3. Focus on action research in teaching and learning in physical education in schools. May count either KINE 5200 or KINE 6200.

KINE 6250 INSTRUCTIONAL SUPERVISION FOR PHYSICAL EDUCATION (2) LEC. 2. Development of systematic observation systems for providing feedback to teachers and strategies for monitoring progress. May count either KINE 5250 or KINE 6250.

KINE 6300 ADVOCACY IN PHYSICAL EDUCATION (2) LEC. 2. Strategies for development of advocacy programs in physical education. May count either KINE 5300 or KINE 6300.

KINE 6350/6356 ASSESSMENT IN PHYSICAL EDUCATION (3) LEC. 3. Pr. P/C KINE 7920 or P/C HLHP 7920 or P/C HLHP 7926.
KINE 6400/6406 EXERCISE PRESCRIPTION FOR NORMAL AND SPECIAL POPULATIONS (3) LEC. 3. Principles of exercise prescription for normal and special populations with emphasis on specific exercise strategies in elderly, obese, hypertensive and hyperlipidemic populations. May count KINE 5400, KINE 6400, or KINE 6406.

KINE 6500 EXERCISE TECHNOLOGY I: PRINCIPLES OF EXERCISE TESTING AND INTERPRETATION (3) LEC. 3. Concepts, procedures and skill in health and fitness testing and test interpretation for normal and special populations. Equivalent of HLHP 3680 or KINE 3680 must be taken prior to course or KINE 3680.

KINE 6550 EXERCISE TECHNOLOGY II: APPLIED EXERCISE TESTING AND INTERPRETATION (4) LEC. 1. LAB. 6. Pr. HLHP 5500 or KINE 5500 or KINE 6500 or HLHP 6500 or HLHP 6506. Practical experience in cardiovascular and musculoskeletal exercise evaluation and prescription; interpretation of exercise test results for exercise prescription and health risk stratification. CPR certification must be current. May count either KINE 5550 or KINE 6550.

KINE 6600 PHYSIOLOGICAL BASIS OF TRAINING AND CONDITIONING (3) LEC. 2. LAB. 2. Physiological adaptations to training and conditioning for sport performance. May count either KINE 5600 or KINE 6600.

KINE 6820 SPORT MANAGEMENT (3) LEC. 3. This course is designed to give students critical skills in understanding and analyzing a number of social issues as they relate to sport. May count either KINE 5820 or KINE 6820.

KINE 6920 INTERNSHIP (1-12) IND. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 12 credit hours.

KINE 7010 RESEARCH METHODS IN PHYSICAL ACTIVITY (3) LEC. 3. Study of research methods and analysis of current research in physical education, health promotion, and exercise science.

KINE 7180/7186 APPLIED SOCIOLOGICAL ASPECTS OF SPORT AND EXERCISE (3) LEC. 3. Critical examination and application of sociological aspects of sport and exercise in a variety of settings. May count either KINE 7180 or KINE 7186.

KINE 7200 CURRICULUM AND TEACHING IN PHYSICAL EDUCATION (3) LEC. 3. Issues in developing and critiquing curricula in physical education.

KINE 7250 EVALUATION OF PROGRAMS IN PHYSICAL EDUCATION (3) LEC. 3. Development of tools for assessment of student learning and evaluation of physical education programs.

KINE 7260 INDIVIDUALS WITH DISABILITIES IN PHYSICAL EDUCATION (3) LEC. 3. Developing inclusive physical activity programs for children and adolescents with disabilities in physical education.

KINE 7280 NATURALISTIC INQUIRY IN PHYSICAL ACTIVITY SETTINGS (3) LEC. 3. Pr. HLHP 7010 or HLHP 7016 or KINE 7010. Exploration of naturalistic inquiry in physical activity and educational settings.

KINE 7300 CONTENT AND PEDAGOGY IN PHYSICAL EDUCATION (3) LEC. 3. Instructional strategies and content for elementary and secondary physical education.

KINE 7350 ORGANIZATION AND ANALYSIS OF INSTRUCTION IN PHYSICAL EDUCATION (3) LEC. 3. Focus on the teaching-learning process in physical education.

KINE 7380 INTEGRATING CLASSROOM CONCEPTS (3) LEC. 3. Relationship of developmental foundations of young children and programming of physical activities.

KINE 7400/7406 ADVANCED ANATOMICAL PRINCIPLES (3) LEC. 3. Coreq. KINE 7416 and KINE 7410. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge. May count either KINE 7400 or KINE 7406.

KINE 7410/7416 ADVANCED ANATOMICAL PRINCIPLES LAB (1) LAB. 2. Coreq. KINE 7400 and KINE 7406. Clinically oriented human anatomy experience, designed to provide the student with an applied methodology to interact and utilize anatomical knowledge.

KINE 7420/7426 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH I (3) LEC. 3. Introductory approach to skill analysis as well as the use of the software program Dartfish. May count either KINE 7420 or KINE 7426.

KINE 7430/7436 BIOMECHANICS OF SKILL ANALYSIS: DARTFISH II (3) LEC. 3. Pr. KINE 7420 or HLHP 7420 or HLHP 7426 or KINE 7426. Advanced approach to skill analysis as well as the use of the software program Dartfish. May count either KINE 7430 or KINE 7436.
KINE 7536 ADVANCED PRINCIPLES OF STRENGTH AND CONDITIONING (3) DSL. 3. A review of the material and tools necessary to take the National Strength and Conditioning Association's Certified Strength and Conditioning Specialist (CSCS) Exam.

KINE 7546 ATHLETIC MOVEMENT ENHANCEMENT (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Performance Enhancement Specialist.

KINE 7556 EFFICIENT MOVEMENT STRATEGIES (3) DSL. 3. A review of the material and tools necessary to become a National Academy of Sports Medicine Corrective Exercise Specialist.

KINE 7570 EXERCISE ELECTROCARDIOGRAPHY (3) LEC. 3. Electrocardiography from an exercise scientist's perspective; recognition of normal and abnormal electrocardiographic patterns at rest and during exercise.

KINE 7620/7626 PRINCIPLES OF BIOMECHANICS IN HUMAN MOVEMENT (3) LEC. 3. Biomechanical principles and laws with applications to human movement in sport, exercise and daily activities. Departmental approval. May count either KINE 7620 or KINE 7626.

KINE 7650 ADVANCED MOTOR LEARNING AND PERFORMANCE (3) LEC. 3. Departmental approval. Theories, experimental studies, and current issues in the acquisition, performance, and retention of motor skills.

KINE 7660 BIOMECHANICS OF SPORT INJURY AND REHABILITATION (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or HLHP 7626). Biomechanical properties of the human body as related to injuries and rehabilitation in sport and daily activities.

KINE 7670 LAB TECHNIQUES IN BIOMECHANICS (3) LEC. 1. LAB. 2. Pr. (HLHP 7620 or HLHP 7626 or KINE 7620 or KINE 7626). Study of equipment and standing practices utilized by a biomechanist in measuring and analyzing motion.

KINE 7680 ADVANCED PHYSIOLOGY OF EXERCISE I (3) LEC. 3. Departmental approval. Physiological responses to exercise and control of metabolism, the cardiovascular system, and the respiratory system during acute exercise and training.

KINE 7700 ADVANCED PHYSIOLOGY OF EXERCISE II (3) LEC. 3. Temperature regulation and endocrine response to exercise; physiological responses and adaptations to aerobic training, strength training, and environmental extremes; limiting factors and fatigue in exercise.

KINE 7710 LAB TECHNIQUES IN EXERCISE PHYSIOLOGY (3) LEC. 1. LAB. 4. Pr. (HLHP 7680 or HLHP 7686 or KINE 7680). Techniques for measuring and evaluating physical performance.

KINE 7730 NEUROMOTOR CONTROL (3) LEC. 3. Departmental approval. Structure and function of the central and peripheral systems underlying human motor control.

KINE 7740 ADVANCED MOTOR DEVELOPMENT (3) LEC. 3. Departmental approval. Examination of theoretical and empirical issues in motor development across the life span.

KINE 7750 ADVANCED SPORT PSYCHOLOGY (3) LEC. 3. Departmental approval. Examination of psychological factors that influence athletic performance. Or equivalent,

KINE 7780 EXERCISE MOTIVATION AND ADHERENCE (3) LEC. 3. Theoretical foundations and recent research in exercise motivation and adherence. Or equivalent.

KINE 7790 MOTOR BEHAVIOR OF INDIVIDUALS WITH DISABILITIES (3) LEC. 3. Pr. (HLHP 7650 or HLHP 7656 or KINE 7650). Examination of motor behavior characteristics of individuals with disabilities.

KINE 7820/7826 CLINICAL/NON-CLINICAL INTERNSHIP IN KINESIOLOGY (1-10) INT. SU. Supervised work experience in physical activity, health, fitness, conditioning, performance and rehabilitation settings. This course is for non-teacher education students. May count either KINE 7820 or KINE 7826. Course may be repeated for a maximum of 10 credit hours.

KINE 7900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 7910 PRACTICUM (1-3) PRA. Departmental approval. Application of concepts to specific work environment. Course may be repeated for a maximum of 6 credit hours.

KINE 7920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness or rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.
KINE 7930 NON-THESIS RESEARCH PROJECT (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Continuation/completion of a scientific research project that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 7960 SPECIAL PROBLEMS (1-3) IND. SU. Departmental approval. Critical analysis of current and classical research and writings. Course may be repeated for a maximum of 3 credit hours.

KINE 7970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course may be repeated with change in topic.

KINE 7980 RESEARCH PROJECT IN KINESIOLOGY (1-6) IND. SU. Pr. KINE 7010 or HLHP 7010 or HLHP 7016. Departmental approval. Completion of a scientific research project in Kinesiology that culminates into a written and oral presentation. Course may be repeated for a maximum of 6 credit hours.

KINE 7990 RESEARCH AND THESIS (1-10) IND. Course may be repeated with change in topics.

KINE 8300 RESEARCH IN KINESIOLOGY (3) LEC. 3. Examination and evaluation of current research trends within the field of kinesiology.

KINE 8310 SUPERVISION/ADMINISTRATION OF LABS IN KINESIOLOGY (3) LEC. 3. Skills and techniques of the daily management of kinesiology labs. Topics include budgeting, outreach, entrepreneurship, grants, and personnel management.

KINE 8320 RESEARCH MENTORSHIP (3) LEC. 3. Skills and experience in the mentorship of novice researchers in the field of Kinesiology.

KINE 8710 SCIENTIFIC COMMUNICATION IN EXERCISE SCIENCE (3) LEC. 3. In-depth analysis of the major formats for scientific communication and the peer-review process in exercise science. Or equivalent.

KINE 8750 THREE-DIMENSIONAL ANALYSIS OF HUMAN MOVEMENT (3) LEC. 3. Pr. (HLHP 7620 or HLHP 7620) or KINE 7620 or KINE 7620. Three-dimensional nature of body segments in human movement, with emphasis on data processing and modeling techniques.

KINE 8760 PHYSICAL ACTIVITY EPIDEMIOLOGY (3) LEC. 3. Development of analytic skills to evaluate and/or conduct population-based research related to physical activity and disease.

KINE 8770 NEUROMUSCULAR ASPECTS OF EXERCISE AND TRAINING (3) LEC. 3. Pr. KINE 7680 or HLHP 7680 or HLHP 7686 or departmental approval. Examination of neuromuscular mechanisms that allow humans to perform work, including energy output, neural integration, energy metabolism and adaptations to training.

KINE 8780 BIOCHEMISTRY OF EXERCISE (3) LEC. 3. Pr. (HLHP 7680 or KINE 7680) or HLHP 7686 or departmental approval. Regulation of the metabolic pathways of energy metabolism with emphasis on the energetic response to acute exercise and exercise training.

KINE 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. In-depth study of specific topics. Course may be repeated for a maximum of 9 credit hours.

KINE 8910 PRACTICUM (1-3) PRA. SU. Departmental approval. Application of basic concepts to specific work environments. Course may be repeated for a maximum of 9 credit hours.

KINE 8920 INTERNSHIP (1-10) INT. SU. Departmental approval. Supervised work experiences in schools, fitness and rehabilitation settings. Course may be repeated for a maximum of 10 credit hours.

KINE 8930 DIRECTED FIELD EXPERIENCES (1-10) FLD. SU. Departmental approval. Field studies away from campus. Course may be repeated for a maximum of 10 credit hours.

KINE 8950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8960 SPECIAL PROBLEMS (1-3) IND. SU. Course may be repeated for a maximum of 3 credit hours.

KINE 8970 SPECIAL TOPICS (1-3) LEC. Advanced presentation of critical issues in physical education, health promotion, or exercise science. Course be repeated with change in topic. Course may be repeated with change in topics.
KINE 8980 FIELD PROJECT (1-6) FLD.

KINE 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Field project away from campus. Course may be repeated for a maximum of 9 credit hours. Course may be repeated with change in topics.

**Laboratory Science - LBSC**

**Courses**

**LBSC 2010 BASICS IN LABORATORY SCIENCE (2)** LEC. 1. LAB. 1. Basic laboratory skills, quality control and assurance, standard precautions for biohazard testing; requirements for careers in medical and laboratory science.

**LBSC 4010 HEMATOLOGY (5)** LEC. 3. LAB. 6. Pr. CHEM 2070 or CHEM 2077. Origin, maturation, morphology, function of normal blood cells and abnormalities in diseased blood. Routine and specialty hematomological laboratory techniques.

**LBSC 4050 CLINICAL IMMUNOHEMATOLOGY/PARASITOLOGY (5)** LEC. 3. LAB. 6. Pr. (CHEM 2070 or CHEM 2077) and (BIOL 1020 or BIOL 1027). Immunogenetics, clinical significance of blood group antigens and antibodies, theory and techniques of serological study of human blood groups. Human parasites, life cycles and disease processes.

**LBSC 4250 CLINICAL BIOCHEM INSTRUMENT (4)** LEC. 3. LAB. 3. Pr. BCHE 5180 or BCHE 3200. Biochemistry/physiology of systems in the body of elements in body fluids during the normal and abnormal processes. Theoretical and practical application of Lab techniques, atomic absorption, gaschromatograph-FID, HPLC, spectroscopy, spectrophotometry, ion selective electrodes and RIA used in analysis of body fluids.

**LBSC 4910 CLINICAL PRACTICUM (0) PRA.**

**LBSC 4920 CLINICAL INTERNSHIP (0) INT/PRA.**

**Landscape Architecture - LAND**

**Courses**

**LAND 5030 LANDSCAPE DESIGN METHODS (3)** LEC. 9. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

**LAND 5040 LANDSCAPE ISSUES & PRACTICES (3)** LEC. 9. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

**LAND 5110 BASIC LANDSCAPE ARCHITECTURAL DESIGN (6)** STU. 12. Landscape architectural design studio emphasizing research, planning and design problems at neighborhood to community scales.

**LAND 5130 STUDIO I: FOUNDATION STUDIO (5)** STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

**LAND 5131 FIELDWORK I (1) FLD. 1.** Field studies and travel related to studio. May count either LAND 5131 or LAND 6131.

**LAND 5140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3)** SEM. 3. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

**LAND 5150 CONSTRUCTION I: LANDFORM & HYDROLOGY (2-3)** LEC. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management. Course may be repeated for a maximum of 3 credit hours.

**LAND 5160 GRAPHIC STUDIES I (2-3)** LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

**LAND 5210 URBAN HOUSING STUDIO (6)** STU. 12. Spatial/formal qualities of multi-unit housing utilizing the wealth of housing typologies erected in North America.
LAND 5230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May count either LAND 5230 or 6230.

LAND 5231 FIELDWORK II (1) FLD. 1. Field studies and travel related to studio. Departmental approval. May count either LAND 5231 or LAND 6231.

LAND 5240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 5250 CONSTRUCTION II: MATERIALS & DETAILING (2-3) LEC. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 5260 GRAPHIC STUDIES III (3) SEM. 3. Pr. LAND 5150. Departmental approval. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 5270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 5280 LANDSCAPE ELEMENTS: EARTH, FIRE AND WATER (3) LEC. 3. Introduces students to the basic elements used in the design of the built landscape.

LAND 5290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 5310 INDEPENDENT STUDY THESIS (6) STU. 12. Departmental approval. Extensive exploration and development of a landscape architecture issue of the students choice beyond the level associated with entry to the profession. Level-III standing;

LAND 5330 STUDIO III (5) LEC. 5. Pr. (LAND 5230 or LAND 6230) or (P/C LAND 5331 or P/C LAND 6331). Departmental approval. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.

LAND 5331 FIELDWORK III (1) FLD. 1. SU. Pr. (LAND 6230 or LAND 5230) or (P/C LAND 5330 or P/C LAND 6330). Departmental approval. Field studies and travel related to studio.

LAND 5340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 5240. Departmental approval. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture.

LAND 5350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 5360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 5370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 5380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, starts, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 5410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 5430 URBAN THEORY (3) LEC. 3. An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.
LAND 5500 LAND ETHICS AND ENVIRONMENTAL RESPONSIBILITY (3) LEC. 3. Explores the ethical relationship of man and nature.

LAND 5510 ENVIRONMENTAL PLANNING STUDIO (6) STU. 12. Natural systems analysis as a basis for site planning and large scale facilities design. Level-II standing.

LAND 5520 LANDSCAPE ARCHITECTURE DESIGN STUDIO (6) STU. 12. Pr. LAND 5110. A continuation of the basic design studio emphasizing research, planning, and design problems at community to regional scales.

LAND 5540 HISTORY OF LANDSCAPE ARCHITECTURE II (3) LEC. 3. Explores the built landscape from the 17th Century to the present including designs in America, Europe and Asia.

LAND 5590 INDEPENDENT STUDY THESIS (6) STU. 12. A major integrative investigation of a focused problem area, defined and pursued by the student under the direction of a faculty member.

LAND 6030 LANDSCAPE DESIGN METHODS (3) LEC. 3. Introduces students to skills, techniques, and ways of thinking fundamental to landscape architectural design, preparing students for future studio courses by emphasizing making, precision, experimentation, iteration, and judgment.

LAND 6040 LANDSCAPE ISSUES & PRACTICES (3) LEC. 3. Introduces students to both a selection of key issues relevant to contemporary landscape architecture and practices employed by landscape architects engaging in those issues.

LAND 6130 STUDIO I: FOUNDATION STUDIO (5) AAB/STU. 5. Teaches foundational skills (drawing, modeling, and multiple representational skills) that are necessary to progress into future design studios.

LAND 6131 FIELDWORK I (1) AAB/FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6140 HISTORY, THEORY, AND PRACTICE I: LANDSCAPE ARCHITECTURE AND CONTEMPORARY URBANISM (3) AAB/SEM. 3. Pr. LAND 5230 or LAND 6230. The historical development of American urban landscapes, theoretical concepts for understanding them, and survey of related landscape architectural practice.

LAND 6150 CONSTRUCTION I: LANDFORM & HYDROLOGY (2-3) AAB/LEC. Departmental approval. Fundamental skills needed to analyze, understand, and manipulate landform with respect to form, grading, drainage, and stormwater management.

LAND 6160 GRAPHIC STUDIES I (2-3) AAB/LEC. Focus on basic tools and techniques for interpreting and representing landscapes: photography, field sketching, technical drawing, and mixed-media montage. Introduction to vector and raster-based software and integrated analog-digital workflows. Course may be repeated for a maximum of 3 credit hours.

LAND 6170 GRAPHIC STUDIES II (3) LEC. 3. Departmental approval. Graphic and communication theories and skills in a variety of media. Photoshop, Illustrator, Indesign and AutoCAD.

LAND 6230 STUDIO II (5) STU. 5. Iterative design processes that project and test design scenarios, refining propositions based on multiple performance criteria in relation to site specificity and community context. Departmental approval. May either LAND 5230 or 6230.

LAND 6231 FIELDWORK II (1) FLD. 1. Departmental approval. Field studies and travel related to studio.

LAND 6240 HISTORY, THEORY, AND PRACTICE II: LANDSCAPE ARCHITECTURE AND CONTEMPORARY CULTURE (3) LEC. 3. Survey of the history of and theory for landscape architectural practice as it relates to contemporary American culture.

LAND 6250 CONSTRUCTION II: MATERIALS & DETAILING (2-3) LEC. Departmental approval. Fundamentals of design detailing of site assemblies, with emphasis on material research and construction methods.

LAND 6270 PLANT SPATIALITY (2) LEC. 2. Studies of innovative design with plants, exploring issues plant association, strata, and spatiality. Departmental approval. May count either LAND 5270 or 6270.

LAND 6290 GRAPHIC STUDIES II (3) LEC. 3. Focus on advanced digital methods and tools: mapping with GIS software; modeling, analysis, and rendering with Rhino and associated plugins; and photomontage, diagramming, and presentation assembly with Adobe software.

LAND 6330 STUDIO III (5) LEC. 5. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 6331 and LAND 5331. Investigates eco-cultural relationships between regional, metropolitan and urban scales with emphasis on physical and social flows.
LAND 6331 FIELD STUDIES III (1) FLD. 1. Pr. LAND 5230 or LAND 6230. Departmental approval. Coreq. LAND 6330 and LAND 5330. Field studies and travel related to studio.

LAND 6340 HISTORY, THEORY, AND PRACTICE III: PRE-MODERN LANDSCAPES (3) LEC. 3. Pr. LAND 6240. Global history of landscape-making, particularly in relationship to urbanization and culture, from prehistory to the inception of modern landscape architecture. Departmental approval

LAND 6350 CONSTRUCTION III: HYDROLOGIES (2) LEC. 1. LAB. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. This course emphasizes stormwater research, planning and design. Students learn technical skills and design techniques needed to construct projects with environmental integrity and aesthetic appeal.

LAND 6360 DYNAMIC SYSTEMS I: URBAN ECOLOGIES (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course provides an overview of natural ecological systems and how they can be preserved or restored to enhance human and ecological health through sustainable design.

LAND 6370 PLANT EPHEMERALITY (2) LEC. 2. Pr. LAND 5230 or LAND 6230. Departmental approval. Studies of innovative design with plants, exploring issues of plant phenology and dynamic lifecycle conditions.

LAND 6380 PLANTS I (2-3) LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant association, strata, form, and function. Course may be repeated for a maximum of 3 credit hours.

LAND 6410 SEMINAR ON REAL ESTATE DEVELOPMENT (3) SEM. 3. Opportunity for students to further develop expertise through supervised, independent course study related to real estate development or pursue an area of interest that may not be covered in the current curriculum.

LAND 6430 URBAN THEORY (3) LEC. 3. An introduction to contemporary theories of urban design, geography, and cultural theory using case study methods.

LAND 7130 STUDIO IV (5) AAB/STU. 5. Departmental approval. Investigates design strategies and techniques for generating new resilient cultural and environmental practices within complex dynamic conditions.


LAND 7140 URBAN STUDIES II: GLOBAL URBANISM (3) LEC. 3. Departmental approval. Examines the major global drivers of urban change, contemporary theories of international urban design, geography and cultural theory.

LAND 7170 PLANTS II (2-3) AAB/LEC. Departmental approval. Introduces strategies for innovative design with plants, exploring issues of plant ephemerality, functionality, and phenology. Course may be repeated for a maximum of 3 credit hours.

LAND 7190 RESEARCH BY DESIGN: FRAMEWORKS, METHODS, AND STRATEGIES (3) SEM. 3. Design is not just about solving problems, but figuring out which questions to ask in the first place. This course guides students through the iterative process of situating, identifying, framing, and testing a student-chosen trend, topic, or question.

LAND 7230 STUDIO V: COMPREHENSIVE STUDIO (5) STU. 5. Pr. LAND 5230. The first part of a two-semester research studio which involves creating a new body of work within a theoretical context and then critically appraising this work and its theoretical framework.

LAND 7231 FIELDWORK V (1) FLD. 1. Coreq. LAND 7230. Course is directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Emphasizes first-hand experiences of the landscape where careful observation and analysis occur; and introduces students to skills, techniques, and ways of thinking about site reconnaissance and gathering landscape intelligence.

LAND 7232 STUDIO V: TERMINAL (6) STU. 6. Pr. LAND 5230. Departmental approval. This is a directed studio that will ask students to look at a large site within a city and design an individual intervention that reflects the goals and objectives of that studio.

LAND 7240 THEORIES AND PRACTICES (3) SEM. 3. Departmental approval. This is a reading, writing, and discussion seminar that examines the idea that the development of a democratic, civic, diverse social ecology can create more resilient and sustainable communities.
LAND 7250 CONTEMPORARY ISSUES IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Pr. LAND 5230. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7270 CONSTRUCTION III: REGENERATIVE TECHNOLOGIES (2-3) LEC. Introduces issues of land contamination and explores remediative and regenerative technologies as design strategies towards new productive futures. Course may be repeated for a maximum of 3 credit hours.

LAND 7280 DYNAMIC SYSTEMS II: REGIONAL ECOLOGIES (3) LEC. 3. This lecture/field laboratory course examines conditions of regional ecologies at multiple scales and explores possible public and private responses to these issues.

LAND 7290 GRAPHIC STUDIES III (3) SEM. 3. Fundamental concepts of Geographic Information Systems are used to create visual frameworks for gathering, interpreting, and sharing spatial data in landscape architecture practice.

LAND 7330 STUDIO VI: COMPREHENSIVE STUDIO (5) STU. 12. Pr. LAND 5230 or LAND 6230. A culmination of a design research project that ends in a public review and exhibition.

LAND 7331 FIELDWORK VI (1) FLD. 15. Coreq. LAND 7330. Directly linked to the Landscape Design Studio and offers students opportunity to travel to relevant locations to advance, contextualize, and frame the design studio. Gets students out of the classroom and emphasizes first-hand experiences of the landscape where careful observation and analysis occur. Introduces students to skills, techniques, and ways of thinking about site renaissance and gathering landscape intelligence.

LAND 7332 STUDIO VI: TERMINAL (6) STU. 6. Pr. LAND 5230 or LAND 6230. Departmental approval. A directed studio that will ask students to look at a large site within a city and design an individual intervention that reflects the goals and objectives of that studio.

LAND 7340 PROFESSIONAL PRACTICE (3) LEC. 3. Pr. LAND 5230 or LAND 6230. Departmental approval. This course surveys the development and ethics of the profession of landscape architecture and presents an overview of the business and practice of the profession.

LAND 7350 LANDSCAPE COMPUTER MODELING (2) LEC. 2. Departmental approval. Three dimensional and dynamic systems modeling.

LAND 7410 SEMINAR ON HISTORY AND THEORY (3) LEC. 3. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7420 SEMINAR ON COMMUNITY OUTREACH (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7430 SEMINAR ON HYDROLOGY (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7440 SEMINAR ON LANDSCAPE COMMUNICATION (3) SEM. 3. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum.

LAND 7450 SEMINAR ON LANDSCAPE RESEARCH (2-3) SEM. Pr. LAND 5230. Departmental approval. Opportunity for students to further develop expertise through supervised, independent course study or pursue an area of interest that may not be covered in the current curriculum. Course may be repeated for a maximum of 3 credit hours.

LAND 7470 LANDSCAPE ARCHITECTURE INTERNSHIP (3) PRA. 3. By approval of Chair of Landscape Architecture. A practical, professional, full-time, curriculum-related work experience in the industry of landscape architecture. Under joint supervision of employer and university. Course may be repeated for a maximum of 9 credit hours.

LAND 7530 DESIGN BUILD FELLOWSHIP (3-6) LEC/PRA. Pr. LAND 5230. Departmental approval. The design investigation and construction/installation of a landscape proposal. Course may be repeated for a maximum of 6 credit hours.

LAND 7900 DIRECTED STUDIES (1-3) AAB. An individual student can pursue an area of research beyond the required curriculum. Departmental approval; MLA II standing. Course may be repeated for a maximum of 9 credit hours.
LAND 7960 SPECIAL PROBLEMS IN LANDSCAPE ARCHITECTURE (2) LEC. 2. Departmental approval. Investigation of landscape architectural issues and topics that can be undertaken by means of design, and the development of methodologies and techniques appropriate to such investigation.

LAND 7970 SPECIAL TOPICS (1-6) AAB. Groups of student work with a specific faculty on a special topic in an area of interest. Course may be repeated for a maximum of 9 credit hours. ADDITIONAL PREREQUISITES: Departmental approval; MLA I standing.

LAND 7990 DESIGN THESIS I (6) LEC. 6.

LAND 7991 DESIGN THESIS II (8) LEC. 8.

LAND 7992 RESEARCH SUMMARY (1) LEC. 1.

Leadership - LEAD

Courses

LEAD 2000 FOUNDATIONS OF LEADERSHIP (3) LEC. 2. LAB. 1. Introductory course for students pursuing the Leadership Minor.

LEAD 4000 LEADERSHIP IN PRACTICE (3) LEC. 3. Pr. LEAD 2000. Capstone course in interdisciplinary leadership minor.

Liberal Arts, General - LBAR

Courses

LBAR 1010 ORIENTATION TO LIBERAL ARTS (1) LEC. 1. SU. This course is designed to help students who are currently undeclared liberal arts students explore the various majors and opportunities the College of Liberal Arts provides.

LBAR 2010/2013 LIBERAL ARTS CAREERS PREPARATION (2) LEC. 2. This course helps Liberal Arts majors to identify their strengths and talents as liberal arts students, to seek appropriate educational and extracurricular experiences, and to plan for a successful transition from college to career. May cont either LBAR 2010 or LBAR 2013.

LBAR 3910 PRACTICUM IN LIBERAL ARTS (1-3) AAB. Focused civic engagement or study abroad experiences designed to develop leadership, social responsibility, and cross-cultural awareness. Course may be repeated for a maximum of 6 credit hours.

Management - MNGT

Courses

MNGT 3010 PROFESSIONAL DEVELOPMENT IN MANAGEMENT (1) LEC. 1. SU. Pr. (P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107) and P/C BUSI 2010. Career planning and preparation for employment in a management position.


MNGT 3460/3463 ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Pr. P/C MNGT 3100 or P/C MNGT 3103 or P/C MNGT 3107 or P/C MNGT 3810. Study, analysis and application of theories and techniques for understanding, predicting and managing human behavior in the organizational context.

MNGT 3810 MANAGEMENT FOUNDATIONS (3) LEC. 3. Management Foundations is a broad based introductory course that will focus on management functions and applications of management principles. This course is not open to undergraduates majoring in business. Junior standing. May count either MNGT 3100 or MNGT 3810.

MNGT 3970 GLOBAL PERSPECTIVES IN BUSINESS IN SPAIN (6) LEC. 6. The objective of the course is to learn about business in Spain by immersing the student totally into the Spain language and culture. Course may be repeated for a maximum of 12 credit hours.

MNGT 4100 MANAGEMENT IN GLOBAL BUSINESS ENVIRONMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Issues unique to managing operations in the global business environment.
MNGT 4400 ORGANIZATIONAL CHANGE (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. The complexities involved in implementing change in organizations.

MNGT 4610 INTERNATIONAL FIELD ANALYSIS PROJECT COURSE (3) LEC. 3. Field analysis team projects with local or multinational organizations in a foreign county. Course will be taught in conjunction with COB International Studies Programs.

MNGT 4690 ETHICAL ISSUES IN MANAGEMENT (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). The course is designed to help students gain a better understanding of how ethical dilemmas can impact managerial decisions.

MNGT 4800/4803 STRATEGIC MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MNGT 3100 or MNGT 3103 or MNGT 3107) and (FINC 3610 or FINC 3613 or FINC 3617). Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization. College of Business Information Technology requirement.

MNGT 4807 HONORS STRATEGIC MANAGEMENT (3) LEC. 3. Pr. Honors College. Objectives, strategy, and policies pertaining to a total organization. Problem-solving and the relationship between the functional areas of an organization.

MNGT 4890 STRATEGIC ENVIRONMENTAL MANAGEMENT (3) LEC. 3. Pr. MNGT 3100 or MNGT 3103 or MNGT 3107. Course will examine the continuous relationship between the natural environment, strategy, and competitive advantage from both domestic and international perspectives.

MNGT 4920 INTERNSHIP (1-6) AAB/INT. SU. Pr. 2.50 GPA. MNGT 3100. Approval by departmental intern program committee. Course may be repeated for a maximum of 6 credit hours.

MNGT 4950 SEMINAR IN MANAGEMENT (1-10) AAB/SEM. Course may be repeated for a maximum of 10 credit hours.

MNGT 4967 HONORS SPECIAL PROBLEMS (1-3) LEC. Pr. Honors College. Directed readings on a topic of special interest. Course may be repeated for a maximum of 3 credit hours.

MNGT 4997 HONORS THESIS (1-3) LEC. Pr. Honors College. Directed honors thesis research. Course may be repeated for a maximum of 3 credit hours.

MNGT 5560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 5900 DIRECTED STUDIES (1-3) IND. SU. Independent study on current topics in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 5960 SPECIAL PROBLEMS IN MANAGEMENT (1-3) AAB/IND. Departmental approval. Independent study investigating current literature in management. Course may be repeated for a maximum of 6 credit hours.

MNGT 6300/6306 THE BUSINESS OF SPORTS (3) LEC. 3. Pr. (MNGT 3100 or MNGT 3103 or MNGT 3107 or MNGT 3810) and (ECON 2020 or ECON 2023 or ECON 2027) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Business aspects of sports teams including sources of revenue, labor market, revenue sharing, salary cap and free agency.

MNGT 6350/6356 COMPETITIVE SERVICE ENTERPRISES (3) LEC. 3. Pr. BUSI 7220 or BUSI 7226. Provides MBA students with a working model of service operations and lets them explore how information technology can be used to re-engineer the service process.

MNGT 6560 LEADERSHIP (3) LEC. 3. Facilitates the understanding of leadership and allows student to examine their own leadership behaviors.

MNGT 6900/6906 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Independent study on current topics in management. Course may be repeated for a maximum of 3 credit hours.

MNGT 6960/6966 SPECIAL PROBLEMS (1-3) AAB/IND. Departmental approval. General management theories, practices, and functions in industry and business. Individual work with a designated faculty member. Course may be repeated for a maximum of 6 credit hours.

MNGT 7150/7156 MANAGING ORGANIZATIONAL CHANGE (3) LEC. 3. Departmental approval. Advanced study of organizational behavior in individual and group interactions within the environment of business organizations.
MNGT 7160/7166 STRATEGIC MANAGEMENT OF INNOVATION AND TECHNOLOGY (3) LEC. 3. Development of competitive advantages in high-technology businesses. Examines product/service innovation and technology development and commercialization strategies, and related issues and processes.

MNGT 7420/7426 SEMINAR IN ORGANIZATION CHANGE (3) SEM. 3. Pr. MNGT 7150 or MNGT 7156. The diagnostic and evaluation issues in organizational change.

MNGT 7720/7726 OPERATIONS AND TECHNOLOGY STRATEGY (3) LEC. 3. Pr. P/C BUSI 7220 or P/C BUSI 7226. Development of upper management decision skills for developing and implementing manufacturing and technology strategies through case analyses and a field project.

MNGT 7906 SPECIAL PROBLEMS (1-3) DSL. SU. Course may be repeated for a maximum of 3 credit hours.

MNGT 7970 SPECIAL TOPICS IN MANAGEMENT (3) LEC. 3. Departmental approval. Current topics in management.

MNGT 8030 RESEARCH METHODS IN MANAGEMENT I (3) LEC. 3. Pr. MNGT 8400. Research methodologies used in conducting research with emphasis on empirical organizational behavior research methods. A graduate-level course taken in major field, and working knowledge of SPSS or SAS.

MNGT 8040 RESEARCH METHODS IN MANAGEMENT III (3) LEC. 3. Pr. MNGT 8030. Development of research skills and experience in writing an empirical research article based on research proposal developed in MNGT 8030.

MNGT 8300 SEMINAR IN ADVANCED ORGANIZATION THEORY (3) LEC. 3. Departmental approval. Advanced study of theories and research in organization theory.

MNGT 8310 SEMINAR IN ADVANCED ORGANIZATIONAL BEHAVIOR (3) LEC. 3. Departmental approval. Advanced study of theories and research in organizational behavior. Overarching organizational behavior paradigms and theoretical perspectives and research findings at the individual and group levels of analysis.

MNGT 8320 SEMINAR IN STRATEGY IMPLEMENTATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy implementation.

MNGT 8330 SEMINAR IN STRATEGY FORMULATION (3) LEC. 3. Departmental approval. Review of the major theoretical perspectives and the empirical literature supporting the research field of strategic management with an emphasis on strategy formulation.

MNGT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (4) LEC. 3. LAB. 1. Pr. STAT 7000. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models. STAT 7000 or approved equivalent.

MNGT 8410 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT II (3) LEC. 3. Pr. MNGT 8400. Departmental approval. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVA, Discriminate Analysis & Polytomous Logistic Regression.

MNGT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7000 and MNGT 8400 and MNGT 8410, or equivalents. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

MNGT 8700 SEMINAR IN ADVANCED HUMAN RESOURCE MANAGEMENT (3) LEC. 3. Departmental approval. Examination of empirical issues and technical considerations pertaining to the human resource management function in organizations

MNGT 8740 COMPENSATION THEORY (3) LEC. 3. An examination of compensation theory, design technology, and research methodologies used in developing and analyzing compensation systems.

MNGT 8800 APPRAISAL AND DEVELOPMENT OF HUMAN RESOURCES (3) LEC. 3. Departmental approval. Examination of empirical issues pertaining to the performance appraisal and human resource development functions of organizations.

MNGT 8820 ORGANIZATIONAL CHANGE RESEARCH METHODS (3) LEC. 3. Pr. MNGT 7150 or MNGT 7156. The study and application of research methods to conduct organizational diagnoses and to assess organizational effectiveness. Special emphasis is placed on qualitative methods.
MNGT 8850 ADVANCED HUMAN RESOURCE SELECTION (3) LEC. 3. Pr. MNGT 7080 or HRMN 7080 or HRMN 7086. Study of the technical considerations involved in the implementation of employee selection programs. Departmental approval; graduate statistics course.

MNGT 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Marketing - MKTG

Courses

MKTG 3010 PROFESSIONAL DEVELOPMENT IN MARKETING (1) LEC. 1. SU. Pr. P/C MKTG 3310 or P/C MKTG 3313 or P/C MKTG 3317 and P/C BUSI 2010. Career planning and preparation for employment in the marketing industry.

MKTG 3310/3313 PRINCIPLES OF MARKETING (3) LEC. 3. Pr. (ECON 2020 or ECON 2023 or ECON 2027). Study of functions, institutions, and basic problems in marketing of goods and services in a global economy. Credit will not be given for both MKTG 3310 and MKTG 3317. Junior standing.

MKTG 3317 HONORS PRINCIPLES OF MARKETING (3) LEC. 3. Pr. Honors College. ECON 2027 or ECON 2020. Study of functions, institutions, and basic problems of marketing goods and services in a global economy. Junior standing.

MKTG 4050 MISPLACED MARKETING & CONSUMERS' INTERESTS (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Management decision making serving consumers' interests in public policy environment when a marketing perspective is lost, misapplied or abused.

MKTG 4057 HONORS MISPLACED MARKETING & CONSUMERS' INTERESTS (3) LEC. 3. Pr. Honors College. MKTG 3310 or MKTG 3317. Marketing decision making serving consumers' interests in public policy environment, with case perspectives of when a marketing perspective is lost, misapplied or abused.

MKTG 4310 SPORTS AND ENTERTAINMENT MARKETING (3) LEC. 3. Pr. MKTG 3310. Grade "C" or better in MKTG 3310. Application of marketing theory and practice to the sports and entertainment business.

MKTG 4320 ADVERTISING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of promotional objectives, strategy and tactics in marketing.

MKTG 4330/4333 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Principles of retail operation: facility location, layout, purchasing, pricing and merchandise control. Credit will not be given for more than one of the following: MKTG 4330, CAHS 5610, and CAHS 6610.

MKTG 4340 MARKETING AND NEW PRODUCT DEVELOPMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Marketing based analysis of profitable new products and brand extensions involving the invention, development and product launch plus sustaining market success.

MKTG 4350 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 4360 MARKETING RESEARCH AND ANALYTICS (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (BUAL 2650 or BUAL 2653). Grade of C or better. Research methods in marketing and their application to marketing problems.

MKTG 4370 SALES MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Principles and practices of organization and administration of sales organizations.

MKTG 4380 MARKETING CHANNEL SYSTEMS (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Designing channels of distribution: Objectives, constraints, and alternatives: Motivating, evaluating and controlling channel members.

MKTG 4390/4393 PERSONAL SELLING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Selling strategy as an interdisciplinary business activity.

MKTG 4400/4403 INTERNATIONAL MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Strategy, policy and the variables affecting international marketing decisions. Credit will not be given for more than one of the following: MKTG 4400, CAHS 5610, and CAHS 6610.
MKTG 4410/4413 CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Critical review and analysis of possible pragmatic applications of consumer behavior theories used for marketing decision making. May count either CADS 3800 or MKTG 4410.

MKTG 4420 ADVANCED PERSONAL SELLING (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (MKTG 4390 or MKTG 4393). Permission of Department "C" or Better in MKTG 3310 and MKTG 4390. Advanced personal selling skills, practices and programs are covered. Emphasis is placed on sales presentations, demonstrations, negotiations and relationship building skills.

MKTG 4430 BUSINESS TO BUSINESS MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3317. Marketing strategy and applications for business-to-business companies and markets.

MKTG 4500 MARKETING ON THE INTERNET (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (COMP 1000 or COMP 1003). Grade of C or better. Use of electronic media and the Internet for marketing strategy. Passing the University IT exam.

MKTG 4700 REAL ESTATE MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Selling strategy for real property, brokerage, management and marketing of real estate.

MKTG 4800 MARKETING STRATEGY (3) LEC. 3. Pr. At least 9 credits in MKTG 4050-4970 and MKTG 4360. and MKTG 3310 or MKTG 3317. Grade of C or better in MKTG 3310 or MKTG 3317, 9 hours of Marketing electives between 4050 and 4970, and Pr/Cr MKTG 4360. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

MKTG 4900 DIRECTED STUDIES (3) AAB/IND. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Advanced research, reading and study in marketing.

MKTG 4920 MARKETING STUDENT INTERNSHIP PROGRAM (3) AAB/INT. 3. SU. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Grade of C or better. Provides a relevant and meaningful work experience in a marketing or marketing-related business, industry or organization.

MKTG 4970 SPECIAL TOPICS IN MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Grade of C or better. Examination of current marketing topics. Course may be repeated for a maximum of 9 credit hours.

MKTG 4980 MARKETING STRATEGY (3) LEC. 3. Pr. At least 9 credits in MKTG 4050-4970 and MKTG 4360. and MKTG 3310 or MKTG 3317. Grade of C or better in MKTG 3310 or MKTG 3317 and 9 hours of Marketing Electives. Strategic perspectives of market dynamics in different competitive environments across organizational levels.

MKTG 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. and Grade of C or better in MKTG 3310 or MKTG 3317. Provides honor's students with the opportunity to conduct in-depth research. Thesis/research topics will be based on mutual agreement between committee and student. Course may be repeated for a maximum of 3 credit hours.

MKTG 7050/7056 SOCIAL AND LEGAL ENVIRONMENT OF MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. The influence of the social, legal, political, and economic environments on marketing operations.

MKTG 7310/7316 MARKETING MANAGEMENT (3) LEC. 3. Pr. (BUSI 7110 or BUSI 7116 or BUSI 7716) and (BUSI 7120 or BUSI 7126). Departmental approval. In-depth analysis of concepts and techniques pertinent to executive decision-making in marketing.

MKTG 7320/7326 ADVERTISING AND PROMOTION STRATEGY (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Managerial perspective of the marketing communication process.

MKTG 7330/7336 RETAIL MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. A managerial perspective of strategic decision-making and financial aspects of retail organizations.

MKTG 7350/7356 SERVICES MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Examination of marketing in service industries and implementation of service marketing strategies.

MKTG 7360/7366 MARKETING RESEARCH: METHODOLOGY AND APPLICATIONS (3) LEC. 3. Pr. (MNGT 6040 or MNGT 6046) and (MKTG 3310 or MKTG 3313 or MKTG 3317) or (ISMN 6040 or ISMN 6046). Departmental approval. Marketing research design, implementation and data analysis for marketing managers.

MKTG 7370/7376 SALES MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. In-depth study of sales management strategy and tactics.
MKTG 7390/7396 DATA BASE, DIRECT MARKETING AND SALES PROMOTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Fundamental concepts, tools and applications of data base, direct marketing and sales promotion to marketing problems.

MKTG 7400/7406 GLOBAL MARKETING AND DISTRIBUTION (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. A strategic managerial perspective of global marketing and distribution operations.

MKTG 7410/7416 ANALYSIS OF CONSUMER BEHAVIOR (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Psychological, sociological, and anthropological foundation of consumer and industrial purchase behavior and their application to marketing decisions.

MKTG 7500/7506 ELECTRONIC MARKETING (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Ethical and strategic use of electronic media and the Internet for marketing communications and strategy.

MKTG 7600/7606 ENVIRONMENTALLY CONSCIOUS MARKETING MANAGEMENT (3) LEC. 3. Pr. (MKTG 3310 or MKTG 3313 or MKTG 3317) and (BUAL 2650 or BUAL 2653). Departmental approval. Advanced marketing strategies with an environmental focus.

MKTG 7720/7726 NEW PRODUCTS DEVELOPMENT AND MANAGEMENT (3) LEC. 3. Pr. MKTG 3310 or MKTG 3313 or MKTG 3317. Departmental approval. Marketing in the process of developing innovative products and services.

MKTG 7940 INTERNATIONAL MARKETING ABROAD PROGRAM (3-6) FLD. Course may be repeated for a maximum of 6 credit hours.

MKTG 7970/7976 SPECIAL STUDIES IN MARKETING (3) LEC. 3. Departmental approval. Variable content in the marketing area. Course may be repeated for a maximum of 6 credit hours.

MKTG 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

Materials Engineering - MATL

Courses

MATL 2100 INTRODUCTION TO MATERIALS SCIENCE (3) LEC. 3. The science of solid materials and the relationship between this science and material properties.

MATL 2210 MATERIALS FOR SUSTAINABLE ENERGY PRODUCTION AND STORAGE (1) LEC. 1. Pr. CHEM 1030. Technologies for sustainable energy production and storage, renewable energy conversion, associated materials challenges.

MATL 2220 MATERIALS AND THE ENVIRONMENT (1) LEC. 1. Pr. CHEM 1030. Environmental impact of the production, use and disposal of materials.

MATL 2230 MINERAL RESOURCES: PROCESSING AND AVAILABILITY (1) LEC. 1. Pr. CHEM 1030. Mineral resources for engineering materials; processing and availability of mineral resources.

MATL 3100 ENGINEERING MATERIALS - METALS (3) LEC. 3. Pr. MATL 2100. The relationship among processing, microstructure, properties and engineering applications of metallic materials.

MATL 3101 METALLOGRAPHY LABORATORY (1) LAB. 3. Coreq. MATL 3100. The use of microstructural characterization to understand the relationship between microstructure and properties of metallic materials.

MATL 3200 ENGINEERING MATERIALS POLYMERS (3) LEC. 3. Pr. CHEM 1040. The synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3201 POLYMER AND COMPOSITES LABORATORY (1) LAB. 3. Coreq. MATL 3200. A hands-on lab course on the synthesis, processing, structure and properties of polymers and polymer matrix composites.

MATL 3300 ENGINEERING MATERIALS - CERAMICS (3) LEC. 3. Pr. MATL 2100. The engineering of ceramic materials. Structural property relationships of crystalline and glassy ceramics will be included.

MATL 4930 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Areas of interest within Materials Engineering. Course may be repeated for a maximum of 6 credit hours.

MATL 4980 SENIOR DESIGN PROJECT (3) LEC. 1. LAB. 6. Students select, design, schedule, fabricate and perform an engineering design project related to Materials Engineering.

MATL 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

MATL 5100 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Pr. CHEM 1040 and ENGR 2200. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface, and interface energy and transformations.

MATL 5200 CRYSTALLOGRAPHY (2) LEC. 2. Pr. PHYS 1610 or PHYS 1617. Departmental approval. Principles of crystallography, reciprocal lattice X-ray diffraction techniques.

MATL 5201 X-RAY DIFFRACTION LABORATORY (1) LAB. 3. Coreq. MATL 5200. Laboratory on the use of x-ray diffraction for materials characterization.

MATL 5300 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Pr. MATH 2650 and ENGR 2200. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure and morphology.

MATL 5400 PHYSICS OF SOLIDS (3) LEC. 3. Pr. PHYS 1610 or PHYS 1617. Departmental approval. The physics of solid-state materials, including the electronic, optical and magnetic properties of materials.

MATL 5500 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Pr. MATL 5100 and P/C MATL 5300. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.


MATL 5720 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Pr. P/C BIOL 1030 or P/C CHEM 2070. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 5750 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Pr. MATL 2100 and (ENGR 2070 or MECH 3130). Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 5970 INTERMEDIATE SPECIAL TOPICS (1-3) LEC. 1-3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 6100/6106 THERMODYNAMICS OF MATERIALS SYSTEMS (3) LEC. 3. Departmental approval. Application of thermodynamics to describe phase stability, crystal imperfections, solubility, oxidation, surface and interface energy and transformations.

MATL 6200/6206 CRYSTALLOGRAPHY (2) LEC. 2. Departmental approval. Principles of crystallography, reciprocal lattice X-ray diffraction techniques.

MATL 6201 X-RAY DIFFRACTION LABORATORY (1) LAB. 3. Coreq. MATL 6200. Laboratory on the use of x-ray diffraction for materials characterization.

MATL 6300/6306 PHASE TRANSFORMATIONS IN MATERIAL PROCESSING (3) LEC. 3. Departmental approval. Principles that govern phase transformations in materials systems and control of nucleation and growth, microstructure, and morphology.
MATL 6400/6406 PHYSICS OF SOLIDS (3) LEC. 3. Departmental approval. The physics of solid-state materials, including the electronic, optical, and magnetic properties of materials.

MATL 6500/6506 NUMERICAL SIMULATION OF MATERIALS PROCESSING (3) LEC. 3. Departmental approval. Fundamental principles and applications of computer-aided simulation of transport phenomena in materials processing systems.


MATL 6720/6726 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 13. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function.

MATL 6750/6756 MICROSTRUCTURE AND MECHANICS OF SKELETAL TISSUES (3) LEC. 3. Departmental approval. Molecular and cellular microstructural influence over the viscoelastic deformation of the skeletal tissues of bone muscle, ligament, tendon and cartilage; mechanics of failure and biomechanical injury mechanisms; consideration of the physiological processes of adaptive remodeling and healing of tissues; recent developments in orthopedic implant materials.

MATL 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. 3. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7050/7056 DEFORMATION AND FAILURE OF ENGINEERING MATERIALS (3) LEC. 3. Departmental approval. Coreq. MATL 6200. Theoretical presentation of the fundamental principles of deformation and failure in materials systems.

MATL 7110/7116 PHYSICAL METALLURGY AND APPLICATIONS IN METAL FABRICATION (3) LEC. 3. Departmental approval. The physical metallurgy underlying processing-structure- property relationships in metals and alloys, with examples from joining processes.

MATL 7120/7126 ADVANCED CERAMIC MATERIALS (3) LEC. 3. Departmental approval. Processing, structure-property relationships and applications of advanced ceramics. Structural and functional applications of ceramics.

MATL 7130/7136 ADVANCED POLYMER SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Recent developments in both functional and structural polymers including approaches to synthesis, processing techniques, high-strength materials, electronic polymers, optic polymers, and medical polymers.

MATL 7140/7146 ADVANCED COMPOSITE MATERIALS (3) LEC. 3. Departmental approval. Processing, mechanics structure and properties of composite materials. Emphasis will be placed on an understanding of processing-structure-property relationships in polymer-, ceramic-, and metal-matrix composites.


MATL 7210/7216 PLASTIC DEFORMATION AND STRENGTHENING OF METALLIC MATERIALS (3) LEC. 3. Departmental approval. Mechanisms of plastic deformation and strengthening in metals and alloys. The role of dislocations in plastic deformation.

MATL 7220/7226 RADIATION EFFECTS ON MATERIALS (3) LEC. 3. Departmental approval. Theoretical and experimental treatment of the radiation effects and damage in materials as related to the nuclear industry.

MATL 7230/7236 HIGH TEMPERATURE MATERIALS PERFORMANCE (3) LEC. 3. Departmental approval. Theoretical and experimental treatment of the behavior of metals at high temperature.

MATL 7310/7316 SOLIDIFICATION PROCESSING (3) LEC. 3. Departmental approval. Theoretical science and engineering principles that apply to semiconductor crystal growth, ingot solidification, metal casting, welding and rapid solidification processes.

MATL 7320/7326 THIN FILM SCIENCE AND TECHNOLOGY (3) LEC. 3. Departmental approval. Structure, properties, characterization, processing and application of thin films.
MATL 7330 MATERIALS FOR ENERGY STORAGE (3) LEC. 3. Introduction of various electrochemical energy storage devices (Batteries, Supercapacitor, etc) and discussion of advancement in development of materials for these devices. Instructor's consent required for prerequisites.

MATL 7410/7416 CHEMICAL SENSORS (3) LEC. 3. Departmental approval. Fundamentals and application of chemical sensors. Includes electrolyte, semiconductor and acoustic wave-based sensors.

MATL 7420/7426 SMART MATERIALS AND STRUCTURES (3) LEC. 3. Departmental approval. An introduction to the principles and applications of various sensor, actuator and functionality smart material systems and structures.

MATL 7430/7436 DIELECTRIC MATERIALS AND DEVICES (3) LEC. 3. Pr. (MATL 6100 or MATL 6106) and (MATL 6400 or MATL 6406). Departmental approval. Processing, structure, properties, and application of dielectrics, including physics of dielectrics, material/device design/fabrication processes, and application of dielectric materials in high-technological industry.

MATL 7440/7446 MATERIALS PROCESSES MICRO AND NANOSYSTEMS (3) LEC. 3. Departmental approval. Materials, processes, and principles involved in manufacturing of micro and nanoelectromechanical systems. Properties of materials used in micromachined transducers as a related to current and potential micro and nanofabrication processes.

MATL 7450/7456 HIGH TEMPERATURE ELECTROCHEMICAL DEVICES (3) LEC. 3. Departmental approval. Principles of solid-state electrochemistry, application to temperature devices including chemical sensors, fuel cells and batteries.

MATL 7510/7516 ELECTRON MICROSCOPY (3) LEC. 3. Departmental approval. Theory, instrumentation, techniques and applications of scanning and transmission electron microscopy.

MATL 7511 ELECTRON MICROSCOPY LABORATORY (1) LAB. 3. Coreq. MATL 7510. Laboratory on the use of electron microscopy for materials characterization.


MATL 7610/7616 ENGINEERING ASPECTS OF BIOLOGICAL AND CHEMICAL DETECTION (3) LEC. 3. Departmental approval. Biological and chemical scientific concepts related to biological and chemical threat agents. Existing and developing detection technologies, trends and needs for the future detection systems. Physical principles behind the detection technologies. Evaluation of detection device or system performance.

MATL 7620/7626 NANO/MICRO FLUIDIC SYSTEMS (3) LEC. 3. Departmental approval. Basic understanding of nano/microfluidics (typical volumes are nanoliters or picoliters) and practical applications in materials science and engineering, biotechnology, and other interdisciplinary fields of engineering and science.

MATL 7630/7636 NANOMATERIALS FOR BIOTECHNOLOGY (3) LEC. 3. Departmental approval. Basic understanding of nanobiotechnology and practical applications in the interdisciplinary fields of Materials Science and Engineering and biotechnology/medicine including nanostructured biomolecules and bioarrays as well as biomolecular nanoelectronics.

MATL 7950 MATERIALS ENGINEERING SEMINAR (0) SEM. SU. Required during each semester of residency, but cannot be used toward minimum requirements for graduate degree in Materials Engineering. Content changes each semester and consists of off-campus speakers and presentations by graduate students and faculty.

MATL 7960/7966 DIRECTED READINGS IN MATERIALS ENGINEERING (1-6) IND. SU. Departmental approval. May be taken more than one semester. Up to 6 hours may count toward the minimum degree requirements. Course may be repeated with change in topics.

MATL 7970/7976 SPECIAL TOPICS IN MATERIALS ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Materials Engineering not covered by regularly offered courses. Course may be repeated with change in topics.

MATL 7980/7986 MASTER MATERIALS ENGINEERING PROJECT (3) LEC. 3. SU. Special design project report directed by major faculty. Topics to be determined by the student's graduate committee.

MATL 7990/7996 RESEARCH AND THESIS (1-15) MST. Individual master's thesis research. Course may be repeated with change in topics.

MATL 8990/8996 RESEARCH AND DISSERTATION (1-15) DSR. Individual doctoral dissertation research. Course may be repeated with change in topics.
Mathematics - MATH

Courses

MATH 1000/1003 COLLEGE ALGEBRA (3) LEC. 3. Fundamental concepts of algebra, equations and inequalities, functions and graphs, polynomial and rational functions. Does not satisfy the core requirement in mathematics. Students who have previous credit in any higher-numbered math course may not also receive credit for this course.

MATH 1100 FINITE MATH AND APPLICATIONS (3) LEC. 3. Pr. A02 score of 22 or S02 score of 520 or S12 score of 550 or MATH 1000 or MATH 1003 or MPME score of 052. Mathematics Core. Overview of finite mathematics and its applications. Graph theory, matrices, finite and conditional probability; descriptive and inferential statistics, voting methods, game theory.

MATH 1120/1123 PRE-CALCULUS ALGEBRA (3) LEC. 3. Pr. A02 score of 22 or S02 score of 520 or S12 score of 550 or MATH 1000 or MATH 1003 or MPME score of 052. Mathematics Core. Preparatory course for calculus. Algebra of functions including polynomial, rational, exponential, and logarithmic functions. Systems of equations and inequalities, quadratic inequalities, the Binomial Theorem. No credit is given to students with higher-numbered math course. Credit for only one of MATH 1120/MATH 1123.

MATH 1121 PRE-CALCULUS ALGEBRA WORKSHOP (2) LAB. 4. SU. Coreq. MATH 1120 and MATH 1000 and MATH 1123 and MATH 1003. Workshop for College Algebra and Pre-Calculus Algebra. Course may be repeated for a maximum of 4 credit hours.

MATH 1130/1133 PRE-CALCULUS TRIGONOMETRY (3) LEC. 3. Pr. A02 score of 23 or S02 score of 540 or S12 score of 565 or MATH 1120 or MATH 1123 or MPME score of 060. Mathematics Core. Preparatory course for the calculus sequence. Basic analytic and geometric properties of the trigonometric functions. Complex numbers, De Moivre's Theorem, polar coordinates. Students who have previous credit in any higher-numbered math course may not also receive credit for this course. Students may receive credit for only one of MATH 1130/MATH 1133.

MATH 1150/1153 PRE-CALCULUS ALGEBRA AND TRIGONOMETRY (4) LEC. 4. Pr. A02 score of 23 or S02 score of 540 or S12 score of 565 or MATH 1000 or MATH 1003 or MPME score of 060. A "C" or better in MATH 1130 or MATH 1150 or MATH 1133 or MATH 1153. Mathematics Core. Algebraic functions, Exponential Logarithmic functions. Analytic and geometric properties of trigonometric functions. Students with previous credit in any higher-numbered math course may not also receive credit for this course. Students may receive credit for only one of MATH 1150 or MATH 1153.

MATH 1151 MATHEXCEL PRECALCULUS WORKSHOP (2) LEC. 2. SU. Coreq. MATH 1150. Appropriate score on the mathematics placement exam or grade of "C" or better in MATH 1000. Workshop for MATH 1150. Two 2-hour sessions per week.

MATH 1610/1613 CALCULUS I (4) LEC. 4. Pr. A02 score of 26 or S02 score of 600 or S12 score of 620 or MATH 1130 or MATH 1150 or MATH 1133 or MATH 1153 or MPME score of 076. "C" or better in MATH 1130 or MATH 1133, MATH 1150 or MATH 1153. Mathematics Core. Limits, the derivative of algebraic, trigonometric, exponential, logarithmic functions. Applications of the derivative, antiderivatives, the definite integral and applications to area problems, the fundamental theorem of calculus. Students may receive credit for only one of MATH 1610/1613/1617/1710.

MATH 1611 MATHEXCEL CALCULUS WORKSHOP I (2) LEC. SU. Coreq. MATH 1610. Workshop for Math 1610. Two 2-hour sessions per week.

MATH 1617 HONORS CALCULUS I (4) LEC. 4. Pr. Honors College. MATH 1130 or MATH 1150 or MATH 1133 or MATH 1153 or A02 minimum score of 26 or S02 minimum score of 600 or MPME minimum score of 76. C or better in MATH 1130, MATH 1133, MATH 1150 or MATH 1153. Mathematics Core. This course covers the same material as MATH 1610 but in a greater depth appropriate for honors students. Credit will not be given for both MATH 1617 and MATH 1680. Students may receive credit for only one of MATH 1610, MATH 1613, or MATH 1617.

MATH 1620/1623 CALCULUS II (4) LEC. 4. Pr. MATH 1610 or MATH 1613 or MATH 1617. "C" or better in MATH 1610, MATH 1613, or MATH 1617. Techniques of integration, applications of the integral, parametric equations, polar coordinates. Vectors, lines and planes in space. Infinite sequences and series. Students may receive credit for only one of MATH 1620, or MATH 1627.

MATH 1621 MATHEXCEL CALCULUS WORKSHOP II (2) LEC. 2. SU. Coreq. MATH 1620. Workshop for MATH 1620. Two 2-hour sessions per week.

MATH 1627 HONORS CALCULUS II (4) LEC. 4. Pr. Honors College. MATH 1610 or MATH 1617 or MATH 1613. "C" or better in MATH 1610, MATH 1613, or MATH 1617. The same material as MATH 1620, but in greater depth appropriate for honors students. Students may receive credit for only one of MATH 1620 or MATH 1627.
MATH 1680/1683 CALCULUS WITH BUSINESS APPLICATIONS I (4) LEC. 3, LEC. 2. Pr. A02 score of 25 or S02 score of 580 or S12 score of 600 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MPME score of 068. Students in College of Business. Mathematics Core. Differentiation and integration of exponential logarithmic algebraic functions, applications to business. Functions of several variables, partial derivatives, multiple integrals.

MATH 1681 MATHEXCEL BUSINESS CALCULUS WORKSHOP I (2) LEC. 2. SU. Coreq. MATH 1680. Workshop for MATH 1680. Two 2-hour sessions per week.

MATH 1690 CALCULUS WITH BUSINESS APPS II (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or MATH 1610 or MATH 1617 or MATH 1613 or Departmental approval. Probability, random variables, probability distributions. Further topics in calculus: integration, functions of several variables, applications to probability. Applications to business and related areas. Credit will not be given to majors in Engineering or Math or Physics.

MATH 1691 MATHEXCEL BUSINESS CALCULUS WORKSHOP II (2) LEC. 2. SU. Coreq. MATH 1690. Workshop for MATH 1690. Two 2-hours sessions per week.

MATH 2630/2633 CALCULUS III (4) LEC. 4. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. Multivariate calculus: vector-valued functions, partial derivatives, multiple integration, vector calculus. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2637 HONORS CALCULUS III (4) LEC. 4. Pr. Honors College. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. "C" or better in MATH 1620, MATH 1623 or MATH 1627. The same material as MATH 2630, but in greater depth appropriate for honors students. Credit will be given for only one of MATH 2630, MATH 2637, or MATH 2730.

MATH 2650 LINEAR DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. P/C MATH 2630 or P/C MATH 2637 or P/C MATH 2730. First and second order linear differential equations including the solutions by infinite series, applications.

MATH 2660 TOPICS IN LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Matrices, row-reduction, systems of linear equations, (finite-dimensional) vector spaces, subspaces, bases, dimension, change of basis, linear transformations, kernels, orthogonality, Gram-Schmidt.

MATH 2790 MATHEMATICS OF INTEREST THEORY (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Mathematical foundations of the theory of interest necessary as preparation for the Society of Actuaries examination on the theory of interest.

MATH 2850 MATHEMATICS FOR ELEMENTARY EDUCATION I (3) LEC. 3. For Elementary Education major or departmental approval. Mathematical insights for elementary school teachers. Sets, the structure of the number system (integers, fraction, decimals).

MATH 2860 MATHEMATICS FOR ELEMENTARY EDUCATION II (3) LEC. 3. Pr. MATH 2850. For Elementary Education majors or departmental approval. Mathematical insights into measurement and geometry for elementary school teachers. Shapes in two and three dimensions. Similarities, congruences and transformations.

MATH 2870 MATHEMATICS FOR ELEMENTARY EDUCATION III (3) LEC. 3. For Elementary Education majors or departmental approval. Mathematical insights into probability, data analysis and functions for elementary school teachers. Uncertainty, probability spaces and an introduction to statistics. Relationships, functions and change.

MATH 3010 HISTORY OF MATHEMATICS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Departmental approval. The evolution of modern mathematics from its motivational roots in the physical sciences; the lives and contributions of outstanding mathematicians; the parallel development of mathematics and western culture.

MATH 3100 INTRODUCTION TO ADVANCED MATHEMATICS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Teaching of the fundamental abilities necessary for the pursuance of mathematical studies. Logic and set theory, mathematical induction, basic number theory, basic analysis. Credit will not be given for both MATH 3100 and Math 3710.

MATH 3710 DISCRETE MATHEMATICS (3) LEC. 3. Pr. MATH 2660. Methods of proof, induction, counting, inclusion-exclusion, discrete probability, relations, partial orders, graphs, trees, languages, grammars, finite state machines, automata. Credit will not be given for both MATH 3710 and Math 3100.

MATH 4110 ADVANCED LOGIC (3) LEC. 3. Pr. MATH 2630 or MATH 2637 and MATH 2730. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics. May count either MATH 4110 or PHIL 4110.
MATH 4790 ACTUARIAL SEMINAR IN THE MATHEMATICS OF FINANCE (3) LEC. 3. Pr. MATH 2790. Intensive seminar in the mathematical aspects of finance, and the theory of interest primarily intended as preparation for the Society of Actuaries Course 2 examination.

MATH 4820 ACTUARIAL SEMINAR IN PROBABILITY (3) LEC. 3. Pr. STAT 3600. or equivalent. Intensive seminar in calculus, probability, and risk theory primarily intended as preparation for the Society of Actuaries Course 1 examination.

MATH 4930 DIRECTED STUDIES (1-3) IND. Study of individual problems or topics of interest to students. Course may be repeated for a maximum of 3 credit hours.

MATH 4970 SPECIAL TOPICS (1-4) IND. Departmental approval. An individual problems course. Each student will work under the direction of a staff member on a problem of mutual interest. Course may be repeated for a maximum of 4 credit hours.

MATH 4980 UNDERGRADUATE RESEARCH (1-3) IND. Departmental approval. Directed research in the area of specialty under faculty supervision. Course may be repeated for a maximum of 3 credit hours.

MATH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Course may be repeated for a maximum of 6 credit hours. Membership in Honors College.

MATH 5000 MATH MODELING CONTINUOUS (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term project. Programming ability.

MATH 5010 VECTOR CALCULUS (3) LEC. 3. Pr. (MATH 2630 or MATH 2637 or MATH 2730) and MATH 2660. Departmental approval. Vector-valued functions, vector fields. Gradient, divergence, curl. Integral theorems: Green's Theorem, Stoke's Theorem, Gauss' Theorem. Tensors and differential forms. Applications.

MATH 5030 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Pr. MATH 2650. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 5030. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 5030-5040 are appropriate for students of engineering or science.

MATH 5050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Pr. MATH 2660. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 5060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. Pr. MATH 2650. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 5120 INFORMATION THEORY (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 5130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650. Fundamental concepts of extrema of functions and functionals; first and second variations; generalizations; sufficient conditions; constrained functionals; the general Lagrange Problem; optimal control.

MATH 5140 DATA COMPRESSION (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 5150 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.

MATH 5180 CRYPTOGRAPHY (3) LEC. 3. Pr. MATH 2660. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 5190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3. Pr. MATH 2650. Approximation of functions by polynomials, spline functions or trigonometric functions, expansions in series.

MATH 5200 ANALYSIS I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity. Emphasis on proofs.

MATH 5210 ANALYSIS II (3) LEC. 3. Pr. MATH 5200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; R^n and abstract spaces, functions of several variables. Emphasis on proofs.


MATH 5280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

MATH 5300 THEORY OF DIFFERENCE EQUATIONS (3) LEC. 3. Pr. MATH 2660. Linear difference equations, initial value problems, Green's functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

MATH 5310 INTRODUCTION TO ABSTRACT ALGEBRA I (3) LEC. 3. Pr. MATH 3100. "C" or better in MATH 3100. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

MATH 5320 INTRODUCTION TO ABSTRACT ALGEBRA II (3) LEC. 3. Pr. MATH 5310. Theory of rings and fields, Ideals and Homomorphisms, Quotient Rings, Rings of Polynomials, Extensions of Fields, Galois Theory.

MATH 5330 COMPUTATIONAL ALGEBRA (3) LEC. 3. Pr. MATH 5310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger's Algorithm, kinematic/robotics problems, symbolic manipulation software.

MATH 5370 LINEAR ALGEBRA (3) LEC. 3. Pr. MATH 2660. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces, matrix representations, eigenvalues, eigenspaces.

MATH 5380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

MATH 5390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3) LEC. 3. Pr. MATH 5380. Planar graphs and Euler's theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, advanced theorems on the circle.

MATH 5460 PERTURBATION METHODS I (3) LEC. 3. Pr. MATH 2660. Analytical solutions of nonlinear problems, ODEs, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods.

MATH 5470 DYNAMICAL SYSTEMS I (3) LEC. 3. Pr. MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii's Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

MATH 5480 DYNAMICAL SYSTEMS II (3) LEC. 3. Pr. MATH 5470. Higher dimensional and complex dynamics. Lorenz map, Henon map, toral automorphisms, stable and unstable manifolds, strange attractors, quadratic maps of the complex plane, Julia sets, Mandelbrot set.

MATH 5500 INTRODUCTION TO TOPOLOGY (3) LEC. 3. Pr. MATH 3100. C or better in MATH 3100. Metric spaces, topological spaces, continuity, compactness, connectedness, product and quotient spaces and local properties.

MATH 5620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3) LEC. 3. Pr. MATH 2650. A programming language, or departmental approval. An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.

MATH 5640 INTRODUCTION TO NUMERICAL ANALYSIS II (3) LEC. 3. Pr. MATH 2660. Programming ability. Numerical solutions of systems of linear equations, numerical computation of eigenvalues and eigenvectors, error analysis. Written programs using the algorithms.

MATH 5650 THEORY OF NONLINEAR OPTIMIZATION (3) LEC. 3. Pr. MATH 2650 and MATH 2660. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

MATH 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 5670 and STAT 5670.

MATH 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 5670 or STAT 5670. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 5680 and STAT 5680.

MATH 5690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematica, supported by internet resources. Credit will not be given for both MATH 5690 and STAT 5690. Basic programming.


MATH 5730 ENUMERATION (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.


MATH 5770 COMBINATORIAL DESIGNS (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.


MATH 5810 ACTUARIAL MATHEMATICS II (3) LEC. 3. Pr. MATH 5800. A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 5840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. Divisibility, Diophantine equations, congruencies.

MATH 5850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 5860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637 or MATH 2730. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 5870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and MATH 2650 and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.
MATH 5970 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.

MATH 6000 MATHEMATICAL MODELING: CONTINUOUS (3) LEC. 3. Introduction to mathematical models and related techniques. Includes general principles involving continuous deterministic problems and a detailed, specific term-project. Programming ability.


MATH 6030/6036 COMPLEX VARIABLES WITH APPLICATIONS I (3) LEC. 3. Complex functions and their elementary mapping properties; contour integration and residues; Laurent series; applications to real integrals. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6040 COMPLEX VARIABLES WITH APPLICATIONS II (3) LEC. 3. Pr. MATH 6030 or MATH 6036. Linear fractional transformations; conformal mappings; harmonic functions; applications to boundary value problems; analytic continuation; entire functions. MATH 6030-6040 are appropriate for students of engineering or science.

MATH 6050 MATRIX THEORY AND APPLICATIONS (3) LEC. 3. Canonical forms, determinants, linear equations, eigenvalue problems.

MATH 6060 ELEMENTARY PARTIAL DIFFERENTIAL EQUATIONS (3) LEC. 3. First and second order linear partial differential equations with emphasis on the method of eigenfunction expansions.

MATH 6120 INFORMATION THEORY (3) LEC. 3. Information and entropy, information rate optimization and channel capacity, variable-length codes, data compression (Kraft-McMillan inequality, Huffman's algorithm), maximum likelihood decoding, Shannon's Noisy Channel Theorem.

MATH 6130 CALCULUS OF VARIATION (3) LEC. 3. Pr. MATH 2650. Fundamental concepts of extrema functions and functionals; first and second generalizations; sufficient conditions; constrained functionals; the general Lagrange problem; optimal control.

MATH 6140 DATA COMPRESSION (3) LEC. 3. Lossless compression methods, including static, dynamic, and higher order Huffman and arithmetic encoding, interval and recency rank encoding, and dictionary methods; lossy transform methods (JPEG).

MATH 6150/6156 ALGEBRAIC CODING THEORY (3) LEC. 3. Pr. MATH 2660. Linear codes, Hamming and Golay codes, BCH codes, cyclic codes. Random error detection and correction. Burst-error correction. Decoding algorithms. Credit will not be given for both MATH 5150 and MATH 6150/6156.


MATH 6180 CRYPTOGRAPHY (3) LEC. 3. Classical cryptosystems, the Data Encryption Standard, one-way functions and relevant number theoretic problems (factoring, primality testing, discrete logarithm problem), RSA and other public key cryptosystems.

MATH 6190 INTRODUCTION TO APPROXIMATION THEORY (3) LEC. 3. Pr. MATH 2650. Approximation of functions by polynomials, spline functions or trigonometric function, expansions in series.

MATH 6200 ANALYSIS I (3) LEC. 3. or equivalent course, subject to departmental approval. Real numbers, infima and suprema; sequences and series of real numbers, convergence and limits, Cauchy sequences and completeness; topology of the real line, Bolzano-Weierstrass and Heine-Borel theorems; real-valued functions of a real variable, continuity and uniform continuity; intermediate value and extreme-value theorems. Emphasis on proofs.

MATH 6210 ANALYSIS II (3) LEC. 3. Pr. MATH 6200. Sequences and series of functions, modes of convergence, power series, elementary functions; derivatives and power series, elementary functions; derivatives and antiderivatives, the mean-value theorem; Riemann integration and the Fundamental Theorem of Calculus; $\mathbb{R}^n$ and abstract spaces, functions of several variables. Emphasis on proofs.

### MATH 6280 SYSTEMS OF DIFFERENTIAL EQUATIONS AND APPLICATIONS (3)
LEC. 3. Linear systems of differential equations, stability, phase portraits; non-linear systems, linearization, qualitative properties of orbits, Poincare-Bendixson Theorem; numerical methods; applications.

### MATH 6300 THEORY OF DIFFERENCE EQUATIONS (3)
LEC. 3. Linear difference equations, initial value problems, Green’s functions, boundary value problems, systems, periodic solutions, nonlinear difference equations, models.

### MATH 6310 INTRODUCTION TO ABSTRACT ALGEBRA I (3)
LEC. 3. Departmental approval. Groups, Groups of Permutations, isomorphisms and homomorphisms; Cyclic Groups, Quotient Groups, The Fundamental Homomorphism Theorem.

### MATH 6320 INTRODUCTION TO ABSTRACT ALGEBRA II (3)

### MATH 6330 COMPUTATIONAL ALGEBRA (3)
LEC. 3. Pr. MATH 6310. Introduction to computation in multivariate polynomial rings and finite fields. Topics include Groebner bases, Buchberger’s Algorithm, kinematic/robotics problems, and symbolic manipulation software.

### MATH 6370 LINEAR ALGEBRA (3)
LEC. 3. Introduction to the theoretical foundations of Linear Algebra including vector spaces, basis, dimension, linear transformations, fundamental subspaces matrix representations, eigenvalues, eigenspaces.

### MATH 6380 INTERMEDIATE EUCLIDEAN GEOMETRY I (3)
LEC. 3. Fundamental concepts and theorems of Euclidean geometry, introduction to higher dimensions. Regular polygons and polyhedra, symmetry groups, convexity, geometric extremum problems. Geometric transformations and their invariants.

### MATH 6390 INTERMEDIATE EUCLIDEAN GEOMETRY II (3)
LEC. 3. Pr. MATH 6380. Planar graphs and Euler’s theorem. The symmetry group of a set, homotheties and similitudes, path, arcs and length of curves, and advanced theorems on the circle.

### MATH 6460/6466 PERTURBATION METHODS (3)
LEC. 3. Pr. MATH 2660. Departmental approval. Analytical solutions of nonlinear problems, ODES, PDEs, multiple scales, and transcendental equations in engineering, mathematics, and physics using both regular and singular perturbation methods. May count either AERO/MATH 5460 or AERO/MATH 6460.

### MATH 6470 DYNAMICAL SYSTEMS I (3)
LEC. 3. Pr. MATH 2650. One dimensional dynamics. The logistic equation, bifurcation theory, chaos, hyperbolicity, symbolic dynamics, Sarkovskii’s Theorem, maps of the circle, homoclinic points and the theory of kneading sequences.

### MATH 6480 DYNAMICAL SYSTEMS II (3)

### MATH 6500 INTRODUCTION TO TOPOLOGY (3)

### MATH 6620 MATHEMATICAL COMPUTATION AND SCIENTIFIC VISUALIZATION (3)
LEC. 3. An introduction to the computational modeling process, numerical programming tools for large-scale scientific computation, parallel and cluster computing, and to scientific visualization techniques.

### MATH 6630/6636 INTRODUCTION TO NUMERICAL ANALYSIS I (3)

### MATH 6640/6646 INTRODUCTION TO NUMERICAL ANALYSIS II (3)

### MATH 6650 THEORY OF NONLINEAR OPTIMIZATION (3)
LEC. 3. Kuhn-Tucker conditions, quadratic programming, search methods and gradient methods, Lagrangean and penalty function methods.

### MATH 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3)
LEC. 3. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both MATH 6670 and STAT 6670.
MATH 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions. Central Limit Theorem, Laplace transforms, convolutions, simulation, renewal processes, Continuous-time Markov Chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both MATH 6680 and STAT 6680.

MATH 6690 INTRODUCTION TO CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Stochastic properties of random phenomena in computational complexity, data analysis, chaotic nonlinear systems. Computer simulation and experimenting within Mathematica, supported by Internet resources. Credit will not be given for both MATH 6690 and STAT 6690.

MATH 6710 LINEAR OPTIMIZATION (3) LEC. 3. Theory and algorithms for standard linear optimization problems. Simplex algorithm and duality, shortest paths, network flows, min-cost flows and circulations, out-of-kilter method, assignments and matchings.

MATH 6730 ENUMERATION (3) LEC. 3. Using generating functions and Polya theory to do sophisticated counting. Permutations and combinations, inclusion-exclusion, partitions, recurrence relations, group actions, Polya theory with applications.


MATH 6770 COMBINATORIAL DESIGNS (3) LEC. 3. Latin squares, mutually orthogonal latin squares, orthogonal and perpendicular arrays, Steiner triple systems, block designs, difference sets and finite geometries.


MATH 6810 ACTUARIAL MATHEMATICS II (3) LEC. 3. Pr. MATH 6800. A development of the mathematical theory of life insurance and annuities. Utility functions, mortality models, life tables, insurance plans, premiums.

MATH 6840 FOUNDATIONS OF NUMBER THEORY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Divisibility, Diophantine equations, congruencies.

MATH 6850 NUMERICAL ANALYSIS FOR SECONDARY TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. The numerical solutions of selected problems arising in calculus and algebra along with the programming techniques. Computer familiarity.

MATH 6860 FOUNDATIONS OF NON-EUCLIDEAN GEOMETRY FOR SECONDARY SCHOOL TEACHERS (3) LEC. 3. Pr. MATH 2630 or MATH 2637. B.L. geometry, hyperbolic geometry, absolute geometry, parallel postulates.

MATH 6870 FINANCIAL MATHEMATICS (3) LEC. 3. Pr. (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and MATH 2650 and STAT 3600. Options and spreads, pricing of such options in accordance with the Black-Scholes Equation, and the binomial pricing model.

MATH 6970/6976 SPECIAL TOPICS (1-3) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 3 credit hours.


MATH 7010/7016 APPLIED MATHEMATICS II (3) LEC. 3. Pr. MATH 7000 or MATH 7006. Calculus of variations, asymptotic expansions, Spectral theory, Fourier transform, Partial differential equations, transform methods and eigenfunction expansions, vibrations, diffusion processes, equilibrium states, Green's functions, boundary layer problems.

MATH 7040/7046 APPROXIMATION THEORY I (3) LEC. 3. Departmental approval. Introduction and theory of some of the important methods of approximation. Includes uniform approximation, best approximation, best trigonometric approximation.

MATH 7050/7056 APPROXIMATION THEORY II (3) LEC. 3. Pr. MATH 7040 or MATH 7046. Least square approximation and rational approximation, and advanced topics of current interest.

MATH 7070 INTERPOLATION I (3) LEC. 3. Departmental approval. Techniques of approximation by interpolation, rates of convergence and methods of estimating error. Simultaneous approximation of functions and their derivatives; spline function interpolation; curve and surface fitting.
MATH 7080 INTERPOLATION II (3) LEC. 3. Pr. MATH 7070. Timan’s Theorem. Telyakovski and Gopengauz Theorems. Brudnyi’s
inequality, Polynomial based discrete cosine transforms, Piecewise polynomial interpolation, B-splines, Recurrence relations,
Schoenberg-Whitney Theorem, Convergence properties of spline approximations.

MATH 7100 SPECIAL FUNCTIONS (3) LEC. 3. Departmental approval. Special functions from classical complex analysis which play
an important role in the mathematics of physics, chemistry, and engineering.

MATH 7110 DISCRETE GEOMETRY AND CONVEXITY I (3) LEC. 3. Departmental approval. Geometric objects and configurations
with discrete symmetry groups. Regular polygons and polyhedra. Regular arrangements. Plane tilings and patterns.

MATH 7120 DISCRETE GEOMETRY AND CONVEXITY II (3) LEC. 3. Pr. MATH 7110. Convexity and related geometric extremum
problems. Packing and covering. Arrangements of extreme density.

MATH 7130 TENSOR ANALYSIS (3) LEC. 3. Departmental approval. Manifolds, differential structure, vector and tensor fields, vector
and tensor bundles, differential forms, chains. elements of differential geometry, advanced topics.

MATH 7140 INTRODUCTION TO MODEL THEORY (3) LEC. 3. Departmental approval. First-order languages, Satisfaction.
Consequences. The completeness and compactness theorems, models constructed from constants. Elementary substructures and
embeddings, Lowenheim-Skolem-Tarski theorems. Ultraproducts and ultrapowers.

MATH 7150 AXIOMATIC SET THEORY I (3) LEC. 3. Departmental approval. Introduction to modern set theory. The axioms of ZFC,
ordinals and cardinals, closed unbounded sets, the constructible universe L, Martin’s Axiom.

MATH 7160 AXIOMATIC SET THEORY II (3) LEC. 3. Pr. MATH 7150. Introduction to forcing, independence results, iterated forcing,
consistency of Martin’s Axiom.

MATH 7170 ALGORITHMS DISCRETE OPTIMIZATION (3) LEC. 3. Pr. MATH 6750. Theory and practice of discrete algorithms:
complexity class classes, reductions, approximate algorithms, greedy algorithms, search techniques, heuristics, randomized algorithms,
and numeric algorithms.

MATH 7180 ALGORITHMIC ALGEBRA I (3) LEC. 3. Departmental approval. Fundamental aspects of algorithmic algebra. Noetherian

MATH 7190 ALGORITHMIC ALGEBRA II (3) LEC. 3. Pr. MATH 7180. Modules. Groebner bases for modules and syzygy
Dimension theory.

MATH 7200 REAL ANALYSIS I (3) LEC. 3. Departmental approval. Sigma algebras, measures, measurable functions, integratability,
properties of Lebesgue measure, density, Lusin’s theorem, Egoroff’s theorem, product measures, Fubini’s theorem. Limit theorems
involving pointwise convergence and integration.

MATH 7210 REAL ANALYSIS II (3) LEC. 3. Pr. MATH 7200. L-p spaces, completeness, duals. Weak convergence, norm
convergence, pointwise convergence, convergence in measure. Signed and complex measures. Absolute continuity, Lebesgue

MATH 7230 FUNCTIONS OF A COMPLEX VARIABLE I (3) LEC. 3. Departmental approval. Complex numbers, analytic functions,
derivatives, Cauchy integral theorem and formulae, Taylor and Laurent series, analytic continuation, residues, maximum principles,
Riemann surfaces.

MATH 7240 FUNCTIONS OF A COMPLEX VARIABLE II (3) LEC. 3. Pr. MATH 7230. Conformal mappings, families of analytic
functions and harmonic analysis.

MATH 7280 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Existence and
continuation theorems for ordinary differential equations, continuity and differentiability with respect to initial conditions, linear systems,
differential inequalities, Sturm theory.

MATH 7290 ADVANCED THEORY OF ORDINARY DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7280. Stability theory,
periodic solutions, boundary value problems, disconjugacy of linear equations, Green’s functions, upper and lower solutions, a priori
bounds methods, current research.
MATH 7310 ALGEBRA I (3) LEC. 3. Departmental approval. Groups, Lagrange's Theorem, normal subgroups, factor groups, Isomorphism and Correspondence Theorems. Symmetric groups, alternating groups, free groups, torsion groups. Introduction to rings, correspondence theorems.

MATH 7320 ALGEBRA II (3) LEC. 3. Pr. MATH 7310. Rings, modules, vector spaces, and semi-simple modules. Commutative rings; prime and primary ideals, PIDs are UFD, factorizations in integral domains, field extensions, the Galois Correspondence Theorem.

MATH 7330 LINEAR REPRESENTATIONS OF FINITE GROUPS (3) LEC. 3. Pr. MATH 7320. Maschke's Theorem, characters, orthogonality relations, induced modules, Frobenius reciprocity, Clifford's Theorem, Mackey's Subgroup Theorem, Burnside's theorem on solvability.

MATH 7340 RING THEORY (3) LEC. 3. Pr. MATH 7320. Topics on: commutative rings (Cohen-Seidenberg theorems, Krull Intersection Theorem, Dedekind domains), or noncommutative rings (projective modules over Artinian algebras, representation type, Noether-Skolem Theorem, division algebras).

MATH 7350 ABELIAN GROUPS (3) LEC. 3. Pr. MATH 7320. Torsion groups: Decompositions, Ulm's theorem, uniqueness theorem for Axion 3 groups. Torsion-free groups: Completely decomposable groups, Butler groups, p-local groups, Warfield groups, splitting criteria. Homological topics.

MATH 7360 LIE ALGEBRA (3) LEC. 3. General introduction of Lie algebras including their structures and classifications of semisimple Lie algebras.

MATH 7370 MATRICES I (3) LEC. 3. Departmental approval. Jordan form, functions of a matrix, spectral theorem, singular values, norms, quadratic forms, field of values, inertia; topics of current interest.

MATH 7380 MATRICES II (3) LEC. 3. Pr. MATH 7370. Matrix stability and inertia, inequalities for matrix eigenvalues and singular values, The Kronecker and Hadamard matrix products, the exponential and logarithm matrix map; topics of current interest.

MATH 7390 MULTILINEAR ALGEBRA (3) LEC. 3. Pr. MATH 5370 or MATH 6370. Multilinear algebra, symmetry class of tensors, induced operators, generalized matrix functions, and current research topics.


MATH 7410 FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 7400. C*-algebras, Hermitian, self adjoint elements, functional calculus for commutative algebras. Normal operators on Hilbert space, spectral theorem, applications, symmetric and self-adjoint operators, normal operators, the spectral theorem.

MATH 7440 PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Departmental approval. Second order linear elliptic and hyperbolic equations stressing non-linear and numerical problems, characteristic domains of dependence, energy integrals, finite difference schemes, Sobolev spaces, maximum principle.

MATH 7450 PARTIAL DIFFERENTIAL EQUATIONS II (3) LEC. 3. Pr. MATH 7440. Parabolic and hyperbolic equations, stressing numerical problems, characteristics, domains of dependence, energy integrals, reaction-diffusion problems, Navier-Stokes equations, fixed-point and Galerkin methods.


MATH 7470 NUMBERS AND OPERATIONS FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of the base ten place value system and the operations and algorithms used with this system.

MATH 7480 MEASUREMENT AND GEOMETRY FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of topics in measurement, 2-D and 3-D geometry needed for teaching elementary school students.
MATH 7490 DATA, STATISTICS AND FUNCTIONS FOR ELEMENTARY TEACHERS (3) LEC. 3. Certified Elementary Teacher or Degree in Elementary/Early Education or departmental approval. Develop a deep understanding of topics in data analysis, probability, statistics and algebra needed for teaching elementary school students.

MATH 7500 TOPOLOGY I (3) LEC. 3. Departmental approval. Separation and countability axioms, covering properties, completeness, connectedness, metric spaces and metrizability, product and quotient spaces, function spaces.

MATH 7510 TOPOLOGY II (3) LEC. 3. Pr. MATH 7500. Homotopy, elementary properties of retracts, fundamental groups, covering spaces, computations of fundamental groups.


MATH 7530 CONTINUUM THEORY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Topics such as inverse limits, decompositions, hyperspaces, special mappings, topological structures from the pathological (indecomposable continua), to the straightforward (Peano continua).

MATH 7540 CONTINUUM THEORY II (3) LEC. 3. Pr. MATH 7530. Topics in continuum theory such as confluent mappings, epsilon mappings, chains, to-the-boundary theorems, relationship to inverse limits, advanced topics.

MATH 7550 SET THEORETIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Compactifications, covering properties, metrization theorems and generalized metrizable spaces, topological groups.

MATH 7560 SET THEORETIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7550. Topological Groups, Cardinal invariants, use of set-theoretic axioms such as Martin's Axiom, independence results, advanced topics.

MATH 7570 EUCLIDEAN TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. An introduction to concepts basic in algebraic and geometric topology through the study of simple objects such as polyhedra, manifolds, retracts, and the Brouwer fixed point theorem.

MATH 7580 EUCLIDEAN TOPOLOGY II (3) LEC. 3. Pr. MATH 7570. Further study of basic geometric topology. Retracts, absolute neighborhood retracts, maps into spheres, invariance of domain.

MATH 7600/7606 ADVANCED NUMERICAL MATRIX ANALYSIS (3) LEC. 3. Departmental approval. Topics selected from: discretization matrices, sparse matrices, QR-algorithm, symmetric eigenvalue problems, singular value decomposition, pseudo-inverses, simplex method, matrix algorithms for vector computers.

MATH 7610/7616 NUMERICAL SOLUTION OF PARTIAL DIFFERENTIAL EQUATIONS I (3) LEC. 3. Pr. MATH 2650 and MATH 2660 and MATH 5630 or MATH 6630 and MATH 5640 or MATH 6640. Finite difference methods for ordinary and partial differential equations.

MATH 7620 OPTIMIZATION THEORY (3) LEC. 3. Unconstrained problems: basic descent, conjugate gradient and quasi-Newton methods. Constrained problems: gradient projection, penalty, cutting plane and Lagrange methods. Credit will not be given for both MATH 7620 and INSY 8420. An ability to program in high-level language.


MATH 7650 HARMONIC ANALYSIS I (3) LEC. 3. Departmental approval. Fourier series, Fourier transforms, maximal functions, singular integral theory, introduction to function spaces.

MATH 7660 HARMONIC ANALYSIS II (3) LEC. 3. Pr. MATH 7650. Function spaces and interpolation, Calderon's reproducing formulas, wavelets, frames, connections to function spaces applications.

MATH 7680/7686 ADVANCED TOPICS IN NUMERICAL ANALYSIS (3) LEC. 3. Departmental approval. Topics include: sparse systems of equations, parallel and vector algorithms, nonlinear and singular partial differential equations, calculation of eigenvalues and eigenvectors, pseudo-random numbers, filtering techniques.

MATH 7700 INTRODUCTION TO GRAPH THEORY FOR GRADUATE STUDENTS (3) LEC. 3. Algorithmic, enumerative and theoretical aspects of graph theory: matchings and factors, colorings, Hamiltonicity, connectivity, trees, extremal graphs, planarity. May count either MATH 6750 or MATH 7700.
MATH 7710 COMPUTATIONAL GEOMETRY (3) LEC. 3. Departmental approval. Design and time-complexity of computer algorithms for geometry problems studying the geometric ideas needed for computer-aided design, computer graphics and robotics.

MATH 7720 INTRODUCTION TO CODING THEORY (3) LEC. 3. Introduction to methods and algorithms for reliable communications through error control coding. BCH, Reed-Solomon, Reed-muller codes, convolutional codes, Berlekamp-Massey, Viterbi, and iterated decoding algorithms.

MATH 7730 ADVANCED TOPICS IN CODING THEORY (3) LEC. 3. Pr. MATH 7720. Departmental approval. Structure and theoretical properties of codes and related algorithms. Relations to other combinatorial and algebraic objects stressed.

MATH 7740 ADVANCED COMBINATORIAL DESIGNS (3) LEC. 3. Topics of current interest and research in combinatorial design theory. Areas included: latin squares, embeddings, Wilson's constructions, quadruple systems, Hadamard designs, graph designs, orthogonal arrays.

MATH 7750 ADVANCED TOPICS IN GRAPH THEORY (3) LEC. 3. Pr. MATH 6750. Topics of current interest and recent research in graph theory. May include edge colorings, algebraic graph theory, network flows, factor theory.

MATH 7760 INTRODUCTION TO ALGEBRAIC TOPOLOGY I (3) LEC. 3. Pr. MATH 7510. Departmental approval. Homology of chain complexes, the axioms of homology and their verification, computations of homology groups.

MATH 7770 INTRODUCTION TO ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7760. Homology with coefficients and universal coefficient theorem theorems, Cohomology and universal coefficient theorems, homology of products of spaces, cup and cap products, duality in manifolds.

MATH 7780 ADVANCED ALGEBRAIC TOPOLOGY I (3) LEC. 3. Departmental approval. Advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7790 ADVANCED ALGEBRAIC TOPOLOGY II (3) LEC. 3. Pr. MATH 7780. Continuation of MATH 7780; advanced topics in homology, cohomology, and duality with relations to and further study of homotopy theory. Applications to and further study of manifolds and geometric topology.

MATH 7800 PROBABILITY I (3) LEC. 3. Pr., a full year of undergraduate mathematical analysis at a level commensurate with MATH 5200/5210. Measure-theoretic foundations, independence, conditioning, martingales, Markov property, stationarity, random walks, Markov chains, Poisson processes.

MATH 7810/7816 PROBABILITY II (3) LEC. 3. Pr. MATH 7800. Classical and modern topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both MATH 7810 and STAT 7810.

MATH 7820/7826 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances). Credit will not be given for both MATH 7820 and STAT 7820.

MATH 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion). Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos, finances).

MATH 7870 REAL FUNCTIONS AND DESCRIPTIVE SET THEORY I (3) LEC. 3. Pr. MATH 7210 or MATH 7500. Borel classification of sets, the Baire classification of real functions. Derivatives and approximately continuous functions. The Lebesgue density topology.


MATH 7950 SEMINAR (1-3) SEM. SU. Course may be repeated for a maximum of 6 credit hours.

MATH 7960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 10 credit hours.

MATH 7970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated with change in topics.
MATH 7980 RESEARCH AND SPECIAL PROJECT IN APPLIED MATHEMATICS (1-10) RES. SU. Departmental approval. For students working on the Master of Applied Mathematics degree with concentration in numerical analysis. Course may be repeated for a maximum of 10 credit hours.

MATH 7990 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

MATH 8310 HOMOLOGICAL ALGEBRA I (3) LEC. 3. Pr. MATH 7320. Departmental approval. Homology and cohomology. Hom and Tensor functors; the adjoint isomorphisms, injective/projective modules, flat modules, the classification of certain rings using homological tools.

MATH 8320 HOMOLOGICAL ALGEBRA II (3) LEC. 3. Pr. MATH 8310. Localizations of modules, nonsingular rings and modules, the Goldie dimension, homological classification of modules; Whitehead modules, reflexive modules, R-modules as modules over their rings of endomorphisms.

MATH 8330 INTRODUCTION TO LIE GROUPS (3) LEC. 3. Pr. MATH 7310 or MATH 7370. Introduce Lie groups via matrix groups. Topics include exponential map, Lie algebras, classical groups, structures and classifications, manifolds, representations.

MATH 8400 ADVANCED FUNCTIONAL ANALYSIS I (3) LEC. 3. Pr. MATH 7210 and MATH 7400. Topics concerning bounded and unbounded linear operators in Banach and Hilbert spaces; theory of distributions and topological vector spaces with applications, current research.

MATH 8410 ADVANCED FUNCTIONAL ANALYSIS II (3) LEC. 3. Pr. MATH 8400. Topics from the theory of bounded and unbounded linear operators in Banach and Hilbert spaces; elements of nonlinear functional analysis, topics of current research interest.

MATH 8600 ADVANCED PROBABILITY I (3) LEC. 3. Processes, distributions, independence, Random sequences, series, averages, characteristic functions. Classical limits theorems, conditioning. Some experience with graduate level mathematics, preferably in the areas of analysis and topology.

MATH 8610 ADVANCED PROBABILITY II (3) LEC. 3. Pr. MATH 8600. Martingales, Markov chains, random walks, renewal theory, Poisson processes and ergodic theory.

MATH 8630 ADVANCED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 8610. Gaussian processes, Brownian motion, invariance principles, convergence of random processes, measures and sets, stochastic integrals and quadratic variation.

MATH 8640 ADVANCED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 8630. Continuous martingales and Brownian motion, stochastic differential equations and martingale problems, local time, excursions, one-dimensional SDE's and diffusions.

MATH 8700 FINITE GEOMETRY I (3) LEC. 3. Pr. MATH 5370. Projective and affine spaces over finite fields. Inversive planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8710 FINITE GEOMETRY II (3) LEC. 3. Pr. MATH 8700. Projective and affine spaces over finite fields. Inversive planes. Relationship with linear algebra over finite fields and permutation groups. Applications to combinatorial designs.

MATH 8960 SPECIAL PROBLEMS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8970 SPECIAL TOPICS (1-10) IND. Departmental approval. Topics may vary as needed. Course may be repeated for a maximum of 15 credit hours.

MATH 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Mechanical Engineering - MECH

Courses

MECH 2110 STATICS AND DYNAMICS (4) LEC. 3. LAB. 3. Pr. (MATH 1620 or MATH 1623 or MATH 1627) and (PHYS 1600 or PHYS 1607). Vectors, forces, moments and free body diagrams. Systems in mechanical equilibrium. Particles in motion.

MECH 2120 KINEMATICS AND DYNAMICS OF MACHINES (4) LEC. 3. LAB. 3. Pr. (MATH 2630 or MATH 2637) and MECH 2110. Kinematics and kinetics of rigid bodies. Kinematics and dynamics of mechanisms, cams and gears.
MECH 2220 COMPUTER-AIDED ENGINEERING (3) LEC. 2. LAB. 3. Pr. (ENGR 1110 or ENGR 1113) and COMP 1200 and P/C MATH 2650. The computer as a tool in mechanical engineering.

MECH 2AA0 MECHANICAL ENGINEERING PROGRESS ASSESSMENT I (0) TST. SU. Progress Assessment Examination in: multivariate calculus, differential equations, chemistry, physics, statics, dynamics.


MECH 3030 FLUID MECHANICS (3) LEC. 3. Pr. MECH 2110 and ENGR 2010 and MATH 2650 and P/C MECH 3130. Fluid properties; fluid statics; mass conservation; momentum equation; external and internal flows; Euler and Bernoulli equations; dimensional analysis; viscous flows; boundary layers; compressible flow.


MECH 3050 MEASUREMENT AND INSTRUMENTATION (3) LEC. 2. LAB. 3. Pr. MECH 3030 and P/C ELEC 3810 and P/C MECH 3040. Theory and practice of modern sensors and computer-based data acquisition techniques, uncertainty analysis, results reporting, filtering and signal processing.

MECH 3130 MECHANICS OF MATERIALS (4) LEC. 3. LAB. 1. Pr. MECH 2110 and MATL 2100 and MATH 2650 and MATH 2660 and (MECH 2220 or MECH 3220). Stress and strain concepts, stress-strain relationships, applications, uniaxially loaded members, torsion, normal and shear stresses in beams, beam deflections, buckling, stress concentration, combined loading, failure theories, strain energy, impact loading, cyclic loading.

MECH 3140 SYSTEM DYNAMICS AND CONTROLS (3) LEC. 3. Pr. MECH 2120 and MATH 2650. System dynamics and automatic control theory.

MECH 3200 CONCEPTS IN DESIGN AND MANUFACTURING (2) LEC. 2. Pr. MECH 2110 and (P/C MECH 2220 or P/C MECH 3220). The mechanical design process, project based, with teamwork, project management and communication. Users’ needs, engineering requirements, concept generation and selection, design development.

MECH 3210 DESIGN AND MANUFACTURING LAB (1) LAB. 1. Manufacturing safety lab for introduction to manufacturing processes associated with cutting, forming, and joining of metals and other materials.

MECH 3230 MACHINE DESIGN (3) LEC. 3. Pr. MECH 3130 and (MECH 3210 or MECH 2210) and (MECH 3200 or MECH 2210) and (MECH 2220 or MECH 3220). Design of systems containing a variety of mechanical elements.

MECH 3A00 MECHANICAL ENGINEERING PROGRESS ASSESSMENT II (0) TST. SU. Pr. MECH 2AA0. Progress Assessment Examination in: Statistics, linear algebra, mechanical design, thermo-fluid design, social impact, contemporary issues.

MECH 4240 COMPREHENSIVE DESIGN I (2) LEC. 1. LAB. 3. Pr. (MECH 3AA0 and MECH 3230 and MECH 3040 and P/C MECH 3050 and P/C MECH 3140) or (MECH 3AA0 and MECH 3230 and P/C MECH 3040 and MECH 3050 and P/C MECH 3140) or (MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and MECH 3140). Capstone engineering design course based on a design project similar to those encountered by the engineer in industry involving thermal and mechanical design.

MECH 4250 COMPREHENSIVE DESIGN II (2) LEC. 1. LAB. 3. Pr. (MECH 4240 and MECH 3040 and MECH 3050 and P/C MECH 3140 and P/C INSY 3600) or (MECH 4240 and MECH 3050 and MECH 3140 and P/C MECH 3040 and P/C INSY 3600) or (MECH 4240 and MECH 3140 and MECH 3040 and P/C MECH 3050 and P/C INSY 3600). Continuation of MECH 4240. Detailed design, fabrication, communication, and presentation of a prototype machine for an industrial sponsor.

MECH 4300 MECHANICAL EQUIPMENT ENGINEERING (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Operation, performance, maintenance, selection, design and optimization of mechanical equipment commonly found in industrial operations.

MECH 4310 HEATING, VENTILATING, AIR CONDITIONING AND REFRIGERATION (3) LEC. 3. Pr. MECH 3040. Theory and practice of modern heating, ventilation, air conditioning and refrigeration systems; concepts, equipment, and systems design.

MECH 4320 APPLIED CFD AND HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040 and MATH 2660. Introduction to computational fluid dynamics and heat transfer techniques used to analyze thermal performance of devices and systems. Commercial software will be used.
MECH 4420 VEHICLE DYNAMICS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 2120. Ground vehicle resistance, propulsion, maneuvering, and control tires, suspensions, braking, aerodynamics, case studies.

MECH 4430 GROUND VEHICLE FUNDAMENTALS (3) LEC. 3. Pr. ENGR 2100 or ENGR 2350 or MECH 2120. Engineering fundamentals of ground vehicles and typical subsystems, including: power (engine and electrical); drivetrain; braking; steering; suspension; ergonomics; and structure.

MECH 4440 AUTOMOTIVE DESIGN EXPERIENCE I (2) LEC. 1. LAB. 3. Pr. MECH 3AA0 and MECH 3230 and P/C MECH 3040 and P/C MECH 3050 and P/C MECH 3140. and Departmental Approval. Team-based design of a ground vehicle, both whole-vehicle and subsystem; design evaluation and modification; oral and written communication.

MECH 4450 AUTOMOTIVE DESIGN EXPERIENCE II (2) LEC. 1. LAB. 3. Pr. MECH 4440. Departmental approval. Team-based fabrication, testing, modification and operation of a ground vehicle; oral and written communication; project management.

MECH 4510 INDUSTRIAL AND ENVIRONMENTAL NOISE CONTROL (3) LEC. 3. Pr. MECH 2120 and MECH 3220. Sources of industrial and community noise, criteria for control, noise measuring instrumentation, issues involved in the design of machinery for minimum noise, noise ordinances and regulations.

MECH 4520 MACHINERY NOISE AND VIBRATION DIAGNOSTICS (3) LEC. 3. Pr. MECH 2120 and MECH 3220. An introduction to machinery diagnostics through noise and vibration signatures. Fundamental principles and applications of predictive maintenance of machinery.

MECH 4700 INTEGRATED ENGINEERING THEORY AND PRACTICE (3) LEC. 3. Pr. MECH 3200. Real world engineering management decision making, case studies from industry.

MECH 4930 DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND/INT. Departmental approval. Individual or small group study of a specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 4970 SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing a specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Individual student directed research and writing of an honors thesis. Course may be repeated for a maximum of 6 credit hours.

MECH 5010 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Pr. MECH 3020 and MECH 3030. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.

MECH 5050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 2.5. Pr. ENGR 2010 or ENGR 2200. or permission of instructor. Overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles. May count one of: MECH 5050, MECH 6050, MECH 6056.

MECH 5110 INTERMEDIATE HEAT TRANSFER (3) LEC. 3. Pr. MECH 3040. Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 5120 COMBUSTION (3) LEC. 3. Pr. MECH 3040. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 5210 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Pr. MECH 3040 and ELEC 3810. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 5220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 5230 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Pr. MECH 3030 and MECH 3230 or INSY 3800. Theory and techniques for considering friction, wear and lubrication, in the design of machine components, and other surface interactions.
MECH 5240 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Pr. MECH 3030. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine components in order to control friction and wear.

MECH 5270 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 3210. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 5300 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Pr. MECH 3130. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problems, axisymmetric problems bending of curved members, torsion of prismatic members, stress concentration problems.

MECH 5310 MECHANICS OF ELECTRONIC PACK (3) LEC. 3. Pr. MECH 3130 and ELEC 3810. Stress and strain analysis of microelectronic packages and electronic assemblies using analytical, experimental and numerical methods.

MECH 5390 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Pr. MECH 3040 and MECH 3130 and MATH 2660. Introduction to the fundamentals of the finite element method.

MECH 5410 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3. Pr. MECH 3140. Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 5420 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Pr. MECH 3140. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 5430 BASICS SENSOR APPLICATIONS (3) LEC. 3. Pr. MECH 3130. Basic concepts, fabrication and operation of micromachined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.


MECH 5510 ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MATH 2650. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics and noise control will be emphasized.

MECH 5610 MECHANICAL VIBRATION (3) LEC. 3. Pr. MECH 2120 and MATH 2650 and MATH 2660. Modeling of lumped dynamic systems, free and forced vibration of single degree freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.


MECH 5710 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Pr. MECH 3140. Basic concepts in robotics such as kinematic analysis, coordinate transformation, Lagrange and Newton Euler equations of motion.

MECH 5720 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Pr. MECH 3140. Application of various algorithms for robot manipulators.

MECH 5810 MECHATRONICS (3) LEC. 3. Pr. MECH 2120 and ELEC 3810. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines, and design of automatic machinery.

MECH 5820 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 5830 ENGINES (3) LEC. 3. Pr. (ENGR 2010 and MECH 3030) or ENGR 2200. or (ENGR 2010 plus any one of (AERO 3110, CHEN 2610, CIVL 3110, MECH 3030)). Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics, thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 5970 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 6 credit hours.

MECH 6010/6016 COMPRESSIBLE FLUID FLOW (3) LEC. 3. Properties of ideal gases; General one-dimensional wave motion; Isentropic flow with area change; Normal shock waves; Flow with friction (Fanno Flow) and heat transfer (Rayleigh Flow); Method of characteristics.
MECH 6050 RENEWABLE ENERGY RESOURCES AND APPLICATIONS (3) LEC. 2.5. An overview of renewable energy options with an emphasis on available resources, advantages & disadvantages, and design principles.

MECH 6110/6116 INTERMEDIATE HEAT TRANSFER (3) LEC. 3. Introduction to the analytical treatment of heat transfer by conduction, convection, and radiation. Suitable for those that require general coverage of advanced theory but whose primary research interest may lie elsewhere.

MECH 6120/6126 COMBUSTION (3) LEC. 3. Thermodynamics and chemical kinetics of combustion processes, premixed and diffusion flames, ignition, characterization and combustion of gaseous, liquid, and solid fuels, environmental aspects of combustion.

MECH 6210/6216 ELECTRONICS THERMAL MANAGEMENT (3) LEC. 3. Thermal issues in electronics, review of heat transfer thermal resistance networks, design of finned heat sinks, numerical analysis of electronics cooling, advanced thermal management strategies.

MECH 6220 VIRTUAL PROTOTYPING (3) LEC. 3. Departmental approval. Computer simulation of mechanical systems integrating computer-aided design, dynamic simulation and finite element software; application to two-dimensional and three dimensional simple and complex mechanical systems.

MECH 6230/6236 FRICTION, WEAR AND LUBRICATION (3) LEC. 3. Friction, wear, and lubrication in design of machine components and other surface interactions, with emphasis on optimizing tribological performance.

MECH 6240/6246 BOUNDARY AND FULL-FILM LUBRICATION (3) LEC. 3. Theory and techniques for design and modeling of the different regimes of lubrication between surfaces and machine components in order to control friction and wear.

MECH 6270/6276 METALWORKING AND MANUFACTURING TRIBOLOGY (3) LEC. 3. Pr. MECH 3210. Theory and optimization techniques for tool life and surface finish considering friction, wear and lubrication in manufacturing processes including both metalworking fluids and hard/dry machining.

MECH 6300/6306 ADVANCED MECHANICS OF MATERIALS (3) LEC. 3. Stress and strain analysis, plane stress and plane strain concepts, generalized Hooke's law, stress function approach applications to 2-D problem, axisymmetric problems, bending of curved members, torsion of prismatic members, stress concentration problems.


MECH 6390/6396 FUNDAMENTALS OF THE FINITE ELEMENT METHOD (3) LEC. 2. LAB. 3. Introduction to the fundamentals of the finite element method.

MECH 6410/6416 DYNAMICS OF ROTATING MACHINERY (3) LEC. 3. Issues involved in the analysis and design of high-speed rotating machinery. Modeling, resonance, balancing, bearings, condition monitoring.

MECH 6420/6426 DYNAMICS OF MULTIBODY SYSTEMS (3) LEC. 3. Concepts in dynamics of multibody systems such as kinematics analysis, Newton Euler, Lagrange and Kane equations of motion, collisions, and vibrations of flexible links.

MECH 6430/6436 BASICS OF SENSOR APPLICATIONS (3) LEC. 3. Basic concepts, fabrication and operation of micro machined semiconductor, piezoelectric, piezoresistive, capacitive and fiber-optic sensors.


MECH 6510/6516 ENGINEERING ACOUSTICS (3) LEC. 3. The fundamentals of acoustics. Vibration of strings, bars, plates. Acoustic plane waves, architectural acoustics, and, noise control will be emphasized.

MECH 6610/6616 MECHANICAL VIBRATION (3) LEC. 3. Modeling of lumped dynamic systems, free and forced vibration of single degree of freedom systems, response to arbitrary excitation, analysis of two and multiple degrees of freedom systems.

MECH 6620/6626 STABILITY AND VIBRATION OF DISCRETE SYSTEMS (3) LEC. 3. Pr. MECH 6610 or MECH 6616. Principles of advanced dynamics, linear systems with multiple degrees of freedom, stability and boundedness, free and forced response of linear systems, parameter identification.

MECH 6710/6716 KINEMATICS AND DYNAMICS OF ROBOTS (3) LEC. 3. Basic concepts in robotics such as kinematics analysis, coordinate, Lagrange and Newton Euler equations of motion.
MECH 6720/6726 CONTROL OF ROBOTIC MOTION (3) LEC. 3. Application of various algorithms for robot manipulators.

MECH 6810/6816 MECHATRONICS (3) LEC. 3. Introduction to the integration of mechanisms, sensors, controllers and actuators for machines and design of automatic machinery.

MECH 6820/6826 INTRODUCTION TO OPTIMAL SYSTEMS (3) LEC. 3. Introduction to the mathematical fundamentals of optimization. Application to multiple solution engineering problems in thermo-fluid and mechanical systems.

MECH 6830/6836 ENGINES (3) LEC. 3. Analysis, design, and application issues in internal combustion engines. Characteristics, thermodynamics thermochemistry, unsteady multi-phase fluid dynamics, stresses, vibration, noise, mechanisms.

MECH 6930/6936 INTERMEDIATE DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.

MECH 6970/6976 INTERMEDIATE SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by a regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7010/7016 ADVANCED THERMODYNAMICS (3) LEC. 3. Classical and statistical treatment of the laws and properties of thermodynamic systems; applications.


MECH 7120/7126 ADVANCED FLUID MECHANICS II (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Schwarz-Christoffel Transformation; Hodograph Method; Three-Dimensional Potential Flows; Interface Waves; Low Reynolds Number Solutions; Oseen Approximation; Stability of Laminar Flows.

MECH 7130/7136 BOUNDARY LAYER THEORY (3) LEC. 3. Pr. MECH 7110 or MECH 7116. Mass Conservation; Momentum Equation; Energy Equation; Dimensional Analysis; Fully-Developed Laminar Flows; Similarity Solutions; Boundary layer Approximation; Stability of Laminar Flows.

MECH 7140/7146 TURBULENCE (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Turbulence; Governing Conservation, Momentum and Energy Equations; Time-averaging, Vorticity Equatiion; Turbulence Models; Shear Flows; Jets, Wakes and Boundary Layers; Experimental Techniques.

MECH 7150/7156 FLUID MECHANICS OF PROCESSING (3) LEC. 3. Pr. MECH 7130 or MECH 7136. Properties of Fluids; Governing Equations; Dimensional analysis; Particle-Laden Flows; Applications to specific processing problems such as liquid metal flows, polymers, surface deposition.

MECH 7210/7216 DIFFUSIVE TRANSPORT (3) LEC. 3. Formulations and analytical solutions of steady, periodic, and unsteady heat and mass diffusion problems in one, two, and three dimensions.

MECH 7220/7226 CONVECTION HEAT TRANSFER (3) LEC. 3. Advanced topics in free and forced convection transport within the laminar, transitional and turbulent regimes; confined and external flows.

MECH 7230/7236 THERMAL RADIATION (3) LEC. 3. Fundamentals of thermal radiation heat transfer including: absorption, emission, and reflection from solids; absorption, emission, and scattering by gases; combined mode and conjugate heat transfer; exact and approximate solution methodologies.

MECH 7240/7246 NUMERICAL METHODS IN HEAT TRANSFER (3) LEC. 3. Advanced topics in finite element and finite difference methods; solution techniques, stability and convergence.


MECH 7300/7306 FRACTURE MECHANICS (3) LEC. 3. Stress and strain analysis of cracked bodies, energy release rate, Griffith problem, modes of fracture, crack tip fields, stress intensity factors, small scale crack tip yielding, the J-integral, HRR equations, experimental and numerical methods for fracture parameter estimation.
MECH 7310/7316 SOLID MECHANICS (3) LEC. 3. Stress and strain analysis in 3-D, constitutive behavior of elastic solids, orthotropy and isotropy, stress compatibility equations, Navier's equation, stress functions, applications.

MECH 7320/7326 CONTINUUM MECHANICS AND TENSOR ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Cartesian and curvilinear tensor analysis with applications to the mechanics of continuous media. Constitutive equations for solids and fluids.


MECH 7340/7346 INELASTIC STRESS ANALYSIS (3) LEC. 3. Pr. MECH 6300 or MECH 6306. Introduction to modeling material behavior of non-elastic materials. Theories of plasticity, linear and non-linear viscoelasticity, and viscoplasticity. Applications to modern engineering materials and simple structural members.

MECH 7360/7366 MECHANICS OF COMPOSITE MATERIALS (3) LEC. 3. Properties and mechanical behavior of fiber-reinforced composite materials. Anisotropic stress-strain relations, orthotropic elasticity and laminated plate theories, failure criteria, applications.

MECH 7370/7376 ANALYSIS OF PLATES AND SHELLS (3) LEC. 3. Theories for the bending and stretching of plate and shell structures. Transverse loading, buckling, vibration, and thermal stress problems. Introduction to energy methods, numerical techniques, and large deflection theories.


MECH 7410/7416 OPTICAL METHODS IN MECHANICS (3) LEC. 3. Measurement of stresses, strains, and deformations using optical methods; optical interference; Fourier optics; optical spatial filtering, white light methods; coherent optical methods.

MECH 7430/7436 OPTICAL PROPERTIES OF ADVANCED MATERIALS (3) LEC. 3. Pr. MECH 6430 or MECH 6436 or PHYS 7200. Linear and nonlinear optical properties, correlation with material-structure, electro-optic effects, lasers, frequency conversion, fiber-optics, technological applications.

MECH 7510/7516 ADVANCED ENGINEERING ACOUSTICS (3) LEC. 3. Pr. MECH 6510 or MECH 6516. The fundamentals of advanced acoustics theory. Wave equation derivation from Navier-Stokes equations, spherical waves, monopoles, dipoles, quadrupoles. Duct Acoustics, Statistical Energy Analysis.


MECH 7630/7636 MECHANICAL IMPACT (3) LEC. 3. Departmental approval. Investigation of the fundamental concepts used to solve collision problems with friction.


MECH 7650/7656 RANDOM VIBRATION (3) LEC. 3. Pr. MECH 6610 or MECH 6616. Properties of random processes, review of linear systems with single and multiple degrees of freedom. Vibration of single and multiple degrees of freedom systems subjected to random excitations, design of structures subjected to random excitation. Parameter estimation.

MECH 7710/7716 CONTROL SYSTEMS ANALYSIS AND DESIGN (3) LEC. 3. Topics from control theory are introduced in the context of control systems analysis and design, including state variable feedback, modal control, optimal control and adaptive control for both continuous and discrete systems.

MECH 7930 ADVANCED DIRECTED STUDIES IN MECHANICAL ENGINEERING (1-3) IND. Departmental approval. Individual or small group study of an advanced, specialized area of Mechanical Engineering under faculty direction. Course may be repeated for a maximum of 3 credit hours.
MECH 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Topics may vary. Will not fulfill degree requirements. Course may be repeated with change in topics.

MECH 7970/7976 ADVANCED SPECIAL TOPICS IN MECHANICAL ENGINEERING (1-3) LEC. Departmental approval. Regular course addressing an advanced specialized area of Mechanical Engineering not covered by regularly offered course. Topics may vary. Course may be repeated for a maximum of 3 credit hours.

MECH 7990 RESEARCH & THESIS (1-12) MST. Individual Master's thesis research. May be repeated for credit. Course may be repeated with change in topics.

MECH 8990 RESEARCH & DISSERTATION (1-12) DSR. Individual Doctoral dissertation research. May be repeated for credit. Course may be repeated with change in topics.

Media Studies - MDIA

Courses

MDIA 2350/2353 INTRODUCTION TO FILM STUDIES (3) LEC. 2. LAB. 2. Introduction to film analysis, modes of film practice and critical approaches to the study of cinema. May count either MDIA 2350/MDIA 2353 or RTVF 2350/RTVF 2353.

MDIA 2420 INTRODUCTION TO FILMMAKING (3) STU. 3. Developing technical and conceptual skills to communicate through digital film. May count either MDIA 2420 or RTVF 2420.

MDIA 2700 INTRODUCTION TO VISUAL MEDIA (3) STU. 3. Introduction to basic visual media production with emphasis on visual principles, terminology and compositional structure for various media types. May count either MDIA 2700 or RTVF 2700.

MDIA 2800 MULTIMEDIA PRODUCTION (3) LEC. 3. Introduction to basic multimedia production, with emphasis on radio and web-based audio/visual production. May count either MDIA 2800 or MDIA 2420 and MDIA 2800 or RTVF 2800.

MDIA 3100 INTERMEDIATE FILMMAKING (3) STU. 3. Pr. MDIA 2420 and MDIA 2700. Further develops conceptual and technical filmmaking skills. May count either MDIA 3100 or RTVF 3100.

MDIA 3210 SOUNDTACKS, MUSIC AND MASS MEDIA (3) LEC. 3. Historical, artistic and economic contexts of music and the mass media. May count either MDIA 3210 or RTVF 3210.

MDIA 3300/3303 FOUNDATION OF MASS COMMUNICATION (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Historical and theoretical bases of mass communication in the U. S., emphasizing social, cultural, regulatory and economic aspects. May count either MDIA 3300/MDIA 3303 or RTVF 3300/RTVF 3303.

MDIA 3350 WRITING FOR TELEVISION AND FILM (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. The study, practice, and development of writing skills and techniques for radio, television, and film, including commercials, features, PSAs, and dramatic scripts. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 3350 or MDIA 3380 and MDIA 3350 or RTVF 3350.

MDIA 3580 REPRODUCING POPULAR CULTURE (3) LEC. 3. Postmodern study on the widespread recycling of media artifacts. May count either MDIA 3580 or RTVF 3580.

MDIA 3820 SEQUENCE DESIGN (3) STU. 3. Pr. (MDIA 2420 or RTVF 2420 or RTVF 2700 or RTVF 2703) and MDIA 2700. Conceptual understanding, development and use of images and text for time based media. May count either MDIA 3820 or RTVF 3820.

MDIA 3970 SPECIAL TOPICS (3) AAB. 3. Special topics concentration on production, distribution, and exhibition of mass communication. Course may be repeated for a maximum of 6 credit hours.

MDIA 4200 HISTORY OF AMERICAN BROADCASTING (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or CMJN 2100 or CMJN 2103. The social, economic and technological evolution of radio and television in the United States. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4200 or RTVF 4200.

MDIA 4210/4213 POPULAR CULTURE AND MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examines myths, icons, rituals, heroes, celebrities, genres, narratives, stereotypes as experienced and presented within communication processes. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4210 or RTVF 4210.
MDIA 4220 WOMEN AND MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of women and sociocultural definitions of women. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4220 or RTVF 4220.

MDIA 4260 MEDIA AND REALITY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303 or PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103). Analysis of the representation of "reality" in the mass media. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4260 or RTVF 4260.

MDIA 4280 DIVERSITY ISSUES AND THE MASS MEDIA (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Analysis of the relationship between media messages of minorities and socio-cultural definitions of minorities. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4280 or RTVF 4280.

MDIA 4300 BROADCAST PROGRAMMING AND CRITICISM (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Introduces critical, theoretical, and organizational concepts, strategies, processes, and frameworks for programming for mass media systems. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4310 MEDIA AND SOCIETY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of the relationship between the mass communication industry and a mass society. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM.

MDIA 4320 BROADCAST MANAGEMENT (3) LEC. 3. Investigates principles and practices of managing broadcast stations and cable operations. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4320 or RTVF 4320.

MDIA 4360 HISTORY OF INTERNATIONAL CINEMA (3) LEC. 2. LAB. 2. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of International Cinema including national cinemas, film movements, directors, and style. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4360 or RTVF 4360.

MDIA 4380/4383 HISTORY OF AMERICAN FILM INDUSTRY (3) LEC. 2. LAB. 2. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of the film industry and its relationship to U.S. society. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4380/4383 or RTVF 4380/4383.

MDIA 4390/4393 FILM AUTHORS (3) LEC. 2. LAB. 1. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). In-depth study of one or more filmmakers important to the development of film as a popular art form. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4390 or RTVF 4390.

MDIA 4420 HISTORY OF MEDIA TECHNOLOGY (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). History of media technology from 18th-21st centuries. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4420 or RTVF 4420.

MDIA 4580 FAME, CELEBRITY, AND MEDIA CULTURE (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Examination of celebrity and fame as distinguishing cultural phenomena. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4580 or RTVF 4580.

MDIA 4600 ADAPTATION FOR THE SHORT FILM (3) LEC. 3. Pr. MDIA 3100 or RTVF 3100 or RTVF 3103 or RTVF 3107. A survey of ways in which film can be adapted from pre-existing sources to create new works that stand on their own. Declared major in AGCO, COMM, JRNL, MDIA or PRCM. May count either MDIA 4600 or RTVF 4600.

MDIA 4800 ADVANCED MULTIMEDIA PRODUCTION (3) LEC. 3. Pr. MDIA 3300 or MDIA 3303 or MDIA 2800 or RTVF 3300 or RTVF 3303 or RTVF 2800 or RTVF 2803. Design and production of advanced multimedia projects. Departmental approval. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4800 or RTVF 4800.

MDIA 4920 INTERNSHIP (3) INT. 200. Pr. CMJN 2100 or CMJN 2103 and MDIA 3300 or MDIA 3303. Opportunity to apply classroom experience to career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

MDIA 4930 DIRECTED STUDIES (3) IND. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined MDIA topic not already covered in the MDIA curriculum and under the direction of an MDIA faculty. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.
MDIA 4940 VISUAL MEDIA PROJECTS (3) STU. 3. Pr. MDIA 3100 or MDIA 3820 or RTVF 3100 or RTVF 3103 or RTVF 3107 or RTVF 3820 or RTVF 3823. Capstone course in which students work as a team on a visual media project under the direction of the instructor and in collaboration with a resident scholar or artist. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4940 or RTVF 4940.

MDIA 4970 SPECIAL TOPICS (3) LEC. 3. Pr. (MDIA 3300 or MDIA 3303 or RTVF 3300 or RTVF 3303) and (CMJN 2100 or CMJN 2103). Study of narrowly-defined RTVF topics not already covered in the current RTVF curriculum. May be repeated with a change in topic. Declared major in AGCO, COMM, JRNL, MDIA, MDIV or PRCM. May count either MDIA 4970 or RTVF 4970. Course may be repeated for a maximum of 6 credit hours.

Middle School Educ - CTMD

Courses

CTMD 4010 TEACHING MATHEMATICS: MIDDLE SCHOOL (4) LEC. 2. LAB. 4. Admission to Teacher Education. Specific teaching strategies for a comprehensive middle school program grades 4-8.

CTMD 4190 CURRICULUM AND TEACHING IN THE MIDDLE SCHOOL (3) LEC. 2. LAB. 2. Admission to Teacher Education. To introduce and prepare undergraduate education students for the middle school student, middle school teaching, and middle level philosophy while incorporating reflective decision making.

CTMD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed at desired objectives. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 4910 PRACTICUM IN MIDDLE SCHOOL EDUCATION (1-6) PRA. SU. Departmental approval. Provides experience relating theory and practice, usually carried on simultaneously. Course may be repeated for a maximum of 6 credit hours.

CTMD 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 4200 or P/C CTSE 4203. Admission to Clinical Residency. Supervised teaching in a public middle or secondary school, abroad, accompanied by scheduled discussions to analyze and evaluate the intern’s experience. May count either CTMD 4920 or CTMD 4923.

CTMD 4970 SPECIAL TOPICS (1-4) LEC. Course may be repeated for a maximum of 4 credit hours.

CTMD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to the respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMD 7970 SPECIAL TOPICS (1-6) LEC. Course may be repeated for a maximum of 6 credit hours.

Military Science (AROTC) - MILS

Courses

MILS 1010 INTRODUCTION TO ARMY ROTC I (1) LEC. 1. Coreq. MILS 1011. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1011 INTRODUCTION TO ARMY ROTC I LABORATORY (1) LAB. 3. Coreq. MILS 1010. Introduction to the Reserve Officer Training Corps and the US Army.

MILS 1020 INTRODUCTION TO ARMY ROTC II (1) LEC. 1. Coreq. MILS 1021. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 1021 INTRODUCTION TO ARMY ROTC II LABORATORY (1) LAB. 3. Coreq. MILS 1020. Introduction to the Reserve Officer Training Corps and the U.S. Army.

MILS 2010 SELF TEAM DEVELOPMENT (1) LEC. 1. Coreq. MILS 2011. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.
MILS 2011 SELF/TEAM DEVELOPMENT LABORATORY (1) LAB. 2. Coreq. MILS 2010. Learn and apply ethics-based leadership skills that develop individual attributes and contribute to effective team building.

MILS 2020 INDIVIDUAL/TEAM MILITARY TACTICS (1) LEC. 1. Coreq. MILS 2021. Introduction to individual and team aspects of military training in small unit operations.

MILS 2021 INDIVIDUAL/TEAM MILITARY TACTICS LABORATORY (1) LAB. 2. Coreq. MILS 2020. Introduction to individual and team aspects of military training in small unit operations.

MILS 3010 LEADING SMALL ORGANIZATIONS I (2) LEC. 2. Coreq. MILS 3011. Introduction to squad level planning and operations. Admittance into the Advanced Course of Army ROTC.

MILS 3011 LEADING SMALL ORGANIZATIONS I LABORATORY (1) LAB. 4. Coreq. MILS 3010. Practical application of the foundational skills of small unit leadership. Admittance into Advanced Course Army ROTC.

MILS 3020 LEADING SMALL ORGANIZATIONS II (2) LEC. 2. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3021. Introduction to platoon-level planning and operations and the U.S. Army Training Management System.

MILS 3021 LEADING SMALL ORGANIZATIONS II LABORATORY (1) LAB. 4. Pr. MILS 3010 and MILS 3011. Coreq. MILS 3020. Series of practical opportunities to lead small groups, receive performance assessments and coaching, and lead again in situations of increasing complexity.

MILS 3030 HISTORY OF THE UNITED STATES ARMY (3) LEC. 3. Survey of the history of the United States Army from the colonial era to present.

MILS 4010 LEADERSHIP CHALLENGES AND GOAL-SETTING (2) LEC. 2. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4011. Plan, conduct and evaluate training and organizational cohesion.

MILS 4011 LEADERSHIP CHALLENGES AND GOAL-SETTING LABORATORY (1) LAB. 4. Pr. MILS 3020 and MILS 3021. Coreq. MILS 4010. Plan, conduct and evaluate training and activities of the ROTC cadet organization.

MILS 4020 TRANSITION TO LIEUTENANT I (2) LEC. 2. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4021. Identify and resolve ethical dilemmas. Refine counseling and motivating techniques.

MILS 4021 TRANSITION TO LIEUTENANT I LABORATORY (1) LAB. 4. Pr. MILS 4010 and MILS 4011. Coreq. MILS 4020. Practical application of the principles taught in MILS 4020.

MILS 4040 THE ARMY PROFESSION (0) LEC. 1. SU. U.S. Army current trends and affairs. Army policies and programs. Completion of Army ROTC Advanced Course or Early Commissioning Program.

Music - Applied - MUAP

Courses

MUAP 1110 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1210 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1110. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Education major. One-hour private lesson per week.

MUAP 1310 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1410 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 1520 PERFORMANCE I (2) PRL. 1. Pr., Successful audition and Departmental approval. Instruction in major performance medium for the first-year BM or BA in Music major. One-hour private lesson per week.
MUAP 1530 PERFORMANCE I (1) PRL. 1. Pr., Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

MUAP 1620 PERFORMANCE II (2) PRL. 1. Pr. MUAP 1520. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year BM or BA in Music major. One hour private lesson per week.

MUAP 1630 PERFORMANCE II (1) PRL. 1. Pr. MUAP 1530. and Departmental approval and Successful audition. Instruction in major performance medium for the first-year Music Theatre major. Two half-hour private lessons per week.

MUAP 2110 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1210. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. One-hour private lesson per week.

MUAP 2210 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2110. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Education major. One-hour private lesson per week.

MUAP 2310 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1410. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 2410 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2310. and Departmental approval and Successful audition. Instruction in major performance medium for the Music minor or secondary performance medium for the Music or Music Education major. One half-hour private lesson per week.

MUAP 2520 PERFORMANCE III (2) PRL. 1. Pr. MUAP 1620. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2530 PERFORMANCE III (1) PRL. 1. Pr. MUAP 1630. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

MUAP 2620 PERFORMANCE IV (2) PRL. 1. Pr. MUAP 2520. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year BM or BA in Music major. One-hour private lesson per week.

MUAP 2630 PERFORMANCE IV (1) PRL. 1. Pr. MUAP 2530. and Departmental approval and Successful audition. Instruction in major performance medium for the second-year Music Theatre major. Two half-hour private lessons per week.

MUAP 3120 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2210. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. One-hour private lesson per week.

MUAP 3220 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3120. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Education major. One-hour private lesson per week.

MUAP 3520 PERFORMANCE V (2) PRL. 1. Pr. MUAP 2620. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3530 PERFORMANCE V (1) PRL. 1. Pr. MUAP 2630. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

MUAP 3620 PERFORMANCE VI (2) PRL. 1. Pr. MUAP 3520. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year BM or BA in Music major. One-hour private lesson per week.

MUAP 3630 PERFORMANCE VI (1) PRL. 1. Pr. MUAP 3530. and Departmental approval and Successful audition. Instruction in major performance medium for the third-year Music Theatre major. Two half-hour private lessons per week.

MUAP 4120 PERFORMANCE VII (1) PRL. 1. Pr. MUAP 3220. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Education major. One-hour private lesson per week.

MUAP 4220 PERFORMANCE VIII (1) PRL. 1. Pr. MUAP 4120. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Education major. One-hour private lesson per week.

MUAP 4520 PERFORMANCE VII (2) PRL. 1. Pr. MUAP 3620. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.
MUAP 4530 PERFORMANCE VII (1) PRL. 1. Pr. MUAP 3630. and Departmental approval and successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

MUAP 4620 PERFORMANCE VIII (2) PRL. 1. Pr. MUAP 4520. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year BM or BA in Music major. One-hour private lesson per week.

MUAP 4630 PERFORMANCE VIII (1) PRL. 1. Pr. MUAP 4530. and Departmental approval and Successful audition. Instruction in major performance medium for the fourth-year Music Theatre major. Two half-hour private lessons per week.

MUAP 7120 PERFORMANCE (2) PRL. Pr., Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7220 PERFORMANCE (2) PRL. Pr. MUAP 7120. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7320 PERFORMANCE (2) PRL. Pr. MUAP 7220. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

MUAP 7420 PERFORMANCE (2) PRL. Pr. MUAP 7320. and Departmental approval and Successful audition. Private instruction in selected performance medium for the Music Education graduate student. One-hour private lesson per week.

Music - MUSI

Courses

MUSI 1000 PERFORMANCE ATTENDANCE (0) LEC. 1. SU. Pr., Enrollment in MUAP. Required during each semester of MUAP enrollment. Monitored attendance at studio and departmental convocations, as well as approved concerts, lectures, and special presentations within the Department of Music and the community. Course may be repeated with change in topics.

MUSI 1020 PIANO SKILLS I - RUDIMENTS (1) LEC. 2. Group instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1030, MUSI 2040, or MUSI 2050.

MUSI 1030 PIANO SKILLS II (1) LEC. 2. Pr. MUSI 1020 or Departmental approval. Group Instruction and practice in the rudiments of music performance as applied to the piano. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2040 or MUSI 2050.

MUSI 1050 SINGER'S DICTION (1) LEC. 2. Coreq., Enrolled in MUAP (Applied Voice) class. Introduction to the rules of singing in English, Italian, German, and French as applied to art songs and arias through use of the IPA.

MUSI 1090 THEATRE VOCAL SKILLS (1) LEC. 1. Pr., Successful audition. Instruction and practice in the rudiments of music and vocal production for the Theatre major.

MUSI 1310 MUSIC THEORY I (2) LEC. 2. Coreq. MUSI 1320. Systematic study of music composition procedures, form, and style during the Period of Common Practice. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1410 or MUSI 2310.

MUSI 1320 MUSIC SKILLS I (1) LEC. 3. Coreq. MUSI 1310. Development of aural, keyboard and sight singing skills with an understanding of basic harmonic practices. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 1420 or MUSI 2320.

MUSI 1410 MUSIC THEORY II (2) LEC. 2. Pr. MUSI 1310 or Departmental approval. Systematic study of music composition procedures, form, and style during the Period of Common Practice. For Music majors and minors. Normally taken with MUSI 1420. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2310. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1310 to enroll in this course.

MUSI 1420 MUSIC SKILLS II (1) LEC. 3. Pr. MUSI 1320 or Departmental approval. Development of aural, keyboard, and sight-singing skills with an understanding of basic harmonic practices. For Music majors and minors. Normally taken concurrently with MUSI 1410. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2320. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1320 to enroll in this course.
MUSI 2010 GUITAR AND STRINGS SKILLS (1) LEC. 2. Pr. MUSI 1310. Group instruction and practice in the rudiments of music performance of fretted and unfretted string instruments, such as guitar, violin, viola, cello, and string bass.


MUSI 2040 FUNCTIONAL PIANO I (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. MUSI 2040 is not a prerequisite for MUSI 2050. Development of functional piano skills for use in classroom, rehearsal or studio. Credit for this course may be earned when a student passes a placement exam and achieves a grade of "C" or better in MUSI 2050. BA in Music, BM, and BME majors must receive a grade of "C" or better in MUSI 1030 to enroll in this course.

MUSI 2050 FUNCTIONAL PIANO II (1) LEC. 2. Pr. MUSI 1030 or Departmental approval. MUSI 2040 is not a prerequisite for MUSI 2050. Development of functional piano skills for use in classroom, rehearsal or studio. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1030 to enroll in this course.

MUSI 2150 ADVANCED DICTION (1) LAB. 2. Pr. MUSI 1050. Coreq., Enrolled in a MUAP (Applied Voice) class. Advanced study of the rules of singing in Italian, Spanish, German, and French through the use of the IPA. BA in Music and BM majors must receive a grade of "C" or better in MUSI 1050 to enroll in this course.

MUSI 2210 MUSIC FUNDAMENTALS FOR MUSIC THEATRE (3) LEC. 3. Fundamental study of music structural procedures, form, and style designed for students in the music theatre major.

MUSI 2310 MUSIC THEORY III (2) LEC. 2. Pr. MUSI 1410 and MUSI 1320 or Departmental approval. Systematic study of music composition procedures, form and style from the advent of chromaticism through the music of late 19th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1320 and MUSI 1410 to enroll in this course.

MUSI 2320 MUSIC SKILLS III (1) LEC. 3. Pr. MUSI 1410 and MUSI 1420 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 1420 to enroll in this course.

MUSI 2410 MUSIC THEORY IV (2) LEC. 2. Pr. MUSI 1420 and MUSI 2310 or Departmental approval. Systematic study of music composition procedures, form, and style from the late 19th century through the music of the 20th century. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1420 and MUSI 2310 to enroll in this course.

MUSI 2420 MUSIC SKILLS IV (1) LEC. 3. Pr. MUSI 1410 and MUSI 2320 or Departmental approval. Development of advanced aural, keyboard, and sight-singing skills with the understanding of advanced harmonic practices. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 1410 and MUSI 2320 to enroll in this course.

MUSI 2730/2733 APPRECIATION OF MUSIC (3) LEC. 3. Fine Arts Core. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2737 HONORS APPRECIATION OF MUSIC (3) LEC. 3. Pr. Honors College. Orientation in the art of listening. Outstanding composers and musical composition. No previous music training required.

MUSI 2740/2743 SURVEY OF POPULAR MUSIC (3) LEC. 3. Fine Arts Core. Survey of popular music styles from the late 19th century to the present day. No previous music training required. May count either MUSI 2740 or MUSI 2743.

MUSI 2750 MUSIC AND SCIENCE (3) LEC. 3. Fine Arts Core. Music and its connection to science throughout history. No previous music training required.

MUSI 3000 JUNIOR RECITAL (0) PRL. 0. SU. Pr. MUAP 2620 or MUAP 2630. Coreq., MUAP 3620. Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3030 VOCAL SKILLS (1) LEC. 1. Pr., Music Education major. Instruction and practice in the rudiments of music as applied to vocal performance.

MUSI 3040 BRASS INSTRUMENT SKILLS (2) LAB. 2. Pr., Music Education major or Departmental approval. Instruction and practice in the techniques of playing and teaching brass musical instruments.

MUSI 3060 WOODWIND INSTRUMENT SKILLS (2) LAB. 2. Music Education major or Departmental approval. Class instruction and practice in the techniques of playing and teaching woodwind musical instruments.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
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<tbody>
<tr>
<td>MUSI 3080</td>
<td>PERCUSSION SKILLS (1)</td>
<td>1</td>
<td>MUAP 1210, Music Education majors or Departmental approval</td>
<td>Instruction and practice in the rudiments of music as applied to various percussion instruments.</td>
</tr>
<tr>
<td>MUSI 3090</td>
<td>STRING INSTRUMENT SKILLS (1)</td>
<td>1</td>
<td>MUAP 1210, Music Education majors or Departmental approval</td>
<td>Instruction and practice in the techniques of playing and teaching upper and lower string musical instruments.</td>
</tr>
<tr>
<td>MUSI 3110</td>
<td>PIANO LITERATURE I (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Study of the literature for solo piano from the Renaissance to the Classical era, with emphasis on musical styles.</td>
</tr>
<tr>
<td>MUSI 3120</td>
<td>PIANO LITERATURE II (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Study of the literature for solo piano from the Romantic era to the present, with emphasis on musical styles.</td>
</tr>
<tr>
<td>MUSI 3130</td>
<td>VOCAL LITERATURE I (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Survey of representative art song repertoire, including techniques and application of song study, musicianship, interpretation, and performance practice.</td>
</tr>
<tr>
<td>MUSI 3140</td>
<td>VOCAL LITERATURE II (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Study of the development of opera and oratorio literature from 1600 to the present time.</td>
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<tr>
<td>MUSI 3150</td>
<td>BRASS LITERATURE (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Intensive study of the literature and materials for teaching and performing on brass instruments.</td>
</tr>
<tr>
<td>MUSI 3160</td>
<td>PERCUSSION LITERATURE (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Intensive study of the literature and materials for teaching and performing on percussion instruments.</td>
</tr>
<tr>
<td>MUSI 3170</td>
<td>WOODWIND LITERATURE (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Intensive study of the literature and materials for teaching and performing on woodwind instruments.</td>
</tr>
<tr>
<td>MUSI 3180</td>
<td>STRING LITERATURE (2)</td>
<td>2</td>
<td>MUAP 2520, Departmental approval</td>
<td>Intensive study of the literature and materials for teaching and performing on string instruments.</td>
</tr>
<tr>
<td>MUSI 3200</td>
<td>FORM AND ANALYSIS (3)</td>
<td>3</td>
<td>MUSI 2410</td>
<td>Study of the formal structure of music from 1700-1950 with an emphasis on standard forms and analytical techniques.</td>
</tr>
<tr>
<td>MUSI 3210</td>
<td>TONAL COUNTERPOINT (3)</td>
<td>3</td>
<td>MUSI 2410</td>
<td>Study of the standard practice of contrapuntal writing and analytical methods of contrapuntal music in the 18th century.</td>
</tr>
<tr>
<td>MUSI 3220</td>
<td>CONTEMPORARY MUSIC ANALYSIS TECHNIQUES (3)</td>
<td>3</td>
<td>MUSI 2410 and MUSI 2420</td>
<td>Study of the knowledge and analysis of contemporary art music.</td>
</tr>
<tr>
<td>MUSI 3290</td>
<td>JAZZ THEORY AND IMPROVISATION (3)</td>
<td>3</td>
<td>MUSI 1410</td>
<td>Major practical and theoretical areas informing jazz performance.</td>
</tr>
<tr>
<td>MUSI 3510</td>
<td>MUSIC HISTORY I (3)</td>
<td>3</td>
<td>MUSI 1410</td>
<td>Study of the development of music from the earliest times through early 18th-century styles through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a &quot;C&quot; or better in MUSI 1410 to enroll in this course.</td>
</tr>
<tr>
<td>MUSI 3520</td>
<td>MUSIC HISTORY II (3)</td>
<td>3</td>
<td>MUSI 1410</td>
<td>Study of the development of music from the early 18th century to the present day through lectures, recorded examples, and readings. BA in Music, BM, and BME majors must receive a &quot;C&quot; or better in MUSI 1410 to enroll in this course.</td>
</tr>
<tr>
<td>MUSI 3610</td>
<td>CHORAL CONDUCTING I (2)</td>
<td>2</td>
<td>MUSI 1410</td>
<td>Basic conducting technique and introduction to score reading and interpretation.</td>
</tr>
<tr>
<td>MUSI 3620</td>
<td>CHORAL CONDUCTING II (2)</td>
<td>2</td>
<td>MUSI 3610</td>
<td>Advanced conducting technique with practical experience in preparing choral groups for performance. BA in Music, BM, and BME majors must receive a &quot;C&quot; or better in MUSI 3610 to enroll in this course.</td>
</tr>
<tr>
<td>MUSI 3630</td>
<td>INSTRUMENTAL CONDUCTING I (2)</td>
<td>2</td>
<td>MUSI 1410</td>
<td>Basic conducting technique and introduction to score reading and interpretation.</td>
</tr>
</tbody>
</table>
MUSI 3640 INSTRUMENTAL CONDUCTING II (2) LEC. 2. Pr. MUSI 3630. Advanced conducting technique with practical experience in preparing instrumental groups for performance. BA in Music, BM, and BME majors must receive a "C" or better in MUSI 3630 to enroll in this course.

MUSI 3800 JUNIOR PERFORMANCE RECITAL (1) PRL. 1. SU. Pr. MUAP 3520. Coreq., Enrollment in a MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a junior recital.

MUSI 3970 SPECIAL TOPICS IN MUSIC (3) LEC. 3. Study of substantive topics and issues in music. Course may be repeated for a maximum of 6 credit hours.

MUSI 4000 MUSIC EDUCATION SENIOR RECITAL PROJECT (1) PRL. SU. Pr., Music Education major and MUAP 3120. Coreq., MUAP 3220. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital project.

MUSI 4010 VOCAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. For prospective voice teachers. Intensive study of the materials and methods of voice training.

MUSI 4020 INSTRUMENTAL PEDAGOGY (2) LEC. 2. Pr. MUAP 2210 or MUAP 2620. and BA in Music or BM major. For prospective instrumental teachers. Intensive study of the materials and methods of teaching various brass, woodwind and percussion instruments.

MUSI 4030 PIANO PEDAGOGY (2) LEC. 2. Music majors and minors specializing in piano or Departmental approval. Study of techniques, methods and experiences of former and current teachers to equip the student for future piano teaching.

MUSI 4040 MUSIC INSTRUMENTS REPAIR (1) LEC. 1. Selection, care, and repair of woodwind, brass, and percussion instruments with emphasis on the adjustments that should be made by the instrumental director.

MUSI 4090 MARCHING BAND TECHNIQUES (2) LEC. 2. Pr., Music Education major or Departmental approval. Fundamental methods and procedures of the marching band, including study of computer-aided band charting.

MUSI 4100 ORCHESTRAL TECHNIQUES (2) LEC. 2. Fundamental methods and procedures of rehearsing the orchestra in areas of articulation, tone production, blend, balance, intonation, and musical expression.

MUSI 4110 CHORAL TECHNIQUES (2) LEC. 2. Methods and procedures of rehearsing choral groups in diction, tone production, balance, blend, intonation, and musical expression.

MUSI 4200 MEDIEVAL AND RENAISSANCE MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the Medieval and Renaissance periods.

MUSI 4210 BAROQUE MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1600-1750.

MUSI 4220 CLASSICAL MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1730-1800.

MUSI 4230 ROMANTIC MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1800-1900.

MUSI 4240 MODERN ERA (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420 and MUSI 3510 and MUSI 3520. Detailed study of the history of music during the period 1900 to the present day.

MUSI 4280 AMERICAN ART MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or departmental approval. Survey of American art music from colonial times until the present.

MUSI 4290 FILM MUSIC (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. History and analysis of film music. Basic scoring techniques will be applied to short scoring projects.

MUSI 4350 JAZZ HISTORY (3) LEC. 3. Pr. MUSI 2410 and MUSI 2420. and BA in Music major or BM major or Departmental approval. History of jazz from its evolution to the present day.

MUSI 4400 INSTRUMENTAL ARRANGING (2) LEC. 2. Pr. MUSI 2410. Project course in arranging various instrumental combinations from quartet to symphonic band.
MUSI 4500 CHORAL ARRANGING (2) LEC. 2. Pr. MUSI 2410. Project course in arranging for various vocal combinations.

MUSI 4600 ORCHESTRATION (2) LEC. 2. Pr. MUSI 2410. Project course in arranging for various orchestral combinations.

MUSI 4700 BA SENIOR THESIS/PROJECT (3) LEC. 1. SU. Capstone course requiring a senior thesis or project bringing together prior music coursework.

MUSI 4800 SENIOR PERFORMANCE RECITAL (2) PRL. 2. SU. Pr. MUAP 4520. Coreq., Enrollment in MUAP (Applied Lessons) class. Demonstration of a professional level of achievement in the student's major performance medium by the successful presentation of a senior recital.

MUSI 4930 DIRECTED STUDY (1-3) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Course may be repeated with change in topic. Course may be repeated for a maximum of 3 credit hours.

MUSI 5110/5113 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 5520 CHORAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Chronological study of choral music from the Middle Ages to the present.

MUSI 5530 WIND BAND LITERATURE (2) LEC. 2. Pr., Departmental approval. History of the development of the wind band and its literature from 1500 to the present.

MUSI 6110/6116 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 6520/6526 CHORAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Chronological study of choral music from the Middle Ages to the present.

MUSI 7000/7006 GRADUATE CHORAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7010/7016 GRADUATE CHORAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7000 or MUSI 7006. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern choral works.

MUSI 7040/7046 GRADUATE INSTRUMENTAL CONDUCTING I (3) LEC. 3. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7050/7056 GRADUATE INSTRUMENTAL CONDUCTING II (3) LEC. 3. Pr. MUSI 7040 or MUSI 7046. Coreq., Approved MUSE course. Laboratory for the development of skills relating to conducting performances of traditional and modern instrumental works for large ensembles.

MUSI 7060/7066 BRASS INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on brass instruments.

MUSI 7070/7076 WOODWIND INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on woodwind instruments.

MUSI 7080/7086 PERCUSSION INSTRUMENTS TECHNIQUES (1) LEC. 1. Coreq., Approved MUSE course. Designed to work out specific problems in furthering graduate students' knowledge of and skill on various percussion instruments.

MUSI 7090/7096 SURVEY OF CHORAL LITERATURE (3) LEC. 3. Coreq., Approved MUSE course. Detailed analysis of the styles, forms and performance practices of choral music of the Classic, Romantic, and Modern periods, working primarily with scores of representative works.

MUSI 7100/7106 CHORAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.
MUSI 7110/7116 CHORAL ARRANGING II (3) LEC. 3. Pr. MUSI 7100 or MUSI 7106. Coreq., Approved MUSE course. Advanced arranging for various choral combinations.

MUSI 7120/7126 BAND ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for various band organizations.

MUSI 7130/7136 BAND ARRANGING II (3) LEC. 3. Pr. MUSI 7120 or MUSI 7126. Coreq., Approved MUSE course. Advanced arranging for various band organizations.

MUSI 7140 ORCHESTRAL ARRANGING I (3) LEC. 3. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7150 ORCHESTRAL ARRANGING II (3) LEC. 3. Pr. MUSI 7140. Coreq., Approved MUSE course. Advanced arranging for the orchestra.

MUSI 7160 SEMINAR IN MUSIC HISTORY (2) SEM. 2. In-depth study of the history of music through historic research, analysis of music, and performance practice.

MUSI 7170 SEMINAR IN RENAISSANCE MUSIC (2) SEM. 2. Study of selected music of the Renaissance through history, analysis and performance practice.

MUSI 7180 SEMINAR IN BAROQUE MUSIC (2) SEM. 2. Study of selected Baroque music through history, analysis, and performance practice.

MUSI 7190 SEMINAR IN CLASSICAL MUSIC (2) SEM. 2. Study of selected Classical music through history, analysis, and performance practice.

MUSI 7200 SEMINAR IN ROMANTIC MUSIC (2) SEM. 2. Study of selected Romantic music through history, analysis, and performance practice.

MUSI 7210 SEMINAR 20TH-CENTURY MUSIC (2) SEM. 2. Study of selected 20th-century music through history, analysis, and performance practice.

MUSI 7220/7226 AMERICAN ART MUSIC (3) LEC. 3. Study of American art music from colonial times until the present.

MUSI 7230/7236 ADVANCED FORMAL ANALYSIS (3) LEC. 3. Advanced formal analysis of standard music literature.


MUSI 7250/7256 WIND BAND LITERATURE II (3) LEC. 3. Coreq., Approved MUSE course. History of the development of the wind band from 1950 to present.

MUSI 7260 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION I (2) LEC. 2. Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7270 TECHNIQUES OF PRIVATE INSTRUMENTAL INSTRUCTION II (2) LEC. 2. Pr. MUSI 7260. Analysis of various instrumental teaching methods and a supervised private teaching experience.

MUSI 7280 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION I (2) LEC. 2. Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7290 TECHNIQUES OF PRIVATE VOCAL INSTRUCTION II (2) LEC. 2. Pr. MUSI 7280. Analysis of various vocal teaching methods and a supervised private teaching experience.

MUSI 7300 INTRODUCTION TO GRADUATE RESEARCH IN MUSIC (2) RES. 2. Extensive examination of research materials (books, music, and recordings). Includes the preparation of an outline for a research paper.

MUSI 7316 WOMEN IN MUSIC (3) LEC. 3. This course will explore numerous issues related to the various roles women have played in the history of music, including composers, performers, and patrons. Western art traditions will be explored in addition to popular and world music traditions.

MUSI 7360/7366 ARRANGING IN FINALE (3) LEC. 3. Advanced study of arranging using the Finale music notation program.

MUSI 7370/7376 FINALE TECHNIQUES FOR MUSIC EDUCATORS (3) LEC. 3. Advanced study of the techniques of the Finale music notation program, specifically relating to use in music classrooms.

MUSI 7500 THEORY REVIEW I (1) LEC. 1. Pr., Departmental approval. Study of and practical application of harmonic practices from before the Period of Common Practice to the present day, with emphasis on various theoretical approaches and analytical techniques. Degree credit will not be given to graduate students.

MUSI 7510 THEORY REVIEW II (1) LEC. 1. Pr., Departmental approval. Continuation of MUSI 7500. Degree credit will not be given to graduate students.

MUSI 7540 VOCAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of the vocal literature from the Baroque to the present day.

MUSI 7550 KEYBOARD LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of keyboard repertoire from the Baroque to the present.

MUSI 7560 INSTRUMENTAL LITERATURE (2) LEC. 2. Pr., Departmental approval. Study of the literature of the major performance instrument from its beginning to the present.

MUSI 7930/7936 DIRECTED STUDIES (1-6) IND. Pr., Departmental approval. Independent study directed toward desired objectives related to student's areas of interest and specialization. Includes evaluation at regular interval. Course may be repeated for a maximum of 12 credit hours.

MUSI 7970/7976 SPECIAL TOPICS IN MUSIC (1-6) LEC. Provides an opportunity for graduate students to pursue cooperatively selected topics. Course may be repeated for a maximum of 12 credit hours.

MUSI 7980 QUALIFYING RECITAL (3) LEC. 3. Pr. MUAP 7120. Public recital of graduate level repertoire. Recital may include a lecture component.

Music Education - CTMU

Courses

CTMU 1010 INTRODUCTION TO MUSIC EDUCATION (0) LAB. 1. Introduction to teaching music.

CTMU 1020 MUSIC EDUCATION LAB I (1) LAB. 3. Development and documentation of general music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 2010 MUSIC EDUCATION LAB II (1) LAB. 3. Development and documentation of vocal or instrumental music instructional abilities and dispositions for school and community music educators. Clear background check required.

CTMU 3040 MUSIC AND RELATED ARTS (4) LEC. 2. LAB. 4. Interdisciplinary instruction appropriate for students' developmental characteristics which synthesize the content, professional resources, curriculum goals and instructional strategies of music.

CTMU 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTMU 4910/4913 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. Admission to Teacher Education. Cooperatively selected field experience. May count either CTMU 4910 or CTMU 4913. Course may be repeated for a maximum of 6 credit hours.

CTMU 4920/4923 CLINICAL RESIDENCY (12) AAB. 40. SU. Admission to Teacher Education. Admission to Clinical Residency. Supervised on-the-job experience in a school or other appropriate setting abroad with regularly scheduled discussions with supervising faculty provide evaluation and analysis of the intern. May count either CTMU 4920 or CTMU 4923.

CTMU 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTMU 4970 SPECIAL TOPICS IN AREA OF SPECIALIZATION (1-6) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 6 credit hours.
CTMU 4997 HONORS THESIS (1-3) IND. Pr. Honors College. The student's thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.


CTMU 5140 SCHOOL AND COMMUNITY VOCAL MUSIC EDUCATION (4) LEC. 3. LAB. 3. Admission to Teacher Education. Musical development and learning of vocalists. Curriculum, methods, and assessment for community and school vocal music. Clear background check required. May count either CTMU 5140 or CTMU 6140.


CTMU 6940 ELEMENTARY/MIDDLE SCHOOL MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for elementary and middle school music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program.

CTMU 6960 SECONDARY MUSIC METHODS (3) LEC. 3. Methodology, materials, organization and activities for secondary music programs. Includes professional field experiences in public school music programs. Admission to Alternative Master's Certification Program.

CTMU 7000/7006 SCHOOL AND COMMUNITY MUSIC (1) LEC. 1. Developing skills, disposition, community, and research planning for graduate students in school and community music. May count either CTMU 7000 or CTMU 7006. Course may be repeated for a maximum of 2 credit hours.

CTMU 7510/7516 RESEARCH STUDIES IN MUSIC EDUCATION (3) RES. 3. Review, analysis and interpretation of available research with emphasis on designing new research to meet the changing needs of school musicians. May count either CTMU 7510 or CTMU 7516.

CTMU 7520/7526 CURRICULUM AND TEACHING IN MUSIC EDUCATION (3) LEC. 3. Teaching practices and evaluation of experiences and content for curriculum improvements. Students develop recommendations for music curriculum. May count either CTMU 7520 or CTMU 7526.

CTMU 7530/7536 ORGANIZATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, facilities and school systems in continuous improvement of curriculum and teaching practices in music education. May count either CTMU 7530 or CTMU 7536.
CTMU 7540/7546 EVALUATION OF PROGRAM IN MUSIC EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness including the utilization of human and material resources and the coordination of areas of specialization and issues in evaluation which are unique to music education settings. May count either CTMU 7540 or CTMU 7546.

CTMU 7550/7556 APPLICATIONS OF TECHNOLOGY IN MUSIC EDUCATION (3) LEC. 3. An overview of applications of current technology in music classroom, studios, and offices. May count either CTMU 7550 or CTMU 7556.

CTMU 7560/7566 DIGITAL MEDIA PRODUCTION FOR MUSIC EDUCATION (3) LEC. 3. Current tools, skills, and concepts for creating aural and visual interactive applications. May count either CTMU 7560 or CTMU 7566.

CTMU 7570 MUSIC INSTRUCTION MULTIMEDIA RESEARCH AND DEVELOPMENT (3) LEC. 3. Pr. CTMU 7550 or CTMU 7556. Departmental approval. Current research music instructional technology, design of interactive applications.

CTMU 7580/7586 PSYCHOLOGY OF MUSIC (3) LEC. 3. This course will focus on exploring the musical experience psychological, psycho-acoustic, emotional, anthropological, sociological, and assistance perspectives to better understand how philosophical and practical approaches work in music teaching, learning, and in community settings. May count either CTMU 7580 or CTMU 7586.

CTMU 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to student's respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTMU 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTMU 7970/7976 SPECIAL TOPICS (1-9) LEC. Departmental approval. Provides an opportunity for graduate students and professors to pursue cooperatively selected topics. Course may be repeated for a maximum of 9 credit hours.

CTMU 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTMU 8950/8956 SEMINAR (1-3) SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTMU 8980/8986 FIELD PROJECT (1-6) FLD. SU. Course may be repeated for a maximum of 6 credit hours.

CTMU 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Music Ensemble - MUSE

Courses

MUSE 1100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 1150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 1160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.
MUSE 1170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 1240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 1300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 1320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.
MUSE 1430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 1450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 1600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 1610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 1620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 1630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 2100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2120 SYMPHONIC BAND (1) LAB. 3. Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 2150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 2160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.
MUSE 2200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 2240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 2300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 2320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 2430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 2450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.
MUSE 2460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.

MUSE 2600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 2610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 2620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 2630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 3100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 3150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 3160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3180 WOMEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for treble voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3190 MEN'S CHORUS (1) LAB. 3. Pr., Successful audition. Performance of choral works for men's voices. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.
MUSE 3230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 3240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 3300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3310 CONDUCTOR'S CHORUS (1) LAB. 3. Pr., Departmental approval. Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.

MUSE 3320 LOW BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3330 STEEL BAND (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3340 WOODWIND ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3350 WOODWIND QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3360 TRUMPET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3370 BASSOON ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3380 SAXOPHONE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3390 HORN ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3400 CLARINET ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3410 FLUTE ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3420 COLLABORATIVE PIANO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.

MUSE 3430 PIANO ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3440 BRASS QUINTET (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.

MUSE 3450 BRASS ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3460 PIANO CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3470 STRING CHAMBER MUSIC (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3480 JAZZ COMBO (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.
MUSE 3600 INDIAN MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.

MUSE 3610 MARCHING PERCUSSION SECTIONALS (1) LAB. 3. Pr., Departmental approval. Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.

MUSE 3620 AUXILIARY SECTIONALS (1) LAB. 3. Pr., Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.

MUSE 3630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 4100 MARCHING BAND (1) LAB. 6. Pr., Successful audition. Provides music for athletic contests and halftime shows at football games, parades, pep rallies, and other campus and off-campus events. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4110 CONCERT BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4120 SYMPHONIC BAND (1) LAB. 3. Pr., Successful audition. Large performance group that rehearses and performs the literature of the concert band. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4130 JAZZ BAND (1) LAB. 3. Pr., Successful audition. Performance group that rehearses and performs the jazz band literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4140 CAMPUS BAND (1) LAB. 3. Large concert band that gives performing experience to all students with prior band experience. No audition required. Course may be repeated for a maximum of 2 credit hours.

MUSE 4150 ORCHESTRA (1) LAB. 3. Pr., Successful audition. Orchestra ensemble, open to all students based on the instrumental needs of the group as well as successful audition. Course may be repeated for a maximum of 2 credit hours.

MUSE 4160 UNIVERSITY SINGERS (1) LAB. 3. Pr., Successful audition. Select choral ensemble for study and performance of madrigals, pop music, show tunes, and choral music of the jazz idiom. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4170 GOSPEL CHOIR (1) LAB. 3. Pr., Successful audition. Performance of choral works in the African American gospel tradition. Open to all students. Course may be repeated for a maximum of 2 credit hours.

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MUSE 4200 OPERA WORKSHOP (1) LAB. 3. Pr., Successful audition. Opera performance, stage craft, makeup, conducting, and coaching. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4210 CONCERT CHOIR (1) LAB. 3. Pr., Successful audition. Mixed chorus for study and performance of serious choral literature. Open to all students. Course may be repeated for a maximum of 2 credit hours.

MUSE 4220 MUSIC ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small instrumental groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4230 VOCAL CHAMBER ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for small vocal groups. Course may be repeated for a maximum of 2 credit hours.

MUSE 4240 CHAMBER CHOIR (1) LAB. 3. Pr., Successful audition. Select mixed ensemble that rehearses and performs a variety of advanced choral literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 4300 PERCUSSION ENSEMBLE (1) LAB. 3. Pr., Departmental approval. Study and performance of musical compositions for percussion ensemble. Course may be repeated for a maximum of 2 credit hours.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Lab. Credit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSE 4310</td>
<td>CONDUCTOR'S CHORUS (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Small laboratory chorus for choral conducting students. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4320</td>
<td>LOW BRASS ENSEMBLE (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for low brass ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4330</td>
<td>STEEL BAND (1)</td>
<td>Pr.</td>
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<td>Study and performance of musical compositions for steel band. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4340</td>
<td>WOODWIND ENSEMBLE (1)</td>
<td>Pr.</td>
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<td>Study and performance of musical compositions for woodwind ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4350</td>
<td>WOODWIND QUINTET (1)</td>
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<td>Study and performance of musical compositions for woodwind quintet. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4360</td>
<td>TRUMPET ENSEMBLE (1)</td>
<td>Pr.</td>
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<td>Study and performance of musical compositions for trumpet ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4370</td>
<td>BASSOON ENSEMBLE (1)</td>
<td>Pr.</td>
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<td>Study and performance of musical compositions for bassoon ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4380</td>
<td>SAXOPHONE ENSEMBLE (1)</td>
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<td>Study and performance of musical compositions for saxophone ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4390</td>
<td>HORN ENSEMBLE (1)</td>
<td>Pr.</td>
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<td>Study and performance of musical compositions for horn ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4400</td>
<td>CLARINET ENSEMBLE (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for clarinet ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4410</td>
<td>FLUTE ENSEMBLE (1)</td>
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<td>Study and performance of musical compositions for flute ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4420</td>
<td>COLLABORATIVE PIANO (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for voice or instrument with keyboard accompaniment. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4430</td>
<td>PIANO ENSEMBLE (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for piano ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4440</td>
<td>BRASS QUINTET (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for brass quintet. Course may be repeated for a maximum of 2 credit hours.</td>
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<td>MUSE 4450</td>
<td>BRASS ENSEMBLE (1)</td>
<td>Pr.</td>
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<td>Study and performance of musical compositions for brass ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4460</td>
<td>PIANO CHAMBER MUSIC (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for piano chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4470</td>
<td>STRING CHAMBER MUSIC (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for string chamber music ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
</tr>
<tr>
<td>MUSE 4480</td>
<td>JAZZ COMBO (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for jazz combo. Course may be repeated for a maximum of 2 credit hours.</td>
</tr>
<tr>
<td>MUSE 4600</td>
<td>INDIAN MUSIC ENSEMBLE (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Study and performance of musical compositions for Indian music ensemble. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4610</td>
<td>MARCHING PERCUSSION SECTIONALS (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Sectional rehearsals for Auburn University marching band drumline. Course may be repeated for a maximum of 2 credit hours.</td>
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<tr>
<td>MUSE 4620</td>
<td>AUXILIARY SECTIONALS (1)</td>
<td>Pr.</td>
<td>3</td>
<td>Successful audition. Sectional rehearsals for Tiger Eyes visual ensemble of the Auburn University marching band. Course may be repeated for a maximum of 2 credit hours.</td>
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MUSE 4630 PEP BAND (1) LAB. 3. Pr., Successful audition. Provides music for athletic contests, including basketball games, pep rallies, and other campus and off-campus events. Course may be repeated for a maximum of 2 credit hours.

MUSE 7400/7406 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7410/7416 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7500/7506 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7510/7516 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7600/7606 GRADUATE CHORAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level choral ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

MUSE 7610/7616 GRADUATE INSTRUMENTAL ENSEMBLE (1) LAB. 3. Pr., Successful audition. Graduate-level instrumental ensemble for the study and performance of standard literature. Course may be repeated for a maximum of 2 credit hours.

Natural Resources Management - NATR

Courses

NATR 2010 ENVIRONMENTAL INTERPRETATION (3) LEC. 3. NATR major/ Nature-based Recreation minor or departmental approval. Communication theory as management and public relations tool for natural resource management. Fall.

NATR 2020 NATURAL RESOURCES FIELD METHODS (3) LEC. 2. LAB. 4. Sampling methods relevant to the evaluation of the environment. Topics include sampling methods, quality assurance procedures, and data management.

NATR 2050 PEOPLE AND THE ENVIRONMENT: AN INTRODUCTION TO CONSERVATION SOCIAL SCIENCES (3) LEC. 3. Introduction to the variety of social sciences used to understand the relationships of people and their environment. Students will develop a deeper and broader understanding of the challenges and potential solutions to natural resource issues facing society today.

NATR 3310 NATURE BASED RECREATION (3) LEC. 3. Introduction to fundamentals of nature-based recreation; recreationist' motivations, society benefits, and management of the outdoor recreational environment. Spring.

NATR 4240 WATERSHED MANAGEMENT (3) LEC. 3. Pr. BIOL 1030. Introduction to watersheds, effects of land management on erosion and water quality, and mitigation techniques to reduce adverse effects. Spring.

NATR 5050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. Junior standing. May count either NATR 5050 or NATR 6050.

NATR 5250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060 or FORY 4230. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife. Spring.

NATR 5310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics: historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

NATR 5430 HUMAN DIMENSIONS OF WILDLIFE AND NATURAL RESOURCES (3) LEC. 3. Pr. NATR 2050. Forests, wildlife, wetlands, and wilderness - sustaining and managing our natural resources ultimately depends on understanding people. Students will investigate the paradigms and theoretical foundations regarding our values, beliefs, attitudes and behaviors concerning human-environment interactions.

NATR 5630 CONSERVATION PLANNING (3) LEC. 3. Pr. NATR 2050 and BIOL 3060 and (STAT 2510 or STAT 2010). Trains students in how to develop plans for conservation and management of natural resources. Covers established processes associated with developing conservation plans while addressing human concerns. Includes how to establish measurable objectives, utilize data, frame problems, and determine uncertainty/risk.

NATR 5880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues. Spring.
NATR 6050 URBAN ECOLOGY (3) LEC. 3. Examination of urban ecosystems and the influence of urbanization on rural and forested lands. May count either FOWS 5050 or FOWS 6050.

NATR 6250 WETLAND ECOLOGY AND MANAGEMENT (3) LEC. 3. Pr. BIOL 3060. Wetland ecology in the southeastern U.S. with emphasis on soils, hydrology, biology, and policies and practices related to agriculture, forestry, wildlife. Spring.

NATR 6310 ENVIRONMENTAL ETHICS (3) LEC. 3. Critical examination of environmental ethics. Historical development and various ethical perspectives. Examination of current environmental issues using perspectives covered in course. Fall.

NATR 6880 ECOLOGICAL ECONOMICS (3) LEC. 3. Foundations, principles and empirical application of ecological economics to address current social and economic issues. Spring.

NATR 7106 HUMAN DIMENSIONS OF ONE HEALTH (2) DSL. 2. An introduction to advanced concepts regarding human behavior and the role of human dimensions under the One Health framework.

NATR 7990 RESEARCH AND THESIS (1-15) RES. 0. Credit to be arranged. Course may be repeated for a maximum of 15 credit hours.

Naval Science (NROTC) - NAVS

Courses

NAVS 1010 INTRODUCTION TO NAVAL SCIENCE (3) LEC. 3. Basic areas of Naval Science including uniforms and insignia, military courtesy, discipline, warfare components, organizational structure, and supporting elements of the U.S. Navy and U.S. Marine Corps.

NAVS 1011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military instruction.

NAVS 1020 SEAPOWER AND MARITIME AFFAIRS (3) LEC. 3. Introduction to broad principles, concepts and elements of naval history, seapower, and maritime affairs from past to present.

NAVS 1021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction. Course may be repeated with change in topics.

NAVS 2010 LEADERSHIP AND MANAGEMENT (3) LEC. 3. Fundamentals of leadership and management theory vital to the effectiveness of Navy/Marine Corps officers.

NAVS 2011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 2021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 2060 NAVIGATION (3) LEC. 3. Theory and principles of piloting involving the use of visual and electronic aids.

NAVS 3011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 3021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.

NAVS 3030 EVOLUTION OF WARFARE (3) LEC. 3. Pr. P/C NAVS 3011 or P/C NAVS 3021. Forms of warfare practices to identify historical continuity and change in the evolution of warfare. Explores the impact of historical precedent, economic factors and technological change on politico-military thought and action.

NAVS 3050 NAVAL SHIP SYSTEMS I (ENGINEERING) (3) LEC. 3. Principles of ship design, construction, and stability. Introduction to thermodynamics and the steam cycle as applied to naval propulsion systems.

NAVS 3060 NAVAL SHIP SYSTEMS II WEAPONS (3) LEC. 3. Theory and employment of systems through a study of fundamental principles of sensor, tracking, computational, and weapons delivery subsystems.

NAVS 4011 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction.
NAVS 4020 LEADERSHIP AND ETHICS (3) LEC. 3. Pr. NAVS 2010. Departmental approval. Integrates an intellectual exploration of Western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics.

NAVS 4021 NAVAL SCIENCE LABORATORY (0) LAB. 3. SU. Required for commission in Navy/Marine Corps. Includes naval drill, physical fitness and general military leadership instruction. Course may be repeated with change in topics.


NAVS 4050 NAVAL OPERATION AND SEAMANSHIP (3) LEC. 3. Inland and International law governing maritime operations, communication procedures, and other naval/maritime operational procedures.

**Nursing - NURS**

Courses

**NURS 2017 HONORS INTRO TO NURSING (2) LEC. 2. Pr. Honors College.** Study of professional nursing's role as the foundation of the health care system.

**NURS 2023 DOSAGE CALCULATION AND MEDICAL TERMINOLOGY FOR HEALTHCARE PROFESSIONALS (1) DSL.** Provides fundamental dosage calculation and medical terminology concepts essential for professional nursing and/or healthcare practice. Course may be repeated for a maximum of 2 credit hours.

**NURS 3110 THEORETICAL CONCEPTS OF PROFESSIONAL NURSING PRACTICE (3) LEC. 3. Coreq. NURS 3141 and NURS 3130.** Exploration of essential professional nursing concepts.

**NURS 3120 NURSING PATHOPHYSIOLOGY (3) LEC. 3. Coreq. NURS 3130 and NURS 3141.** Admission to the School of Nursing Upper Division. Pathophysiological concepts that guide nursing professionals in the assessment, planning, implementation and evaluation of care for patients across the lifespan.

**NURS 3130 EVIDENCE BASED SKILLS, ASSESSMENT, AND HEALTH PROMOTION (4) LEC. 4. Coreq. NURS 3141 and NURS 3110.** Integration of current evidence to guide nursing skills, assessment, and health promotion.

**NURS 3141 CONCEPTS AND EVIDENCE BASED SKILLS FOR PROFESSIONAL CLINICAL PRACTICE (3) LAB. 9. SU. Coreq. NURS 3130 and NURS 3110.** Application of foundational nursing concepts, skills, and assessment across the lifespan in diverse settings with emphasis on health promotion.

**NURS 3210 CLINICAL PHARMACOLOGY (3) LEC. 3. Pr. NURS 3120 or NURS 3123.** Nurse's role in therapeutic pharmacology.

**NURS 3230 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN (6) LEC. 6. Pr. NURS 3120 or NURS 3123.** Coreq. NURS 3210 and NURS 3231. Concepts inherent in the delivery of nursing care for acutely ill individuals and their families.

**NURS 3231 PROFESSIONAL NURSING CONCEPTS: ACUTE CARE ACROSS THE LIFESPAN - CLINICAL (4) LAB. 12. SU. Pr. NURS 3123 or NURS 3120.** Coreq. NURS 3210 and NURS 3230. Application of concepts inherent in the delivery of nursing care for acutely ill individuals and their families.

**NURS 3330 PROFESSIONAL NURSING CONCEPTS IN THE CHILDBEARING FAMILY AND REPRODUCTIVE HEALTH (4) LEC. 4. Pr. NURS 3120.** Coreq. NURS 3331. Concepts inherent in reproductive health and nursing care for childbearing families.

**NURS 3331 PROFESSIONAL NURSING CONCEPTS IN THE CHILDBEARING FAMILY AND REPRODUCTIVE HEALTH - CLINICAL (2) LAB. 6. SU. Pr. NURS 3120.** Coreq. NURS 3330. Concepts inherent in reproductive health and nursing care for childbearing families applied in clinical settings.

**NURS 3730 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN (2) LEC. 2. Pr. NURS 3110 and NURS 3130 and NURS 3141.** Coreq. NURS 3330 and NURS 3731. Concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.
NURS 3731 PROFESSIONAL NURSING CONCEPTS: MENTAL HEALTH ACROSS THE LIFESPAN CLINICAL (2) LAB. 2. SU. Pr. NURS 3110 and NURS 3130 and NURS 3141. Coreq. NURS 3730. Clinical application of concepts inherent in the delivery of nursing care for mentally ill individuals, families, and communities across the lifespan.

NURS 3813 HOLISTIC NURSING PATHOPHYSIOLOGY & HEALTH ASSESSMENT (6) DSL. 6. Coreq. NURS 3843. Pathophysiological concepts that guide professional nurses in assessment, planning, implementation and evaluation of holistic care for patients across the lifespan.


NURS 3843 FORMATION OF PROFESSIONAL NURSING PRACTICE (5) DSL. 5. Coreq. NURS 3813. Admission to the School of Nursing RN to BSN Program. Examines concepts, theories, and competencies fundamental to the formation of professional nursing practice.

NURS 3940 HEALTHCARE AND LEADERSHIP IN NURSING ABROAD (3) LEC. 45. LAB. 0. Pr. NURS 3230 and NURS 3330. Study abroad learning opportunity to explore healthcare, culture, cultural values, nursing leadership, and nursing regulation in Seville, Spain.

NURS 3970 SPECIAL TOPICS IN NURSING (3) LEC. 3. Focused study plan designed for students who are out of sequence in the professional nursing curriculum. Course may be repeated for a maximum of 6 credit hours.

NURS 4110 CHILDREN WITH CHRONIC ILLNESS (3) LEC. 3. Departmental approval. Pr. Senior-level student in Nursing. Theories and concepts of care of children with special needs and/or chronic health problems.

NURS 4120 CAMP NURSING (2) LAB. 6. SU. Pr., Senior-level student in Nursing. Clinical experience in the care of children with chronic conditions in a camp setting.

NURS 4130 NURSING THE ART OF CARING (2) LEC. 2. Pr., Senior-level student in Nursing. Philosophical, social, and ethical principles inherent in the practice of professional nursing. Emphasis is on caring as a philosophy to guide clinical practice.

NURS 4140 CONTEMPORARY HEALTH ISSUES OF WOMEN (2) LEC. 2. Pr., Senior-level student in Nursing. Exploration of the health care delivery system as it pertains to women.

NURS 4150 HUMAN SEXUALITY IN HEALTH AND ILLNESS (2) LEC. 2. Pr., Senior-level student in Nursing. Human sexuality in relation to the health-illness continuum. Sexuality across the lifespan.

NURS 4160 SPIRITUAL PERSPECTIVES IN NURSING (2) LEC. 2. Pr., Senior-level student in Nursing. Use of the nursing process to help clients with various spiritual orientations meet spiritual needs.

NURS 4170 CARDIOLOGY FOR NURSES (2) LEC. 2. Pr., Senior-level student in Nursing. Emphasis on the nurse's role in the management of clients with cardiovascular disorders.

NURS 4180 TRAUMA NURSING (2) LEC. 2. Pr., Senior-level student in Nursing. A broad overview of the specialty of trauma nursing and the multiple factors that affect patient care in an emergency or trauma situation.

NURS 4190 AIDS: A SOCIAL EPIDEMIC (2) LEC. 2. Pr., Senior-level student in Nursing. The psychosocial, physical, emotional, ethical, legal, behavioral, and changing health care needs of clients, families, aggregates and populations as a result of AIDS.

NURS 4210 APPLIED CLINICAL NUTRITION FOR NURSES (2) LEC. 2. Pr. NUF S 2000 or NTRI 2000 or NTRI 2003 or NTRI 2007. Pr., Senior-level student in Nursing. Interdependent function of the nurse as a provider of nutritional care for the individual.

NURS 4220 INTEGRATIVE HEALING THERAPIES (2) LEC. 2. Pr., Senior-level student in Nursing. Theoretical and empirical bases for the use of selected interventions in clinical nursing practice.

NURS 4230 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS (5) LEC. 5. Pr. NURS 3120 or NURS 3123. Coreq. NURS 4231. Concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.

NURS 4231 PROFESSIONAL NURSING CONCEPTS: CHRONIC AND COMPLEX CONDITIONS - CLINICAL (5) LAB. 15. SU. Pr. NURS 3120 or NURS 3123. Coreq. NURS 4230. Applications of concepts inherent in the delivery of nursing care for individuals, families, and populations with chronic and/or complex conditions.
NURS 4240 CULTURAL EXPEDITIONS IN HEALTH CARE (2) LEC. 2. Pr., Senior-level student in Nursing. Hands-on experience with different aspects of culture including an overnight stay in a replica of a third world global village.

NURS 4250 COMPLICATIONS OF OBSTET NURSIN (2) LEC. 2. Pr., Senior-level student in Nursing. Concepts and theories underlying nursing care of complications of the childbearing family.

NURS 4260 MENTORING IN NURSING (2) LEC. 1. LAB. 3. Pr. NURS 3720 and NURS 3721. Pr., Senior-level student in Nursing. Theoretical and practical aspects of peer mentoring.

NURS 4270 PERIOPERATIVE NURSING (2) LEC. 1. LAB. 6. Pr., Senior-level student in Nursing. A broad overview focusing on the specialty area of peri-operative nursing and the multiple factors that will impact patient care from the preoperative phase through the recovery phase. Fall.

NURS 4280 ANIMAL-ASSISTED THERAPY (2) LEC. 2. Theoretical foundations and guidelines for practice of animal-assisted therapy.

NURS 4290 EVIDENCE BASED PRACTICE (2) LEC. 2. Pr. NURS 3230. Application of appropriate research findings and other evidence to influence nursing practice.

NURS 4310 INTERPROFESSIONAL EDUCATION EXPERIENCE (2) LEC. 2. Pr. NURS 3230. Nursing student collaboration with pharmacy professional practice teams in delivering care to patients in their home environments.

NURS 4810 PROFESSIONAL NURSING LEADERSHIP IN MICROSYSTEMS (2) LEC. 2. Pr. NURS 3230 and NURS 3231. The study of leadership and management concepts for direct patient care.

NURS 4833 LEADERSHIP AND MANAGEMENT IN PROFESSIONAL NURSING (3) DSL. 3. Pr. NURS 3813 and NURS 3843. Coreq. NURS 3833. Admission into Online RN-to-BSN Program. Addresses evidence-based leadership/management competencies for the professional nurse working with interprofessional team.

NURS 4843 TRANSITION TO PROFESSIONAL NURSING PRACTICE (6) DSL. 6. Pr. NURS 4833 and NURS 3833. Coreq. NURS 4853. Admission into Online RN-to-BSN Program. Integrate past nursing practice and acquired knowledge, skills, and attitudes for transition to the professional nursing role.


NURS 4900 INDEPENDENT STUDY IN NURSING (1-6) IND. Directed readings and/or clinical study in student-selected areas related to nursing. Course may be repeated for a maximum of 6 credit hours.

NURS 4930 COMMUNITY ASSESSMENT PROJECT (1) LEC. 1. LAB. 15. Pr. (NURS 3130 or NURS 3220) and NURS 4230 and NURS 4231. Coreq. NURS 4911 and NURS 4910. Capstone course for a community assessment project completed throughout the nursing program.

NURS 4970 SPECIAL TOPICS IN NURSING (1-4) STU. SU. Focused study plan designed for students who have not met an identified curricular benchmark. Course may be repeated for a maximum of 4 credit hours.

NURS 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Course may be repeated for a maximum of 3 credit hours.

NURS 7110/7116 ADVANCED PHYSICAL ASSESSMENT/APPLIED CLINICAL CONCEPTS I (3) LEC. 2, LEC. 4. Departmental approval. Focus is on assessment, knowledge and techniques required for master's level prepared nurses in a clinical setting. Admission to the MSN Program

NURS 7120/7126 QUALITY IMPROVEMENT/PROCESS MGT. FOR APNS (3) LEC. 3. Addresses elements of quality improvements and organizational responsibilities related to quality assurance. May count either NURS 7120 or NURS 7126.

NURS 7220/7226 ROLES AND ISSUES OF THE PRIMARY CARE PRACTITIONER (3) LEC. 3. Departmental approval. This course explores the complex process of role development for the advanced practice nurse within current health care systems. Competencies and role development issues of advanced nursing practice are included. Role transition and strategies for facilitating role acquisition and implementation including social, legal and ethical issues governing advanced practice in primary health care are addressed. Admission to the MSN Program
NURS 7230/7236 ADVANCED PATHOPHYSIOLOGY (3) LEC. 3. Admission to the MSN Program or permission of MSN faculty. In-depth understanding of Pathophysiology associated with complex conditions to determine treatment options and prevention strategies across the lifespan.

NURS 7240/7246 ADVANCED PHARMACOLOGY (3) LEC. 3. Pr. NURS 7230 or NURS 7236. Admission to the MSN Program or permission of MSN faculty. Provides a process for students to think pharmacotherapeutically which is identifying a disease process, select a treatment based on the treatment goals, and how to adjust therapy.

NURS 7250/7256 HEALTHCARE POLICY AND ETHICS FOR THE NURSE LEADER (3) LEC. 3. Departmental approval. This course addresses the U.S. health care delivery system at micro and macro levels, problems, principles and the alternatives for managing problems in a systematic manner. Health policy, economic, and ethical principles and the relationship of these concepts to advocacy and leadership roles are explored. Admission to the MSN Program

NURS 7260/7266 NURSE EDUCATOR: TRANSITION TO A FACULTY ROLE (3) LEC. 3. Provides the nurse educator with a understanding regarding the components of the nurse faculty role. The student will explore dynamics that influences the development of the role and attainment of success in higher education.

NURS 7310/7316 TRANSITION TO ADVANCED PRACTICE NURSING (2) LEC. 2. This course is designed to introduce the Masters student to scholarly writing and inquiry for evidence-based practice. The principles of synthesis in writing and understanding of research are addressed. Course may be repeated for a maximum of 4 credit hours.

NURS 7320/7326 CURRICULUM DEVELOPMENT AND EVALUATION (3) LEC. 3. Departmental approval. Analysis and evaluation of curriculum construction, selection of teaching strategies for diverse groups and individuals, and evaluation of learning outcomes in education of patients, health providers, and nursing students. Admission to the MSN Program

NURS 7330/7336 DIAGNOSTIC REASONING AND CLINICAL MANAGEMENT (3) LEC. 3. Pr. NURS 7110 or NURS 7116. Focus is on the process of collecting data and arriving at diagnostic and therapeutic conclusions to guide clinical management for patients. Preq: NSG 6671, NSG 6649, NURS 7110.

NURS 7340/7346 ADVANCED THEORETICAL FOUNDATIONS OF NURSING (3) LEC. 3. Departmental approval. Students explore the theoretical foundations of advanced nursing practice. The roles of the Master's prepared nurse are explored, along with central concepts inherent to nursing practice. Theories from nursing and related disciplines are examined with emphasis on application of theory to nursing practice. Admission to the MSN Program

NURS 7350/7356 QUALITY, SAFETY, AND PREVENTION USING TECHNOLOGY (3) LEC. 3. Departmental approval. This course examines the concepts of clinical illness prevention, population health, quality and safety in health care, and the use of information technologies. Admission to the MSN Program

NURS 7360/7366 EVIDENCE-BASED PRACTICE I (2) LEC. 2. Departmental approval. This course is designed to introduce the Master's student to evidence-based practice. The foundations of EBP are explored including search strategies, research critique, and applications of EBP in advanced practice. Synthesis and evaluation of evidence using various models will be discussed. Admission to the MSN Program

NURS 7370/7376 EVIDENCE-BASED PRACTICE II (2) LEC. 2. Pr. NURS 7360 or NURS 7366 or departmental approval. This course focuses on the concepts necessary for implementation and evaluation of an EBP project. Data collection tools, data analysis, and the presentation of data will be explored. Students will discuss change strategies, protection of human subjects, and the development of measurable outcomes. Admission to the MSN Program

NURS 7430 EVIDENCE BASED NURSING PRACTICE (2) LEC. 2. Pr. NURS 7316 or NURS 7310. This course is designed to introduce the Masters student to evidence-based practice (EBP). The foundations of EBP are explored including evidence-based models, search strategies, synthesis, and evaluation of research and other evidence, and application of EBP in advanced practice. Course may be repeated for a maximum of 4 credit hours.

NURS 7440/7446 PRIMARY CARE I: WOMEN AND CHILDREN (3) LEC. 1, SEM. 2. Pr. NURS 7330 or NURS 7336. Admission to the MSN Program, completion of pre-requisites, or departmental approval. Focus is on the primary care nurse practitioner's role in managing common acute and chronic health problems in the women and pediatric population in a variety of primary care settings.
NURS 7540 IMPLEMENTATION AND EVALUATION OF EVIDENCE-BASED NURSING PRACTICE (2) LEC. 2. Pr. NURS 7436 or NURS 7430. This course focuses on the concepts necessary for implementation and evaluation of an evidence-based practice project. Data collection tools, data analyses, and interpretation of data analysis will be explored. Students will discuss change strategies, development of measurable outcomes and dissemination of any results. Course may be repeated for a maximum of 4 credit hours.

NURS 7550/7556 PRIMARY CARE II: ADULTS AND ELDERLY (3) LEC. 1, SEM. 2. Pr. NURS 7330 or NURS 7336. Admission to the MSN Program, completion of pre-requisites, or departmental approval. Focus is on the primary care nurse practitioner's role in managing common acute and chronic health problems in the adult and geriatric population in a variety of primary care settings.

NURS 7810/7816 NURSING EDUCATION PRACTICUM (3) PRA. 3. Pr. (NURS 7340 or NURS 7346) and (NURS 7350 or NURS 7356) and (NURS 7360 or NURS 7366) and (NURS 7320 or NURS 7326) and (NURS 7370 or NURS 7376) and (NURS 7250 or NURS 7256) and EDLD 8500 or departmental approval. Synthesis of educational theories, research, and strategies in applying the roles of the educator in teaching clients, students, or care providers. Selected educational settings provide opportunities to practice the roles of the educator under guidance of qualified preceptor. This course will be a combination of professional seminars and teaching practice (180 hours). Admission to the MSN Program

NURS 7920/7926 PRIMARY CARE PRACTICUM (7) LEC. 1, LEC. 6. Pr. (NURS 7440 or NURS 7446) and (NURS 7550 or NURS 7556) or departmental approval. This course focus is on the application of knowledge and skills in the transition to the role of the primary care nurse practitioner. Admission to the MSN Program, completion of pre-requisites,

NURS 7940/7946 EVIDENCE-BASED PRACTICE III (2) LEC. 2. Pr. (NURS 7370 or NURS 7376) and (NURS 7360 or NURS 7366) or departmental approval. The focus of this course is the application of evidenced based practice concepts in advanced nursing practice. EBP III is a practicum course in which the student may implement the project proposed in EBP I & II or prepare a manuscript from that project that synthesizes the evidence and submit to a national refereed professional journal. Admission to the MSN Program

NURS 8320/8326 INFORMATICS AND MANAGEMENT OF HEALTH OUTCOMES (3) LEC. 3. Admission to DNP Program. Provides the DNP student with knowledge and skills to access and utilize health care data. May count either NURS 8320 or NURS 8326.

NURS 8330/8336 QUANTITATIVE METHODS FOR EVIDENCE-BASED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides the DNP student with clinical data management and outcome skills with an essential component of any EBP. May count either NURS 8330 or NURS 8336.

NURS 8410/8416 THEORY APPLICATION FOR ADVANCED PRACTICE (3) LEC. 3. Admission to DNP Program. The course is the basis for the Doctor of Nursing Practice (DNP) project by identifying and investigating the various phenomena of interest in student's practice area. May count either NURS 8410 or NURS 8416.

NURS 8420/8426 POPULATION HEALTH OUTCOMES (3) LEC. 3. Admission to DNP Program. Provides the DNP student with knowledge and skills to examine population health issues across the lifespan, globally and regionally. May count either NURS 8420 or NURS 8426.

NURS 8430/8436 FINANCIAL MANAGEMENT FOR ADVANCED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides DNP student with the knowledge and skills necessary to identify, evaluate, and consider costs associated with implementing and sustaining change. May count either NURS 8430 or NURS 8436.

NURS 8440/8446 LEADERSHIP FOR ADVANCED HEALTH POLICY (3) LEC. 3. Admission to DNP Program. Provides the DNP student with the knowledge and skills to be a leader in health care and to influence health policies at multiple levels.. May count either NURS 8440 or NURS 8446.

NURS 8510/8516 FOUNDATION FOR EVIDENCE-BASED PRACTICE (3) LEC. 3. Admission to DNP Program. Provides the DNP student with the methodological basis for translating evidence into practice systems in a variety of health care environments. May count either NURS 8440 or NURS 8446.

NURS 8540/8546 ADVANCED PRACTICE PRACTICUM (2) LEC. 2. Provides the DNP student with opportunity to synthesize advanced practice knowledge and role behaviors in a advanced practice role. May count either NURS 8540 or NURS 8546. Course may be repeated for a maximum of 6 credit hours.

NURS 8710/8716 TRANSITIONAL SKILLS FOR DNP PRACTICE (2) LEC. 2. Admission to DNP Program. Provides the DNP student with the knowledge and skills to develop their DNP role as a leader in health care improvement efforts. May count either NURS 8710 or NURS 8716.
NURS 8720/8726 HEALTH INNOVATIONS AND CLINICAL OUTCOMES IMPROVEMENTS (3) LEC. 3. Admission to DNP Program. Provides the DNP student with knowledge and skills to develop, implement, and evaluate programs that improve health. May count either NURS 8720 or NURS 8726.

NURS 8930/8936 DNP PROJECT PRACTICUM I : DEVELOPMENT (3) LEC. 3. Pr. NURS 8516 and NURS 8716. First in a three-course sequence which provides the DNP student with the tools and direction needed to develop a comprehensive project proposal. My coun either NURS 8930 or NURS 8936.

NURS 8940/8946 DNP PROJECT PRACTICUM II : IMPLEMENTATION (4) LEC. 4. Pr. NURS 8516 and NURS 8716. Second in a three-course sequence for the DNP student to execute the project plan in collaboration with the agency site. May count either NURS 8940 or NURS 8946.

NURS 8950/8956 DNP PROJECT PRACTICUM III : EVALUATION AND PRESENTATIONS (4) LEC. 4. Pr. NURS 8516 and NURS 8716. Third in a three-course sequence for the DNP student finalize, evaluate, and disseminate their DNP project. May count either NURS 8950 or NURS 8956.

Nutrition - NTRI

Courses


NTRI 2010 BASIC SPORTS NUTRITION (3) LEC. 3. Pr. (BIOL 1020 or BIOL 1027) or (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007). An introductory course on the relationship between nutrition and sports performance. Topic areas to be covered include energy, carbohydrates, protein/amino acids, fluids, vitamins, minerals, body weight and supplement use as they directly relate to sports performance.

NTRI 2070 CAREERS IN NUTRITION, DIETETICS AND WELLNESS (1) LEC. 1. Pr. NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007. Professional roles and responsibilities in nutrition, dietetics, and wellness with emphasis on careers professional development and conduct.

NTRI 3380 STUDY ABROAD OPPORTUNITIES IN HUMAN SCIENCES (1) LEC. 1. Exploration of study abroad opportunities for students interested in the International Minor in Human Sciences.

NTRI 3560 EXPERIMENTAL STUDY OF FOODS (4) LEC. 3. LAB. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007) and (BIOL 1020 or BIOL 1027) and CHEM 1030 or Departmental approval. Experimental approach to the chemistry to food including composition, preparation, recipe modification, food quality, sanitation, processing, and food laws.

NTRI 3750 NUTRITION EDUCATION (2) LEC. 2. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (NTRI 2000 or NTRI 2003 or NTRI 2007) or (NUFS 2000 or NUFS 2003 or NUFS 2007). A variety of perspectives and strategies designed to facilitate dietary behaviors conducive to health and well-being.

NTRI 3940 COMMUNITY SERVICE (3-9) LEC. 1. LAB. 6. Departmental approval. Application of NTRI-related knowledge to real-life situations through participation in directed community service experiences. A) nutrition; B) hospitality; C) general NTRI. Course may be repeated for a maximum of 9 credit hours.

NTRI 4090 PROFESSIONAL ISSUES IN DIETETICS AND NUTRITION (1) LEC. 1. SU. Pr. NTRI 2070 or NTRI 2077. NTDI or departmental approval. Junior standing. Professional issues and trends affecting dietetics and nutrition practice; planning for professional advancement; includes externship.

NTRI 4560 FOOD SYSTEMS OPERATIONS (2) LEC. 2. Pr. NTRI 2050 or NTRI 3560 or NUFS 2050 or NUFS 3560 or Departmental approval. Principles for managing resources required in planning, purchasing, preparing and serving high quality food in food service operations.

NTRI 4561 FOOD SYSTEMS OPERATIONS LAB (2) LAB. 4. Pr. NTRI 2050 or NTRI 3560 or Departmental approval. Coreq. NTRI 4560. Laboratory experience in food service operations. Food safety certification is included. TB test.
NTRI 4580 FOOD AND CULTURE (2) LEC. 2. Departmental approval. Cultural and social factors affecting food habits and nutritional status of populations throughout the world.

NTRI 4620 PUBLIC HEALTH NUTRITION (3) LEC. 3. Pr. STAT 2510 or STAT 2513. Coreq. NTRI 5820. Population-focused approaches that facilitate healthy diets through policy development and environmental changes.

NTRI 4820 MACRONUTRIENTS (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007) and P/C BCHE 3180 and BIOL 2510 or Departmental approval. Physiological and biochemical basis for energy-yielding nutrients; structure, function, dietary requirements, digestion, absorption, transport and metabolism of macronutrients. Spring.

NTRI 4830 VITAMINS AND MINERALS (3) LEC. 3. Pr. (NTRI 2000 or NTRI 2003 or NTRI 2007 or NUFS 2000 or NUFS 2003 or NUFS 2007) and P/C BCHE 3180. Metabolism, dietary needs, deficiency symptoms and food sources of vitamins and minerals in humans. Spring.

NTRI 4930 DIRECTED STUDIES (1-8) AAB/IND. Departmental approval. Independent reading or research in a content area of special interest; supervised by a faculty member. Course may be repeated for a maximum of 8 credit hours.

NTRI 4970 SPECIAL TOPICS (1-3) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. A course offering unique or current issues not covered in a regularly scheduled course. Course may be repeated for a maximum of 6 credit hours.

NTRI 4980 UNDERGRADUATE RESEARCH AND STUDY (1-9) AAB/IND. Departmental approval. Directed research under faculty supervision. Course may be repeated for a maximum of 9 credit hours.

NTRI 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. Departmental approval. Research in specialized topics. Course may be repeated for a maximum of 3 credit hours.

NTRI 5020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. NTRI 4820 and NTRI 4830. Coreq. NTRI 4090. NTDI or departmental approval. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 5030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. NTRI 5020 or NTRI 6020. NTDI or department approval. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030.

NTRI 5100 NUTRITION IN DISEASE PREVENTION (2) LEC. 2. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. The functions, safety, and efficacy of selected nutrients and herbs in the prevention and/or treatment of selected diseases/conditions.

NTRI 5380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 5560 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. (P/C NTRI 4560 or P/C NTRI 4561) or Departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 5560 and NTRI 6560. Spring.

NTRI 5620 SPORTS NUTRITION (3) LEC. 3. Pr. BIOL 2510 and BCHE 3180. Departmental approval. Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NTRI 5620 and NTRI 6620. Spring.

NTRI 5760 NUTRITION COUNSELING (2) LEC. 2. Pr. NTRI 3750 and (P/C NTRI 5030 or P/C NTRI 6030). NTDI or department approval. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760.

NTRI 5820 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 or NUFS 4830 or NUFS 4833. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 5820 and NTRI 6820. Fall.

NTRI 5830 NUTRITIONAL GENOMICS (3) LEC. 3. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. Principles of nutrient-gene interactions and how these interactions influence human health and disease. May count either NTRI 5830 or NTRI 6830.
NTRI 5910 CLINICAL PRACTICUM IN DIETETICS (1) PRA. 3. SU. NTDI or department approval. Application of the practice of dietetics in a clinical or community setting.

NTRI 6020 MEDICAL NUTRITION I (4) LEC. 3. LAB. 2. Pr. (NTRI 4820 or NUFS 4820 or NUFS 4830 or NUFS 4833) and NTRI 4830. Applications of nutrition assessment and medical nutrition therapy to the pathophysiological changes associated with endocrine and gastrointestinal disorders. May count either NTRI 5020 or NTRI 6020.

NTRI 6030 MEDICAL NUTRITION II (4) LEC. 3. LAB. 2. Pr. (NTRI 5020 or NTRI 6020). Coreq. NTRI 6760. Medical nutrition therapy for diseases of the cardiovascular, renal, and respiratory systems; oncology; critical care; and conditions of infancy/childhood. May count either NTRI 5030 or NTRI 6030.

NTRI 6100/6106 NUTRITION IN DISEASE PREVENTION (2) LEC. 2. Pr. (NTRI 5820 or NUFS 5820 or NUFS 4830 or NUFS 4833) and NTRI 4830. The functions, safety, and efficacy of selected nutrients herbs in the prevention and/or treatment of selected diseases/conditions. May count either NTRI 5100 or NTRI 6100.

NTRI 6380 STUDY/TRAVEL IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) AAB/FLD. Departmental approval. Concentrated study in nutrition, food science, or hotel and restaurant management in the US or international locations. Course may be repeated for a maximum of 6 credit hours.

NTRI 6560/6566 NUTRITION AND FOOD SERVICE MANAGEMENT (3) LEC. 3. Pr. NTRI 4560 or NTRI 4561 or Departmental approval. Organization, management and marketing of food and nutrition service systems in health care facilities. Credit will not be given for both NTRI 6560 and NTRI 5560. Spring.

NTRI 6620 SPORTS NUTRITION (3) LEC. 3. Pr. BIOL 2510 and BCHE 3180. Departmental approval. Relationships between energy, carbohydrates, proteins, fluids, vitamins, minerals, body weight, ergogenic aids and physical performance. Credit will not be given for both NTRI 6620 and NTRI 5620. Spring.

NTRI 6760 NUTRITION COUNSELING (2) LEC. 2. Pr. NTRI 3750 and NUFS 3750. Coreq. NTRI 5030 and NTRI 6030. Application of counseling techniques, with an emphasis on Motivational Interviewing, to facilitate behavior change. May count either NTRI 5760 or NTRI 6760.

NTRI 6820/6826 NUTRITION IN THE LIFE CYCLE (3) LEC. 3. Pr. NTRI 4830 or NUFS 4830 or NUFS 4833. Departmental approval. Metabolic and clinical aspects of nutrition during key periods of the life cycle emphasizing pregnancy, infancy, adolescence and late adulthood. Credit will not be given for both NTRI 6820 and NTRI 5820. Fall.

NTRI 7016 ADVANCED PRACTICUM IN DIETETICS (1-9) DSL. SU. DPD verification statement. Enrollment in Masters in Nutrition Program or department approval. Supervised practical experience in clinical, food service, and community settings for development of entry-level skills for the registered dietitian. Course may be repeated for a maximum of 9 credit hours.

NTRI 7050/7056 METHODS OF RESEARCH (2) LEC. 2. Departmental approval. Research methods and designs applicable to disciplines represented in nutrition dietetics and hospitality management. Credit is not allowed for both NTRI 7050 and NTRI 7056. Spring.

NTRI 7280 LABORATORY METHODS IN FOOD SCIENCE AND NUTRITION (3) LEC. 2. LAB. 3. Departmental approval. Modern laboratory techniques and instruments used in human nutrition and food science research.

NTRI 7500/7506 MINERALS (3) LEC. 3. Departmental approval. Sources, digestion, absorption, transport, function and metabolism of major and trace minerals in the human body. Fall.

NTRI 7510/7516 VITAMINS (3) LEC. 3. Departmental approval. Advanced study of metabolism, requirements, interactions and deficiencies of the fat and water soluble vitamins as related to humans. Fall.


NTRI 7530/7536 HUMAN NUTRIENT METABOLISM (4) LEC. 4. Advanced study of nutrition and metabolism, as related to humans. Department approval. Credit will not be given for both NTRI 7530 or NTRI 7536 once developed, or BCHE 6180 and BCHE 6190, and/or BCHE 7200.

NTRI 7850/7856 RESEARCH SEMINAR FOR MASTER'S PROGRAM (1) SEM. 1. Departmental approval. Current topics in nutrition, dietetics and hospitality management presented by M.S. graduate students.
NTRI 7910 PRACTICUM IN NUTRITION AND DIETETICS (1-12) PRA. SU. Departmental approval. Application of principles and theories of nutrition in a professional setting. No more than three hours may count toward a graduate degree. Course may be repeated for a maximum of 12 credit hours.

NTRI 7930/7936 ADVANCED INDEPENDENT STUDY (1-6) IND. Departmental approval. Advanced reading or research approved and supervised by a faculty member. Course may be repeated for a maximum of 6 credit hours.

NTRI 7960/7966 SPECIAL PROBLEMS (1-5) IND. Departmental approval. Critical analysis of classic and current research. Course may be repeated for a maximum of 10 credit hours.

NTRI 7980/7986 NONTHESIS RESEARCH (1-6) RES. SU. Departmental approval. In-depth work in a particular project related to hotel and restaurant management. Course may be repeated for a maximum of 6 credit hours.

NTRI 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

NTRI 8850 RESEARCH SEMINAR FOR DOCTORAL PROGRAM (1-2) SEM. Departmental approval. Required for doctoral students in nutrition and hospitality management. Advanced topics in nutrition and food science presented by doctoral students. Course may be repeated for a maximum of 2 credit hours.

NTRI 8910 SUPERVISED TEACHING (1) AAB/IND. 1. Departmental approval. Practical experience teaching in the classroom. Course may be repeated for a maximum of 3 credit hours.

NTRI 8970/8976 ADVANCED TOPICS IN NUTRITION, DIETETICS AND HOSPITALITY MANAGEMENT (1-6) LEC. Departmental approval. A) Nutrition, B) Hotel and Restaurant Management. Course may be repeated for a maximum of 6 credit hours.

NTRI 8990 RESEARCH AND DISSERTATION (1-10) AAB/DSR. Departmental approval. Research in an area of specialization. Course may be repeated with change in topics.

Pharmacy PharmD - PYPD

Courses

PYPD 9000 ORIENTATION (1) WSP. 12.5. This one week course introduces the expectations for a student in the Harrison School of Pharmacy’s Practice Ready Curriculum. The course introduces aspects of the role of the pharmacist in healthcare including team member, interprofessional practice, and continual professional development.

PYPD 9010/9016 DRUGS IN PREGNANCY AND LACTATION (1) LEC. 1. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). The purpose of this course is to introduce pharmacy students to the concepts of teratogenicity, pregnancy and lactation. Non-pharmacological and pharmacological therapy is focused to common pregnancy disease states and lactation issues.

PYPD 9020/9026 FOUNDATIONS OF LEADERSHIP WITHIN THE PHARMACY PROFESSION (1) LEC. 1. This course will allow students to identify leadership skills, traits and values. Leadership tools and resources will be discussed. Students will be exposed to leadership within the practice of pharmacy as well as pharmacy organizations.

PYPD 9030/9036 INTRODUCTION TO PEDIATRICS (1) LEC. 1. Pr. (PYPD 9200 or PYPD 9206) and (PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). The purpose of this course is to introduce students to the basic concepts regarding pediatric development and care including but not limited to normal growth and development, pediatric calculations, community based care, counseling skills, and common disease states.

PYPD 9040/9046 KIDNEYS, DRUGS AND ELIMINATION: WHAT PHARMACISTS NEED TO KNOW (1) LEC. 1. Pr. PYPD 9250 or PYPD 9256. Students will gain in-depth knowledge of how declining kidney function and renal replacement modalities affect biopharmaceutics and develop experience in evaluating drug information related to renal dosing.

PYPD 9050/9056 ONCOLOGY CARE (1) LEC. 1. This course will provide student pharmacists with a working knowledge of cancer as a disease state, as well as the pharmacotherapeutics of chemotherapy, targeted therapy, and biologic therapy. Additionally, students will explore aspects of supportive care, ADR and drug interaction management, chemotherapy administration, and drug monitoring. The structure of the course is highly collaborative and interactive. Students are expected to participate in group activities with a professional and collegial spirit.
PYPD 9060/9066 SELF-CARE AND NONPRESCRIPTION PHARMACOTHERAPY (1) LEC. 1. This course will introduce students to nonprescription pharmacotherapy and other self-care measures used in the outpatient setting to treat minor medical problems. As the most accessible health care professionals, pharmacists are often approached by members of the community to recommend treatments for common ailments. It is important for pharmacists to quickly and accurately assess patients to determine if they are an appropriate self-care candidate or if referral to another health care provider is warranted. This course will expand upon self-care and nonprescription pharmacotherapy topics introduced in the required curriculum, introduce students to self-care issues specific to various special populations, and allow students to learn from one another through group presentations and case discussions.

PYPD 9100 PHARMACY PRACTICE EXPERIENCE I (2) PRA. 2. SU. First of a six-course sequence of introductory practice experience in which the concept of pharmaceutical care is introduced by the provision of basic care to community-based patients. Fall.

PYPD 9110 PHARMACY PRACTICE EXPERIENCE II (2) PRA. 2. SU. Pr. (PYPD 9100 or PYDI 9090 or PYDI 5090). Second of a six-course sequence of introductory practice experience in which the concept of pharmaceutical care is introduced by the provision of basic care to community-based patients. Spring.

PYPD 9120 PHARMACY PRACTICE EXPERIENCE III (2) PRA. 2. SU. Pr. (PYPD 9110 or PYDI 9190 or PYDI 5190). Third in six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community-based patients.

PYPD 9130 PHARMACY PRACTICE EXPERIENCE IV (2) PRA. 2. SU. Pr. (PYPD 9120 or PYDI 9290). Fourth in a six-course sequence of introductory practice experience in which pharmaceutical care is provided to moderately complex community-based patients. Spring.

PYPD 9140 PHARMACY PRACTICE EXPERIENCE V (2) PRA. 2. SU. Pr. PYDI 9330 or PYDI 9130. Fifth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community-based patients along with patient care team management responsibilities. Fall.

PYPD 9150 PHARMACY PRACTICE EXPERIENCE VI (2) PRA. 2. SU. Pr. (PYDI 9140 or PYDI 9490 or PYDI 5490). Sixth in a six-course sequence of introductory practice experiences in which pharmaceutical care is provided to increasingly complex community-based patients along with patient care team management responsibilities. Spring.

PYPD 9200/9206 INTEGRATED LEARNING EXPERIENCE I (6) LEC. 12.5. Students will acquire foundational knowledge of Hypertension, Diabetes Mellitus, Obesity Management, Diarrhea and Constipation, Fluid and Electrolytes, and Hypersensitivity. These disease states will provide context for students to develop knowledge and skills of various aspects of the Patient Care Process.

PYPD 9210/9216 INTEGRATED LEARNING EXPERIENCE II (6) LEC. 12.5. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. Students will acquire foundational knowledge of Lipids, Depression, Alzheimer’s/Dementia, Hypothyroid, Asthma, Chronic obstructive pulmonary disease (COPD), and Smoking Cessation. These disease states will provide context for students to develop knowledge and skills of various aspects of the PPCP.

PYPD 9220/9226 INTEGRATED LEARNING EXPERIENCE III (6) LEC. 12.5. Pr. PYDP 9200 or PYDP 9206 and PYDP 9210 or PYDP 9216. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences. Students will acquire foundational knowledge related to Pain, Osteoarthritis (OA), Seizures, Gastroesophageal reflux disease (GERD), Stable ischemic heart disease (SIHD), Stroke, Thromboembolism, and Heart Failure.

PYPD 9230/9236 INTEGRATED LEARNING EXPERIENCE IV (6) LEC. 12.5. Pr. (PYDP 9200 or PYDP 9206) and (PYDP 9210 or PYDP 9216). This six-week course will focus on knowledge and skills related to various aspects of the Pharmacists’ Patient Care Process such as collecting information, conducting assessments, developing and implementing a plan including patient counseling, and documenting patient information. The course includes an introduction to pharmaceutical compounding and foundational knowledge related to over-the-counter treatment of cough, cold, and various dermatologic conditions.

PYPD 9240/9246 INTEGRATED LEARNING EXPERIENCE V (6) LEC. 12.5. Pr. (PYDP 9220 or PYDP 9226) and (PYDP 9230 or PYDP 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice-ready pharmacist. During this ILE, students will acquire foundational knowledge related to generalized anxiety disorder; bipolar disorder/schizophrenia; dementia; Parkinson’s disease, attention-deficit/hyperactivity disorder (ADHD); sleep disorders; hepatitis and cirrhosis; pancreatitis; and hyperthyroidism.
PYPD 9250/9256 INTEGRATED LEARNING EXPERIENCE I (6) LEC. 12.5. Pr. (PYPD 9220 or PYPD 9226) and (PYPD 9230 or PYPD 9236). This six-week course integrates biomedical sciences, pharmaceutical sciences, social/behavioral/administrative sciences, and clinical sciences to provide students with the knowledge, skills, behaviors, and attitudes necessary for developing into a practice-ready pharmacist. During this ILE, students will acquire foundational knowledge related to diabetic ketoacidosis (DKA)/hyperosmolar hyperglycemic state (HHS); acid-base disturbances; nausea and vomiting; dehydration; chronic kidney disease (CKD) and secondary complications; acute kidney injury (AKI); nutrients/nutrition; and iron deficiency.

PYPD 9320/9326 INTEGRATED LEARNING EXPERIENCE II (3) LEC. 2.5. Pr. (PYPD 9320 or PYPD 9326). Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This semester-long course focuses on program development and continuous quality improvement. Learners will explore key issues related to advocacy, drug information/evidence-based medicine, patient education/public health, leadership, and management.

PYPD 9340/9346 LONGITUDINAL EXPERIENCE III (3) LEC. 2.5. Pr. (PYPD 9330 or PYPD 9336). This longitudinal experience will introduce students to topics related to strategic marketing strategies for pharmacists’ services and will expose students to different types of innovative pharmacy services in different practice settings. The overall goal of this longitudinal experience is to teach students the pertinent skills and decision-making tools needed to establish a new non-dispensing pharmacy service and justify its existence through both financial and intangible values, as well as to design systems and processes that will foster effective and appropriate communication between the pharmacist and patients, other healthcare providers, and stakeholders.

PYPD 9350/9356 LONGITUDINAL EXPERIENCE IV (3) LEC. 2.5. Pr. PYPD 9340 or PYPD 9346. This semester-long course focuses on program development and continuous quality improvement. Learners will explore key issues related to advocacy, drug information/evidence-based medicine, patient education/public health, leadership, and management.
PYPD 9360/9366 LONGITUDINAL EXPERIENCE V (3) LEC. 2.5. Pr. PYPD 9350 or PYPD 9356. This semester-long course focuses on personnel and formulary management. Learners will explore key issues related to assessment, communication, leadership, management, planning, and team skills.

PYPD 9370/9376 LONGITUDINAL EXPERIENCE VI (3) LEC. 2.5. Pr. PYPD 9360 or PYPD 9366. This semester-long course focuses on providing learners with learning opportunities related to their personal and professional goals. Learners will explore key issues related to drug information / evidence-based medicine, leadership, professionalism, and professional development.

PYPD 9400/9406 WORKSHOP I (1) LEC. 12.5. In this workshop, will explore the use of drug information resources and related to the use of drug information resources and population levels.

PYPD 9410/9416 WORKSHOP II (1) LEC. 12.5. Pr. PYPD 9400 or PYPD 9406. Admission into the Doctor of Pharmacy Program or Permission of the Associate Dean for Academic and Student Affairs. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to the Pharmacists' Patient Care Process.

PYPD 9420/9426 WORKSHOP III (1) LEC. 12.5. Pr. PYPD 9410 or PYPD 9416. This is a focused, intensive, one-week workshop where students will acquire theoretical and practical knowledge related to a contemporary issue in the field of pharmacy. In this workshop, students will explore the provision of pharmacy-based immunization services utilizing the APHA Pharmacy-Based Immunization Delivery course materials and additional supplemental instructional materials. At the end of this workshop students will have the knowledge and skills related to the development and provision of pharmacy-based immunization services, will know how to serve as a vaccine advocate, and will receive a certificate of completion for the APHA Pharmacy-Based Immunization Delivery course.

PYPD 9430/9436 WORKSHOP IV (1) LEC. 12.5. Pr. PYPD 9420 or PYPD 9426. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to pharmacokinetics and its application to therapeutically important areas such as drug delivery.

PYPD 9440/9446 WORKSHOP V (1) LEC. 12.5. Pr. PYPD 9430 or PYPD 9436. This is a focused, intensive, one week workshop where students will acquire theoretical and practical knowledge related to pharmacoeconomics and its application to the economic evaluation of pharmaceuticals and the overall healthcare system.

PYPD 9450/9456 WORKSHOP VI (1) LEC. 12.5. Pr. PYPD 9440 or PYPD 9446. In this focused, intensive, one week workshop students will review and update their patient care skills, determine their own long term career goals, and develop a plan for achieving those goals.

PYPD 9500/9506 AMBULATORY CARE ANTICOAGULATION (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of pharmacotherapeutic issues related to anticoagulation therapy in the out-patient setting including an introduction to the various roles of pharmacists in the management of anticoagulation therapy.

PYPD 9510/9516 EXPLORING DIABETES CARE FROM THE PATIENT PERSPECTIVE (1) LEC. 12.5. Pr. (PYPD 9200 or PYPD 9206 and PYPD 9210 or PYPD 9216) and (PYPD 9220 or PYPD 9226 and PYPD 9230 or PYPD 9236). or permission of the Associate Dean for Academic and Student Affairs. Students will learn from pharmacists who specialize in diabetes to discuss pivotal literature sources and their impact on patient care. Students will gain appreciation of Standards of Care through active participation in a weekly deconstructed “diabetes experience” documented with reflective individual writings and/or group video recordings.

PYPD 9520/9526 DRUGS OF ABUSE AND MISUSE (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will provide students with a working knowledge of the current trends in drugs of abuse, the public health implications from abuse of these drugs, and the role of different community stakeholders in the fight against this epidemic.

PYPD 9530/9536 RESEARCH METHODS IN HEALTH SERVICES I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. The course is designed to provide a comprehensive introduction to the primary research methods used in clinical and health services research. It will focus on an introduction to various research designs including experimental and non-experimental, as well as quantitative and qualitative research methods. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.
PYPD 9540/9546 RESEARCH METHODS IN HEALTH SERVICES II (1) LEC. 12.5. PYPD 9530 or enrolled in PYPD 9530 during the same semester. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is ideal for student pharmacists and graduate students who want to acquire research knowledge and skills enabling them to participate in clinical and translational research teams and to evaluate programs/services at their clinical/pharmacy sites. It will serve as a research resource for their future research projects.

PYPD 9550/9556 ACUTE CARE PHARMACOTHERAPY I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course is designed to orient the pharmacy student to the acute care environment and familiarize the student with patient disease states and pharmacotherapy issues associated with the acutely ill patient in an inpatient setting.

PYPD 9570/9576 HISTORY OF PHARMACY (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. History influences nearly everything we do and that is certainly the case for the profession of pharmacy. Every course taught can provide historical contexts for the information and application. A general course in pharmacy history can give a firm foundation for any student and graduate to fully embrace their chosen profession, understand its beginnings and development, and be a competent practitioner. The intent of this course is to provide that background so that the student has an appreciation for what has come before and an understanding of the many symbols and advances of the profession that surround any pharmacy practitioner. This ranges from the Rx to the patient counseling booth to the pharmacokinetic consult.

PYPD 9580/9586 PALLIATIVE CARE AND END OF LIFE (1) LEC. 12.5. Students will be introduced to the pharmacist’s role in hospice/palliative care and symptoms experienced by the dying with an emphasis on interdisciplinary care. Students will also examine the impact of multicultural aspects of providing care in palliative and hospice care.

PYPD 9610 COMMUNITY PHARMACEUTICAL CARE (5) PRA. 62.5. Advanced Practice Experience in a community pharmacy practice setting that provides pharmaceutical care services such as disease management and other advanced patient care activities. Fall, Spring, Summer.

PYPD 9620 MEDICINE I (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Fall, Spring, Summer.

PYPD 9630 MEDICINE II - SELECTIVE (5) PRA. 62.5. Advanced practice experience in providing Inpatient Pharmaceutical Care. Additional experience beyond PYDI 9620. Fall, Spring, Summer.

PYPD 9640 PRIMARY/AMBULATORY CARE I (5) PRA. 62.5. Advanced practice experience in providing care to patients as they initially access the health care system. Fall, Spring, Summer.

PYPD 9650 PRIMARY/AMBULATORY CARE II (5) IND. 62.5. This culminating course will require a comprehensive review and application of knowledge gained throughout the first 3 years of the PharmD Curriculum. Through case, problem and project based learning, learners will apply didactic and clinical knowledge/skills in a self-directed manner.

PYPD 9660 HEALTH SYSTEM PRACTICE (5) PRA. 62.5. Advanced practice experience in a health system setting that prepares the student to adapt and function within systems of integrated pharmaceutical care services. Fall, Spring, Summer.

PYPD 9670 PRACTICE ELECTIVE I (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9680 PRACTICE ELECTIVE II (5) PRA. 62.5. Elective experience in an advanced practice experience setting in which the student establishes personal learning goals and responsibilities. Fall, Spring, Summer.

PYPD 9690 DRUG INFORMATION-SELECTIVE (5) PRA. 62.5. Status of a 4th Year Doctor of Pharmacy Student (P4) or Permission of the Associate Dean for Academic and Student Affairs. Advanced practice experience in providing drug information services to health care providers. Fall, Spring, Summer.

PYPD 9700 SUMMATIVE EXPERIENCE (3) IND. 37.5. This culminating course will require a comprehensive review and application of knowledge gained throughout the first 3 years of the PharmD Curriculum. Through case, problem and project based learning, learners will apply didactic and clinical knowledge/skills in a self-directed manner.

PYPD 9710/9716 COMMUNITY PHARMACY PRACTICE I (1) LEC. 12.5. Currently enrolled in the Doctor of Pharmacy program or permission of the Associate Dean for Academic and Student Affairs. This course will focus on legal and business aspects of community pharmacy practice. Students will be paired with a mentor for this course who will provide real world examples of these aspects of community pharmacy.
PYPD 9720/9726 COMMUNITY PHARMACY PRACTICE II (1) LEC. 12.5. This course will focus on the development and implementation of clinical services within the community pharmacy setting. Students will receive training on concept development through implementation of medication therapy management services in this setting.

PYPD 9730/9736 INFECTIOUS DISEASES I (1) LEC. 1. This course will provide the student with an in depth exposure to the treatment of bacterial infectious diseases, with a particular focus on antimicrobial stewardship and the treatment of multidrug-resistant organisms.

PYPD 9750/9756 ADVANCED MOTIVATIONAL INTERVIEWING (1) LEC. 1. Motivational interviewing (MI) is an evidence-based method for facilitating voluntary health behavior change with patients and with providers. Target behaviors for patients engaged in comprehensive disease management may include outcome enhancing behaviors like medication taking, healthy eating, monitoring, physical activity, sleep management, smoking cessation, among others. This course will 1) explore the conceptual basis for why motivational interviewing is effective in facilitating health behavior change, and 2) provide basic and advanced training and practice for using motivational interviewing to help patients with self-management of their health conditions. This course is intended and designed to support and build student self-efficacy for using MI in patient encounters within a health/disease management context. MI principles and micro skills will be applied by the instructor in the process of helping facilitate student learning. It is hoped that the student will come away from the course encouraged, not discouraged, about using MI for improved patient outcomes in future practice/research.

PYPD 9760/9766 POST-GRADUATE TRAINING PREPARATION (1) LEC. 1. This course will review post-graduate education opportunities for pharmacists with a focus on pharmacy residency training. Students will learn about post-graduate opportunities within pharmacy and develop skills and tools necessary in securing a position after graduation.

PYPD 9980 PHARMACY RESEARCH (1-3) LEC. 1-3. The student will be expected to learn to conduct independent research activity. The specific research topic will lie within the scope of the School of Pharmacy writ large and will be decided by the student's faculty research advisor. Course may be repeated for a maximum of 6 credit hours.

**Philosophy - PHIL**

**Courses**

**PHIL 1010 INTRODUCTION TO LOGIC (3) LEC. 3.** Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

**PHIL 1017 HONORS LOGIC (3) LEC. 3.** Pr. Honors College. Humanities Core. Basic logical principles and applications: definition, informal fallacies, categorical logic, elementary propositional logic, analogy, and selected inductive inferences.

**PHIL 1020/1023 INTRODUCTION TO ETHICS (3) LEC. 3.** Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought. May count either PHIL 1020 or PHIL 1023. 

**PHIL 1027 HONORS ETHICS (3) LEC. 3.** Pr. Honors College. Humanities Core. Major ethical theories from the history of philosophy, their foundations in epistemology and metaphysics, and their extension into social thought.

**PHIL 1030/1033 ETHICS AND THE HEALTH SCIENCES (3) LEC. 3.** Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

**PHIL 1037 HONORS ETHICS AND THE HEALTH SCIENCES (3) LEC. 3.** Pr. Honors College. Humanities Core. Ethical inquiry into such major issues as abortion, eugenics, physician-assisted suicide, euthanasia, health-care delivery methods, and informed consent.

**PHIL 1040/1043 BUSINESS ETHICS (3) LEC. 3.** Humanities Core. Types of ethical theory; application to such normative issues in commerce as advertising, management, and business abroad.

**PHIL 1050/1053 INTRODUCTION TO POLITICAL PHILOSOPHY (3) LEC. 3.** Humanities Core. Principal theories and thinkers in political philosophy from antiquity to the present.

**PHIL 1060 PHILOSOPHY EAST AND WEST (3) LEC. 3.** Humanities Core. Principal thinkers and theories in four philosophical traditions: Indian, Chinese, European, and Arabic.

**PHIL 1070/1073 ART, VALUE, AND SOCIETY (3) LEC. 3.** Humanities Core. Introduction to philosophical aesthetics, focusing on the relationship of artistic values and the extra-artistic values of societies that house them.

**PHIL 1080/1083 INTRODUCTION TO PHILOSOPHY OF RELIGION (3) LEC. 3.** Humanities Core. Philosophy of religion, including questions about God's existence, relationship of reason and faith, religious epistemology, and language.
PHIL 1090/1093 PHILOSOPHY OF RACE AND GENDER (3) LEC. 3. Humanities Core. Philosophical issues associated with race and gender, including role of biology and social construction, nature of prejudice, questions about justice and redress.

PHIL 1100/1103 INTRODUCTION TO PHILOSOPHY (3) LEC. 3. Humanities Core. Methods of philosophical inquiry and examination of selected philosophical topics. May count either PHIL 1100 or PHIL 1103.

PHIL 1110/1113 ETHICAL AND CONCEPTUAL FOUNDATIONS OF SCIENCE (3) LEC. 3. Introduction to the moral and conceptual foundations of science, concentrating on ethical facets of scientific research, theorizing, and knowledge production, as well as conceptual issues regarding the nature of causation, induction, scientific explanation and confirmation. May count either PHIL 1110 or PHIL 1113.

PHIL 1120 INTRODUCTION TO ENVIRONMENTAL ETHICS (3) LEC. 3. Ethical inquiry into environmental issues such as non-human animal welfare, environmental justice, global climate change, resource use, and conservationism versus preservationism.

PHIL 2970 GATEWAY SEMINAR (3) LEC. 3. An introduction to philosophy through special topics. The course is designed to provide students with the basic skills required for more advanced work in philosophy. Topics vary. Course may be repeated for a maximum of 6 credit hours.

PHIL 3050 AESTHETICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Modern and contemporary theories of the nature of art.

PHIL 3060 PHILOSOPHY OF FILM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area l) Consideration of philosophical issues raised within particular films and by the nature of cinematic representation in general.

PHIL 3100 INTERMEDIATE ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Overview of contemporary questions and positions in ethics, including moral realism, the rationality of moral action, subjectivism and non-cognitivism, naturalism, and various theories of practical reason.

PHIL 3110 SYMBOLIC LOGIC (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area IV) Propositional logic and predicate logic through relations; natural language and logic; some philosophical problems in logic.

PHIL 3300 PHILOSOPHY OF RELIGION (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Nature of religion, religious experience, religious knowledge, religious theories of humanity and evil, arguments for the existence of God and immortality of the soul.

PHIL 3330 HISTORY OF ANCIENT PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from the Pre-Socratics through the Hellenistic philosophers, emphasizing Plato and Aristotle.

PHIL 3340 HISTORY OF EARLY MODERN PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Descartes to Kant, emphasizing major figures in the rationalist and empiricist traditions.

PHIL 3350 HISTORY OF LATE MODERN AND PRE-ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from Kant to the Pre-Analytic philosophers, possibly including Schopenhauer, Hegel, Nietzsche, Kierkegaard, James, Brentano, Frege, Meinong, Cook-Wilson, Bradley, and Moore.

PHIL 3360 HISTORY OF EARLY ANALYTIC PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought in the early Analytic period, including the works of Russell, Moore, Wittgenstein, and members of the Vienna Circle.

PHIL 3400 MEDIEVAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area III) Philosophical thought from late antiquity through the Middle Ages, with emphasis on the ideas of Plotinus, Islamic thinkers, Augustine, Abelard, Anselm, and Thomas Aquinas.

PHIL 3500 EPISTEMOLOGY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Origin, nature, kinds, and validity of knowledge, with considerations of faith, institution, belief, opinion, certainty, and probability.

PHIL 3510 PHILOSOPHY OF SCIENCE (3) LEC. 3. Student must have taken at least one philosophy course prior to taking PHIL 3510. Empirical meaning, verifiability, measurement, probability, causality and determinism.

PHIL 3530 PHILOSOPHY OF PHYSICS (3) LEC. 3. An overview of the philosophy of physics, with attention to topics such as the nature of matter, motion, change, space, time, space-time, time travel, Einstein’s theories of special and general relativity, and non-relativistic quantum mechanics.

PHIL 3550 PHILOSOPHY OF LANGUAGE (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Survey of contemporary philosophical discussions of the nature of language.

PHIL 3600 CLASSICAL POLITICAL PHILOSOPHY (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. At least one course in philosophy at the 1000 level. Political thought of classical thinkers, including Plato, Aristotle, Machiavelli, Hobbes, Locke, Mill, Spencer, and Marx. (Area I for PHIL major)

PHIL 3620 CONTEMPORARY POLITICAL PHILOSOPHY (3) LEC. 3. Pr. POLI 3020. or at least one PHIL course at the 1000 or 2000 level. A survey of major schools of 20th- and 21st-century political thought, including liberalism, communitarianism, libertarianism, feminism, and anarchism. May count either PHIL 3620 or POLI 4340.

PHIL 3640 PHILOSOPHY OF LAW (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area I) Functions of law, including judicial reasoning, ground of authority, natural law, legal responsibility, punishment, civil disobedience, and the relation of law to ethics.

PHIL 3660 APPLIED ETHICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Advanced philosophical study of the ethical issues that arise in intellectual endeavors, such as law, business, military science, and engineering.

PHIL 3700 METAPHYSICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Critical analysis of such topics as monism and pluralism, freedom and determinism, realism and nominalism, and the mind-body problem.

PHIL 3740 EXISTENTIALISM (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. (Area II) Selected works of such authors as Kierkegaard, Neitzsche, Sartre, Jaspers, and Heidegger.

PHIL 3970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 3 credits in PHIL 1000-1999. Topics vary. Course may be repeated for a maximum of 6 hours.

PHIL 4110 ADVANCED LOGIC (3) LEC. 3. Pr. PHIL 3110 or Departmental approval. Advanced topics in logic. For example: soundness, completeness, incompleteness, set theory, proof theory, model theory, non-standard logics.

PHIL 4920 INTERNSHIP (3) INT. 200. SU. Opportunity to apply skills acquired in classroom in career setting. Internship must be supervised and appropriate to major.

PHIL 4960 SPECIAL PROBLEMS IN PHILOSOPHY (1-6) IND. Pr., Departmental approval. Reading program on a particular philosopher, period, or problem. Course may be repeated for a maximum of 6 credit hours.

PHIL 4967 HONORS SPECIAL PROBLEMS IN PHILOSOPHY (1-3) IND. Pr. Honors College or Departmental approval. Reading program on a philosopher, period, or problem. Course may be repeated for a maximum of 3 credit hours.

PHIL 4970 SPECIAL TOPICS (3) LEC. 3. Pr. At least 6 credits in PHIL 3000-3999. Advanced topics in ethics and value theory, metaphysics and epistemology, or history of philosophy. Emphasis on readings drawn from the contemporary, professional literature. Course may be repeated for a maximum of 9 credit hours. Area distribution requirement fulfilled depends on class content.

PHIL 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Senior thesis. Course may be repeated for a maximum of 3 credit hours.

PHIL 5950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an intensive study of one of the great thinkers. Course may be repeated for a maximum of 6 credit hours.

PHIL 6950 SEMINAR (1-3) SEM. Pr., Departmental approval. Content varying from movements of thought to an extensive study of one of the great thinkers. Course may be repeated for a maximum of 3 credit hours.

Physical Education - PHED

Courses

PHED 1003 ACTIVE AUBURN (2) LEC. 2. Basic concepts associated with physical activity and the opportunities on campus to engage in health-promoting and wellness activities. Course may be repeated for a maximum of 4 credit hours.

PHED 1023 FRESHMAN FIT (2) LEC. 1. LAB. 2. Basic concepts associated with exercise participation, nutrition, stress reduction and proper sleep. Introduction to campus opportunities for health promoting behaviors.
PHED 1200 CARDIO RESPIRATORY: FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning. Activities may include, but are not limited to running (jogging) swimming, cycling and aerobic dance. Course may be repeated with a change in topic.

PHED 1210 CARDIO RESPIRATORY: AEROBIC DANCE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in aerobic dance.

PHED 1220 CARDIO RESPIRATORY: CIRCUIT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in circuit training.

PHED 1230 CARDIO RESPIRATORY: JOGGING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in jogging.

PHED 1240 CARDIO RESPIRATORY: SWIM FOR FITNESS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in swim for fitness.

PHED 1250 CARDIO RESPIRATORY: WATER AEROBICS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of cardio-respiratory functioning in water aerobics.

PHED 1263 MILITARY FITNESS FOR EVERYONE (2) LEC. 2. Basics of military-type physical activity training, goal-setting, and fitness principles.

PHED 1300 FITNESS AND CONDITIONING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness. Activities may include, but are not limited to calisthenics and weight training. Course may be repeated with a change in topic.

PHED 1310 FITNESS: BODYBUILDING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in bodybuilding.

PHED 1320 FITNESS: LIFETIME ACTIVITY (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in lifetime activity.

PHED 1330 FITNESS: WEIGHT CONTROL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight control.

PHED 1340 FITNESS: WEIGHT TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training.

PHED 1350 FITNESS WEIGHT TRAINING WOMEN (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness for weight training for women.

PHED 1360 FITNESS: WEIGHT TRAINING II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with the development and maintenance of general physical fitness in weight training II.

PHED 1383 KETTLEBELL TRAINING (2) LEC. 1. LAB. 1. Introductory approach to kettlebell techniques and kettlebell program development.

PHED 1393 WEIGHT MANAGEMENT (2) LAB. 2. Nutrition and exercise concepts associated with maintaining healthy weight.

PHED 1400 TEAM SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport. Team sports may include, but are not limited to, volleyball, basketball and softball. Course may be repeated with change in topic.

PHED 1410 TEAM SPORTS: BASKETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1420 TEAM SPORTS: FLAG FOOTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1430 TEAM SPORTS: SOCCER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1440 TEAM SPORTS: SOFTBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.
PHED 1450 TEAM SPORTS: VOLLEYBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific team sport.

PHED 1500 INDIVIDUAL SPORTS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport. Sports may include, but are not limited to tennis, golf and racquetball. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1510 INDIVIDUAL SPORTS: BOWLING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1520 INDIVIDUAL SPORTS: GOLF (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1530 INDIVIDUAL SPORTS: GOLF II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1540 INDIVIDUAL SPORTS: RACQUETBALL (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1550 INDIVIDUAL SPORTS: TENNIS (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1560 INDIVIDUAL SPORTS: TENNIS II (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific individual sport.

PHED 1600 PERFORMANCE ACTIVITIES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Activities may include, but are not limited to, dance and gymnastics. Course may be repeated with a change in topic. Course may be repeated with change in topics.

PHED 1610 PERFORM ACTIVITY - PILATES (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1620 PERFORMANCE ACTIVITY: KARATE (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity. Course may be repeated for a maximum of 6 credit hours.

PHED 1630 PERFORMANCE ACTIVITY: TAE KWON DO (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1640 PERFORMANCE ACTIVITY: YOGA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with a specific performance activity.

PHED 1700 AQUATICS: OTHER (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills. Activities may include, but are not limited to, swimming skills instruction, lifeguard training, and scuba diving. When appropriate, successful completion of the course will lead to Red Cross certification or certification by other agencies. Course may be repeated for a maximum of 4 credit hours.

PHED 1710 AQUATICS: BEGINNING KAYAKING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1720 AQUATICS: ADVANCED KAYAKING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1730 AQUATICS: KEELBOAT SAILING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1740 AQUATICS: LIFEGUARD TRAINING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1750 AQUATICS: BEGINNING SWIMMING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1760 AQUATICS: SCUBA (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.
PHED 1770 AQUATICS: WATER SKIING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1780 AQUATICS: ADVANCED WATER SKIING (2) LEC. 1. LAB. 2. Basic concepts and physical activities associated with specific aquatic skills.

PHED 1800 VARSITY MEN'S SPORTS: STRENGTH AND CONDITION (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topic.

PHED 1810 VARSITY MEN'S SPORTS: FOOTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1820 VARSITY MEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1830 VARSITY MEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1840 VARSITY MEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1850 VARSITY MEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1860 VARSITY MEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1870 VARSITY MEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1880 VARSITY MEN'S SPORTS: BASEBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1900 VARSITY WOMEN'S SPORTS: SOCCER (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1910 VARSITY WOMEN'S SPORTS: GYMNASTICS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1920 VARSITY WOMEN'S SPORTS: BASKETBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1930 VARSITY WOMEN'S SPORTS: TRACK (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1940 VARSITY WOMEN'S SPORTS: CROSS COUNTRY (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1950 VARSITY WOMEN'S SPORTS: SWIMMING AND DIVING (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1960 VARSITY WOMEN'S SPORTS: GOLF (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1970 VARSITY WOMEN'S SPORTS: TENNIS (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1980 VARSITY WOMEN'S SPORTS: SOFTBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.

PHED 1990 VARSITY WOMEN'S SPORTS: VOLLEYBALL (1) LEC. 1. SU. Skills and training associated with participation in varsity sports. Course may be repeated with change in topics.
PHED 2100 WHEELCHAIR SPORTS FOR EVERYONE (2) LEC. 2. LAB. 1. A physical education class which introduces students to various wheelchair sports.

PHED 2200 SELF DEFENSE FOR WOMEN (1) LEC. 1. The Rape Aggression Defense (RAD) System is a comprehensive program of realistic self-defense tactics and techniques for women that promotes awareness, prevention, risk reduction and risk avoidance with a progression to hands-on training and simulation exercises.

Physics - PHYS

Courses

PHYS 1000/1003 FOUNDATIONS OF PHYSICS (4) LEC. 3. LAB. 2. Science Core. Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics. Students who have previous credit in any higher-numbered physics course may not receive credit.

PHYS 1001 FOUNDATIONS OF PHYSICS LABORATORY (1) LAB. 2. Coreq. PHYS 1003. Core-curriculum laboratory course in physics focusing on practical applications and hands-on experience. Topics include: Newton's Laws, momentum and energy, solids, liquids, gases, plasma, thermodynamics, electricity, magnetism, light, atomic and nuclear physics.

PHYS 1150 ASTRONOMY (4) LEC. 3. LAB. 3. Science Core. Open to non-science majors. Earth, the solar system, stars, neutron stars, black holes, supernova, galaxies, the expanding universe, and modern cosmological theories.

PHYS 1500 GENERAL PHYSICS I (4) LEC. 3. LAB. 3. Pr. MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation and cosmology, concept of conservation laws, solids and fluids, thermodynamics. Math at level of MATH 1130 or higher is expected.

PHYS 1510 GENERAL PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1500 or PHYS 1600 or PHYS 1607. Science Core. Electricity and magnetism, AC circuits, waves, nuclear physics, radioactivity and particle physics. Physics at the level of PHYS 1500 or higher is expected.

PHYS 1600 ENGINEERING PHYSICS I (4) LEC. 3. LAB. 3. Pr. P/C MATH 1610 or P/C MATH 1613 or P/C MATH 1617 or P/C MATH 1620 or P/C MATH 1627 or P/C MATH 1710 or P/C MATH 1720 or P/C MATH 2630 or P/C MATH 2637. Science Core. Introduction to Newton's Laws, gravitation, cosmology, conservation of energy, momentum and angular momentum, special relativity, and fluids using introductory calculus. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1607 HONORS PHYSICS I (4) LEC. 3. LAB. 3. Pr. Honors College. Science Core. Honors version of PHYS 1600. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1610 or higher is expected, at least concurrently.

PHYS 1610 ENGINEERING PHYSICS II (4) LEC. 3. LAB. 3. Pr. PHYS 1600 or PHYS 1607 and (P/C MATH 1620 or P/C MATH 1623 or P/C MATH 1627). Science Core. Thermodynamics, electricity and magnetism, simple AC circuits, waves, and geometric optics. Physics at the level of PHYS 1600 or higher is expected. Math at the level of MATH 1620 or higher is expected at least concurrently.

PHYS 1617 HONORS PHYSICS II (4) LEC. 3. LAB. 3. Pr. Honors College. MATH 1620 and PHYS 1600 or PHYS 1607. Science Core. Honors version of PHYS 1610. Membership in the Honors College or Departmental approval required. Recommended for Physics majors. Math at the level of MATH 1620 or higher is expected, at least concurrently. Physics at the level of PHYS 1600 or higher is expected.

PHYS 2100 INTERMEDIATE MECHANICS (3) LEC. 3. Pr. (PHYS 1610 or PHYS 1617) and (P/C MATH 2630 or P/C MATH 2637). Principles and applications of Newtonian mechanics, noninertial reference frames, harmonic motion, central forces, rigid bodies, introduction to Lagrangian and Hamiltonian mechanics.

PHYS 2200 INTRODUCTORY QUANTUM PHYSICS AND RELATIVITY (3) LEC. 3. Pr. PHYS 1617 or PHYS 1610. Observational foundations of quantum physics, relativity and developments of several branches of physics up to their present frontiers.

PHYS 2300 PHYSICS LABORATORY SKILLS (2) LAB. 6. Pr. PHYS 1617 or PHYS 1610. The measurement process and its unavoidable uncertainties; standard laboratory instruments; data analysis techniques and tools.
PHYS 3100 INTERMEDIATE ELECTRICITY AND MAGNETISM (3) LEC. 3. Pr. (PHYS 1617 or PHYS 1610) and (MATH 2630 or MATH 2637 or MATH 2730). Electrostatics, Magnetostatics, Laplace's equation, boundary-value problems, multipole expansions, dielectric and magnetic materials. Faraday's law, AC circuits, and Maxwell's equations.

PHYS 3200 STATISTICAL THERMODYNAMICS (3) LEC. 3. Pr. PHYS 2200. The basic laws of thermodynamics, kinetic theory, and statistical mechanics including entropy, the partition function, free energy, and the quantum statistics of Fermions and Bosons.

PHYS 3500 PHYSICS OF THE WORLD AROUND US (3) LEC. 3. Interdisciplinary topic e.g. Biophysics, Astrophysics, Physics of Weather, Physics of Music, or Environmental Physics. Course may be repeated for a maximum of 12 credit hours.

PHYS 3501 PHYSICS OF THE WORLD AROUND US LABORATORY (1) LAB. 3. Laboratory course required for certain topics for PHYS 3500. One 3 hour session per week.

PHYS 4100 FUNDAMENTALS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 2200 and MATH 2650. Schrödinger equation, stationary and time-dependent solutions, spin and the exclusion principle, perturbation theory, scattering and resonances, the interpretation of quantum mechanics.

PHYS 4200 FUNDAMENTAL EXPERIMENTS IN PHYSICS (2) LAB. 6. Pr. PHYS 2300. Experiments that demonstrate the fundamental ideas and facts of physics. Data will be collected, analyzed, interpreted and reported in comprehensive lab reports.

PHYS 4900 DIRECTED STUDIES (1-5) IND. SU. Departmental approval. Student will investigate a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4930 DIRECTED STUDIES IN PHYSICS (1-5) IND. Departmental approval. Student will study a topic of interest under the direction of a faculty member. Course may be repeated for a maximum of 10 credit hours.

PHYS 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 4980 UNDERGRADUATE RESEARCH IN PHYSICS (1-5) IND. Departmental approval. Student will work under the direction of a faculty member on a problem of mutual interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval.. Course may be repeated for a maximum of 6 credit hours.

PHYS 5100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Pr. PHYS 4100. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 5500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 5600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.

PHYS 5610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 5620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Pr. PHYS 3100. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 6100 APPLICATIONS OF QUANTUM MECHANICS (3) LEC. 3. Quantum mechanics applied to atomic physics, solid state physics, nuclear physics, particle physics, electrodynamics, and cosmology.

PHYS 6500 FUNDAMENTALS OF PHYSICS (3) LEC. 3. A subject such as Wave Mechanics, Mathematical Physics, Nonlinear Dynamics, Optics, Nuclear Physics, Elementary Particles, Relativity, or Electrodynamics. Course may be repeated for a maximum of 9 credit hours.

PHYS 6600 FRONTIERS OF PHYSICS (3) LEC. 3. A subject from the research areas in the Department such as Solid State, Atomic, Plasma, Space, or Computational Physics will be selected by the lecturer. Course may be repeated for a maximum of 9 credit hours.
PHYS 6610 INTRODUCTION TO SOLID STATE PHYSICS (3) LEC. 3. Lattice vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic, superconducting and defect properties of solids.

PHYS 6620 SURVEY OF PLASMA PHYSICS (3) LEC. 3. Single particle motions: fluid description of a plasma; plasma waves and oscillations; kinetic description, diffusion, and resistivity; non-linear effects.

PHYS 7100 CLASSICAL MECHANICS (3) LEC. 3. Lagrangian and Hamiltonian formulations of mechanics, canonical transforms. Hamilton-Jacobi theories, action angle variables, rigid rotators, normal modes, and mechanics of continuous media.

PHYS 7200 ELECTRICITY AND MAGNETISM I (3) LEC. 3. Electrostatics, special function expansions, magnetostatics, linear media and Maxwell's equations.

PHYS 7250 ELECTRICITY AND MAGNETISM II (3) LEC. 3. Time dependent Maxwell theory, wave propagation and dispersion, diffraction, scattering, radiation, relativistic covariance and applications.

PHYS 7300 QUANTUM MECHANICS I (3) LEC. 3. Schrodinger wave equation, discrete and continuous spectra, matrix formulation, perturbation theory.

PHYS 7350 QUANTUM MECHANICS II (3) LEC. 3. Time-dependent approximation methods, relativistic wave equations, and second quantization.

PHYS 7400 STATISTICAL PHYSICS (3) LEC. 3. Thermodynamic quantities, equilibrium ensembles for classical and quantum systems, fluctuations, phase transitions and critical phenomena.

PHYS 7520 NONLINEAR DYNAMICS (3) LEC. 3. Dynamical systems, maps, flows, fixed points and neighborhoods, chaos, fractals and fractal dimensions. Lyapunov exponents, strange attractors, dissipative and Hamiltonian systems, controlling chaos.

PHYS 7540 NON-EQUILIBRIUM STATISTICAL MECHANICS (3) LEC. 3. Introduces the fundamental concepts of non-equilibrium statistical mechanics, develops basic transport theories, and simulates statistic properties with Monte-Carlo and molecular dynamic methods.

PHYS 7900 DIRECTED STUDIES (1-5) IND. SU. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7930 DIRECTED STUDIES (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 6 credit hours.

PHYS 7950 PHYSICS COLLOQUIUM (1) SEM. SU. Offers a series of talks presented by invited speakers on broad fields of physics. Check with graduate advisor for credit allowed. Course may be repeated for a maximum of 6 credit hours.

PHYS 7970 SPECIAL TOPICS IN PHYSICS (1-5) SEM. Seminar or lecture series in a rapidly advancing specialty of physics. Course may be repeated for a maximum of 6 credit hours.

PHYS 7990 RESEARCH AND THESIS (1-10) MST. May be repeated as often as is appropriate. Course may be repeated with change in topics.

PHYS 8100 RELATIVISTIC QUANTUM MECHANICS (3) LEC. 3. Dirac equation, 1D barrier scattering, 3D central potentials, S-matrix theory, Feynman diagrams, quantum electrodynamics, renormalization, tree and loop level problems.

PHYS 8200 INTRODUCTION TO ATOMIC PHYSICS (3) LEC. 3. Hydrogen atom, Hartree-Fock theory, radiative transitions, photoionization, autoionization, electron-atom scattering.

PHYS 8600 PLASMA PHYSICS (3) LEC. 3. A detailed study of plasma physics including particle orbit theory, magnetohydrodynamics, plasma waves and transport phenomena.

PHYS 8700 SOLID STATE PHYSICS (3) LEC. 3. Atomic and electronic structures of solids and the associated electrical, optical and transport properties.

PHYS 8900 DIRECTED STUDIES (1-5) IND. SU. Students will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.

PHYS 8930 DIRECTED STUDIES IN ADVANCED PHYSICS (1-5) IND. Student will work with a faculty member to study a topic of interest. Course may be repeated for a maximum of 10 credit hours.
PHYS 8970 SPECIAL TOPICS IN ADVANCED PHYSICS (1-5) LEC. Departmental approval. Topic at the forefront of physics research will be chosen by the lecturer. Course may be repeated for a maximum of 10 credit hours.

PHYS 8990 RESEARCH AND DISSERTATION (1-10) DSR. May be repeated as often as is appropriate. Course may be repeated with change in topics.

Plant Pathology - PLPA

Courses

PLPA 2000 PESTS, PATHOGENS, PARASITES, AND PEOPLE (3) LEC. 3. Past and present problems of pests and disease involving humans and the food chain.

PLPA 3000/3003 GENERAL PLANT PATHOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Survey of plant diseases common in Alabama, including symptom recognition, pathogen biology and management of plant diseases. Course credit will not be given for both PLPA 3000 and PLPA 3003/3004.

PLPA 4950 PROFESSIONAL DEVELOPMENT (1) LEC. 1. Senior standing or department approval. Development of professional skills required for modern careers in entomology, plant pathology and applied biotechnology.

PLPA 4960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-3) IND. Departmental approval. Supervised work on a project in plant pathology. Areas of study are: A. Mycology; B. Nematology; C. Virology; D. Bacteriology; E. Extension and Clinic Experience; F. Physiological and Molecular Approaches. Course may be repeated for a maximum of 3 credit hours.

PLPA 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

PLPA 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Assigned readings on topics pertinent to plant pathology or individual student endeavor consisting of directed research and writing of honor's thesis. Course may be repeated for a maximum of 6 credit hours.

PLPA 5050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Pr. PLPA 3000 or PLPA 3003. Approaches, techniques, and practical experience in diagnosis of plant diseases. Credit will not be given for both PLPA 5050 and PLPA 3003.

PLPA 5060 PLANT DISEASE MANAGEMENT (3) LEC. 3. Pr. PLPA 3000 or PLPA 3003. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 5200/5203 MYCOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1030 or BIOL 1037. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems including plants, animals, and humans. Credit will only be given to one of the following: PLPA 5200, 5203, 6200, or 6206.

PLPA 5250/5253 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 5300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3. LAB. 2. Pr. BIOL 1030. Department approval. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. May count PLPA 5300 or PLPA 6300 or PLPA 7300.

PLPA 5400 PLANT VIROLOGY (3) LEC. 3. Pr. PLPA 3000 or PLPA 3003. Departmental approval. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

PLPA 5500/5503 PLANT NEMATOLOGY (4) LEC. 2. LAB. 4. Pr. BIOL 1030 or BIOL 1037. Departmental approval. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytomycology. May count either PLPA 5500 or PLPA 6500.

PLPA 5600 PHYSIOLOGY OF PLANT HEALTH AND DISEASE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances. Introduces biochemical, molecular and cellular mechanisms by which plants defend/assimilate themselves towards diverse a/biotic stress stimuli.
PLPA 5920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 6050 PLANT DISEASE DIAGNOSIS (3) LEC. 1. LAB. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Experience with plant disease diagnosis procedures and the diagnosis of many common plant diseases. Summer.

PLPA 6060 PLANT DISEASE MANAGEMENT (3) LEC. 3. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Aspects of plant disease management including cultural practices, plant resistance, biological and chemical control, and disease forecasting. Spring.

PLPA 6200/6206 MYCOLOGY (4) LEC. 3. LAB. 2. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Biology of fungi with emphasis on taxonomy, morphology, physiology, genetics, reproduction, and how fungi interact with their ecosystems including plants, animals, and humans. Credit will only be given to one of the following: PLPA 5200, PLPA 5203, PLPA 6200 or PLPA 6206.

PLPA 6250/6256 MEDICAL AND VETERINARY MYCOLOGY (2) LEC. 2. Pr. BIOL 3200. or prior approval of the instructor. A systematic survey of fungi and the diseases they cause on humans and animals.

PLPA 6300 PLANT-BACTERIAL INTERACTIONS (4) LEC. 3. LAB. 2. Comprehensive review of plant-bacterial interactions, including colonization, pathogenesis, symbiotic and associative nitrogen fixation, and transformation. May count either PLPA 5300 or PLPA 6300.

PLPA 6400 PLANT VIROLOGY (3) LEC. 3. Introduction to plant viruses and the diseases they cause; virus particle structure and replication strategies; disease identification by symptoms and detection of pathogen; transmission, ecology, epidemiology and control.

PLPA 6500/6506 PLANT NEMATOLOGY (4) LEC. 2. LAB. 4. Presentation of nematodes in relation to plant diseases, identification of plant nematodes; nature of pathogenicity; principles and practices of management; recent advances in phytonematology. May count either PLPA 5500 or PLPA 6500.

PLPA 6600 PHYSIOLOGY OF PLANT HEALTH AND DISEASE (3) LEC. 3. Pr. BIOL 3000 or BIOL 3003 or Departmental approval. Comprehensive coverage of present advances in plant defense-related metabolic pathways: how to recognize pathogen infections, and activate/potentiate disease resistances, biochemical, molecular and cellular mechanism by which plants defend/assimilate themselves towards diverse abiotic stress stimuli. May count either PLPA 5600 or PLPA 6600.

PLPA 6920 INTERNSHIP (3) IND. 3. SU. Departmental approval. Practical professional experience under the supervision of internship faculty and a representative of a state, federal, or private agency.

PLPA 7080 FIELD SURVEY OF PLANT PATHOLOGY (3) LEC. 1. LAB. 6. Practical aspects of plant diseases under field conditions, on-site visits via field trips; discussion of experimental design for field research. Summer.

PLPA 7820 RESEARCH PROPOSAL WRITING (4) LEC. 3. Graduate level standing or Department approval. Experience in all aspects of writing and reviewing competitive research proposals through a workshop-format culminating in each student writing a proposal on research topics of their choosing. Fall.

PLPA 7866/7860 PLANT DISEASE EPIDEMIOLOGY (3) LEC. 3. Aspects of plant disease epidemiology including disease assessment and temporal progress, pathogen spread, and yield loss determination.

PLPA 7861 PLANT DISEASE EPIDEMIOLOGY LABORATORY (2) LAB. 4. Coreq. PLPA 7860. Quantitative aspects of plant disease epidemiology including spatial and temporal modeling, and disease system simulation.


PLPA 7900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research.

PLPA 7910 TEACHING PRACTICUM (1) LAB. 2. SU. Graduate level standing in PLPA or ENTM or Departmental approval. The teaching practicum will address the practical and heretical issues of laboratory learning and facilitating the skills of pedagogy. Course may be repeated for a maximum of 3 credit hours.
PLPA 7930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 2 credit hours.

PLPA 7950 SEMINAR IN PLANT PATHOLOGY (1) SEM. 1. SU. Departmental approval. Seminar presentations on current departmental research and current issues in plant pathology and related disciplines. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 7960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

PLPA 7970/7976 SPECIAL TOPICS IN PLANT PATHOLOGY (1-5) ST1. Advanced topics related to plant pathology. Course may be repeated for a maximum of 5 credit hours.

PLPA 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Research and thesis on problems in plant pathology. Course may be repeated with change in topics.

PLPA 8880 MOLECULAR PLANT PATHOLOGY (3) LEC. 2. LAB. 2. Pr. PLPA 6200 or PLPA 6206. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Comprehensive coverage of the molecular biology of plant-pathogen interactions.

PLPA 8900 DIRECTED STUDIES IN PLANT PATHOLOGY (1-5) LEC. SU. Discussion groups on specific topics, assigned reading on laboratory problems or field research. Course may be repeated for a maximum of 5 credit hours.

PLPA 8910 TEACHING PRACTICUM (1-3) LAB. 2. SU. Departmental approval. Practical and theoretical issues of laboratory learning, and pedagogical facilitation. Required of all PhD students. Course may be repeated for a maximum of 3 credit hours.

PLPA 8930 JOURNAL REVIEW FOR ENTOMOLOGY AND PLANT PATHOLOGY (1) LEC. 1. Graduate level standing in PLPA, ENTM, AGRO, HORT, AGEC or Department approval. Discussion of recent scientific publications on basic aspects of research in entomology and plant pathology. Course may be repeated for a maximum of 3 credit hours.

PLPA 8950 SEMINAR (1) SEM. 1. SU. Departmental approval. Presentations and discussion of scientific literature or dissertation research findings. Required for all Ph.D. candidates. Fall, Spring. Course may be repeated for a maximum of 2 credit hours.

PLPA 8960 SPECIAL PROBLEMS IN PLANT PATHOLOGY (1-5) IND. Departmental approval. Credit to be arranged. Specialized project or research on a specific topic in plant pathology to be conducted under faculty supervision. Course may be repeated for a maximum of 5 credit hours.

PLPA 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Research and dissertation on problems in plant pathology. Course may be repeated with change in topics.

Political Science - POLI

Courses

POLI 1050 GLOBAL POLITICS AND ISSUES (3) LEC. 3. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1057 HONORS GLOBAL POLITICS AND ISSUES (3) LEC. 3. Pr. Honors College. Examination of current trends toward globalization in institutional development to address world problems.

POLI 1090/1093 AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 1097 HONORS AMERICAN GOVERNMENT IN MULTICULTURAL WORLD (3) LEC. 3. Pr. Honors College. Social Science II Core. American political institutions, processes and behavior in comparative context, with special attention to the ways in which cultural and social diversity in the United States has impacted its politics.

POLI 2100 STATE AND LOCAL GOVERNMENT (3) LEC. 3. Organization and operation of American state and local governments, including their relationship to the United States federal system and their role in public policy issues.
POLI 2120 URBANIZATION AND THE CITY (3) LEC. 3. This course introduces students to main themes and problems in the interdisciplinary field of urban studies.

POLI 3000 POLITICAL SCIENCE RESEARCH METHODS I (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1093 or PHIL 1097. Introduction to the basic concepts and methodology used in contemporary political analysis.

POLI 3020 INTRODUCTION TO POLITICAL THEORY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1020 or PHIL 1023 or PHIL 1027. Selected major themes in political thought from ancient to modern times.

POLI 3080 MODEL UNITED NATIONS (3) LEC. 3. This course offers an in-depth analysis of the workings of the United Nations. It involves thorough studies of countries, the veto-power of the Security Council, and prepares students to participate in a Model United Nations exercise.

POLI 3090 INTRODUCTION TO INTERNATIONAL RELATIONS (3) LEC. 3. International relations, including a consideration of the bases of national power and the rudiments of international politics.

POLI 3100 INTRODUCTION TO WORLD AFFAIRS (3) LEC. 3. Contemporary international politics and an evaluation of foreign policy objectives and strategies of seven major countries and how their stability as sovereign states are affected.

POLI 3120 INTRODUCTION TO COMPARATIVE POLITICS (3) LEC. 3. Methods of classifying governments by institutional and developmental characteristics.

POLI 3140 AMERICAN FOREIGN POLICY (3) LEC. 3. Analysis of the decision-making process of American foreign policy and/or of selected current issues of American foreign policy.

POLI 3150 AMERICAN POLITICAL THOUGHT (3) LEC. 3. Principal American political philosophers and philosophies and their influence on political institutions.

POLI 3160 NATIONAL SECURITY POLICY (3) LEC. 3. Introduction to national security aspects of United States foreign policy.


POLI 3180 LATIN AMERICA AND THE UNITED STATES (3) LEC. 3. Analysis of the political, social, and economics aspects of Latin American-United States relations.

POLI 3190 INTERNATIONAL RELATIONS OF THE MIDDLE EAST (3) LEC. 3. Survey of contemporary issues in international relations, focusing on the Middle East.

POLI 3240 ADMINISTRATION OF JUSTICE (3) LEC. 3. Components of the American legal system responsible for administration of public justice.

POLI 3250/3253 INTRODUCTION TO PUBLIC ADMINISTRATION (3) LEC. 3. Pr. P/C POLI 1090 or P/C POLI 1093 or P/C POLI 1097. Administration in the public sector with particular emphasis on public administration as it exists in modern American government. May count either POLI 3250 or POLI 3253.

POLI 3260 ORGANIZATION THEORY (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Structure and function of governmental organizations with an emphasis on theories of administrative hierarchies and evaluation of bureaucracy.

POLI 3270 POLICY PROCESS (3) LEC. 3. Formulation and implementation of public policy; the roles of the major governmental institutions in policy-making.

POLI 3290 THE AMERICAN PRESIDENCY (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Examination of political styles and personalities of recent presidents and presidential decision-making.

POLI 3300 LAW AND SOCIETY (3) LEC. 3. Introduction to how law and legal actors influence and mediate some of the basic conflicts in society.

POLI 3310 THE LEGISLATIVE PROCESS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Principles, procedures, and problems of lawmaking in the United States; special attention to Congress and the state legislatures.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 3320</td>
<td>JUDICIAL PROCESS</td>
<td>3</td>
<td>LEC. 3. Basic information about the structure and function of courts and the role of judges in all societies, with a special focus on American.</td>
</tr>
<tr>
<td>POLI 3340</td>
<td>INTRODUCTION TO CONFLICT RESOLUTION</td>
<td>3</td>
<td>LEC. 3. Methods of conflict resolution at various levels, from the interpersonal to international.</td>
</tr>
<tr>
<td>POLI 3350</td>
<td>CONTROVERSIES IN CONSTITUTIONAL LAW</td>
<td>3</td>
<td>LEC. 3. Origins and influence of controversial Supreme Court decisions, in such areas as religion, free speech, privacy, abortion, and criminal justice.</td>
</tr>
<tr>
<td>POLI 3360</td>
<td>FEDERAL JURISDICTION</td>
<td>3</td>
<td>LEC. 3. Introduction to the federal court system and Federal Jurisdiction under Article III.</td>
</tr>
<tr>
<td>POLI 3370</td>
<td>FEDERAL INDIAN LAW</td>
<td>3</td>
<td>LEC. 3. Introduction to the federal laws governing and regulating the relationship between tribal nations, on the one hand, and the states and federal governments, on the other.</td>
</tr>
<tr>
<td>POLI 3380</td>
<td>EVIDENCE AND LEGAL REASONING</td>
<td>3</td>
<td>LEC. 3. Introduction to the rules governing the presentation of evidence at trial.</td>
</tr>
<tr>
<td>POLI 3390</td>
<td>RELIGION AND POLITICS</td>
<td>3</td>
<td>LEC. 3. Interaction of religion with governmental institutions, elections, and public policies.</td>
</tr>
<tr>
<td>POLI 3400</td>
<td>POLITICAL PARTIES AND INTEREST GROUPS</td>
<td>3</td>
<td>LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHI 1090 or PHI 1097. Nature, organization and operation of political parties in the United States; suffrage; nominating and electoral processes; importance and nature of interest groups.</td>
</tr>
<tr>
<td>POLI 3410</td>
<td>POLITICAL PARTICIPATION</td>
<td>3</td>
<td>LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHI 1090 or PHI 1097. Political participation in the traditional and unconventional forms and the developing trends in citizen participation in recent years.</td>
</tr>
<tr>
<td>POLI 3420</td>
<td>POLITICS AND THE MEDIA</td>
<td>3</td>
<td>LEC. 3. Influences of the media on political action, the electoral process and popular concepts of political institutions, role of the media and its regulation by government.</td>
</tr>
<tr>
<td>POLI 3510</td>
<td>THE EUROPEAN UNION</td>
<td>3</td>
<td>LEC. 3. Analysis of the complex mixture of historical, economic, and cultural phenomena that comprise the European Union.</td>
</tr>
<tr>
<td>POLI 3520</td>
<td>COMPARATIVE POLITICS OF THE MIDDLE EAST</td>
<td>3</td>
<td>LEC. 3. Domestic politics in the states of the Middle East.</td>
</tr>
<tr>
<td>POLI 3540</td>
<td>EAST EUROPEAN POLITICS</td>
<td>3</td>
<td>LEC. 3. Survey and analysis of evolving political institutions and policies in eastern and central Europe under Communism and in the post-Communism period.</td>
</tr>
<tr>
<td>POLI 3550</td>
<td>GOVERNMENT AND POLITICS OF LATIN AMERICA</td>
<td>3</td>
<td>LEC. 3. Political environment, institutions and processes of Latin America, emphasizing factors that influence the degree of democracy and authoritarianism, stability and instability, and political development.</td>
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<tr>
<td>POLI 3560</td>
<td>THE ARAB SPRING</td>
<td>3</td>
<td>LEC. 3. Examination of the Arab Uprising that began in Tunisia in 2010 and spread to the rest of the region.</td>
</tr>
<tr>
<td>POLI 3610</td>
<td>ASIAN POLITICS</td>
<td>3</td>
<td>LEC. 3. Politics of the leading nations in East Asia with major attention being devoted to China, Japan, North and South Korea, and Taiwan.</td>
</tr>
<tr>
<td>POLI 3710</td>
<td>ISSUES IN AMERICAN POLITICS</td>
<td>3</td>
<td>LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHI 1090 or PHI 1097. Topics in American politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>POLI 3720</td>
<td>ISSUES IN COMPARATIVE POLITICS</td>
<td>3</td>
<td>LEC. 3. Topics in comparative politics. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>POLI 3730</td>
<td>ISSUES IN INTERNATIONAL RELATIONS</td>
<td>3</td>
<td>LEC. 3. Topics in international relations. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>POLI 3740</td>
<td>ISSUES IN POLITICAL THOUGHT</td>
<td>3</td>
<td>LEC. 3. Topics in political thought. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.</td>
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</table>
POLI 3750 ISSUES IN PUBLIC ADMINISTRATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Topics in public administration. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3760 ISSUES IN PUBLIC POLICY (3) LEC. 3. Topics in public policy. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3770 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (3) LEC. 3. Topics in public law and conflict resolution. Focus will vary according to the instructor. Course may be repeated for a maximum of 6 credit hours.

POLI 3980 UNDERGRADUATE RESEARCH (1-3) LAB. Pr. POLI 3000. Supplementary learning concurrent with experience political science research. May be repeated twice, with change of topic. Course may be repeated for a maximum of 6 credit hours.

POLI 4010 CONSTITUTIONAL LAW: GOVERNMENT POWERS (3) LEC. 3. Constitutional law cases dealing with separation of powers, federalism, and elections.

POLI 4020 CONSTITUTIONAL LAW: CIVIL LIBERTIES (3) LEC. 3. Constitutional law cases dealing with First Amendment freedoms of religion, speech, press, assembly, and association.

POLI 4030 CONSTITUTIONAL LAW: CIVIL RIGHTS (3) LEC. 3. Supreme Court opinions defining gender discrimination, race discrimination, age discrimination, affirmative action, and such right to privacy issues as abortion, marriage, and physician-assisted suicide.


POLI 4050 AMERICAN LOCAL GOVERNMENT (3) LEC. 3. Pr. POLI 2100. Structure of local government, the roles and incentives of key elected and appointed officials, and the policy issues faced by those officials.

POLI 4130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3. Politics and public agencies and their employees at all levels of government.

POLI 4140 PUBLIC FINANCE (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Theory and practice of public finance, with an emphasis on applications in state and local government.

POLI 4160 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Pr. POLI 3250 and (POLI 1090 or POLI 1093 or POLI 1097) or (PHIL 1090 or PHIL 1093 or PHIL 1097). Responsibilities, challenges, and opportunities that confront modern public administration in the management of human resources.

POLI 4340 CONTEMPORARY POLITICAL THEORY (3) LEC. 3. Pr. POLI 3020 or PHIL 1050 or PHIL 1053. Survey of late 20th- and early 21st- century political philosophies, including neo-classicist, post-modernist, communitarian, and critical theories.

POLI 4920 INTERNSHIP (1-6) AAB/INT. SU. Internship in selected areas of political science. Course may be repeated for a maximum of 6 credit hours.

POLI 4930 DIRECTED STUDIES (1-3) AAB/IND. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Course may be repeated with change in topics.

POLI 4960 SPECIAL PROBLEMS (1-3) IND. Directed readings in political science, including topics such as American policies, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 4997 HONORS THESIS (1-3) IND. Pr. Honors College. POLI 1090 or POLI 1093 or POLI 1097. Course may be repeated for a maximum of 6 credit hours.

POLI 5150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.
POLI 5170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 5180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule-making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 5210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 5210 and POLI 6210.

POLI 5270 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 5340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Theoretical and comparative perspectives on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 5340 and POLI 6340.

POLI 5370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 5380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Examines the size, scope, and role of global civil society, emphasizing organizations active in international development: grassroots NGOs, international nonprofits, and transnational aid agencies. Covers innovations in global philanthropy, and opportunities and challenges faced by global civil society.

POLI 5410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and government of the southern region of the United States. Credit will not be given for both POLI 5410 and POLI 6410.

POLI 5510 ISSUES IN AMERICAN POLITICS (1-3) LEC. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 5520 ISSUES IN COMPARATIVE POLITICS (1-3) LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 5530 ISSUES IN INTERNATIONAL RELATIONS (1-3) AAB/LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 5540 ISSUES IN POLITICAL THEORY (1-3) LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 5550 ISSUES IN PUBLIC ADMINISTRATION (1-3) LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 5560 ISSUES IN PUBLIC POLICY (1-3) LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 5570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 5610 WOMEN IN POLITICS (3) LEC. 3. Examination of the political role of women in American society. Credit will not be given for both POLI 5610 and POLI 6610.

POLI 5620 AFRICAN AMERICAN POLITICS (3) LEC. 3. Political values, theories, problems issues and behavior relating to African Americans in the United States. Credit will not be given for both POLI 5620 and POLI 6620.
POLI 5710 PERSIAN GULF POLITICS (3) LEC. 3. Pr. POLI 1090 or POLI 1093 or POLI 1097 or PHIL 1090 or PHIL 1093 or PHIL 1097. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 6150 INTERGOVERNMENTAL RELATIONS AND FEDERALISM (3) LEC. 3. Mid-level introduction to American federalism and the intergovernmental system, including theory, historical developments, major themes, and emerging issues. Credit will not be given for both POLI 5150 and POLI 6150.

POLI 6170 ELECTION LAW (3) LEC. 3. Legal issues surrounding the election process within a democratic political system. Credit will not be given for both POLI 5170 and POLI 6170.

POLI 6180 ADMINISTRATIVE LAW (3) LEC. 3. General nature of administrative law; types of administrative action and enforcement; analysis of rule making and adjudication; administrative due process; judicial review. Credit will not be given for both POLI 5180 and POLI 6180.

POLI 6210 VOTING BEHAVIOR AND REPRESENTATION (3) LEC. 3. Causes of voting and vote choice and their consequences for the behavior of representatives. Credit will not be given for both POLI 6210 and POLI 5210.

POLI 6270/6276 ELECTION ADMINISTRATION (3) LEC. 3. Elections and the shifting relationships among local, state, and federal governments. Credit will not be given for both POLI 5270 and POLI 6270.

POLI 6340 THEORY AND PRACTICE OF MEDIATION (3) LEC. 3. Theoretical and comparative perspective on conflict resolution, with emphasis on the role of mediation in various societies. Credit will not be given for both POLI 6340 and POLI 5340.

POLI 6350 NONPROFIT LAW AND GOVERNANCE (3) LEC. 2.5. Introduction to the legal principles that apply to the formation, governance, and operation of the organizations that constitute the American nonprofit and voluntary sector. Also focuses on nonprofit governance relative to board leadership, development, diversity, effectiveness, and accountability.

POLI 6370 NONPROFIT MANAGEMENT (3) LEC. 3. Comprehensive overview of the complex and diverse nonprofit sector in the United States, including theory and practice of governance and key management functions. Credit will not be given for both POLI 5370 and POLI 6370.

POLI 6380 INGOS AND INTERNATIONAL ORGANIZATIONS (3) LEC. 2.5. Examines the size, scope, and role of global civil society outside of the US, with an emphasis on organizations active in international development, including international nonprofits, transnational aid agencies, and unilateral aid.

POLI 6410 SOUTHERN POLITICS (3) LEC. 3. Introduction to the politics and to a lesser extent government of the southern region of the United States. Credit will not be given for POLI 5410 and POLI 6410.

POLI 6510 ISSUES IN AMERICAN POLITICS (1-3) LEC. Topics in American politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5510 and POLI 6510. Course may be repeated for a maximum of 6 credit hours.

POLI 6520 ISSUES IN COMPARATIVE POLITICS (1-3) LEC. Topics in comparative politics. Focus will vary according to the instructor. Credit will not be given for both POLI 5520 and POLI 6520. Course may be repeated for a maximum of 6 credit hours.

POLI 6530 ISSUES IN INTERNATIONAL RELATIONS (1-3) LEC. Topics in international relations. Focus will vary according to the instructor. Credit will not be given for both POLI 5530 and POLI 6530. Course may be repeated for a maximum of 6 credit hours.

POLI 6540 ISSUES IN POLITICAL THEORY (1-3) LEC. Topics in political theory. Focus will vary according to the instructor. Credit will not be given for both POLI 5540 and POLI 6540. Course may be repeated for a maximum of 6 credit hours.

POLI 6550 ISSUES IN PUBLIC ADMINISTRATION (1-3) LEC. Topics in public administration. Focus will vary according to the instructor. Credit will not be given for both POLI 5550 and POLI 6550. Course may be repeated for a maximum of 6 credit hours.

POLI 6560 ISSUES IN PUBLIC POLICY (1-3) LEC. Topics in public policy. Focus will vary according to the instructor. Credit will not be given for both POLI 5560 and POLI 6560. Course may be repeated for a maximum of 6 credit hours.

POLI 6570 ISSUES IN PUBLIC LAW AND CONFLICT RESOLUTION (1-3) LEC. Topics in public law and conflict resolution. Focus will vary according to the instructor. Credit will not be given for both POLI 5570 and POLI 6570. Course may be repeated for a maximum of 6 credit hours.

POLI 6610 WOMEN IN POLITICS (3) LEC. 3. A theoretical, historical, social, and political examination of the role of women in American society. Credit will not be given for both POLI 6610 and POLI 5610.
POLI 6620 AFRICAN AMERICAN POLITICS (3) LEC. 3. Political values, structure, and behavior of African Americans in the United States. Credit will not be given for both POLI 6620 and POLI 5620.

POLI 6710 PERSIAN GULF POLITICS (3) LEC. 3. Examination of the politics of the Persian Gulf. Credit will not be given for both POLI 5710 and POLI 6710.

POLI 7000 RESEARCH METHODS (3) LEC. 3. Statistics and other quantitative techniques for the analysis of policy and for administrative decision making.

POLI 7050 STATE POLITICS (3) LEC. 3. Current and classical research on state government, politics, and policy. Students critique others' research and design their own for submission to a professional journal.

POLI 7130 POLITICS OF THE ADMINISTRATIVE PROCESS (3) LEC. 3. Politics and public agencies and their employees at all levels of government. Credit will not be given for both POLI 7130 and POLI 4130.

POLI 7140 PUBLIC BUDGETING (3) LEC. 3. Comprehensive theoretical underpinning for research. Focuses on models associated with descriptive and prescriptive budgeting research.

POLI 7150 PUBLIC PERSONNEL ADMINISTRATION (3) LEC. 3. Personnel policies, processes, and politics in American governments, including history, theory, and practice.

POLI 7160 FINANCIAL ADMINISTRATION (3) LEC. 3. Application of macroeconomic theory to public finance, with emphasis on capital budgeting, taxation, user charges, debt administration, cash management, and investment for small governments.

POLI 7260 ORGANIZATIONAL THEORY AND ADMINISTRATIVE BEHAVIOR (3) LEC. 3. Structure and functioning of government organizations, with an emphasis on applied management and on leadership techniques.

POLI 7330 SEMINAR IN ADMINISTRATIVE LEADERSHIP, RESPONSIBILITY, AND DEMOCRATIC GOVERNMENT (3) SEM. 3. Problems and ethics, democratic theory and leadership as they relate to public administration.

POLI 7350 SEMINAR IN PUBLIC ADMINISTRATION (3) SEM. 3. Introduction to public administration as practiced in the United States.

POLI 7360 SEMINAR IN POLICY AND ADMINISTRATION (3) SEM. 3. Formation, execution, and evaluation of public policy and an in-depth analysis of selected policy areas.

POLI 7520 PROGRAM EVALUATION (3) LEC. 3. Theory and practice of program evaluation in the public sector with attention to program planning, process assessment, and impact assessment.

POLI 7630 DIVERSITY IN PUBLIC LIFE (3) LEC. 3. Developing and institutionalizing diversity in complex public organizations as a major part of organizational culture.

POLI 7700 ECONOMIC DEVELOPMENT AND COMPETITION (3) LEC. 3. Politics of economic development at the local, state, and national levels, especially the infrastructure offered by communities and the types of plans that might attract outside investment.

POLI 7920/7926 MPA INTERNSHIP (3-6) INT. SU. Administrative experience in a governmental agency or participation in an approved governmental research project. May count either POLI 7920 or POLI 7926. Course may be repeated for a maximum of 6 credit hours.

POLI 7930/7936 MPA RESEARCH PROJECT (3-6) IND. SU. Completion and approval of a paper related to a policy or administrative issue or problem. Course may be repeated for a maximum of 6 credit hours.

POLI 7960/7966 SPECIAL PROBLEMS (1-3) IND. Directed readings in political science, including topics such as American politics, comparative politics, international relations, political theory, public administration, public policy, public law, and methodology. Course may be repeated with change in topics.

POLI 8000 DOCTORAL SEMINAR IN PUBLIC ADMINISTRATION (3) LEC. 3. Nature of public administration as a field of study and different theoretical perspectives as reflected in current research.

POLI 8010 RESEARCH DESIGN AND ANALYSIS (3) LEC. 3. Development and testing of causal models in political and social science. Students will develop a complex research design under the close supervision of the instructor.

POLI 8020 DOCTORAL SEMINAR IN PUBLIC POLICY (3) SEM. 3. Advanced study of the nature of public policy development and implementation.
POLI 8040 DOCTORAL SEMINAR IN PUBLIC FINANCE (3) SEM. 3. Theory and practice of public finance in a comparative perspective.

POLI 8060 DOCTORAL SEMINAR IN PUBLIC POLICY ANALYSIS AND RESEARCH (3) SEM. 3. Examination of advanced policy analysis and research methodology and the relationship between evaluation and quantitative analysis and policy formulation and implementation.

POLI 8070 DOCTORAL SEMINAR IN HUMAN RESOURCE ADMINISTRATION IN THE PUBLIC SECTOR (3) SEM. 3. Major environmental values affecting public personnel administration and the major processes used in public personnel management.

POLI 8110 AMERICAN GOVERNMENT AND PUBLIC POLICY (3) LEC. 3. Survey of the literature on the main institutions and policy processes of American national government, with emphasis on research design, methodology, and validity.

POLI 8120 QUALITATIVE RESEARCH METHODS (3) SEM. 3. Pr. POLI 8110. In-depth analysis of the use of qualitative methods in political science research.

POLI 8130 QUANTITATIVE METHODS (3) LEC. 3. Pr. POLI 8110. In-depth analysis of the use of quantitative methods in political science research.

POLI 8260 PUBLIC ORGANIZATIONAL THEORY AND MANAGEMENT (3) SEM. 3. Development and refinement of research on administrative and organizational theory in public management. Credit will not be given for both POLI 7260 and POLI 8260.

POLI 8450 COMPARATIVE POLITICS AND PUBLIC POLICY (3) LEC. 3. Theoretical approaches and important sub-field literatures. Applies insights and approaches to solving practical contemporary problems in public policy.

POLI 8550 INTERNATIONAL RELATIONS AND PUBLIC POLICY (3) LEC. 3. Application of the scholarship in international relations to public policy, with a focus on war, defense policy, and conflict management.


POLI 8750 PUBLIC LAW AND PUBLIC POLICY (3) LEC. 3. Role of the courts in public policy-making.

POLI 8970 SPECIAL TOPICS (3) LEC. 3. Directed study of topics of interest. Course may be repeated for a maximum of 9 credit hours.

POLI 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Research related to writing the dissertation. Course may be repeated with change in topics.

Polymer & Fiber Engineering - PFEN

Courses

PFEN 2270 INTRODUCTION TO ENGINEERED FIBROUS MATERIALS (4) LEC. 4. Pr. ENGR 1110 or ENGR 1113. The fundamentals of chemistry and engineering applied to fibrous assemblies illustrated using the properties required by end-use. Topics will include biomedical materials, architectural applications cables, ropes, and tethers, composite materials, filtration fabrics, ballistic protection, and health-care products.

PFEN 3100 FUNDAMENTALS OF POLYMERS (3) LEC. 3. Pr. CHEM 2030 or CHEM 2070 or CHEM 2077. Fundamentals of polymers: terminology, synthesis, structure, molecular weight, transitions of state, structure and uses.


PFEN 3500 STRUCTURE AND PROPERTIES OF POLYMERS AND FIBERS (3) LEC. 3. Pr. PFEN 3100. Exploration of the relationships between the chemical structure, properties and uses of polymers and fibers. Emphasis on the importance of judicious material selection for particular end use applications. Spring.

PFEN 3570 ENGINEERED PROTECTIVE MATERIALS (3) LEC. 3. Pr. (ENGR 1110 or ENGR 1113) and (MATH 1610 or MATH 1613 or MATH 1617) and (MATH 1620 or MATH 1623 or MATH 1627) and CHEM 1030 and CHEM 1040 and (P/C PHYS 1600 or P/C PHYS 1607). An engineering approach to the design of protective materials and structures based on analyses to counter kinetics, chemical and biological threat hazards to people, animals and valuable objects.
PFEN 4100 POLYMER CHARACTERIZATION (4) LEC. 3. LAB. 3. Pr. (PHYS 1610 or PHYS 1617) and (CHEM 2080 or CHEM 2087) and PFEN 3500. Study of the major techniques for the physical characterization of polymers. Topics to be covered include molecular weight determination, spectroscopy (light, vibrational, nuclear magnetic resonance, electron spin resonance), X-ray diffraction, microscopy (light, electron), optical methods, and thermal analysis.

PFEN 4300 ENGINEERED FIBROUS STRUCTURES (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Design and applications of high performance industrial fibrous structures for civil engineering, architecture and construction, filtration, medical, military and defense, pulp and paper industry, safety and protection, sports and recreation, transportation, agriculture and other industries. Fall.

PFEN 4400 MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and PFEN 2270. Analysis of mechanical behavior and physical properties of flexible structures such as fibers, yarns and fabrics.

PFEN 4500 FIBER REINFORCED MATERIALS (3) LEC. 3. Pr. ENGR 2070 and ENGR 2200 and MATH 2660 and PFEN 2270. Material properties and manufacture of fiber reinforced materials; perform structures such as weaves and braids, analysis, design methodology and applications. Spring.

PFEN 4810 POLYMER AND FIBER ENGINEERING DESIGN I (3) LEC. 3, IND/LEC. 2. Pr. PFEN 3500. Departmental approval. Tools and skills needed to conduct an engineering design project.

PFEN 4820 POLYMER AND FIBER ENGINEERING DESIGN II (3) IND. 3. Undergraduate senior design project, second semester.

PFEN 4970 SPECIAL TOPICS (1-3) AAB. Departmental approval. Reading course with varying emphasis to give opportunity for overview in specific areas of engineering and technology. Course may be repeated for a maximum of 12 credit hours.

PFEN 4997 HONORS THESIS (1-3) IND. Pr. Honors College. Departmental approval. Honors Thesis is a project-based course and may be presented in form of a written report or a conference-style presentation. Course may be repeated for a maximum of 6 credit hours.


PFEN 5200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Pr. PFEN 2270. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 5300 RHEOLOGY (3) LEC. 3. Pr. (MATH 2630 or MATH 2637) and ENGR 2200 or MECH 3030. Departmental approval. Covers the most important aspects of elementary modern rheology, including elastic solids, viscoelastic behavior of polymeric systems, composite systems, concentrated solutions and suspension rheology.

PFEN 5510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, polymer characterizations, polymer classes, solubility and swelling, and structure/property relationships.


PFEN 6200 POLYMER PROCESSING (4) LEC. 3. LAB. 3. Departmental approval. Characteristics and flow properties of polymers; film and fiber extrusion, molding technology, polymer material selection and processing. Credit will not be given for both PFEN 5200 and PFEN 6200.

PFEN 6250 ADVANCED ENGINEERING FIBROUS STRUCTURES (3) LEC. 3. Pr. PFEN 4300. Departmental approval. Application of advanced technology to the design, development and analysis of high performance industrial textiles.

PFEN 6510 POLYMER CHEMISTRY (3) LEC. 3. Pr. CHEM 2030 and (ENGR 2050 or ENGR 2053) and (PHYS 1610 or PHYS 1617). Polymer chemistry including polymer synthesis, characterizations, classes, solubility and swelling, and structure/property relationships.

PFEN 6706 BIOMEDICAL APPLICATIONS OF POLYMERIC MATERIALS (3) LEC. 3. LAB. 10. Study of polymers used in the body for the purposes of aiding healing, correcting abnormalities, and restoring lost function. Departmental approval. May count either PFEN 5710, PFEN 6700 or PFEN 6706.

PFEN 7310 STRUCTURE AND PROPERTIES OF POLYMERS (4) LEC. 3. LAB. 3. Pr. CHEM 2080 or CHEM 2087. Departmental approval. The inter-relationships between chemical structure of a polymer, polymer properties and uses. Plastics, elastomers and fibers-synthesis and property requirements.

PFEN 7320 POLYMER PHYSICS (3) LEC. 3. Departmental approval. Mechanical, optical, and transport properties of polymers with respect to the underlying physical chemistry of polymers in melt, solution, and solid state.

PFEN 7410 ADVANCED COLORATION AND INTERFACIAL PROCESSES (4) LEC. 3. LAB. 3. Pr. PFEN 3400. Departmental approval. Colorants and coloration principles for both fibrous and nonfibrous polymers; interfacial processes, such as sorption, adhesion, colloidal processes, surface tension.

PFEN 7500 MECHANICS OF TEXTILE REINFORCED MATERIALS (3) LEC. 3. Pr. PFEN 4500. Design methods for textile reinforced materials, including micro and macro-mechanics, finite element analysis. Fall.

PFEN 7610 ADVANCED POLYMERS FROM RENEWABLE RESOURCES (2) LEC. 2. Departmental approval. Aspects of natural, biodegradable polymers, including fibers, adhesives, films, coatings, their synthesis, their structure/properties relationships, and their microbial degradation.

PFEN 7620 ADVANCED MECHANICS OF FLEXIBLE STRUCTURES (3) LEC. 3. Pr. PFEN 4400. Recent advances in modeling and analysis of mechanical behavior of flexible structures. Spring.

PFEN 7700 ADVANCED METHODS IN POLYMER CHARACTERIZATION (4) LEC. 4. LAB. 3. Pr. PFEN 6510. Departmental approval. Important aspects and methods in polymer characterization.

PFEN 7770 INTRODUCTION TO CONDUCTING POLYMERS (3) LEC. 3. Pr. PFEN 6510. This “Introduction of Conducting Polymers” course covers the most up to date research and applications in the areas of conducting polymers. This course provides extensive background on: mechanism of electrical conductivity of conducting polymers, classification of conducting polymers, potential applications of conducting polymers, and recent advance of the researches in the fields of conducting polymers. For example, organic solar cells, and organic light emitting diodes.

PFEN 7910 POLYMER RHEOLOGY (3) LEC. 3. Pr. PFEN 6510. Departmental approval. Important aspects of elementary modern rheology.

PFEN 7950 GRADUATE SEMINAR (1) SEM. 1. SU. Presentation of departmental research; practicing written and oral communication skills. Course may be repeated with change in topic. Fall.

PFEN 7960 SPECIAL PROBLEMS AND FIBER ENGINEERING (1-3) IND. Specialized project research with varying emphasis in particular areas of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7970 SPECIAL TOPICS (3) LEC. 3. Analysis of current issues in the area of polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7980 GRADUATE PROJECT (1-3) IND. In-depth work in a particular project in polymers and fibers. Course may be repeated for a maximum of 12 credit hours.

PFEN 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Required of all students seeking an advanced degree in the department. Course may be repeated with change in topics.

PFEN 8200 ADVANCED TEXTILE STRUCTURE DESIGN AND DEVELOPMENT (3) LEC. 3. Technical fabric design and development of complex woven, knit, braided and tufted structures for high performance applications. Fall.

PFEN 8990 RESEARCH AND DISSERTATION (1-10) DSR. PhD Research and Dissertation. Course may be repeated with change in topics.

Poultry Science - POUL
Courses

POUL 1000 INTRODUCTORY POULTRY SCIENCE (3) LEC. 2. LAB. 2. Introduction to the poultry species and their commercial production, physiology, nutrition and management. Fall.

POUL 2000 POULTRY AND EGG EVALUATION AND SELECTION (1) LAB. 1. A hands-on approach to poultry and egg evaluation based on the U.S. poultry and Egg guidelines and how to properly care for and handle the birds. Spring and Fall. Course may be repeated for a maximum of 4 credit hours.

POUL 2100 PROFESSIONAL DEVELOPMENT FOR ANIMAL AGRICULTURE, PRODUCTION, PROCESSING & FEED INDUSTRIES (1) LEC. 1. Development of professional skills and career preparation for students in animal agriculture.

POUL 3030 COMMERCIAL POULTRY PRODUCTION (4) LEC. 3. LAB. 3. The organization and management principles of the commercial poultry meat and egg production industries. Fall.


POUL 3150 POULTRY PHYSIOLOGY (4) LEC. 3. LAB. 2. Pr. BIOL 1020. The physiological principles and characteristics of poultry species which directly interact with commercial management systems. Spring.

POUL 4100 SUPERVISED INVESTIGATION (1-4) IND. Pr. 2.50 GPA. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 4920 POULTRY SCIENCE INTERNSHIP (3) INT. 3. Departmental approval. Practical on-the-job training in the poultry industry. Course may be repeated for a maximum of 9 credit hours.

POUL 4960 SPECIAL PROBLEMS IN POULTRY SCIENCE (1-3) IND. 2.5 GPA or departmental approval. Individual or group projects with a faculty member in poultry science. May include literary research, data analysis or a combination of these. Course may be repeated for a maximum of 6 credit hours.

POUL 4970 SPECIAL TOPICS IN POULTRY SCIENCE (1-4) LEC. Instruction and discussion of selected current topics in poultry science. Departmental approval. Course may be repeated for 8 hours. Course may be repeated for a maximum of 8 credit hours.

POUL 4980 UNDERGRADUATE RESEARCH (2-4) IND. Departmental approval. Directed research in the area of specialty within the department. Course may be repeated for a maximum of 4 credit hours.

POUL 5020 PRINCIPLES OF ANIMAL FEED MANUFACTURING (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 6020 or POUL 5020.

POUL 5030 ADVANCED COMMERCIAL POULTRY PRODUCTION (3) LEC. 3. Pr. POUL 3030 and POUL 3150 and POUL 5050 and POUL 5110. The course covers the major principles of the integrated poultry industry, including the interactions and interrelationships between business segments in the poultry industry.

POUL 5050 POULTRY FEEDING (3) LEC. 3. Pr. ANSC 3410. The application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 and POUL 6050.

POUL 5080/5083 POULTRY HEALTH (3) LEC. 3. Pr. BIOL 3200 and (CHEM 2030 or CHEM 2070 or CHEM 2077). Study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080, POUL 5083 and POUL 6080.

POUL 5110 POULTRY PROCESSING (3) LEC. 2. LAB. 3. Pr. POUL 3030 and (CHEM 2030 or CHEM 2070) or Departmental approval. The course focuses on poultry processing and related aspects. Students will learn the effects of live production, feed withdrawal and haul on poultry processing and quality as well as pre- and post-harvest food safety, USDA regulations, Halal and Kosher standards. May count either POUL 5110 and POUL 6110.
POUL 5140 Poultry Further Processing and Products (3) LEC. 2. LAB. 3. Pr. CHEM 2030 or CHEM 2070. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. May count either POUL 5140 or POUL 6140.


POUL 6020 Principles of Animal Feed Manufacturing (3) LEC. 2. LAB. 2. Principles of animal food manufacturing for cattle, swine, poultry, horses, aquaculture, and pet foods with emphasis on current animal food manufacturing practices, current animal food ingredient manufacturing, and current animal food regulatory landscapes. May count either POUL 5020 or POUL 6020.

POUL 6050 Advanced Poultry Feeding (3) LEC. 3. An advanced study and review of the literature on the application of the principles of nutrition to poultry; the functions of individual nutrients, their deficiency symptoms and their supply in terms of feedstuffs and practical poultry diets. May count either POUL 5050 or POUL 6050.

POUL 6080 Advanced Poultry Health (3) LEC. 3. Departmental approval. An advanced study of the prevention, diagnosis, control and treatment of economically important diseases of poultry. Credit will not be given for both POUL 5080 and POUL 6080. Fall.

POUL 6110 Poultry Processing (3) LEC. 2. LAB. 3. Students will acquire strong knowledge on each step of poultry processing from hanging to chilling and transportation. The course will cover topics on food safety (pre- and post-harvest), spoilage, antimicrobial interventions, USDA regulations as well as Halal and Kosher standards. May count either POUL 5110 or POUL 6110.

POUL 6140 Poultry Further Processing and Products (3) LEC. 2. LAB. 3. Pr. CHEM 2030 or CHEM 2070. The course will provide an in-depth understanding of poultry product development, principles and practices, biochemistry, modern technologies used to assess product quality, sensory analysis, food safety as well as USDA regulations associated with poultry products. Departmental approval. Credit is not allowed for both POUL 6140 or POUL 5140.

POUL 6160 Advanced Principles of Food Safety (3) LEC. 2. LAB. 3. Departmental approval. An advanced study and literature review of the identification and control of foodborne hazards in foods of animal origin. Introduction to Hazard Analysis and Critical Control Points. Credit will not be given for both POUL 5160 and POUL 6160. Spring.

POUL 7100 Supervised Investigation (1-4) IND. Departmental approval. Advanced independent investigation in major field of poultry or avian science. Requirements include review of literature, successful and timely completion of research project, and presentation of results in written and/or oral report. Course may be repeated for a maximum of 8 credit hours.

POUL 7950 Graduate Seminar (1) SEM. 1. Literature in poultry science, food science or related field. Emphasis given to preparation, organization, and presentation of research materials and to reporting current literature in the field. May count either FDSC 7950 or POUL 7950. Course may be repeated for a maximum of 3 credit hours.

POUL 7960 Special Problems in Poultry Science (1-3) IND. Departmental approval. Critical analysis of classic and current research in poultry science, including literary research and/or data analysis. Course may be repeated for a maximum of 6 credit hours.

POUL 7970 Special Topics in Poultry Science (1-4) LEC. Departmental approval. Instruction and discussion of current advanced topics associated with poultry science. Course may be repeated for a maximum of 8 credit hours.

POUL 7980 Non-Thesis Research (1-4) RES. Departmental approval. enrolled as POUL MAg student. Research conducted as part of the Master of Agricultural degree.

POUL 7990 Research and Thesis (1-10) MST. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

POUL 8100 GI Systems and Nutrient Utilization (3) LEC. 3. Pr. POUL 5050. Structure of feedstuffs and strategy in nutrient recovery from the gastrointestinal systems of fowl, swine, and ruminants.

POUL 8150 Avian Physiology (3) LEC. 3. Physiology of organ systems of birds with emphasis on domestic fowl. Fall. Students should have completed a course in animal or human physiology.
POUL 8160 LABORATORY TECHNIQUES IN MOLECULAR VIROLOGY (4) LEC. 1. LAB. 9. Pr. BIOL 5220 and BIOL 5230. Departmental approval. Isolation, purification, and identification of viral nucleic acids and proteins. Credit will not be given for both POUL 8160 and CMBL 8160. Odd years. Fall.


POUL 8990 RESEARCH AND DISSERTATION (1-10) DSR. Technical laboratory problems related to poultry. Course may be repeated with change in topics.

Psychology - PSYC

Courses

PSYC 2010/2013 INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology. May count either PSYC 2010 or PSYC 2013.

PSYC 2017 HONORS INTRODUCTION TO PSYCHOLOGY (3) LEC. 3. Pr. Honors College. Introduction to the various subfields of psychology such as developmental, biological, cognitive, clinical, and social psychology.

PSYC 2020 ORIENTATION TO PSYCHOLOGY MAJOR (1) LEC. 1. SU. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017). Orientation to the psychology major. Overview and design of psychology curriculum, faculty introduction, faculty expectations, student assessment, career development, study skills, diversity, and ethics.

PSYC 2130/2133 ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. (MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617). Introduces students to the cycle of collecting (using surveys and experiments), analyzing (using Excel) and reporting conclusions about psychological and other social and behavioral sciences data. The course provides a critical thinking approach for quantitative argumentation with data.

PSYC 2140/2143 RESEARCH METHODS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2130 or PSYC 2133) and (PSYC 2017 or PSYC 2013 or PSYC 2140). Investigation of descriptive and experimental methods used in psychological research.

PSYC 2510 PSYCHOLOGY OF SEXUAL BEHAVIOR (3) LEC. 3. Biological, social, and psychological dimensions of human sexuality.

PSYC 3120/3123 DEVELOPMENTAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 2010 or PSYC 2013 or PSYC 2017. Introduction to physical, cognitive, social and emotional development across the lifespan.

PSYC 3500/3503 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Principles and procedures for management of human behavior. Fall, Spring.

PSYC 3510/3513 BEHAVIORAL NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of the relationships between the brain and behavior.

PSYC 3520 PSYCHOLOGY OF LEARNING (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Phenomena involved in the acquisition of knowledge, skills, and patterns of action.

PSYC 3530 SENSATION AND PERCEPTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Study of perceptual phenomena and the structure and function of sensory systems.

PSYC 3540/3543 COGNITIVE PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Phenomena involved with thinking and remembering.

PSYC 3550 PSYCHOLOGY AND CULTURE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Survey of the ways culture shapes, modifies and adds distinctiveness to human behaviors.
PSYC 3560/3563 ABNORMAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of our attempts to understand, explain, and classify abnormal behavior patterns.

PSYC 3570/3573 THEORIES OF PERSONALITY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Survey of selected classical and contemporary theories of personality.

PSYC 3580/3583 SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Scientific study of how people think about, influence, and relate to one another.

PSYC 3590/3593 PSYCHOLOGY IN THE WORKPLACE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Application of basic psychological principles and theories in the workplace. May count either PSYC 3590 or PSYC 3593.

PSYC 3600 TRAINING AND SUPERVISION IN INDUSTRY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Application of behavioral principles to problems common to the training and supervision of people in work organizations.

PSYC 3610 SPORTS PSYCHOLOGY (3) SEM. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Inquiry into how motivation, emotion, personality, and other mind-body variables influence physiology and athletic performance. Seminar class includes applied exercises in emotional expression, stress and pain management, hypnosis, and diet and exercise challenges.

PSYC 3620 COGNITIVE NEUROSCIENCE (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Exploration of how mental functions are linked to neural processes to enable the mind.

PSYC 3630 HUMAN MEMORY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Theories and application of human memory research, emphasizing long-term and working memory. Applications include education, law, and aging.

PSYC 3640 MOTIVATION AND EMOTION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Overview of historical and contemporary perspectives on human motivation and emotion.

PSYC 3650 DRUGS AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Introduction to the behavioral effects of drugs, including drug abuse and its treatment.

PSYC 3700 BEHAVIORAL GAME THEORY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). This course is an introduction to behavioral economics involved in game theory using economics and psychological approaches to examine strategies and decision making when two or more people are involved with applications to real-world situations.

PSYC 3910 SUPERVISED RESEARCH EXPERIENCE (3) LEC. 3. SU. Pr., Departmental approval. Supervised experience in research settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 3940 EXPERIENTIAL LEARNING (3) PRA. 3. SU. Pr., Departmental approval. Supplementary instruction concurrent with job or volunteer experience involving the application of psychological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

PSYC 3970 SPECIAL TOPICS IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Theories, research and issues in contemporary psychology on selected topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 4010/4013 CLINICAL PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Introduction to clinical psychology focusing on techniques of assessment and intervention.

PSYC 4080/4083 HEALTH PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Psychological principles in health maintenance and health problems.

PSYC 4110 INTRODUCTION TO DEVELOPMENTAL DISABILITIES (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Psychological principles in the care and treatment of developmentally disabled persons.

PSYC 4220 CHILD PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Child psychology from a life-span developmental perspective, emphasizing social-emotional development in infancy.
PSYC 4250/4253 PSYCHOLOGY OF CHOICE AND DECISION (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). In-depth exploration of the psychological science of choice and decision making.

PSYC 4260 PSYCHOLOGY OF ADDICTIVE BEHAVIORS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Overview of various psychological features of addictive behaviors including alcohol and drug abuse, eating disorders, gambling and excessive sexual behavior.

PSYC 4910 HUMAN SERVICE PRACTICUM (3) PRA. 3. SU. Pr., Departmental approval. Supervised experience in service-delivery settings. Course may be repeated for a maximum of 6 credit hours.

PSYC 4930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. In-depth study of a psychological topic under the direction of a faculty member. Only 6 credit hours may be applied to the psychology major. Course may be repeated for a maximum of 9 credit hours.

PSYC 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. 2.30 GPA. STAT 2010. Course may be repeated for a maximum of 3 credit hours.

PSYC 4997 HONORS RESEARCH AND THESIS (1-3) IND. Pr. Honors College. STAT 2010. Research in specialized topics. Course may be repeated for a maximum of 6 credit hours.

PSYC 5020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 5610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Laboratory, occupational and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 5620 DRUGS, BRAIN, AND BEHAVIOR (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). A review of drugs affecting nervous system function and behavioral or neural mechanisms that modify these effects. Topics include substance abuse, preclinical and clinical psychopharmacology, learning and memory, behavioral mitigation of drug effects. Course meets APA criteria for Level 1. May count either PSYC 5620 or PSYC 6620.

PSYC 5690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Pr. PSYC 2130. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count PSYC 5960 or PSYC 6960.

PSYC 5960 SEMINAR IN PSYCHOLOGY (3) LEC. 3. Pr. (PSYC 2010 or PSYC 2013 or PSYC 2017) and (PSYC 2140 or PSYC 2143). Seminar in research and theory on psychological topics. Course may be repeated with changes in topic. Course may be repeated for a maximum of 6 credit hours.

PSYC 6020 CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. PSYC 2120 and PSYC 3560. Description, etiology, and treatment of psychological disturbances in children and adolescents.

PSYC 6610 BEHAVIORAL EFFECTS OF ENVIRONMENTAL CONTAMINANTS (3) LEC. 3. Laboratory, occupational, and epidemiological assessment of neurotoxic chemicals; risk analysis; developmental exposures; and policy considerations. Coverage includes heavy metals, pesticides, solvents, and abused drugs.

PSYC 6620 DRUGS, BRAIN, AND BEHAVIOR (3) LEC. 3. A review of drugs that affect nervous system function and their behavioral and neural mechanisms.

PSYC 6690 ADVANCED ANALYTICS FOR SOCIAL AND BEHAVIORAL SCIENCES (3) LEC. 3. Application and interpretation of quantitative approaches used in social and behavioral sciences. May count either PSYC 5690 or PSYC 6690.

PSYC 6960 SPECIAL PROBLEMS (3) LEC. 3. Pr., Departmental approval. Seminar in research and theory on psychological topics. Course may be repeated for a maximum of 18 credit hours.

PSYC 7050 ASSESSMENT IN CLINICAL PSYCHOLOGY (3) LEC. 3. Survey of clinical methods of assessment, including test construction and validation.

PSYC 7100 HISTORY OF IDEAS IN PSYCHOLOGY (3) LEC. 3. Historical developments in psychology with emphasis on the major theories and systems.
PSYC 7110 ETHICS AND PROBLEMS OF SCIENTIFIC AND PROFESSIONAL PSYCHOLOGY (1) LEC. 1. Survey of ethical issues and current problems in psychology.

PSYC 7120 TEACHING OF PSYCHOLOGY (3) LEC. 3. Problems and practices of teaching psychology at the college level. In addition to seminar meetings, students work with faculty in appropriate courses.

PSYC 7130 RESEARCH SEMINAR IN PSYCHOLOGY (1) SEM. 1. Overview of the research process, including the development of research questions, proposal writing, and issues involved in protecting the welfare of research participants.

PSYC 7140 LEARNING AND CONDITIONING (3) LEC. 3. Respondent conditioning and operant behavior, including acquisition of language and other forms of individual and environmental interactions.

PSYC 7150 BIOLOGICAL PSYCHOLOGY (3) LEC. 3. Behavior from a biological perspective, including theory and research from the neurosciences and biopsychology.

PSYC 7160 HUMAN DEVELOPMENT (3) LEC. 3. Introduction to conceptual and substantive issues of developmental psychology from a life-span developmental perspective.

PSYC 7170 THEORIES OF PERSONALITY (3) LEC. 3. Analysis of current issues in personality theory.

PSYC 7180 SOCIAL PSYCHOLOGY (3) LEC. 3. Topics and literature on the social foundations of behavior.

PSYC 7190 COGNITIVE PSYCHOLOGY (3) LEC. 3. Survey of the nature of human intellectual functioning, including pattern recognition, memory, problem solving, reasoning, and language comprehension and generation.

PSYC 7200 ANIMAL COGNITION (3) SEM. 3. Experimental analysis of the mechanisms that underlie animal cognition, including attention, concept formation, counting, language, memory, perception, timing, and problem solving.

PSYC 7210 ANIMAL BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Evolution of animal behavior, including mating, parental care, feeding, social, predatory, and defensive behavior.

PSYC 7220 BEHAVIORAL PRINCIPLES (3) LEC. 3. Concepts and principles of operant and respondent conditioning and their relevance to changing and interpreting human behavior.

PSYC 7230 PSYCHOMETRIC THEORY (3) LEC. 3. Pr. P/C PSYC 7270 and P/C PSYC 7280. Introduction to basic quantitative theory behind the construction and interpretation of test scores and scales.

PSYC 7240 METHODS FOR STUDYING INDIVIDUAL BEHAVIOR (3) LEC. 3. Examination of strategies for measuring individual and environment interaction, using environmental interventions and identifying behavior change and its causes.

PSYC 7250 CLINICAL RESEARCH METHODS AND ETHICS (3) LEC. 3. Introduction to research methods and ethics in clinical psychology, with an emphasis on critical analysis of the scientific literature.

PSYC 7260 ETHICAL AND PROFESSIONAL ISSUES IN BEHAVIOR ANALYSIS (3) LEC. 3. Ethical and professional issues relevant to the practice of applied behavior analysis.

PSYC 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Introduction to the analysis of data collected under various different experimental designs. Credit will not be given for both PSYC 7270 and STAT 7270.

PSYC 7280 EXPERIMENTAL DESIGN IN PSYCHOLOGY II (4) LEC. 3. LAB. 2. Pr. PSYC 7270. and Enrollment in Psychology PhD program. Correlational and regression models. Matrix based multiple and logistic regression, moderation and mediation, and introduction to path models.

PSYC 7300 ADULT PSYCHOPATHOLOGY (3) LEC. 3. Current theoretical conceptions and research in adult psychopathology.

PSYC 7310 AUTISM AND INTELLECTUAL DISABILITIES (3) LEC. 3. Survey of the definitions, terms, epidemiology, etiologies, and current issues in autism and intellectual disabilities.

PSYC 7320 CLINICAL PSYCHOPHARMACOLOGY (3) LEC. 3. The basic principles of psychopharmacology with special attention given to drugs used in applied or therapeutic settings, their effects, and their potential interactions with behavioral interventions.

PSYC 7400 COGNITIVE NEUROSCIENCE (3) LEC. 3. Exploring how mental functions are linked to neural processes to enable the mind.
PSYC 7700 FOUNDATIONS IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. This course is designed to be an advanced survey of the Industrial and Organizational Psychology field.

PSYC 7710 TRAINING AND DEVELOPMENT IN ORGANIZATIONS (3) SEM. 3. A graduate seminar that focuses on critical conceptual and empirical issues facing training and development in the workplace.

PSYC 7720 PERSONNEL SELECTION (3) SEM. 3. Analysis of classical, contemporary, theoretical, and practical issues related to personnel selection.

PSYC 7730 RESEARCH METHODS IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. An overview of basic research methodology applicable to the investigation of organizational phenomena.

PSYC 7740 ORGANIZATIONAL CULTURE (3) SEM. 3. Gain an understanding of organizational culture and provides the context in which organizational behavior may be understood.

PSYC 7750 ETHICS AND PROFESSIONAL ISSUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY (3) SEM. 3. An introduction to issues faced in professional practice and importance of ethical behavior in the practice of Industrial/Organizational Psychology.

PSYC 7760 OCCUPATIONAL HEALTH PSYCHOLOGY (3) SEM. 3. Occupational health psychology (OHP) is an emerging interdisciplinary field concerned with psychological factors in employee health, safety, and well-being.

PSYC 7770 LEADERSHIP AND MOTIVATION SEMINAR (3) SEM. 3. Analysis of historical and contemporary theories of leadership and motivation and related research.

PSYC 7910 PRACTICUM IN APPLIED PSYCHOLOGY (1-10) PRA. Pr., Departmental approval. Supervised practicum in applied psychology. A maximum of 12 hours will apply toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7930 DIRECTED STUDIES (1-3) IND. Pr., Departmental approval. Work under the direction of a faculty member on a psychological topic of mutual interest. No more than 3 hours count toward major. Course may be repeated for a maximum of 9 credit hours.

PSYC 7970 RESEARCH IN SPECIAL TOPICS (3) IND. 3. Pr., Departmental approval. Supervised scholarly activity related to student's field of study. Course may be repeated with change in topics.

PSYC 7980 APPLIED BEHAVIOR ANALYSIS CAPSTONE PROJECT (1-10) PRA. Pr., Departmental approval. Supervised practicum in applied psychology behavior analysis project involving delivery of services to a consumer. Maximum of 6 credit hours will count toward degree. Course may be repeated for a maximum of 30 credit hours.

PSYC 7990 RESEARCH AND THESIS (1-10) MST. Departmental approval. Pr., Course may be repeated with change in topics.

PSYC 8180 ADVANCED SOCIAL PSYCHOLOGY (3) LEC. 3. Pr. PSYC 7180. and Departmental approval. Theories, research and issues in contemporary social psychology.

PSYC 8250 MULTIVARIATE METHODS (4) LEC. 3. LAB. 2. Pr. PSYC 7270 and PSYC 7280. Introduction to the theory behind multivariate analyses and the statistical programs that support them.

PSYC 8260 ANALYSIS OF TIME-RELATED DATA IN PSYCHOLOGY (3) LEC. 3. Pr. STAT 7020 or PSYC 8250. Theory and practical applications of statistical approaches for time-related data.

PSYC 8270 FACTOR ANALYSIS (3) SEM. 3. Theoretical and statistical applications of exploratory and confirmatory factor analysis.

PSYC 8280 META-ANALYSIS (3) SEM. 3. Meta-analysis is a quantitative analysis using techniques to analyze and integrate effect sizes that accrue from research studies.

PSYC 8300 DEVELOPMENTAL PSYCHOPATHOLOGY (3) LEC. 3. Introduction to contemporary concepts, constructs, and controversies in developmental psychopathology.

PSYC 8310 INTRODUCTION TO CLINICAL METHODS AND ETHICS (3) LEC. 3. Enrollment in Clinical Psychology Program. Interviewing introduction to interviewing skills, behavioral assessment, crisis intervention, professional and ethical issues in providing clinical services.
PSYC 8320 PSYCHOLOGICAL ASSESSMENT OF ADULTS (3) LEC. 3. Pr. (STAT 7270 or PSYC 7270) and PSYC 8310. Theories and techniques of the psychological assessment of adults.


PSYC 8340 SYSTEMS OF PSYCHOTHERAPY (3) LEC. 3. Pr. PSYC 7300. Survey of theories and research related to modern systems of psychotherapy.

PSYC 8350 APPLIED PSYCHOMETRIC PRINCIPLES (3) LEC. 3. Analysis of classical and modern test theory, with an emphasis on applied psychometric principles.

PSYC 8360 ASSESSMENT OF COGNITIVE ABILITIES AND ACHIEVEMENT (3) LEC. 2. LAB. 2. Theories and techniques for the assessment of cognitive abilities and academic achievement.

PSYC 8370 FOUNDATIONS OF PSYCHOLOGICAL ASSESSMENT (3) LEC. 3. Enrollment in Clinical Psychology program. Measurement theory and introduction to widely used objective personality and behavioral checklists with attention to ethics and diversity.

PSYC 8400 ADVANCED CHILD AND ADOLESCENT PSYCHOPATHOLOGY (3) LEC. 3. Pr. PSYC 7300. Examination of current research and theory of behavioral, cognitive, and emotional disorders in childhood and adolescence.


PSYC 8420 BEHAVIOR CHANGE IN CHILDREN (3) LEC. 3. Pr. PSYC 8310 and (PSYC 8400 or PSYC 8410). Introduction to methods of prevention and treatment of cognitive, behavioral, and emotional disorders of children.


PSYC 8440 HEALTH PSYCHOLOGY AND BEHAVIORAL MEDICINE (3) LEC. 3. Contemporary research in health psychology and behavioral medicine and the empirical foundations of clinical practice.

PSYC 8450 THEORY AND METHOD IN HUMAN ALCOHOL AND DRUG RESEARCH (3) LEC. 3. Pr., Departmental approval. Theoretical framework and methodological practices in basic research on human alcohol and drug abuse.


PSYC 8470 BEHAVIORAL ECONOMICS OF SUBSTANCE ABUSE (3) LEC. 3. Introduction to behavioral theories of choice and behavioral economics and the application of these theories to the study of substance abuse.

PSYC 8480 ADVANCED PROFESSIONAL AND ETHICAL ISSUES IN CLINICAL PSYCHOLOGY (3) LEC. 3. Pr., Enrollment in the Clinical Psychology PhD Program. Advanced discussion of professional issues and ethical mandates of contemporary clinical psychology, emphasizing critical thinking skills and planning for a successful career in psychology.

PSYC 8500 COGNITIVE AND BEHAVIORAL SCIENCES SEMINAR (1) SEM. 1. SU. Pr., Enrollment in Cognitive and Behavioral Sciences PhD program. Examination of professional preparation issues and recent scientific developments relevant to careers in the cognitive and behavioral sciences. Course may be repeated for a maximum of 3 credit hours.

PSYC 8510 CONTEXT AND CONSEQUENCES OF BEHAVIOR (3) LEC. 3. Pr. PSYC 7140. Advanced survey of the role that consequences play in acquisition, maintenance, and structure of behavior, and the methods by which this role is studied.

PSYC 8520 CONCEPTUAL AND THEORETICAL ANALYSIS IN PSYCHOLOGY (3) LEC. 3. Techniques of conceptual analysis relevant to the evaluation of theories and the interpretation of psychological data.

PSYC 8530 BEHAVIOR ANALYSIS AND HUMAN DEVELOPMENT (3) LEC. 3. Examination of conceptual, theoretical, and scientific issues relevant to the study of psychological development from a behavior analytic perspective.

PSYC 8540 BEHAVIORISM (3) LEC. 3. Exploration of the philosophical and theoretical underpinnings of behavior analysis.
PSYC 8550 APPLIED BEHAVIOR ANALYSIS (3) LEC. 3. Pr. PSYC 7140. and Departmental approval. Scientific and conceptual foundations of applied behavior analysis and its strategies of intervention and evaluation.


PSYC 8570 APPLIED BEHAVIOR ANALYSIS 2 (3) LEC. 3. Applications of behavioral principles to the assessment and treatment of problem behavior.

PSYC 8700 ADVANCED INDUSTRIAL PSYCHOLOGY (3) LEC. 3. Analysis of methods and content of industrial psychology.

PSYC 8710 ADVANCED ORGANIZATIONAL PSYCHOLOGY (3) LEC. 3. Pr., Departmental approval. Analysis of major issues in organizational psychology.

PSYC 8730 PERFORMANCE APPRAISAL (3) LEC. 3. Analysis of classical, contemporary, theoretical, and practical issues related to the appraisal of employee work performance.

PSYC 8750 PROFESSIONAL ISSUES IN I/O PSYCHOLOGY (1) LEC. 1. Pr., Departmental approval. Analysis of contemporary professional issues in I/O psychology. Course may be repeated for a maximum of 6 credit hours.

PSYC 8760 DECISION MAKING IN THE WORKPLACE AND ORGANIZATIONS (3) SEM. 3. The application of behavioral decision theory and research to problems in Industrial/Organizational Psychology.

PSYC 8770 ORGANIZATIONAL CHANGE (3) SEM. 3. A conceptual overview of organizational change and organizational transformation and related specific topics.

PSYC 8780 WORK AND FAMILY (3) SEM. 3. A survey of research and theory in work and family, a content area of organizational psychology.

PSYC 8900 CLINICAL PRACTICUM (1-4) PRA. Pr. PSYC 8320 or PSYC 8410. Supervised practicum experience in clinical assessment and intervention techniques. Course may be repeated for a maximum of 30 credit hours, with 24 counting toward the degree.

PSYC 8920 INTERNSHIP (0) INT. Pr., PhD candidacy. Enrollment in full-time APA-approved 1-year pre-doctoral internship required for the PhD in Clinical Psychology. Student may not enroll in other course work.

PSYC 8930 DIRECTED STUDIES IN PSYCHOLOGY (3) IND. Pr., Approved PhD plan of study. Review of literature leading to the writing and defense of the Major Area Paper (written portion of the general PhD examination). Course may be repeated for a maximum of 9 credit hours.

PSYC 8970 SPECIAL TOPICS (1-3) SEM. Pr., Departmental approval. In-depth study of issues related to selected specializations in psychology. Course may be repeated for a maximum of 18 credit hours.

PSYC 8990 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Pr., Course may be repeated for a maximum of 98 credit hours.

Public Relations Commu - PRCM

Courses

PRCM 2400/2403 FOUNDATIONS OF PUBLIC RELATIONS (3) LEC. 3. This course is designed to be an overview of the functions, practices and growing application of public relations in both private industry and the public sector. May count either PRCM 2400 /PRCM 2043 or PRCM 3040/PRCM 3043.

PRCM 2500/2503 PUBLIC RELATIONS CASE STUDIES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. This is a course designed to provide Public Relations students with an understanding of both effective and ineffective methods of PR through studying actual cases from the field itself. May count either PRCM 2500/PRCM 2503 OR PRCM 3050/PRCM 3053.
PRCM 3000 MULTIMEDIA WRITING FOR PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (PRCM 2500 or PRCM 2503) and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. This course will have an emphasis on communication tactics; plan, write and produce public relations tools; audience and media selection; print and electronic media. May count either PRCM 3000 or PRCM 4080.

PRCM 3080 INTERNATIONAL PUBLIC RELATIONS (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Exploration of public relations theory, research, and practice in an international context.

PRCM 3090 PUBLIC RELATIONS IN POLITICAL PROCESSES (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Surveys of the intersection of politics and public relations, emphasizing theoretical and practical principles in political processes.

PRCM 3260/3263 STRATEGIC COMMUNICATION IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (PRCM 2400 or PRCM 2403). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Framework for the strategy and integration of messages within public relations.

PRCM 3270 PUBLIC RELATIONS IN THE NOT-FOR-PROFILE ARENA (3) LEC. 3. Pr. CMJN 2100 or CMJN 2103. Nonprofit organizations and foundations and the role of public relations within those organizations.

PRCM 3280/3283 SOCIAL MEDIA AND PUBLIC RELATIONS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Declared major in AGCO or PRCM. Examination of how new social media impact public relations strategies.

PRCM 4020 DIGITAL STYLE AND DESIGN IN PUBLIC RELATIONS MESSAGES (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Introduction to the use of style and design in public relations messages. Departmental approval or Declared major in AGCO or PRCM.

PRCM 4030 PUBLIC RELATIONS RESEARCH (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103) and (PRCM 2400 or PRCM 2403) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503 or PRCM 3040 or PRCM 3043). JRNL 1100 with a minimum grade of "B" in JRNL 1100. PRCM or AGCO major only. Identifying, characterizing and evaluating stakeholder groups and alternative channels of communication; formal research procedures including sampling, instrument design, information gathering, data processing, analysis and reporting. May count either PRCM 4400 or PRCM 4510.

PRCM 4200 PUBLIC RELATIONS CAMPAIGNS (3) LEC. 3. Pr. (CMJN 2100 or CMJN 2103) and JRNL 1100 or JRNL 1AA0 and (PRCM 2400 or PRCM 2403 or PRCM 3040 or PRCM 3043) and (PRCM 2500 or PRCM 2503). JRNL 1100 with a minimum grade of "B" in JRNL 1100. Application of theory, research data, and problem-solving techniques in the development of comprehensive public relations strategies. May count either PRCM 4500 or PRCM 4090.

PRCM 4920 INTERNSHIP (3) AAB/INT. 200. Pr. CMJN 2100 or CMJN 2103 and PRCM 2400 or PRCM 2403. Opportunity to apply classroom experience in career setting. Internship must be a supervised, closely monitored work experience, appropriate to the major, that takes place in a professional setting.

PRCM 4930 DIRECTED STUDIES IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 or JRNL 1AA0 and (CMJN 2100 or CMJN 2103). with a minimum grade of "B" in JRNL 1100. Independent Study on a specific topic of interest not already addressed in any regular PRCM course.

PRCM 4970 SPECIAL TOPICS IN PUBLIC RELATIONS (3) LEC. 3. Pr. JRNL 1100 and (PRCM 3040 or PRCM 3043) and (CMJN 2100 or CMJN 2103) and (PRCM 2500 or PRCM 2503). with a minimum grade of "B" in JRNL 1100. Focus on narrowly defined PRCM topics not already covered in the current PRCM curriculum.

Reading Education - CTRD

Courses

CTRD 1000 CRITICAL READING (2) LEC. 2. Strategies for reading expository text, with emphasis on vocabulary learning and text structures, toward goal of critical evaluation of evidence for authors' main-idea claims.

CTRD 3000 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION I (3) LEC. 2. LAB. 1. Admission to Teacher Education. Research-based theory and teaching strategies to meet the language and literacy needs of all children, especially at risk of reading difficulties. Includes laboratory teaching experience. May count either CTRD 3000 or CTRD 3710.
CTRD 3010/3013 FOUNDATIONS OF LANGUAGE AND LITERACY INSTRUCTION II (4) LEC. 3. LAB. 3. Admission to Teacher Education. Theoretical foundations of language and literacy development of children and implications for teaching. Clinical, laboratory experiences with children. May count either CTRD 3010, CTRD 3003, or CTRD 3700.

CTRD 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTRD 5003 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000 or CRTD 6006.

CTRD 5030 THE READING OF ADOLESCENTS (3) LEC. 3. Admission to Teacher Education. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 5700 DEVELOPMENTAL READING K-12 (3) LEC. 3. Admission to Teacher Education. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 5710 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Admission to Teacher Education. Strategies to enhance literacy and inquiry for student's content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.

CTRD 6000/6006 LANGUAGE AND LITERACY IN THE CONTENT AREAS (3) LEC. 3. Strategies to help fluent readers and English language learners learn content in the disciplines by strategic reading of texts. May count either CTRD 5000, CTRD 5003, CTRD 6000 or CRTD 6006.

CTRD 6030/6036 THE READING OF ADOLESCENTS (3) LEC. 3. Reading patterns of adolescents and uses of young adult literature in reading and English language arts programs, grades 6-12.

CTRD 6700/6706 DEVELOPMENTAL READING K-12 (3) LEC. 3. Theoretical and research foundations for a balanced approach to reading assessment and instruction, K-12. May count CTRD 5700, CTRD 6700, or CTRD 6706.

CTRD 6710/6716 LITERACY AND INQUIRY IN THE CONTENT AREAS: GRADES 6-12 (3) LEC. 3. Strategies to enhance literacy and inquiry for student's content-area learning in the middle and secondary school. May count CTRD 5710, CTRD 6710, or CTRD 6716.


CTRD 7510/7516 RESEARCH STUDIES IN READING EDUCATION (3) RES. 3. Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

CTRD 7520/7526 CURRICULUM AND TEACHING IN READING EDUCATION (3) LEC. 3. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.

CTRD 7530/7536 ORGANIZATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Program, organization and development of basic and supplementary materials for guiding teachers, faculties and school systems in the continuous improvement of curriculum and teaching practices.

CTRD 7540 EVALUATION OF PROGRAM IN READING EDUCATION (3) LEC. 3. Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization.

CTRD 7900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTRD 7910 PRACTICUM IN AREA OF SPECIALIZATION (1-6) PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTRD 7920/7926 CLINICAL RESIDENCY (1-9) INT. SU. Supervised on-the-job experiences in a school, college or other appropriate setting, accompanied by regularly scheduled, on-campus discussion periods. Departmental approval. May count either CTRD 7920 or CTRD 7926. Course may be repeated for a maximum of 9 credit hours.
Real Estate Development - RDEV

Courses

RDEV 7126 FIELD STUDIES (1) DR1/DR2. 1. This course provides students with the opportunity to visit real estate development firms and ongoing projects. Course may be repeated for a maximum of 6 credit hours.

RDEV 7136 PRINCIPLES OF REAL ESTATE DEVELOPMENT (3) DR1/DR2. 3. An introduction to theory and practice as applied to fundamental topics in real property law, real estate markets, valuation, investment analysis and property financing as they effect various topics in real estate development.

RDEV 7146 REAL PROPERTY ANALYSIS (3) DR1/DR2. 3. This is a case study course, providing an overview of key concepts in real estate development and real property analysis.

RDEV 7236 REAL ESTATE MARKET ANALYSIS (3) DR1/DR2. 3. This class will provide concentrated study in real estate markets. Critical components of the course will include the study of the link between the Property and Asset Markets.

RDEV 7246 BUILDING DESIGN AND CONSTRUCTION PRINCIPLES (3) DR1/DR2. 3. This course will illustrate some of the building design and construction principles that real estate development professions engage in their practice every day.

RDEV 7346 SITE PLANNING AND INFRASTRUCTURE DEVELOPMENT (3) DR1/DR2. 3. This course examines the role that site selection and infrastructure development play in the sustainable conceptualization, feasibility, and implementation of a real estate development project.

RDEV 7356 REAL ESTATE INVESTMENT ANALYSIS (3) DR1/DR2. 3. This class will provide concentration study in real estate investment.

RDEV 7436 REAL ESTATE PROJECT MANAGEMENT (3) DR1/DR2. 3. This course examines the real estate development process from conceptualization to actualization.

RDEV 7446 REAL ESTATE CONTRACT NEGOTIATIONS (1) DR1/DR2. 1. This course will teach the basic skills necessary to become an effective negotiator. The course will include planning and preparing necessary elements for contract negotiation. Additionally, the communications skills necessary to forward the negotiation agenda will be addressed.

RDEV 7536 REAL ESTATE SECURITIZATION (3) DR1/DR2. 3. This class will provide an in-depth look at the fundamental principles and practices as applied to the financing of residential and commercial real estate.

RDEV 7546 REAL ESTATE DEVELOPMENT LAW (3) DR1/DR2. 3. This course examines the legal issues related to acquisition, planning, design, entitlement, construction, development financing, property management, accounting, taxation, reversion, and estate planning.

RDEV 7636 REAL ESTATE DEVELOPMENT CAPSTONE PROJECT (5) DR1/DR2. 5. This Capstone Project seeks to develop an appreciation of real estate development process and the critical roles played by the design, planning, and construction industries.

Rehabilitation & Spec Educ - RSED
Courses

RSED 3000/3003 DIVERSITY AND EXCEPTIONALITY OF LEARNERS (3) LEC. 3. Pr. 2.00 GPA. Exploration of philosophical, social, cultural, and legal factors, and individual characteristics shaping education for individuals with disabilities; and roles/responsibilities of educators in inclusive settings. May count either RSED 3000 or RSED 3003.

RSED 3010 INTRODUCTION TO SPECIAL EDUCATION (3) LEC. 3. Orientation to special education profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3020 INTRODUCTION TO REHABILITATION (3) LEC. 3. Orientation to the profession including history, philosophy, federal legislation, contemporary issues and national organizations.

RSED 3030 INTRODUCTION TO SPEECH PATHOLOGY IN SPECIAL EDUCATION (3) LEC. 3. Emphasis on the role and function of speech pathologist with respect to best practices in the school setting.

RSED 3100/3103 ASSESSMENT IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Concepts and techniques for developmental screening, evaluation and assessment for young children (ages 3-8) with developmental delays and disabilities. Departmental approval. May count either RSED 3100 or RSED 3103.

RSED 3110/3113 ASSESSMENT: ELIGIBILITY FOR SPECIAL EDUCATION (3) LEC. 3. Selection, administration, scoring and interpretation of standardized aptitude and educational tests used in the field of special education. May count either RSED 3110 or RSED 3113.

RSED 3120 ASSESSMENT IN REHABILITATION (3) LEC. 3. Selection, administration, scoring and interpretation of work sample systems and standardized tests of intelligence, aptitude, achievement, interest, and dexterity used in the field of rehabilitation.

RSED 4010 BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Skills to manage the behavior of special education students including behavioral assessment, selection criteria for appropriate intervention strategies and evaluation of intervention effectiveness.

RSED 4100 PROFESSIONAL COMMUNICATION IN REHABILITATION (3) LEC. 3. Theoretical and practical aspects of written and oral communication with rehabilitation and other professionals, clients, and family members.

RSED 4110 SUPPORTED EMPLOYMENT IN REHABILITATION (3) LEC. 3. Historical, legislative, theoretical, research and practical foundation of supported employment.

RSED 4120 INDEPENDENT LIVING SERVICES IN REHABILITATION (3) LEC. 3. The history, legislation and philosophy of the independent living movement and its impact on the quality of life for people with severe disabilities.

RSED 4130 ETHICAL PRACTICES IN REHABILITATION (3) LEC. 3. Departmental approval. Ethical dilemmas that are routinely faced by practitioners in human service occupations.

RSED 4140 ASSESSMENT: PROGRAM PLANNING IN SPECIAL EDUCATION (3) LEC. 3. Coreq. RSED 4920. A framework for understanding the purposes and processes that underlie various forms of educational assessments, with emphasis on application assessment of students with disabilities, and how to use assessment data to inform instructional planning and IEP goal development.

RSED 4900/4903 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Emphasis on exceptional learners. Course may be repeated for a maximum of 3 credit hours.

RSED 4910/4913 PRACTICUM (1-6) PRA. SU. Departmental approval. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 4920/4923 CLINICAL RESIDENCY (9) AAB/INT. 9. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Departmental approval or admission to internship.

RSED 4970/4973 SPECIAL TOPICS (1-3) IND. Departmental approval. Seminar in which upper-level students and professors engage in critical thinking regarding selected concepts, theories, research, and issues germane to the field of disabilities. Course may be repeated for a maximum of 3 credit hours.
RSED 5000 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 5010 MEDICAL ASPECTS OF DISABILITY (3) LEC. 3. Medical terminology, basic body systems, common malfunctions, therapeutic services, restorative techniques, and disability evaluation for different disability groups and the vocational implications of each. May count RSED 5010, RSED 6010, or RSED 6016.

RSED 5020 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 6020, or RSED 6026.

RSED 5030 MENTAL RETARDATION (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5030, RSED 6030, or RSED 6036.

RSED 5040 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 5050 BEHAVIOR DISORDER (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5050, RSED 6050, or RSED 6056.

RSED 5060 SEVERE DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5060, RSED 6060, or RSED 6066.

RSED 5070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count either RSED 5070 or RSED 6070.

RSED 5100 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 3010. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 5110 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. Admission to Teacher Education. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 5120 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum activities for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 5130 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 3010. Admission to Teacher Education. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities. Admission to Teacher Education. May count RSED 5130, RSED 6130, or RSED 6136.

RSED 5140 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Pr. RSED 3010. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 5150 ELEMENTARY TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Admission to Teacher Education. Instructional strategies in reading and math for students who have learning and behavior problems. May count RSED 5150, RSED 6150, or RSED 6156.

RSED 5160 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Admission to Teacher Education. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 6160, or RSED 6166.
RSED 5170 TRANSITION FROM BIRTH TO ADULTHOOD (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on practices, programs, and services. May count RSED 5170, RSED 6170, or RSED 6176.

RSED 5180 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the theoretical basis and the practical application of classroom organizational and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management. May count RSED 5180, RSED 6180, or RSED 6186.

RSED 5190 COMMUNITY-BASED INSTRUCTION AND RELATED SERVICES (3) LEC. 3. Provides an in-depth study of transition programs and practices for youth with disabilities as they transition into adulthood. May count either RSED 6190 or RSED 6196.

RSED 5200/5203 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 5210 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 5220 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. Theories, strategies, and techniques for job development, accommodation, modification, and placement of people with disabilities with application skills needed to facilitate employment. May count RSED 5220, RSED 6220, or RSED 6226.

RSED 5230 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 5340 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 6000/6006 ADVANCED SURVEY OF EXCEPTIONALITY (3) LEC. 3. This course is an advanced study of exceptionality with emphasis upon the educational implications of disability and current issues in special education and rehabilitation. May count RSED 5000, RSED 6000, or RSED 6006.

RSED 6010/6016 MEDICAL VOC & PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. An introduction to medical terminology, body systems, common physical and cognitive conditions therapeutic/restorative services, and psychosocial & vocational considerations of various disabilities. May count RSED 6010 or RSED 6016.

RSED 6020/6026 PSYCHOSOCIAL ASPECTS OF DISABILITY (3) LEC. 3. Theoretical constructs and practical issues for various types of physical, mental, psychiatric, and social disabilities with implications for personal, vocational, social and community adjustment. May count RSED 5020, RSED 6020, or RSED 6026.

RSED 6030/6036 MENTAL RETARDATION (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition and classification of individuals with mental retardation. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5030, RSED 6030, or RSED 6036.

RSED 6040/6046 LEARNING DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with learning disabilities. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5040, RSED 6040, or RSED 6046.

RSED 6050/6056 BEHAVIOR DISORDERS (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with behavior disorders. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5050, RSED 6050, or RSED 6056.

RSED 6060/6066 SEVERE DISABILITIES (3) LEC. 3. Historical perspective, theoretical concepts, etiology, diagnosis, definition, and classification of individuals with severe levels of disability. Educational and rehabilitative approaches and contemporary issues are emphasized. May count RSED 5060, RSED 6060, or RSED 6066.

RSED 6070 MILD DISABILITIES (3) LEC. 3. The purpose of this course is to present the major concepts and issues related to mild disabilities. A variety of topics, ranging from the historical developments in the field to proposed teaching procedures for students, will be discussed. In-depth analysis of selected topics will be accomplished with student presentations and assignments. May count RSED 5070 or RSED 6070.
RSED 6100/6106 INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Historical, legislative, and philosophical basis of early intervention for young children, birth through age two, with special needs and their families. May count RSED 5100, RSED 6100, or RSED 6106.

RSED 6110/6116 CURRICULUM IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Procedures for developing, implementing, and monitoring individualized educational programs in natural settings. May count RSED 5110, RSED 6110, or RSED 6116.

RSED 6120/6126 CURRICULUM IN ELEMENTARY SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum for the collaborative instruction of elementary children with disabilities. May count RSED 5120, RSED 6120, or RSED 6126.

RSED 6130/6136 CURRICULUM IN SECONDARY SPECIAL EDUCATION (3) LEC. 3. Functional/developmental approach to the selection, development, implementation, and evaluation of curriculum materials for the collaborative instruction of secondary students with disabilities. May count RSED 5130, RSED 6130, or RSED 6136.

RSED 6140/6146 CURRICULUM IN SEVERE DISABILITIES (3) LEC. 3. Understanding a functional/developmental approach to selecting, developing, implementing, and evaluating appropriate curriculum activities for instructing students with severe disabilities. May count RSED 5140, RSED 6140, or RSED 6146.

RSED 6150/6156 ELEMENTARY TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Instructional strategies in reading and math for students who have learning and behavior problems. May count RSED 5150, RSED 6150, or RSED 6156.

RSED 6160/6166 FRAMEWORK FOR COLLABORATION IN K-12 (3) LEC. 3. Collaborative teaching, consultation, and teaming as a critical best practice in serving students with disabilities. May count RSED 5160, RSED 6160, or RSED 6166.

RSED 6170/6176 TRANSITION FROM BIRTH TO ADULTHOOD (3) LEC. 3. History, philosophy, models, and definitions of transition with emphasis on best practices, programs, and services. May count RSED 5170, RSED 6170, or RSED 6176.

RSED 6180/6186 INSTRUCTIONAL CLASSROOM MANAGEMENT (3) LEC. 3. This course is designed to provide students with the theoretical basis and the practical application of classroom organization and instructional classroom management for students with learning and behavioral problems. The focus of this class will be to discuss proactive approaches to instructional classroom management. May count RSED 5180, RSED 6180, or RSED 6186.

RSED 6190/6196 COMMUNITY-BASED INSTRUCTION AND RELATED SERVICES (3) LEC. 3. Provides an in-depth study of transition programs and practices for youth with disabilities as they transition into adulthood. May count either RSED 5190 or RSED 6196.

RSED 6200/6206 VOCATIONAL EVALUATION IN REHABILITATION (3) LEC. 3. Vocational evaluation and work adjustment techniques and strategies used within the rehabilitation process. May count RSED 5200, RSED 5203, RSED 6200, or RSED 6206.

RSED 6210/6216 OCCUPATIONAL INFORMATION (3) LEC. 3. Identification, location, and use of data resources for job accommodation and modification strategies, labor market surveys, and job placement of persons with disabilities. May count RSED 5210, RSED 6210, or RSED 6216.

RSED 6220/6226 PLACEMENT SERVICES IN REHABILITATION (3) LEC. 3. The course is designed to familiarize students with career theory and methods used by rehabilitation practitioners to analyze and apply vocational techniques to place individuals with disabilities. May count RSED 6220 or RSED 6226.

RSED 6230/6236 REHABILITATION ASSISTIVE TECHNOLOGY (3) LEC. 3. Basic computer literacy; use of commercially available software, and assistive technology for use by persons with disabilities. May count RSED 5230, RSED 6230, or RSED 6236.

RSED 6340/6346 FOUNDATIONS OF SUBSTANCE USE COUNSELING (3) LEC. 3. Provides knowledge of the nature of substance abuse, drug classification, models of addiction, assessment and diagnosis, treatment, and related issues. May count RSED 5340, RSED 6340, or RSED 6346.

RSED 7010/7016 REHABILITATION PROFESSIONS, PROGRAMS AND ETHICS (3) LEC. 3. This course exposes students to the ethics, history and development of the rehabilitation counseling movement inclusive of its legal base, philosophies, concepts, and current socio-political trends. May count either RSED 7010 or RSED 7016.
RSED 7100/7106 ADVANCED ASSESSMENT AND INTERVENTION IN EARLY INTERVENTION (3) LEC. 3. Assessment and intervention strategies for special needs children, birth to age three. Departmental approval. May count either RSED 7100 or RSED 7106.

RSED 7110/7116 ADVANCED ASSESSMENT AND INTERVENTION EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Assessment and intervention strategies for special needs children, pre-k through 3rd grade. Departmental approval. May count either RSED 7110 or RSED 7116.

RSED 7120/7126 ADVANCED ASSESSMENT IN SPECIAL EDUCATION (3) LEC. 3. Advanced study of educational tests and procedures for diagnosing special training problems. Departmental approval. May count either RSED 7120 or RSED 7126.

RSED 7130/7136 ADVANCED ASSESSMENT I IN REHABILITATION (3) LEC. 3. Principles, process and techniques used to diagnose vocationally-related assets and liabilities of the individual with disabilities. May count either RSED 7130 or RSED 7136.

RSED 7140 ADVANCED ASSESSMENT II IN REHABILITATION (3) LEC. 3. Pr. RSED 7130 or RSED 7136. Interpretation of vocational evaluation data for prescriptive purposes and communication of that data through report writing and oral communication.

RSED 7150/7156 MULTICULTURAL ASPECTS OF DISABILITIES (3) LEC. 3. Study of three main areas relevant to multicultural competencies and standards for rehabilitation professionals: (a) acquisition of communication skills; (b) attitudes towards ethnic minorities, and (c) knowledge about minority populations. May count either RSED 7150 or RSED 7156.

RSED 7200/7206 ADVANCED INTERVENTION WITH INFANTS AND TODDLERS WITH DISABILITIES (3) LEC. 3. Pr. RSED 7100 or RSED 7106. Administration and on-going management of early intervention programs and service coordination of individualized family service plans and family support. Departmental approval. May count either RSED 7200 or RSED 7206.

RSED 7210/7216 ADVANCED INTERVENTION IN EARLY CHILDHOOD SPECIAL EDUCATION (3) LEC. 3. Pr. RSED 7110 or RSED 7116. Curriculum methods, intervention plans, intervention methods, physical and medical management, environmental and behavioral management, and evaluation of child and family outcomes. Departmental approval. May count either RSED 7210 or RSED 7216.

RSED 7220/7226 ADVANCED TEACHING METHODS IN SPECIAL EDUCATION (3) LEC. 3. Applied study and practice in analyzing, designing, constructing and evaluating teaching sequences and programs with empirical emphasis for design of instructional principles. May count either RSED 7220 or RSED 7226.

RSED 7230/7236 ADVANCED BEHAVIOR MANAGEMENT IN SPECIAL EDUCATION (3) LEC. 3. Provides skills necessary to direct academic and social performance and appropriately manage the behavior of students with special needs. Departmental approval. May count either RSED 7230 or RSED 7236.

RSED 7246/7240 SEMINAR IN REHABILITATION RESEARCH AND DESIGN (3) LEC. 3. Research in rehabilitation counseling, with focus on acquisition of knowledge about traditional and recent developments in research methods, and skill application. May count either RSED 7240 or RSED 7246.

RSED 7300/7306 REHABILITATION COUNSELING TECHNIQUES (3) LEC. 3. Facilitative communication skills and systematic problem solving skills for effective clinical practice. May count either RSED 7300 or RSED 7306.

RSED 7310/7316 PROPRIETARY REHABILITATION (3) LEC. 3. Pr. (RSED 6210 or RSED 6216) and (RSED 7130 or RSED 7136). Vocational rehabilitation in private sector including case management and expert witness for workers compensation, personal injury litigation, and social security. May count either RSED 7310 or RSED 7316.

RSED 7320/7326 INDIVIDUAL COUNSELING APPROACHES IN REHABILITATION COUNSELING (3) LEC. 3. Survey of theoretical approaches involved in individual counseling with an emphasis on persons with disabilities using an eclectic point of view and psycho-educational approach. May count either RSED 7320 or RSED 7326.

RSED 7330/7336 GROUP COUNSELING IN REHABILITATION SETTINGS (3) LEC. 3. Pr. RSED 7320 or RSED 7326. Nature and function of group dynamics in rehabilitation settings including theories of groups, group structure, and psych-educational strategies used with rehabilitation clients. May count either RSED 7330 or RSED 7336.

RSED 7400/7406 CURRICULUM AND TEACHING IN SPECIALIZATION (3) LEC. 3. Curriculum design, content, and materials selection related to teaching practices in areas of specialization (intellectual disability, learning disabilities, behavioral disorders, etc.). RSED 7400 and RSED 7406 may be repeated for a maximum combined total of 6 credit hours.
RSED 7410/7416 PROGRAM IMPLEMENTATION IN SPECIALIZATION (3) LEC. 3. Program organization and development of materials for curriculum improvement and teaching practices in a disability specialization area. RSED 7410 and RSED 7416 may be repeated for a maximum combined total of 9 credits with a change in disability specialization.

RSED 7420/7426 RESEARCH IN SPECIALIZATION (3) LEC. 3. Examination and interpretation of applied research in specialization area (intellectual disabilities, learning disabilities, behavioral disorders, etc.). Course may be repeated with a change in research area. May count either RSED 7420 or RSED 7426. Course may be repeated for a maximum of 6 credit hours.

RSED 7430/7436 RESEARCH INTO PRACTICE (3) LEC. 3. Applied opportunities for translating instructional and behavioral research into practice. The course may be repeated with a change in research topic. Departmental approval. May count either RSED 7430 or RSED 7436. Course may be repeated for a maximum of 6 credit hours.

RSED 7440/7446 SEMINAR IN SPECIALIZATION (3) SEM. 3. Advanced students and professor(s) engage in critical thinking regarding selected concepts, theories, research and issues germane to the field of disabilities. Course may be repeated with change in topics.

RSED 7460/7466 POSITIVE BEHAVIOR SUPPORTS (3) LEC. 3. Evaluating and implementing Positive Behavior Interventions and Supports (PBIS) for students grades PK through 12 in traditional and alternative educational settings. May count either RSED 7460 or RSED 7466.

RSED 7900/7906 DIRECTED STUDIES (1-3) IND. SU. Content focus of study area will be translated into specific objectives with advanced student learning guided by the instructor. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 3 credit hours.

RSED 7910/7916 PRACTICUM (1-6) PRA. SU. Practice in educational or community service setting aligned with degree program option. Course may be repeated for a maximum of 6 credit hours.

RSED 7920/7926 CLINICAL RESIDENCY (1-9) INT. SU. Comprehensive supervised on-the-job experience in a school, college or community-based setting serving individuals with disabilities. Course may be repeated for a maximum of 12 credit hours.

RSED 7940/7946 ADVANCED THEORIES IN REHABILITATION COUNSELING (3) LEC. 3. Intensive study of advanced theories within rehabilitation counseling, as well as an examination of outcome research relating to the use and application of these theories and techniques. May count either RSED 7940 or RSED 7946.

RSED 7950/7956 EMERGING ADULTHOOD AND TRANSITION IN REHABILITATION (3) LEC. 3. Introduction to the transition process of youth with disabilities from school to adulthood and employment with emphasis on the developmental stage emerging adulthood. May count either RSED 7950 or RSED 7956.

RSED 7980/7986 NON-THESIS PROJECT (1-3) IND. SU. Course may be repeated for a maximum of 10 credit hours.

RSED 7990/7996 RESEARCH AND THESIS (1-10) MST. The content focus of the study area will be translated into specific objectives with student learning toward that end, guided by the instructor. In addition to regular meetings with the instructor, the student will be evaluated and graded according to learning performance. The department's policy is to restrict independent study only for content not covered in RSED's course listing. Course may be repeated for a maximum of 10 credit hours.

RSED 8010 DISABILITIES AND RESEARCH METHODS (3) LEC. 3. Departmental approval. History, principles, and methodology of single subject research on the various types of research designs applied in rehabilitation and special education.

RSED 8020 DISABILITIES AND APPLIED RESEARCH IN MEASUREMENT (3) LEC. 3. Departmental approval. Classical measurement theory, individual differences determination, constructs related to diagnostic labels, measurement bias and fairness, nature-nurture controversy, and clinical versus statistical inference.

RSED 8030/8036 DISABILITIES AND PROFESSIONAL ISSUES (3) LEC. 3. Critical and contemporary issues regarding disability and its relationship to the leadership roles of professionals in special education and rehabilitation. May count either RSED 8030 or RSED 8036.

RSED 8040 DISABILITIES AND ASSISTIVE TECHNOLOGY (3) LEC. 3. Departmental approval. Adaptive technology for use by persons with disabilities and proficiency in the use of computers and the World Wide Web as they relate to disabilities.
RSED 8050/8056 DISABILITIES AND THE LAW (3) LEC. 3. Departmental approval. Development of rehabilitation and special education laws from a historical, policy, leadership, and advocacy perspective.

RSED 8060 DISABILITIES AND LIFE SPAN TRANSITIONS (3) LEC. 3. Departmental approval. Advanced study of historical, legal, legislative, philosophical, and service delivery issues and trends with emphasis on research studies and programs.

RSED 8070 PROFESSIONAL SEMINAR (3) LEC. 3. SU. Departmental approval. A series of doctoral seminars devoted to professional technical writing, grant writing, management, and research. Course may be repeated with change in topics.

RSED 8110/8116 ORGANIZATIONAL LEADERSHIP AND CHANGE REHABILITATION (3) LEC. 3. Organizational leadership for the public and private non-profit sectors of rehabilitation emphasizing individual qualities required for successful leadership. Departmental approval. May count either RSED 8110 or RSED 8116.

RSED 8120/8126 MANAGEMENT OF PUBLIC SECTOR ORGANIZATIONS (3) LEC. 3. Objective and analytical perspective of public sector management and organizational leadership skills as it relates to rehabilitation settings. Departmental approval. May count either RSED 8120 or RSED 8126.

RSED 8230 EXAMINING DISABILITY DATABASES (3) LEC. 3. Conducting descriptive and correlational research by using existing publicly available databases in the field of disabilities.

RSED 8900 DIRECTED STUDIES (1-3) IND. SU. Departmental approval. Content focus of study area will be translated into specific objectives with student learning guided by the instructor. Course may be repeated with change in topics.

RSED 8950/8956 SEMINAR (1-3) SEM. Departmental approval. Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations. Course may be repeated for a maximum of 9 credit hours.

RSED 8980/8986 NON-THESIS PROJECT (1-10) IND. SU. Departmental approval. May be repeated with change in topic. Provides an opportunity for advanced graduate students to pursue a project of interest. Course may be repeated with change in topics.

RSED 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Departmental approval. Course may be repeated with change in topic.

Religion - RELG

Courses

RELG 1010 INTRODUCTION TO RELIGIOUS STUDIES (3) LEC. 3. Major themes in religion, including religious experience, religion and society and the diversity of religions; examples from various religious traditions.

RELG 1020 INTRODUCTION TO THE HEBREW SCRIPTURES (3) LEC. 3. Historical-critical study of the Hebrew scriptures in their cultural setting; emphasis on development of ancient Hebrew thought.


RELG 1040 INTRODUCTION TO WESTERN RELIGIONS (3) LEC. 3. Introduction to Islam, Judaism, and Christianity, with attention to Druze religion and Bah'ali. May count either RELG 1040 or RELG 3340.

RELG 1050 INTRODUCTION TO EASTERN RELIGIONS (3) LEC. 3. Introduction to Hinduism, Buddhism, and Confucianism, with secondary attention to other Asian religions. May count either RELG 1050 or RELG 3330.


RELG 2030 HISTORY OF CHRISTIANITY (3) LEC. 3. Development of Christianity from 100 C.B. to the present; major personalities, events, and movements.

RELG 4350 20TH-CENTURY RELIGIOUS THOUGHT (3) LEC. 3. Major 20th-century theologians, including Protestant, Catholic, and Jewish.

RELG 4960 SPECIAL PROBLEMS IN RELIGIOUS STUDIES (3) LEC. 3. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.
RELG 4967 HONORS SPECIAL PROBLEMS (3) LEC. 3. Pr. Honors College. Independent study on a special topic. Course may be repeated for a maximum of 6 credit hours.

RELG 4970 SPECIAL TOPICS (3) LEC. 3. Course may be repeated with change in topics.

Rural Sociology - RSOC

Courses

RSOC 3190 FOOD, AGRICULTURE, AND SOCIETY (3) LEC. 3. Historical development of the agrifood system, a range of outcomes and impacts from this development, and the current trends in agrifood system structure and organization.

RSOC 3560 ENVIRONMENT, SOCIETY, AND JUSTICE (3) LEC. 3. The course focuses on micro and macro structures influencing environmental problems, and possible pathways for their resolution. The course introduces Environmental Sociology through an action-oriented approach to environmental problems.

RSOC 3620 COMMUNITY ORGANIZATION (3) LEC. 3. Analysis of social organization at the community level. Conceptual framework developed to examine both internal and external forces affecting urban as well as rural communities in the U.S., and to identify strategies to strengthen local capacity to adapt to changing social and economic environments.

RSOC 4410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension System is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 4910 DIRECTED FIELD EXPERIENCE (3) LEC. 3. Departmental approval. Structured intensive involvement within an agency or organization serving people in communities or rural areas. Supervision is shared between agency personnel and department faculty who plan, consult, discuss, and evaluate student activities and reports.

RSOC 4930 DIRECTED STUDIES (1-3) IND. Departmental approval. Individualized study of topics in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 4960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Departmental approval. Investigation of problems in rural sociology and community development, natural resources and environmental issues conducted in consultation with a faculty member. Course may be repeated for a maximum of 3 credit hours.

RSOC 5190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. Key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy). May count either RSOC 5190 or RSOC 6190.

RSOC 5510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty inequality and their effects on families and society, analysis of anti-poverty programs.

RSOC 5610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes, and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 5640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; citizen participation in community affairs.

RSOC 5650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 6190 SOCIOLOGY OF SUSTAINABLE AGRIFOOD SYSTEMS (3) LEC. 3. This is an advanced course that will focus on key trends in alternative production-consumption systems (e.g., rise of small/very-small production and processing, development and feasibility short and values-based supply chains; and food security, justice, equity, sovereignty, and democracy).
RSOC 6510 SOCIAL WELFARE, FAMILY AND POVERTY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or ECON 2020 or ECON 2023 or ECON 2027. Description for Bulletin: Measuring and explaining poverty and inequality and their effects on families and society; analysis of anti-poverty programs.

RSOC 6610 RURAL SOCIOLOGY (3) LEC. 3. Theories and conceptual approaches to rurality in international and domestic contexts. Rural-urban differences in demographic composition, occupational structure, attitudes and values of rural people and regional cultures. Rural services and institutions as determinants of the quality of life.

RSOC 6640 SOCIOLOGY OF COMMUNITY DEVELOPMENT (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Principles of applied social change at the community level in both industrialized and non-industrialized settings; impacts of economic and technological changes on urban and rural communities; and citizen participation in community affairs.

RSOC 6650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.

RSOC 7410 EXTENSION PROGRAMS AND METHODS (3) LEC. 3. Principles and models of applied social change in U.S. and developing nations. The Cooperative Extension Service is analyzed as an educational institution. Fundamental steps in program development and evaluation.

RSOC 7620 SOCIOLOGY OF COMMUNITY (3) LEC. 3. Emphasis on theories, conceptual approaches and methods for studying communities and assessing developmental needs with attention to organizational structure, power structure, decision-making and linkage networks to societal units.

RSOC 7630 POLITICAL ECONOMY OF DEVELOPMENT (3) LEC. 3. Theories of societal development applied to contemporary issues associated with change in non-industrialized nations. Exploration of institutional, class, and state interests that guide development processes, as well as alternative participatory development strategies.

RSOC 7650 SOCIOLOGY OF NATURAL RESOURCES AND THE ENVIRONMENT (3) LEC. 3. The social origins of contemporary environmental problems, emergence of environmentalism as a social movement within industrialized nations, and other topical issues.


RSOC 7960 SPECIAL PROBLEMS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (1-3) LEC. Pr., departmental approval. Investigation of a problem in a particular area of interest involving an in-depth review of the literature, a research project, or an outreach education activity. Course may be repeated for a maximum of 6 credit hours.

RSOC 7970 SPECIAL TOPICS IN RURAL SOCIOLOGY AND COMMUNITY DEVELOPMENT (3) LEC. 3. Departmental approval. New topic in the area of rural sociology and community development.

RSOC 7990 RESEARCH AND THESIS (1-10) MST. In conjunction with the preparation of a thesis. Course may be repeated with change in topics.

Sciences & Math - SCMH

Courses

SCMH 1010/1013 CONCEPTS OF SCIENCE (4) LEC. 3, AAB/LEC. 3. Coreq. SCMH 1011. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCHM 1013 or SCHM 1017.

SCMH 1011 CONCEPTS OF SCIENCE LABORATORY (0) LAB. 2, AAB/LAB. 2. Coreq. SCMH 1010. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. If a student takes SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science core. May count SCMH 1011 or SCMH 1018.
SCMH 1017 HONORS CONCEPTS OF SCIENCE (4) LEC. 3, AAB/LLB. 3. Pr. Honors College. Coreq. SCMH 1018. Interdisciplinary course which presents major scientific concepts in physical and biological sciences. After taking SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science Core. May count either SCMH 1010 or SCMH 1013 or SCMH 1017.

SCMH 1018 CONCEPTS OF SCIENCE LABORATORY (0) LAB. 2. Coreq. SCMH 1017. Interdisciplinary course for Honors students which presents major scientific concepts in physical and biological sciences. If a student takes SCMH 1010, students can complete core science requirement series by taking BIOL 1010, CHEM 1010, GEOL 1100, PHYS 1000, or PHYS 1150. Science core. May count either SCMH 1011 or SCMH 1018.

SCMH 1890 PRE-HEALTH PROFESSIONS ORIENTATION (1) LEC. 1. SU. Orientation and guidance for freshmen and transfer students planning to seek admission to health professions schools and programs such as dentistry, medicine, optometry, pharmacy, physician assistant, and physical therapy.

SCMH 2150 OPS: MANAGEMENT OF BUSINESS PROCESSES (2) LEC. 2. Fundamental concepts, techniques and tools of business processes.

SCMH 3810 PRE-PHYSICAL THERAPY PRACTICUM (1) PRA. 2. SU. Departmental approval. Direct observation of physical therapists at an approved facility in the Auburn-Opelika area.

SCMH 3890 PRE-MEDICAL PRECEPTORSHIP (1) LAB. 25. SU. Departmental approval. Direct observation and interaction with physicians at East Medical Center and in individual medical offices.

SCMH 4920 SCIENCES AND MATHEMATICS INTERNSHIP (3) LEC. 3. SU. Practical on-the-job training in some area related to Sciences and Mathematics. Course may be repeated for a maximum of 6 credit hours.

SCMH 5010 CLINICAL APPLICATIONS I (3) LEC. 2. A study of the clinical/personal issues facing primary care physicians in the rural community. Must be enrolled in the Rural Medicine Program.

SCMH 5020 CLINICAL APPLICATIONS II (3) LEC. 2. CLN/LEC. 1. Pr. SCMH 5010. A continuation of SCMH 5010.

SCMH 5940 GLOBAL STUDY/TRAVEL IN SCIENCES AND MATHEMATICS (1-12) AAB. and departmental approval. Application required. Students international study travel on topics relevant to Sciences and Mathematics. Course may be repeated for a maximum of 12 credit hours.

Secondary Education - CTSE

Courses

CTSE 1020 DEVELOPMENTAL STUDIES: MATHEMATICS (2) LEC. 1. LAB. 2. Departmental approval. Develops mathematics skills conducive to successful college study. Credit counted toward enrollment, but not graduation.

CTSE 1030 DEVELOPMENTAL STUDIES: ENGLISH LANGUAGE ARTS (2) LEC. 1. LAB. 2. SU. Departmental approval. Develops reading/study and composition skills conducive to successful college study. Credit not counted toward graduation. Course may be repeated for a maximum of 4 credit hours.

CTSE 4000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program.


CTSE 4050 CURRICULUM AND TEACHING I: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4210. Admission to Teacher Education. Application of current educational research and instructional strategies to the design of meaningful social studies instruction and assessment.

CTSE 4060 CURRICULUM AND TEACHING II: SOCIAL SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4050 and CTSE 4210. Admission to Teacher Education. Curriculum decision making and planning for instruction, evaluation, and classroom management.

CTSE 4070/4073 CURRICULUM AND TEACHING I: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Strategies for teaching foreign language students with a special emphasis on developing good instruction for comprehensible input and emerging speech tasks. May count either CTSE 4070 or CTSE 4073.
CTSE 4080/4083 CURRICULUM AND TEACHING II: FOREIGN LANGUAGE (4) LEC. 2. LAB. 4. Pr. CTSE 4070 or CTSE 4073. Admission to Teacher Education. Teaching strategies based on language acquisition theories that are appropriate for teaching foreign language students. May count either CTSE 4080 or CTSE 4083.

CTSE 4090 CURRICULUM AND TEACHING I: SCIENCE (4) LEC. 2. LAB. 4. Admission to Teacher Education. Planning, teaching strategies, evaluation techniques and classroom management procedures needed to be a successful science teacher.

CTSE 4150 CURRICULUM AND TEACHING I: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTSE 5010 and CTSE 5020. Admission to Teacher Education. Teaching the expressive English language arts, writing and speaking, in middle and high school classrooms.

CTSE 4160 CURRICULUM AND TEACHING II: ENGLISH LANGUAGE ARTS (4) LEC. 2. LAB. 4. Pr. CTRD 5030 and CTRD 5710. Admission to Teacher Education. Teaching the receptive English language arts; reading, listening, and viewing; in middle and high school classrooms.

CTSE 4200/4203 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOMS (2) LEC. 2. Pr. P/C CTSE 7920 or P/C CTSE 7926 or P/C CTMU 7920 or P/C CTMU 7926 or (P/C CTMU 4920 or P/C CTMU 4923) or (P/C CTSE 4920 or P/C CTSE 4923). Admission to Teacher Education. The role of the teacher in classroom management. Methods for developing a positive learning environment. May count either CTSE 4200 or CTSE 4203.

CTSE 4210 SOCIAL SCIENCE CONCEPTS AND METHODS (3) LEC. 3. For pre-service teachers. Organizing social science disciplinary knowledge into an integrated framework that is meaningful, useful, and relevant to high school students. 15 hours in social sciences (2000 level or above).

CTSE 4900 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent reading, research, or other work focused on a content area of special interest. The student is directed by a faculty member. Course may be repeated for a maximum of 6 credit hours.

CTSE 4910 PRACTICUM (1-6) PRA. SU. Departmental approval. Admission to Teacher Education. Cooperatively selected field experience. Course may be repeated for a maximum of 6 credit hours.

CTSE 4920/4923 CLINICAL RESIDENCY (11) AAB. 40. SU. Pr. P/C CTSE 5210 or P/C CTSE 5213 or P/C CTSE 5220 or P/C CTSE 5223 or P/C CTSE 5230 or P/C CTSE 5233 or P/C CTSE 5240 or P/C CTSE 5243 or P/C CTSE 5250 or P/C CTSE 5253 or P/C CTSE 5410. Admission to Teacher Education. Admission to Clinical Residency. Supervised teaching in a public secondary school abroad accompanied by scheduled discussions to analyze and evaluate the intern's experience. May count either CTSE 4920 or CTSE 4923.

CTSE 4967 HONORS SPECIAL PROBLEMS (1-3) IND. SU. Pr. Honors College. Departmental approval. Individual readings program. Course may be repeated for a maximum of 3 credit hours.

CTSE 4970 SPECIAL TOPICS (1-4) LEC. Departmental approval. Cooperatively selected concepts and theories pursued, normally in small groups. Course may be repeated for a maximum of 4 credit hours.

CTSE 4997 HONORS THESIS (1-3) IND. SU. Pr. Honors College. The student thesis is finalized in this course. Course may be repeated for a maximum of 3 credit hours.

CTSE 5000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.

CTSE 5010 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. Junior standing. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 5020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 5040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2. LAB. 4. Pr. MATH 2660. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 5100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 2. LAB. 4. Pr. CTSE 4090. Admission to Teacher Education. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.
CTSE 5210/5213 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) LEC. 1. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 5220/5223 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 5230/5233 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 5240/5243 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 5250/5253 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB. 15. Pr. P/C CTSE 4920 or P/C CTSE 4923. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.

CTSE 5710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5710 or CTSE 6710.

CTSE 6000 TECHNOLOGY IN SCIENCE EDUCATION (2) LEC. 2. Introduction and application of current and emerging instructional and communication technologies for integration in the secondary science program. May count either CTSE 5000 or CTSE 6000.

CTSE 6010/6016 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. Departmental approval. May count either CTSE 5010, CTSE 6010 or CTSE 6016.

CTSE 6020 RHETORIC AND COMPOSITION FOR TEACHERS (3) LEC. 3. Theories of rhetoric and composition applicable to middle and high school classrooms; implications for planning writing curricula, instruction, and assessment/evaluation. May count either CTSE 5020 or CTSE 6020.

CTSE 6040 TECHNOLOGY AND APPLICATIONS IN SECONDARY MATHEMATICS EDUCATION (4) LEC. 2. LAB. 4. Use of technological tools to enhance mathematics teaching and learning. May count either CTSE 5040 or CTSE 6040.

CTSE 6100 CURRICULUM AND TEACHING II: SCIENCE (4) LEC. 4, LEC/LLB. 6. Pr. CTSE 4090. Higher-order reasoning and process skills using state and national standards as guides. Theoretical and applied approaches. May count either CTSE 5100 or CTSE 6100.

CTSE 6210/6216 TEACHER INQUIRY WORKSHOP: PROBLEMS AND POSSIBILITIES (1) AAB/SEM. 1. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Community of practice for English Language Arts clinical residents to support professional practice through teacher inquiry. May count either CTSE 5210, CTSE 5213, CTSE 6210, or CTSE 6216.

CTSE 6220/6226 CLASS MANAGEMENT AND DISCIPLINE IN FOREIGN LANGUAGE CLASSROOM (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for clinical residents on classroom management in Foreign Language Education. May count either CTSE 5220, CTSE 5223, CTSE 6220 or CTSE 6226.

CTSE 6230/6236 MANAGING MIDDLE AND HIGH SCHOOL CLASSROOM (MATH EDUCATION) (1) AAB/SEM. 15. Pr. (P/C CTSE 7920 or P/C CTSE 7926). Admission to Clinical Residency. The role of the teacher in mathematics classroom management. Methods for developing a positive learning environment. May count either CTSE 5230, CTSE 5233, CTSE 6230 or CTSE 6236.

CTSE 6240/6246 CLINICAL RESIDENCY SEMINAR IN SCIENCE TEACHING (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Seminar for Science Education clinical residents in classroom management, professional development, diversity and equity issues, theory and practice. May count either CTSE 5240, CTSE 5243, CTSE 6240 or CTSE 6246.

CTSE 6250/6256 SEMINAR IN SOCIAL SCIENCE EDUCATION (1) AAB/SEM. 15. Pr. P/C CTSE 7920 or P/C CTSE 7926. Admission to Clinical Residency. Best practices for managing secondary social science classrooms and ethically resolving students discipline issues for a positive learning climate for all students. May count either CTSE 5250, CTSE 5253, CTSE 6250 or CTSE 6256.
CTSE 6710 LANGUAGE STUDY FOR TEACHERS (3) LEC. 3. Theories of language development and language study applicable to middle and high school classrooms; implications for teaching grammar, usage, dialects, and semantics. May count either CTSE 5710 or CTSE 6710.

CTSE 7000/7006 ORIENTATION TO TEACHING AND LEARNING (1) LEC. 1. Skills, dispositions, community, and research planning for graduate students including preparation of a research proposal. May count either CTSE 7000 or CTSE 7006.

CTSE 7090 INQUIRY METHODS OF SCIENCE TEACHING (4) LEC. 4. Departmental approval. Study and practice of various inquiry based methods for teaching science as new teachers, including demonstration, laboratory, and inquiry projects.

CTSE 7490 THE SECONDARY SCHOOL PROGRAM (3) LEC. 3. Departmental approval. Implications of research and theory for the total secondary school program.

CTSE 7510 RESEARCH STUDIES IN AREA OF SPECIALIZATION (3) LEC. 3. Research methodology, landmark studies, critique and application of research in the area of specialization.

CTSE 7520/7526 CURRICULUM AND TEACHING IN AREA OF SPECIALIZATION (3) LEC. 3. Nature of learners and of knowledge and implications for for building curricula and planning instruction in the area of specialization. May count either CTSE 7520 or CTSE 7526.

CTSE 7530/7536 ORGANIZATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Program models, components, and standards in the area of specialization. May count either CTSE 7530 or CTSE 7536.

CTSE 7540/7546 EVALUATION OF PROGRAM IN AREA OF SPECIALIZATION (3) LEC. 3. Theoretical perspectives of evaluation and methods of evaluating learners, teachers, and curricula. May count either CTSE 7540 or CTSE 7546.

CTSE 7560 EQUITY ISSUES IN MATHEMATICS EDUCATION (3) LEC. 3. Theories, issues, and pedagogy related to achieving equity in mathematics education.

CTSE 7800/7806 CAPSTONE IN TEACHING AND LEARNING (2) LEC. 2. Development of a unique portfolio based on professional interest and demonstration the ability to foster student achievement through the design, implementation, and assessment of learning activities. May count either CTSE 7800 or CTSE 7806.

CTSE 7900/7906 DIRECTED STUDIES (1-6) IND. SU. Departmental approval. Independent study directed toward desired objectives related to their respective areas of specialization. Includes evaluation at regular intervals by professor and student. Course may be repeated for a maximum of 6 credit hours.

CTSE 7910/7916 PRACTICUM IN AREA OF SPECIALIZATION (1-6) AAB/PRA. SU. Departmental approval. Experience relating theory and practice, usually in a school setting. Course may be repeated for a maximum of 6 credit hours.

CTSE 7920/7926 CLINICAL RESIDENCY (8-11) AAB/INT. 40. SU. Pr. P/C CTSE 6210 or P/C CTSE 6216 or P/C CTSE 6220 or P/C CTSE 6226 or P/C CTSE 6230 or P/C CTSE 6236 or P/C CTSE 6240 or P/C CTSE 6246 or P/C CTSE 6250 or P/C CTSE 6256. Admission to Clinical Residency. Supervised clinical residency experiences in a school, college or other appropriate setting. Evaluation and analysis of the clinical residency experience. Departmental approval. May count either CTSE 7920 or CTSE 7926. Course may be repeated for a maximum of 11 credit hours.

CTSE 7970/7976 SPECIAL TOPICS (1-6) LEC. Departmental approval. Provides an opportunity for the graduate student and professor to pursue selected topics in depth. Course may be repeated for a maximum of 6 credit hours.

CTSE 7990/7996 RESEARCH AND THESIS (1-10) MST. Course may be repeated with change in topics.

CTSE 8950/8956 SEMINAR (1-3) SEM. Selected concepts and theoretical formulations of common interest. Course may be repeated for a maximum of 12 credit hours.

CTSE 8980/8986 FIELD PROJECT (1-3) FLD. SU. Departmental approval. Students review literature pertaining to a problem they have identified in their own practice, form hypotheses, plan intervention, collect data, analyze and interpret results, write summary of the project following approved guidelines, and orally defend the results of their project. Course may be repeated for a maximum of 3 credit hours.

CTSE 8990/8996 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.
Social Work - SOWO

Courses

SOWO 2000 INTRODUCTION TO SOCIAL WORK (3) LEC. 3. Introduction to social work practice, examining career opportunities, history of the profession, practice settings, values, ethics, and types of clientele.

SOWO 2650 HISTORY OF SOCIAL WELFARE (3) LEC. 3. Development of social welfare policies and programs in the United States, analysis of political, economic, and social factors involved.

SOWO 3500 CHILD WELFARE (3) LEC. 3. Pr. SOCY 1000 or SOWO 2000 or SOCY 1007. Social work practice in settings dealing with child abuse and neglect, foster care, child care, and adoption.

SOWO 3600 AGING ISSUES AND SERVICES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Introduction to social services and social work with the elderly, considering socio-cultural issues and impact on the elderly.

SOWO 3700 ADDICTIONS (3) LEC. 3. Pr. PSYC 2010 or PSYC 2017 or PSYC 2013. Addictions, theories of causality, social impact, and treatment approaches in today's society. Experiential component included.

SOWO 3800 HUMAN BEHAVIOR IN SOCIAL ENVIRONMENT I (3) LEC. 3. Pr. SOWO 2000. Lifespan approach to biopsychosocial examination of behavior and early development, emphasizing influences of racism, sexism, and ethnocentrism.

SOWO 3850 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT II (3) LEC. 3. Pr. SOWO 3800. Lifespan approach to biopsychosocial examination of behavior from adulthood through old age, emphasizing role of gender, sexism and sexual orientation.

SOWO 3910 FIELD PRACTICUM SEMINAR (3) PRA. 3. Pr. SOWO 2000. Introduction to fields and settings of social work practice via placement in a selected social service agency. Includes a concurrent integrative seminar to analyze the experience.

SOWO 4060 SOCIAL WORK PRACTICE METHODS I (3) LEC. 3. Pr. SOWO 2000 and SOWO 3910 and (SOCY 1000 or SOCY 1007). Introduction to generalist practice methods and skills in engagement, assessment, and goal setting with individual clients.

SOWO 4070 SOCIAL WORK METHODS II (3) LEC. 3. Pr. SOWO 4060. Practice skills and perspectives required for work with families and groups.

SOWO 4080 SOCIAL WORK METHODS III (3) LEC. 3. Pr. SOWO 4060. Generalist practice theory and skills as applied to communities, organizations, and oppressed populations, emphasizing issues of social justice and social action.

SOWO 4090 SOCIAL WELFARE POLICY (3) LEC. 3. Pr. SOWO 2650. Critical analysis of policy issues and proposals in selected social welfare programs and their impact upon current social problems and social work values and ethics.

SOWO 4920 INTERNSHIP IN SOCIAL WORK (9) FLD. 9. SU. Pr. SOWO 4080. 480-hour field experience under joint supervision of agency and university. Application of generalist practice skills and research project required.

SOWO 4950 SENIOR INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 4080. Coreq. SOWO 4920. and Enrollment in SOWO 4920. Integrating theory with practice through analysis of behavior and evaluation of practice skills.

SOWO 4967 HONORS SPECIAL PROBLEMS (1-3) IND. 3. Pr. Honors College or Departmental approval. Course varies based on faculty's and student's areas of interest and expertise. Course may be repeated for a maximum of 3 credit hours.

SOWO 4970 SOCIAL WORK SPECIAL TOPICS (3) LEC. 3. Timely and/or controversial topics related to social work. Course content will depend upon the designated topic.

SOWO 4997 HONORS THESIS (1-3) IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

SOWO 7000 INTRODUCTION TO SOCIAL WORK AND SOCIAL WELFARE (3) LEC. 3. This course provides a review of the social work profession, history, and values and ethics. An overview of theory, practice, policy, and research are integrated in exploring the knowledge, values, and skills base of the social work profession.

SOWO 7010 ADVANCED CLINICAL PRACTICE (3) LEC. 3. Pr. SOWO 7020. This course provides intensive study on clinical interventions with individuals, families, and small groups across various fields of practice.
SOWO 7020 PSYCHOPATHOLOGY (3) LEC. 3. This advanced practice course teaches students to recognize selected major mental health disorders in adults, children, and youth and to become familiar with social work practice approaches used in the treatment of these disorders.

SOWO 7030 EVALUATION IN SOCIAL WORK PRACTICE (3) LEC. 3. This course examines quantitative and qualitative evaluation of agency programs and individual practice. Students will engage in hands-on individual and/or small-group research projects to experience all phases of the research process.

SOWO 7040 SOCIAL WORK PRACTICE IN THE HEALTH CARE FIELD (3) LEC. 3. This course will focus on the development of social work practice skills relevant to health care settings, including assessment of the impact of illness, disability, treatment, and hospitalization on patients and families.

SOWO 7050 MENTAL HEALTH (3) LEC. 3. Pr. SOWO 7020. This course focuses on mental health social work practice with children, adolescents and adults, covering assessment and several theoretically based interventions with an emphasis on gaining practice skills. Special attention is given to strengths-based, evidence-based, and recovery-oriented practice models.

SOWO 7060 SOCIAL WORK PRACTICE WITH INDIVIDUALS AND FAMILIES (3) LEC. 3. This foundation course prepares students to apply a generalist perspective and systems framework to social work practice with individuals and families. It emphasizes the basics of communication, interviewing, relationship building, and practice skills essential to effective assessment, intervention, and evaluation.

SOWO 7070 SOCIAL WORK PRACTICE WITH GROUPS AND COMMUNITIES (3) LEC. 3. Pr. SOWO 7060. This macro social work course provides an advanced examination of social work practice in groups and larger systems. Students will develop knowledge, values, and skills in areas of: group practice, community assessment, social planning, community organization, and political strategies.

SOWO 7080 POLICY PRACTICE AND SOCIAL JUSTICE (3) LEC. 3. This course will critically apply conceptual frameworks and empirical research in the examination of social issues, policies, and services, focusing on how policies affect marginalized, oppressed and disadvantaged populations.

SOWO 7090 ADVANCED SOCIAL WELFARE POLICY (3) LEC. 3. The course will review the historical development of social welfare and social policies in the United States and explore their context and underlying values. This course builds knowledge and skills to analyze and make changes in social welfare policy.

SOWO 7100 GERONTOLOGY (3) LEC. 3. The course provides a clinical foundation for clinical work practice with older adults and their families. Primary focus will be on understanding how diversity factors into the physiological, psychological, and social aspects of later life.

SOWO 7110 TRAUMA INFORMED PRACTICE (3) LEC. 3. This course examines social work practice theories and intervention approaches as they apply to practice with survivors of crisis and trauma. The course will focus on engagement, assessment, planning, intervention, evaluation and follow up on all social work practice levels.

SOWO 7120 PSYCHOSOCIAL CONTEXT OF DISABILITY (3) LEC. 3. Prepares the social worker to be an effective practitioner for persons with disabilities by exploring the psychosocial context of the lives and experiences of persons with disabilities and their families from various perspectives.

SOWO 7130 SOCIAL WORK PRACTICE WITH CHILDREN AND ADOLESCENTS (3) LEC. 3. This course develops advanced clinical social work practice knowledge and skills to engage and intervene with children and adolescents with health and mental health risk and provides knowledge for community social workers serving children who are exposed to stress.

SOWO 7140 DIVERSITY AND DIFFERENCE IN PRACTICE (3) LEC. 3. Students must be admitted to the Masters of SocialWork Program to enroll in this course.

SOWO 7700 FOUNDATIONS OF SOCIAL WORK RESEARCH (3) LEC. 3. This course provides a study of quantitative and qualitative research methods in order to build knowledge for social work practice. Students will be prepared to develop, implement and communicate ethical, empirically-based scientific knowledge.

SOWO 7800 HUMAN BEHAVIOR AND THE SOCIAL ENVIRONMENT (3) LEC. 3. This graduate-level foundation course covers theories, themes, and issues that influence individual and group development across the life span- in interaction with the environment- as it underlies social work practice and research.
SOWO 7920 GENERALIST FIELD (10) INT. 10. SU. This course prepares students for responsible, competent entry into the profession by providing opportunities to practice social work with a generalist perspective in agency settings under educational supervision. This course requires completion of 432 total hours in an agency setting.

SOWO 7930 ADVANCED FIELD (12) INT. 12. SU. Pr. SOWO 7920. This course provides upper level graduate social work students with opportunities to develop advanced generalist and clinical practice skills under the supervision of an MSW Field Instructor. Students complete 512 hours in an approved agency during this field experience. Course may be repeated for a maximum of 18 credit hours.

SOWO 7950 INTEGRATIVE SEMINAR (3) SEM. 3. Pr. SOWO 7020 and P/C SOWO 7930. This seminar course assists students in integrating and applying classroom learning with the advanced field placement. Opportunities are provided for case presentation, discussion and peer consultation.

SOWO 7970 GRANT WRITING (3) LEC. 3. Developing effective grant writing skills are essential to acquire competitive funding from government agencies and private foundations. Writing a successful grant proposal is a blend of art and science. It requires basic knowledge, content knowledge, writing proficiency, strong research skills, creativity, organizational ability, patience, and a great deal of luck. This course will provide students with the background necessary to develop a competitive funding proposal. Course may be repeated for a maximum of 6 credit hours.

Sociology - SOCY

Courses


SOCY 1007 HONORS SOCIOLOGY (3) LEC. 3. Pr. Honors College. Social Science I Core. Introduction to the study of social and cultural patterns in society.

SOCY 1050 AUBURN IN THE WORLD: SOCIETY AND CULTURE (4) LEC. 4. Auburn Global students. Part of the Auburn Global International Accelerator Program. The course will introduce students to American society and culture through core sociological concepts. May count either SOCY 1050 or HIST 1000.

SOCY 1100 CURRENT ISSUES IN RACE AND ETHNICITY (3) LEC. 3. An exploration of how race and ethnicity shape our daily lives and the world around us.

SOCY 2000 SOCIAL ISSUES (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007. Exploration of the claims and conflicts of public issues and moral apprehensions, including crime, the environment, gender and racial inequality, various syndromes.

SOCY 2050 CRIME AND JUSTICE IN AMERICA (3) LEC. 3. Distribution and measurement of crime, different variations in criminal behavior, and handling crime in the American criminal justice system.

SOCY 2100 POPULATION AND SOCIETY (3) LEC. 3. Survey of theories and research of demographic processes and their interaction with the economy, education, family, medicine, science, and technology.

SOCY 2200 SOCIAL PSYCHOLOGY: SOCIOLOGICAL PERSPECTIVES (3) LEC. 3. Examination of collective influences on the person and the role the person plays in sustaining collective conditions.

SOCY 3000 CRIMINOLOGY (3) LEC. 3. Examination of etiological issues related to crime; major theories of crime causation from a wide variety of perspectives.

SOCY 3100 POLICE AND SOCIETY (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Sociological overview of policing and current issues that relate to the police.

SOCY 3200 SPORTS IN AMERICA (3) LEC. 3. Sociological perspectives on sports in the social system; organization and culture of sports in relationship to social class, race, and gender; and the interconnections between sport and society.

SOCY 3250 SENTENCING AND CORRECTIONS (3) LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. In-depth analysis of sentencing policies and the correction system.

SOCY 3300 SOCIOLOGY OF THE FAMILY (3) LEC. 3. Family as a major social institution, with emphasis on the American family; cross-cultural comparisons for perspective.
**SOCY 3500 MINORITY GROUPS (3)** LEC. 3. Pr. SOCY 1000 or SOCY 1007. Exploration of the sources and uses of minority representations in the United States addressing inequalities such as race, ethnicity, gender, and sexual orientation.

**SOCY 3550 DELINQUENCY AND JUVENILE JUSTICE (3)** LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Nature and distribution of delinquency in the United States, as well as the various components of the juvenile justice system.

**SOCY 3700 METHODS OF SOCIAL RESEARCH (3)** LEC. 3. Pr. SOCY 1000 or SOCY 1007. Methodological approaches to data collection used by social scientists including logic of science, hypothesis formation, and research design.

**SOCY 4000 SOCIALIZATION (3)** LEC. 3. Examination of mind, self, society, and interaction as symbolic phenomena grounded in social process; covers major intellectual influences, concepts, and figures.

**SOCY 4100 DEVIANCE (3)** LEC. 3. Analysis of creation and reaction to deviance through theoretical approaches; examines several deviant groups.

**SOCY 4200 MEDICAL SOCIOLOGY (3)** LEC. 3. Nature and organization of medical practice and health delivery systems with special attention to the role of physicians, patients, and disease and to the relationship between culture, politics, and health.

**SOCY 4300 FIELD INSTRUCTION (3)** LEC. 3. Pr., Departmental approval. Supplementary instruction concurrent with experience in some field of work involving application of sociological perspectives to community life. Course may be repeated for a maximum of 6 credit hours.

**SOCY 4400 CONTEMPORARY THEORY (3)** LEC. 3. Survey of theorists from Comte to the present, emphasizing theory construction, theoretical analysis, and differences in theoretical approaches.

**SOCY 4700 THEORIES OF CRIME AND CRIMINALITY (3)** LEC. 3. Theories of crime causation with emphasis on theory construction, theory analysis, and differences in theoretical approaches.

**SOCY 4800 SENIOR SEMINAR (3)** LEC. 3. Building upon prior coursework in theory, methods, and statistics for an in-depth examination of substantive areas in sociology. Students must demonstrate proficiency in critical thinking and analysis and in written and oral communication.

**SOCY 4960 SPECIAL PROBLEMS IN SOCIOLOGY (3)** AAB/IND. 3. Pr., Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 6 credit hours.

**SOCY 4967 HONORS SPECIAL PROBLEMS (1-3)** IND. 3. Pr. Honors College or Departmental approval. Independent reading program under supervision, to allow pursuit of specific interests in sociology not covered in other course offerings. Course may be repeated for a maximum of 3 credit hours.

**SOCY 4997 HONORS THESIS (1-3)** IND. Pr. Honors College or departmental approval. Course may be repeated for a maximum of 3 credit hours.

**SOCY 5120 CRITICAL THINKING AND STRUCTURED ANALYSIS (3)** LEC. 3. Pr. SOCY 1000 or SOCY 1007 or Departmental approval. Exploration of various methodological and analytical issues related to critical thinking and structured analysis.

**SOCY 5200 SOCIOLOGY OF LAW (3)** LEC. 3. Controversial and contemporary issues in criminal law from a sociological perspective.

**SOCY 5300 INFORMATION METHODS AND CYBER ANALYSIS (3)** LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Overview of various methods and techniques of open source information analysis in the private and public sectors.

**SOCY 5310 ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3)** LEC. 3. Pr. (SOCY 1000 or SOCY 1007) and SOCY 5120 or Departmental approval. Application of methods and techniques of information analysis and related report writing.

**SOCY 5400 SOCIOLOGY OF MENTAL HEALTH (3)** LEC. 3. Pr. SOCY 1000 or SOCY 1007. Social analysis of the nature, development, identification, and treatment of mental illness. Credit with not be given for both SOCY 5400 and SOCY 6400.

**SOCY 5500 VICTIMOLOGY (3)** LEC. 3. Impact of victimization upon the crime victim, offender, and society, as well as the dynamics of the victim-offender relationship. Credit with not be given for both SOCY 5500 and SOCY 6500.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Prerequisites/Notes</th>
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<tbody>
<tr>
<td>SOCY 5600</td>
<td>SEX CRIMES (3)</td>
<td>LEC. 3</td>
<td>Criminal sexual behavior, the social influences on what is defined as sexually deviant, and the ways the criminal justice system handles sex offenders. Credit with not be given for both SOCY 5600 and SOCY 6600.</td>
</tr>
<tr>
<td>SOCY 5650</td>
<td>DRUGS AND SOCIETY (3)</td>
<td>LEC. 3</td>
<td>Context and correlates of drug use, relationship with crime and delinquency, and societal reaction to drug abuse. Credit with not be given for both SOCY 5650 and SOCY 6650.</td>
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<td>SOCY 5670</td>
<td>SOCIOLOGY OF GENDER (3)</td>
<td>LEC. 3</td>
<td>Social definitions and implications of gender, with emphasis on work, media, law, and interpersonal relationships. Credit with not be given for both SOCY 5670 and SOCY 6670.</td>
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<td>SOCY 5970</td>
<td>SPECIAL TOPICS IN SOCIOLOGY (3)</td>
<td>LEC. 3</td>
<td>Study of substantive areas sociology. Credit with not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.</td>
</tr>
<tr>
<td>SOCY 6120</td>
<td>CRITICAL THINKING AND STRUCTURED ANALYSIS (3)</td>
<td>LEC. 3</td>
<td>Exploration of various methodological and analytical issues related to critical thinking and structured analysis. Credit with not be given for both SOCY 5120 and SOCY 6120.</td>
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<td>SOCY 6200</td>
<td>SOCIOLOGY OF LAW (3)</td>
<td>LEC. 3</td>
<td>Controversial and contemporary issues in criminal law from a sociological perspective. Credit with not be given for both SOCY 5200 and SOCY 6200.</td>
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<td>SOCY 6300</td>
<td>INFORMATION METHODS AND CYBER ANALYSIS (3)</td>
<td>LEC. 3</td>
<td>Overview of various methods and techniques of open source information analysis in the private and public sectors. Credit will not be given for both SOCY 5300 and SOCY 6300.</td>
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<tr>
<td>SOCY 6310</td>
<td>ADVANCED METHODS OF INFORMATION AND CYBER ANALYSIS (3)</td>
<td>LEC. 3</td>
<td>Application of methods and techniques of information analysis and related report writing. Credit will not be given for SOCY 5310 and SOCY 6310.</td>
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<td>Social analysis of the nature, development, identification, and treatment of mental illness. Credit will not be given for both SOCY 5400 and SOCY 6400.</td>
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<td>SOCY 6970</td>
<td>SOCIOLOGY SPECIAL TOPICS (3)</td>
<td>LEC. 3</td>
<td>Study of substantive areas of sociology. Credit with not be given for both SOCY 5970 and SOCY 6970. Course may be repeated for a maximum of 6 credit hours.</td>
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<tr>
<td>SOCY 7000</td>
<td>ADVANCED SOCIOLOGICAL THEORY (3)</td>
<td>LEC. 3</td>
<td>Review of major types of sociological theory within the context of theoretical paradigms and significant theoretical issues that face the discipline.</td>
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<tr>
<td>SOCY 7100</td>
<td>STATISTICAL ANALYSIS OF SURVEY, AGGREGATE, AND LARGE DATA SOURCES (3)</td>
<td>LEC. 3</td>
<td>Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for both SOCY 7100 and STAT 7100.</td>
</tr>
<tr>
<td>SOCY 7200</td>
<td>SEMINAR IN SOCIAL BEHAVIOR (3)</td>
<td>SEM. 3</td>
<td>Research and theory concerning social and group influences on behavior.</td>
</tr>
<tr>
<td>SOCY 7250</td>
<td>SOCIOLOGY OF VIOLENCE (3)</td>
<td>LEC. 3</td>
<td>In-depth coverage of various forms of violence from the sociological perspective.</td>
</tr>
<tr>
<td>SOCY 7800</td>
<td>MENTORING IN THE CLASSROOM (1)</td>
<td>LEC. SU.</td>
<td>First-hand experience in building and planning a course, constructing lectures, tests, and syllabi, presenting and taping a lecture, critiquing performance, developing discussions, and other instructional techniques.</td>
</tr>
<tr>
<td>SOCY 7850</td>
<td>TECHNOLOGY AND TEACHING IN SOCIOLOGY (1)</td>
<td>LEC. 1</td>
<td>Technology as a teaching tool sociology classes.</td>
</tr>
</tbody>
</table>
SOCY 7930 DIRECTED STUDIES (3) IND. 3. Pr., Departmental approval. Independent reading course under the supervision of a department faculty member. Course may be repeated for a maximum of 6 credit hours.

SOCY 7990 RESEARCH AND THESIS (1-10) MST. Preparation of a thesis. Course may be repeated with change in topics.

Statistics - STAT

Courses

STAT 2010 STATISTICS FOR SOCIAL AND BEHAVIOR SCIENCES (4) LEC. 3. LAB. 2. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617. Introduction to basic principles of statistical reasoning and statistical procedures used in data analysis in the social and behavioral sciences.


STAT 2510/2513 STATISTICS FOR BIOLOGICAL AND HEALTH SCIENCES (3) LEC. 3. Pr. MATH 1100 or MATH 1120 or MATH 1123 or MATH 1130 or MATH 1133 or MATH 1150 or MATH 1153 or MATH 1610 or MATH 1613 or MATH 1617 or MATH 1680. Introduction to statistical concepts, reasoning and methods used in data analysis, descriptive statistics, sampling distributions, statistical inference, confidence intervals, regression or correlation, contingency tables. Students who have previous credit in any higher-numbered math course may not receive credit.

STAT 2600 BUSINESS ANALYTICS I (3) LEC. 3. Pr. MATH 1680 or MATH 1683 or P/C COMP 1000 or COMP 1003. Introduction to analytics in business including use of data to make business decisions, basic predictive business modeling, and communication of analytical results. Minimum 2.0 overall cumulative undergraduate GPA.

STAT 2610 STATISTICS FOR BUSINESS AND ECONOMICS (3) LEC. 3. Pr. MATH 1690. Introduction to statistical analysis, theory, and interpretation used in business and economics.

STAT 2710 STATISTICAL COMPUTING (1) LEC. 1. Pr. (P/C STAT 2010 or P/C STAT 2017) and (P/C STAT 2510 or STAT 2513) and P/C STAT 2610 and P/C STAT 3010. Introduction to basic statistical computing programs and methods.

STAT 3010 STATISTICS FOR ENGINEERS AND SCIENTISTS (3) LEC. 3. Pr. MATH 1610 or MATH 1613 or MATH 1617 or MATH 1710. Introduction to statistical methods and analysis used in engineering and science.

STAT 3600/3603 PROBABILITY AND STATISTICS I (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627 or MATH 1720. Calculus-based introduction to probability and statistics with an emphasis on practical problem-solving.

STAT 3610 PROBABILITY AND STATISTICS II (3) LEC. 3. Pr. STAT 3600. Departmental approval. Continuation of STAT 3600.

STAT 3611 PROBABILITY AND STATISTICS II LABORATORY (1) LAB. 2. Departmental approval. Coreq. STAT 3610. The application of statistical techniques from STAT 3610.

STAT 4610 APPLIED REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 3610 or STAT 3010. Least squares estimation, hypothesis testing and confidence interval estimation in regression; simple, polynomial and multiple linear regression; residual and lack-of-fit analysis; use of dummy variables; multiple and partial correlation analysis; model building algorithms and model comparisons; transformations.

STAT 4620 APPLIED NONPARAMETRIC STATISTICS (3) LEC. 3. Review of elementary probability; goodness-of-fit tests; for singles and several location parameters; tests for scale parameters; distribution tests; measures of association; bootstrap and permutation tests.

STAT 4630 APPLIED TIME-SERIES ANALYSIS (3) LEC. 3. ARIMA models: the autoregressive process, the moving average process, and the ARMA process; forecasting, errors and confidence intervals, updating forecast models; estimation; model building and assessment; applications in econometrics.

STAT 4970 SPECIAL TOPICS IN STATISTICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interest of students. Course may be repeated for a maximum of 6 credit hours.
STAT 5000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time dependent data with a focus on Data Science.

STAT 5110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 5330 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/6336.

STAT 5600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010 or MATH 1620. Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, maximum likelihood estimation, Bayesian statistics, hypothesis testing, prediction, sampling and resampling methods, multivariate statistics.

STAT 5650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 5000 or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 5670 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT 5670 and MATH 5670.

STAT 5680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 5670 or MATH 5670. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 5680 and MATH 5680.

STAT 5690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 5690 and MATH 5690.

STAT 6000 INTERMEDIATE STATISTICAL METHODS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010. C Grade or better in STAT 3610 or STAT 3010 or equivalent. Principles of probability and statistics, multiple testing and bootstrapping, parametric and nonparametric regression, generalized linear models, time-dependent data.

STAT 6110 SAS PROGRAMMING AND APPLICATIONS (3) LEC. 3. Pr. STAT 3010 or STAT 3610 or P/C STAT 7000. Emphasis is placed on using SAS routines to obtain statistical analyses for common statistical methods and interpreting output.

STAT 6330/6336 DATA BASED DECISION MAKING USING SIX SIGMA (3) LEC. 3. Pr. STAT 3610 and INSY 4330. Departmental approval. Covers statistical tools needed for implementation of "Six Sigma", "Learn Six Sigma" and "Design for Six Sigma". Credit will not be given for both STAT 5330 and STAT 6330/6336.

STAT 6600 PROBABILITY AND STATISTICS FOR DATA SCIENCE (3) LEC. 3. Pr. STAT 3610 or STAT 3010 and MATH 1620. Grade of C or better in STAT 3610 or STAT 3010 and Grade of C or better in MATH 1620 or equivalent. Basic probability theory, random variables, multivariate random variables, expectation, random processes, times series, convergence of random processes, Markov chains, Maximum Likelihood Estimation, Bayesian statistics, hypothesis testing, prediction, Sampling and Resampling methods, multivariate statistics.

STAT 6630 SAMPLE SURVEY, DESIGN AND ANALYSIS (3) LEC. 3. Pr. STAT 3600. Departmental approval. Estimation of means, proportions, finite populations, stratified sampling systematic sampling ratio estimations.
STAT 6650 STATISTICAL LEARNING (3) LEC. 3. Pr. STAT 6000 or equivalent. Introduction to modern methods and algorithms in Statistics. Topics include common supervised and unsupervised learning methods such as linear regression, logistic regression, regularization, non-parametric regression, model assessment and selection, neural network, support vector machines, principal components analysis.

STAT 6670/6676 PROBABILITY AND STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 2630 or MATH 2637. Random variables, discrete and absolutely continuous distributions. Poisson process, expectation and conditional expectation. Moment generating functions, limit distributions. Emphasis on probabilistic reasoning and problem solving. Credit will not be given for both STAT and MATH 6670.

STAT 6680 PROBABILITY AND STOCHASTIC PROCESSES II (3) LEC. 3. Pr. MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676. Multivariate distributions, Central Limit Theorem, Laplace transforms, convolutions, simulations, renewal processes Continuous-time Markov chains, Markov renewal and semi-regenerative processes, Brownian motion and diffusion. Credit will not be given for both STAT 6680 and MATH 6680.

STAT 6690 CHAOTIC AND RANDOM PHENOMENA (3) LEC. 3. Pr. MATH 1620 or MATH 1623 or MATH 1627. Statistics and modeling of random phenomena in connection to computational complexity, data analysis, processes of chance and chaotic nonlinear systems. Credit will not be given for both STAT 6690 and MATH 6690.

STAT 7000 EXPERIMENTAL STATISTICS I (4) LEC. 4. Departmental approval. Paired and independent sample t-tests, ANOVA, F-tests, contrasts, tests for trends, multiple comparisons, CR and RCB designs of experiments, regression.

STAT 7010 EXPERIMENTAL STATISTICS II (3) LEC. 3. Pr. STAT 7000. Advanced topics in experimental design: writing linear models for experiment-expected mean squares, variance components, nested designs, Latin Square Designs, split plot designs, ANOVA and multiple regression.

STAT 7020 REGRESSION ANALYSIS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Introduction to the method of least squares as it applies to regression and analysis of variance. Simple linear regression, multiple regression, model selection and diagnostics.

STAT 7030 CATEGORICAL DATA ANALYSIS (3) LEC. 3. Pr. STAT 3600 or MATH 3600 or STAT 7000. Departmental approval. Methods for analysis of categorical response data. Topics include Chi-square tests, Likelihood Ratio tests, Logistic Regression, and Loglinear Modeling.

STAT 7040 BIOSTATISTICS (3) LEC. 3. Pr. STAT 7000. Departmental approval. Epidemiology, biometry, methods of survival analysis.

STAT 7100 STATISTICAL ANALYSIS OF SURVEY, AGGREGATE AND LARGE DATA SOURCES (3) LEC. 3. Pr. STAT 2010 or STAT 2017. Departmental approval. Techniques commonly used in multivariate statistical analysis of data sources such as surveys, archival records, and other large data sets. Credit will not be given for STAT 7100 and SOCY 7100.

STAT 7250 PRACTICAL DATA ANALYSIS AND COMPUTATION FOR THE LIFE SCIENCES (3) LEC. 2. LAB. 3. Pr. STAT 7020 or WILD 7150. Data from the life sciences and advanced statistical techniques for data analyses and computations are brought together through a cross-fertilization of graduate students in the life sciences, statistics, and mathematics. Focus on production of publication-quality research on student-identified projects.

STAT 7270 EXPERIMENTAL DESIGN IN PSYCHOLOGY (4) LEC. 4. Pr. STAT 7000 and STAT 7020. Introduction to the analysis of data collected under differential experimental designs. Credit will not be given for both STAT 7270 and PSYC 7270.

STAT 7300/7306 ADVANCED ENGINEERING STATISTICS I (3) LEC. 3. Pr. STAT 3610. Departmental approval. Advanced concepts of experimental design including blocking, regression approach to analysis of variance, fractional factorials in base-2, and base-3 designs. Emphasis throughout is on improving industrial products and processes. Credit will not be given for both STAT 7300 and INSY 7300.

STAT 7310/7316 ADVANCED ENGINEERING STATISTICS II (3) LEC. 3. Pr. STAT 7300 or STAT 7306 or INSY 7300 or INSY 7306. Fractional factorial experimentation applied for the purpose of process and quality improvement and optimization, introduction to analysis of covariance, multiple regression analysis, and response surface analysis. Credit will not be given for both STAT 7310 and INSY 7310.

STAT 7600 STATISTICAL THEORY AND METHODS I (3) LEC. 3. Pr. STAT 3600. Departmental approval. Random variables, probability theory, random variables, probability distributions, sampling distributions, convergence.
STAT 7610 STATISTICAL THEORY AND METHODS II (3) LEC. 3. Pr. STAT 7600. Likelihood ratio, regression, ANOVA, categorical data, non-parametric methods, decision theory.


STAT 7650 COMPUTATIONAL STATISTICS (3) LEC. 3. Pr. STAT 7020 and STAT 7610. This course covers the theory and practice of common algorithms used for simulation, computing, and optimization in Statistics.

STAT 7670 APPLIED LONGITUDINAL DATA ANALYSIS (3) LEC. 3. To introduce students to statistical models and methods for the analysis of longitudinal data, i.e. data collected repeatedly on individuals (humans, animals, etc) over time (or other conditions).

STAT 7700 GENERALIZED LINEAR MODELS (3) LEC. 3. Pr. STAT 7600. Departmental approval. Exponential families and links functions, model fitting, likelihood methods, residual diagnostics, count data, estimating equations.


STAT 7800 LINEAR MODELS (3) LEC. 3. Pr. STAT 7610 and MATH 2660. Departmental approval. A rigorous development of some of the important topics of applied statistics: the multivariate normal distribution analysis of variance, regression, aspects of experimental design.

STAT 7810/7816 MODERN STOCHASTIC PROCESSES I (3) LEC. 3. Pr. (MATH 6670 or MATH 6676 or STAT 6670 or STAT 6676) and MATH 6210. Classical and Modern Topics in stochastic processes (Markov chains, Poisson process, Brownian motion). Applications and stochastic models (queues, stationary processes, population dynamics, finances). Credit will not be given for both STAT 7810 and MATH 7810.

STAT 7820/7826 APPLIED STOCHASTIC PROCESSES I (3) LEC. 3. Pr. MATH 7810 or MATH 7816 or STAT 7810 or STAT 7816. Classical and modern topics in stochastic processes (Markov processes, Random Walks, Martingales, Brownian motion.) Introduction to stochastic integrals and differential equations. Applications (queues, population dynamics, chaos finances). Credit will not be given for both STAT 7820 and MATH 7820.

STAT 7830 APPLIED STOCHASTIC PROCESSES II (3) LEC. 3. Pr. STAT 7810 or STAT 7816.

STAT 7840 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7850 THEORY OF STATISTICAL INFERENCE (3) LEC. 3. Pr. STAT 7610. Departmental approval. Bayesian methods, Markov Chain Monte Carlo methods, resampling techniques.

STAT 7860 APPLIED MULTIVARIATE STATISTICAL ANALYSIS (3) LEC. 3. Pr. STAT 7000. Multivariate normal distribution, Hotelling's T2, MANOVA, discriminate analysis, principal components.

STAT 7880 APPLIED TIME SERIES ANALYSIS (3) LEC. 3. Pr. STAT 3610. Departmental approval. Autoregressive and moving average models, differencing, estimation and forecasting, spectral theory.

STAT 7940 CAPSTONE PROJECT (3) LEC. 3. Discuss various topics while working on an industry-level project. Students will complete a semester-long project under the supervision of instructors.

STAT 7960 SPECIAL PROBLEMS IN STATISTICS (1-10) RES. Credit will not be given for both MATH 7960 and STAT 7960. Course may be repeated for a maximum of 10 credit hours.

STAT 7970 SPECIAL TOPICS (1-3) LEC. Departmental approval. Special topics designed to meet the needs and interests of students. Course may be repeated for a maximum of 6 credit hours.


STAT 7990 RESEARCH AND THESIS (1-10) DSR. Research for Master's thesis in Statistics. Course may be repeated with change in topic.

STAT 8400 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT I (3) LEC. 3. Pr. STAT 7000. or approved equivalent. Study of the application of linear regression analysis to business research. First advanced course in applied linear statistics models.
STAT 8410 ADVANCED QUANTITATIVE METHODS MANAGEMENT II (3) LEC. 3. or approved equivalent. Introduction to multivariate techniques in business research. Study of the theory and applications of ANOVA, ANCOVA, MANOVA, MANCOVA, Discriminate Analysis & Polytomous Logistic Regression.

STAT 8420 ADVANCED QUANTITATIVE METHODS FOR MANAGEMENT III (3) LEC. 3. Pr. STAT 7100 and STAT 8400 and STAT 8410. or approved equivalent. Third course in statistical modeling. Emphasis on applications of Principal Components Analysis, and Structural Equation Modeling to management research.

Supply Chain Management - SCMN

Courses

SCMN 2150/2153 OPS: MANAGEMENT OF BUSINESS PROCESSES (2) LEC. 2. Fundamental concepts, techniques and tools of business processes.

SCMN 3710/3713 LOGS: MNGT OF FULFILLMENT PROC (3) LEC. 3. Management of logistics processes involved in meeting customer demand, including inventory, transportation, distribution, and related activities. Fall, Spring. Junior standing.


SCMN 3730 PURCHASING: SUPPLY MANAGEMENT AND SEARCHING (3) LEC. 3. In-depth coverage of purchasing and supply management processes, strategies, and tools. Fall, Spring. Junior standing.

SCMN 3810 PROFESSIONAL DEVELOPMENT IN SUPPLY CHAIN MANAGEMENT (1) LEC. 1. SU. Pr. P/C BUSI 2010. SCMN majors only. Career planning and preparation for supply chain internships and professional experience opportunities. Credit will not be given for both SCMN 3810 and BUSI 3010 or SCMN 4810.

SCMN 3910 PRACTICUM IN SUPPLY CHAIN MANAGEMENT (1) PRA. 3. SU. Pr. SCMN 3150 or SCMN 3153 or SCMN 3710 or SCMN 3713. Departmental approval. SCMN majors only. Cooperatively selected field activity to gain practical SCM experience. Course may be repeated for a maximum of 3 credit hours.

SCMN 3920 INTERNSHIP IN SUPPLY CHAIN MANAGEMENT (0-6) AAB/INT. SU. Pr. SCMN 3150 or SCMN 3153 or SCMN 3710 or SCMN 3713. SCMN majors only. Departmental approval. Professional work experience in a supply chain focused position. Course may be repeated for a maximum of 6 credit hours.

SCMN 4700 SUPPLY CHAIN PERFORMANCE MANAGEMENT (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. SCMN majors only. Understanding and managing supply chain performance through the use of metrics, analysis, and improvement strategies. Fall, Spring.

SCMN 4730 SUPPLY CHAIN TOOLS AND TECH (3) LEC. 3. Pr. SCMN 3150 or SCMN 3153. Tools, techniques and technologies of various supply chain processes.

SCMN 4770 SUPPLY CHAIN OPERATIONS MANAGEMENT (3) LEC. 3. Pr. SCMN 3150 and SCMN 3710 and SCMN 3720 and SCMN 3730. Review and application of current supply chain strategies processes and information technologies required to compete in today's global marketplace. The course will focus on presenting key manufacturing management techniques used to balance supply with demand to ensure customer satisfaction.

SCMN 4780 INTEGRATED LOGISTICS STRATEGY (3) LEC. 3. Pr. (SCMN 3710 or SCMN 3713) and SCMN 3720. SCMN 3710 & SCMN 3720 requires a grade of C or better. Strategies and tactics for improving service and financial performance of transportation companies and their customers. Fall.

SCMN 4800 SUPPLY CHAIN STGY:GLOBAL PERSP (3) LEC. 3. Pr. and SCMN 3710 and SCMN 3720 and SCMN 3730. Capstone course providing an intensive study of strategies used to facilitate global flows of product, information, and payments. Fall, Spring.

SCMN 4900 DIRECTED STUDIES IN SUPPLY CHAIN MANAGEMENT (1-3) AAB/LEC. SU. Pr. (SCMN 3150 or SCMN 3153) and (SCMN 3710 or SCMN 3713) and SCMN 3720 and SCMN 3730. Departmental approval. Advanced individual research of SCM topic under direction of a faculty member. Course may be repeated for a maximum of 3 credit hours.

SCMN 4970 SPEC TOPS IN SUPPLY CHAIN MGMT (3-6) AAB. Pr. (SCMN 3150 or SCMN 3153) and (SCMN 3710 or SCMN 3713). Current topics and issues related to the field of supply chain management. Course may be repeated for a maximum of 6 credit hours.
SCMN 5710 ADVANCED PROCESS ANALYSIS (3) LEC. 3. Pr. SCMN 3150 or SCMN 3153. Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Fall, Spring.

SCMN 5720 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. (SCMN 3150 or SCMN 3153) and (BUAL 2600 or STAT 2010 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring.

SCMN 6710 ADVANCED PROCESS ANALYSIS (3) LEC. 3. Advanced concepts, techniques and tools for process analysis; process performance; process control; process design. Fall, Spring.

SCMN 6720/6726 QUALITY & PROCESS IMPROVEMENT (3) LEC. 3. Pr. (SCMN 3150 or SCMN 3153) and (BUAL 2600 or STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010). Fundamentals of process improvement; techniques for performing quality control functions; quality management systems. Fall, Spring.

SCMN 6900/6906 DIRECTED STUDIES (3) IND. 3. SU. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 6960/6966 SPECIAL PROBLEMS (3) IND. 3. This course is a self-learning course designed to enhance the student's knowledge of a selected topic. The course will be designed individually for each student with agreement between the student and the professor. Coursework may include traditional exams, readings, papers, or more specific projects and tasks depending on the material and the goal of the student. Course may be repeated for a maximum of 9 credit hours.

SCMN 7600/7606 SUPPLY MNGT AND MANUFACTURING (3) LEC. 3. The management of purchasing, supply and materials management, manufacturing processes related to the fulfillment of supply chain requirements. Spring.

SCMN 7700/7706 DEMAND MNGT & FULFILLMENT (3) LEC. 3. Departmental approval. The management of logistical processes related to the fulfillment of supply chain requirements. Primary topics include integrated planning, operations, and performance analysis of demand, inventory, transportation, distribution, and customer relationships. Summer.

SCMN 7776 SUPPLY CHAIN MANAGEMENT (3) LEC. 3. Problems and analysis in the design and management of the retail, industrial and service supply chain.

SCMN 7800/7806 SUPPLY CHAIN STRATEGY (3) LEC. 3. Departmental approval. Advanced study of integrated supply chain theory, strategy, and practice. Topics include network design, collaboration, inventory visibility, process synchronization, information management, and financial analysis. Fall.

**Sustainability Studies - SUST**

**Courses**

**SUST 2000 INTRODUCTION TO SUSTAINABILITY (3)** LEC. 3. Introduction to the interdisciplinary study of sustainability. May count either SUST 2000 or HONR 1027/HONR 1037.

**SUST 4900 DIRECTED STUDIES IN SUSTAINABILITY (1-3)** IND. Departmental approval. Advanced individual research and/or coursework in the field of sustainability studies. Course may be repeated for a maximum of 3 credit hours.

**SUST 5000 SENIOR CAPSTONE IN SUSTAINABILITY (3)** LEC. 3. Pr. SUST 2000. Capstone research seminar for students completing the Minor in Sustainability Studies.

**Theatre - THEA**

**Courses**

**THEA 1010 INTRODUCTION TO THEATRE FOR MAJORS I (3)** LEC. 2, LLB. 2. Overview of all areas of theatrical collaboration intended specifically for the incoming theatre majors. Introduces theatre majors to academic skills they will need to pursue the theatre major at Auburn University. Theatre majors who do not earn a grade of "C" or higher must repeat this course.
THEA 1110 INTRODUCTION TO THEATRE FOR MAJORS II (3) LEC. 2, LLB. 2. Pr. THEA 1010. Introduction to a variety of perspectives regarding theatrical practices, theories, and texts. Focus on productive working relationships and collaborative skills necessary for a successful life in the theatre. Course culminates in the creation of a new performance piece. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 1530 DANCE LAB 1 - TAP (1) LAB. 3. Introduction to traditional tap dance. Exploration of technical concepts, rhythm combinations, and improvisations designed to test and develop tap dance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1570 DANCE LAB 1 - BALLET (1) LAB. 4.5. Beginning studio introduction to ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1670 DANCE LAB 1 - JAZZ (1) LAB. 3. Studio introduction to and exploration of jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 1910 PRODUCTION PRACTICUM I (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.


THEA 2020/2023 AESTHETICS OF ACTING (3) LEC. 3. Fine Arts Core. An orientation to acting aesthetics as a means of understanding and engaging the arte of theatre.

THEA 2080 PERFORMANCE TECHNIQUES FOR THE CAMERA (3) LEC. 1, LST. 3. Theory and practice of specialized performance techniques for television and film. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2110 VOICE AND MOVEMENT FUNDAMENTALS (2) STU. 4. Coreq. THEA 2111. Exploration and study of fundamental issues in vocal production, articulation, and movement. Introduction to vocal anatomy, breathing/relaxation/alignment techniques, and integrated vocal and movement exercises applied in a variety of texts. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2111 VOICE AND MOVEMENT FUNDAMENTALS LAB (1) LAB. 2. Coreq. THEA 2110. Exploration and application of vocal and physical skills designed to enhance vocal production, physical flexibility and integrated execution of vocal and physical performance skills. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2120 ACTING I (3) LEC. 2, LST. 2. Introduction to basic acting techniques, literature, and performance through improvisation, contemporary scene study and attendance at theatre performances. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2300 STAGE MANAGEMENT (3) LEC. 3. Examination of the theories and techniques of stage management in the producing organization, including management, organization, auditions, rehearsal, safety practices, and production procedures. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2310 THEATRE TECHNOLOGY I (3) LEC. 3. A comprehensive introduction to the study of technical theatre; theoretical and practical applications of equipment, materials, and techniques used in technical theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2400 DESIGN AESTHETICS (3) LEC. 3. An exploration of the fundamental elements and principles of design, pictorial composition, and design theory, and their relationships and potential for application in scenic, costume, and lighting design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2570 DANCE LAB 2 - BALLET (1) LAB. 4.5. Pr. THEA 1570. Intermediate studio training in ballet technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.
THEA 2610 COSTUME CONSTRUCTION (3) LEC. 1, LST. 3. Fundamentals of machine sewing techniques, pattern drafting and draping, fabric dyes, and craftwork as they relate to theatrical costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2650 STAGE MAKEUP (3) LEC. 1, LST. 3. Theories and techniques of stage makeup, practical design and execution of basic makeup techniques, special effects, and character makeups. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 2670 DANCE LAB 2 - JAZZ (1) LAB. 3. Pr. THEA 1670. Intermediate studio training in jazz technique. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 2700 TEXT ANALYSIS (3) LEC. 3. Script Analysis provides students with the tools to read and interpret scripts from a variety of perspectives with a focus upon implications for production. Students will analyze plays for character, plot, theme, action, given circumstances, and production requirements.

THEA 2810 THEATRE PRODUCTION I (3-6) STU. Departmental approval. Coreq. THEA 2820. Intensive study of theatre arts through participation in the Auburn University Summer Repertory Company, focusing mainly on technical work and design. Course may be repeated for a maximum of 12 credit hours.

THEA 2820 SUMMER REPERTORY THEATRE COMPANY I (3-6) STU. Departmental approval. Coreq. THEA 2810. Concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Course may be repeated for a maximum of 12 credit hours.

THEA 2840 BEGINNING DANCE TECHNIQUES (3) LEC. 1, LST. 3. Beginning level dance technique and theory, focusing on dance as an art form, including a survey of dance in different cultural and historical contexts. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 2910 PRODUCTION PRACTICUM II (1) STU. 4. Pr. THEA 1910. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 2940 APPLIED THEATRE I: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3110 VOICE FOR THE ACTOR II (3) LEC. 2, LST. 2. Pr. THEA 2110. Continuing study of vocal production and articulation techniques in tests of increasing complexity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3120 ACTING II (3) LEC. 2, LST. 2. Pr. THEA 2120. Exploration of internal and external acting theory and techniques in modern and classical scene study. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3140 MUSIC THEATRE ACTING (3) LEC. 3. LAB. 3. Pr., Admission into the (THMU major) or Departmental approval. Exploration of acting techniques and performance through music theatre scene and song study, analysis, and history of music theatre repertoire culminating in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3150 BFA PERFORMANCE STUDIO I (4) LEC. 3, LST. 5. Pr., Admission into the (THPR or THMU majors. Intensive study and practice integrating advanced contemporary scene study, audition technique, and the Fitzmaurice Voicework system. Students who do not earn a grade of "C" or better must re-audition for the BFA program and repeat the course.

THEA 3160 BFA PERFORMANCE STUDIO II (4) LEC. 3, LST. 5. Pr. THEA 3150. Intensive study and practice integrating Shakespeare and scene study of poetic texts with continuing work in Fitzmaurice Voicework system. Must earn a grade of "C" or higher or re-audition for the BFA program and repeat THEA 3150 and THEA 3160.

THEA 3190 SINGING PRACTICUM (1) STU. 1. Group instruction in musical theatre singing. Students will be introduced to the primary principles of posture, breathing, resonance, vocal health, direction, interpretation, and repertoire selection. Theatre majors who do not earn a grade of "C" or higher must repeat. Course may be repeated for a maximum of 2 credit hours.

THEA 3210 THE BUSINESS OF THEATRE (3) LEC. 3. Pr. THEA 1010 and THEA 1110 and THEA 2300 and THEA 2310 and THEA 1910 and THEA 2910. Discussion, research, and implementation of the practices necessary to be successful as a freelance artist in the current performing arts field.
THEA 3220 ARTS MANAGEMENT (3) LEC. 3. Pr. THEA 2300. THEA 2300 with a minimum grade of "C". Exploration of arts organizational structures, budgeting for non-profit and for-profit arts organizations, basic business and marketing practices, historical principles and practices of arts and cultural organizations.

THEA 3320 THEATRE TECHNOLOGY II (3) LEC. 2, LST. 2. Pr. THEA 2310. Theoretical and practical applications of equipment and techniques in technical theatre. Topics include light, sound mechanics, theatre rigging, equipment, special effects, and computer applications. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3330 SCENE PAINTING (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Studio-oriented course introducing the principles, techniques, and media of the scenic artist. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3350 TECHNICAL DIRECTION/PRODUCTION MANAGEMENT (3) LEC. 3. Pr. THEA 2310 and THEA 3320 or Departmental approval. Exploration of the roles and responsibilities of the technical director and the production manager in the coordination and execution of technical elements for theatre productions. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3400 RENDERING FOR THE THEATRE (3) LEC. 2. LAB. 2. Pr. THEA 2400 or Departmental approval. Traditional drawing and rendering techniques and medias that help the designer to communicate scenic, costume, and lighting designs. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3410 SCENE DESIGN I (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Discussion, research, and execution of theory and practices of designing scenery for the stage. Emphasis on traditional style and methods of design and presentation for the proscenium theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3420 PROPERTY DESIGN AND TECHNOLOGY (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. History, design, organization, application of materials, and techniques used in the design and construction of properties for the theatre, film, and television. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3450 DRAFTING FOR THE THEATRE I (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. A comprehensive study of the techniques and methods used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3510 LIGHTING DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2310 or Departmental approval. Studio course that explores the theory, research, and practice of stage lighting, practical illumination, and effects lighting. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3520 SOUND DESIGN (3) LEC. 2, LST. 2. Pr. THEA 3320 or Departmental approval. Equipment and techniques used in sound design, as both a design and a technical medium. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3570 DANCE LAB 3 - BALLET (1) LAB. 4.5. Pr. THEA 2570. Intermediate advanced studio in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3610 ADVANCED COSTUME CONSTRUCTION (3) LEC. 2, LST. 2. Pr. THEA 2610 or Departmental approval. Historical pattern making and draping, millinery skills, and craft techniques, and their practical applications in theatre costuming. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3640 COSTUME DESIGN (3) LEC. 2, LST. 2. Pr. THEA 2400 or Departmental approval. Costume design and rendering as it relates to historical and original design for the theatre. Exploration of design for television, commercials, and rock stars. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3670 DANCE LAB 3 - JAZZ (1) LAB. 3. Pr. THEA 2670. Intermediate advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 3710 THEATRE HISTORY, THEORY AND CRITICISM II - BODY (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on the human body as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include such topics as historical and theoretical perceptions of the social status of the actor, the actor's body as a medium of representation, and theatrical representations of gender and ethnicity. Theatre majors who do not earn a grade of "C" or higher must repeat this course.
THEA 3720 THEATRE HISTORY, THEORY AND CRITICISM III - SPACE (3) LEC. 2, LST. 2. Examination of the history, literature, and theory of the theatre from prehistory to the present with an emphasis on theatrical space as a broad category for understanding a variety of issues and topics relevant to contemporary theatre practice. Areas of exploration include ritual landscapes as they pertain to the origin of drama, the development of the western playhouse, the avant-garde reconceptualization of theatre space, and the development of such spatially oriented American institutions as Broadway and regional theatre. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3730 MUSIC THEATRE HISTORY (3) LEC. 3. Exploration of music theatre literature, performances, historical, analytical and critical trends from the early 20th century to the present day. Areas of exploration include music theatre as a work of art with unique conversations about aesthetics and form, as an entertainment media shaped by its historical and cultural context, and as a viable performance form for the 21st century. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3740 COSTUME HISTORY (3) LEC. 3. History of Western costume and its uses in the theatre from ancient times to the present. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3800 THEATRE EVENTS MANAGEMENT (3) SEM. 3. Pr. THEA 2300. THEA 2300 with a grade of "C" or higher. This course is an introduction to the researching, planning, coordinating, marketing, facilitation/management and assessment of special events, specifically as they relate to the performing arts. Through practical application, each student will gain experience in the basic entrepreneurial skills necessary to plan a public arts event.

THEA 3840 INTERMEDIATE DANCE TECHNIQUES I (3) LEC. 1, LST. 3. Pr. THEA 2840. Intermediate level dance technique and theory, with an emphasis on performance qualities including work on alignment, strength, flexibility, rhythm, musicality, and dynamics, as well as the study of select contemporary choreographers. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3850 INTERMEDIATE DANCE TECHNIQUES II (3) LEC. 1, LST. 3. Pr. THEA 2840. Further exploration into intermediate level dance technique and theory, with emphasis on aesthetics and contemporary topics in dance. THEA 3840 and THEA 3850 need not be taken in sequence. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 3860 MOVEMENT FOR THE ACTOR (3) STU. 4. Introduction to the basic concepts of movement as it relates to the actor. Integrative ways of connecting the body to text and space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3910 PRODUCTION PRACTICUM III (1) STU. 4. Experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 2 credit hours.

THEA 3940 APPLIED THEATRE II: ACTING (1) STU. 4. Pr., Cast in Auburn University Theatre production. Intensive applied work for students cast in Auburn University Theatre productions. Course may be repeated for a maximum of 4 credit hours.

THEA 3950 DIRECTING SEMINAR (3) LEC. 2, LST. 2. Pr. THEA 2120. Study of fundamental skills and collaborative processes needed to direct live theatre, including blocking, script analysis, research methods, approaches to casting, and rehearsal techniques. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 3960 DRAMATURGY SEMINAR (3) LEC. 3. Study of fundamental skills and collaborative processes needed to dramaturg a piece of live theatre including both production and new play dramaturgy, critical analysis, research, presentations, and performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4150 BFA PERFORMANCE STUDIO III (4) LEC. 3, LST. 5. Pr. THEA 3160. Professional preparation with particular focus on individual rehearsal and performance techniques covering a broad spectrum of periods and styles geared toward graduate acting program placement and professional employment. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, and THEA 4150.

THEA 4160 BFA PERFORMANCE STUDIO IV (4) LEC. 3, LST. 5. Pr. THEA 4150. Special problems and topics in performance. Intensive work integrating and applying acting, voice, and movement techniques in an ensemble capstone recital of work in an adjudicated public performance. Students who do not earn a grade of "C" or higher must re-audition for the BFA program and repeat THEA 3150, THEA 3160, THEA 4150 and THEA 4160.
THEA 4420 SCENE DESIGN II (3)  LEC. 2, LST. 2. Pr. THEA 3410 or Departmental approval. Advanced course in theory and practice of scenic and lighting design for theatre. Emphasis on experimental and non-traditional staging in a variety of space. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4450 DRAFTING FOR THE THEATRE II (3)  LEC. 2, LST. 2. Pr. THEA 3450. Comprehensive study of computer and digital techniques used in the graphic representation of stage scenery, equipment, and properties design. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4510 LIGHTING DESIGN II (3)  LEC. 3. LAB. 1. Pr. THEA 2400 and THEA 3510. Lighting Design II provides students with in-depth study of advanced stage lighting techniques, including integration of computer graphics and projections with conventional lighting instruments.

THEA 4570 DANCE LAB 4 - BALLET (1)  LAB. 4.5. Pr. THEA 3570. Advanced studio training in ballet technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4650 ADVANCED STAGE MAKEUP (3)  LEC. 1, LST. 3. Pr. THEA 2650 or Departmental approval. Comprehensive study of specialized makeup, including film and television makeup, mask making, prosthesis, facial hair design, and wig making. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4670 DANCE LAB 4 - JAZZ (1)  LAB. 3. Pr. THEA 3670. Advanced studio training in jazz technique. Course may be repeated for a maximum of 2 credit hours.

THEA 4690 ARTISTS AND COMMUNITIES (3)  SEM. 3. An in-depth analysis and exploration of the role and responsibility of the artist and art within communities. We will explore this idea from multiple perspectives: marketing, general management, artistic direction, performance, urban planning/creative placemaking, fundraising, and nonprofit management.

THEA 4750 PLAYWRITING (3)  LEC. 3. Discussion of the principles of play construction, playwriting exercises, and completion of a one-act play. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4770 CAPSTONE SENIOR DANCE LAB (1)  LAB. 4. Pr. THEA 1530 and THEA 2570 and THEA 2670. Students must be in good standing in BFA Performance Program. Culminating exploration of, and enrichment in musical theatre dance technique ranging from Ballet to Jazz to Hip-hop. Course culminates in a public capstone dance outcome performance.

THEA 4810 THEATRE PRODUCTION II (3-6)  STU. Concentrated workshop experience in all aspects of theatre production through participation in rehearsal and performance. Course may be repeated for a maximum of 12 credit hours.

THEA 4820 SUMMER REPERTORY THEATRE COMPANY II (3-6)  STU. Intensive and concentrated study of production skills and techniques and studio/laboratory experiences. Course may be repeated for a maximum of 12 credit hours.

THEA 4840 ADVANCED DANCE TECHNIQUES (3)  LEC. 1, LST. 3. Pr. THEA 3850. Intensive study of advanced dance techniques in theory and practice. Course often serves as a training and preparation for public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 12 credit hours.

THEA 4910 PRODUCTION PRACTICUM IV (1-4)  STU. Pr. THEA 3910. Or Admission into the THDT or THMN program and two semesters of THEA 3910 or departmental approval. Leadership experience in the design/technical and management areas of production. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 4 credit hours.

THEA 4920 PROFESSIONAL INTERNSHIP (1-8)  INT. Pr., Departmental approval. Internship with professional or community theatre in the student's field of specialization. Each 10-hour work week equals one hour of credit. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 8 credit hours.

THEA 4930 DIRECTED STUDIES (1-3)  IND. Pr., Departmental approval. Directed readings, creative and tutorial projects of interest to the advanced student. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4940 THEATRE SPECIAL PROJECTS (3)  AAB/STU. 4. Pr., Departmental approval. Selected projects related to realizing a theatrical production in public performance. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 9 credit hours.
THEA 4950 THEATRE LITERATURE AND THEORY SEMINAR (3) LEC. 3. Thorough examination of dramatic literature and theory from a narrow perspective (such as genre, style, or era.) Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Subject areas to be determined between student and theatre instructor. Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

THEA 4970 SPECIAL TOPICS (3) LEC. 3. Special Topics in Theatre or Dance. Course may be repeated for a maximum of 9 credit hours.

THEA 4980 SENIOR CAPSTONE PROJECT (3) LEC. 3. Capstone course to aid senior theatre majors in their transition to the professional world and/or graduate studies. Theatre majors who do not earn a grade of "C" or higher must repeat this course.

THEA 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Final projects of varying natures in theatre Theatre majors who do not earn a grade of "C" or higher must repeat this course. Course may be repeated for a maximum of 6 credit hours.

Undergraduate Studies - UNDG

Courses

UNDG 4900 CLEARING FOR UNDERGRADUATE GRADUATION (0) LEC. 2.

University Courses UNIV

Courses

UNIV 0110 IEP TERM I GRAMMAR/WRITING (0) LEC. 2. Administrative approval required.

UNIV 0120 IEP TERM I READING/VOCABULARY (0) LEC. 2. Administrative approval required.

UNIV 0130 IEP TERM I LISTENING/SPEAKING (0) LEC. 2. Administrative approval required.

UNIV 0210 IEP TERM II GRAMMAR/WRITING (0) LEC. 2. Administrative approval required.

UNIV 0220 IEP TERM II READING/VOCABULARY (0) LEC. 2. Administrative approval required.

UNIV 0230 IEP TERM II LISTENING/SPEAKING (0) LEC. 2. Administrative approval required.

UNIV 1000 THE AUBURN EXPERIENCE (1-2) LEC/SEM. Introduce a topic of interest with contemporary importance to beginning college students. Course may be repeated for a maximum of 4 credit hours.

UNIV 1050 SUCCESS STRATEGIES (1) LEC. 1. An introduction to essential academic and personal skills for college success. Designed to familiarize students with university life and improve core academic skills.

UNIV 1060 SUCCESS STRATEGIES II (1-2) LEC. Departmental approval required. Designed for those in academic jeopardy, this course assists students in identifying issues impacting academic success and developing strategies to affect positive change. Course may be repeated for a maximum of 4 credit hours.

UNIV 1067 HONORS SUCCESS STRATEGIES II (1-2) LEC. Pr. Honors College. Department approval required. Designed for those in academic jeopardy, this course assists students in identifying issues impacting academic success and developing strategies to affect positive change. Course may be repeated for a maximum of 2 credit hours.

UNIV 1100 FIRST YEAR SEMINAR (1-2) LEC/SEM. Introduce a topic of interest with contemporary importance to beginning college students. Course may be repeated for a maximum of 4 credit hours.

UNIV 1150 SPECIAL TOPICS WITH LEARNING STRATEGIES (1-2) LEC. This course offers first-year students an opportunity to explore a topical area of interest while integrating related study skills. Course may be repeated for a maximum of 4 credit hours.

UNIV 2300 ABROAD TRANSFER-UG (0) AAB/IND. Completion of Office of International Programs-Auburn Abroad-Transfer application and Study Abroad Transfer Credit Form. Full time placeholder. Allows undergraduate students to obtain financial aid, some scholarships requires individual scholarship source approval).
**UNIV 2710 THE HUMAN ODYSSEY I (3)** LEC. 3. Examines the human endeavor from pre-history through the 17th century by exploring connections between the sciences and humanities.

**UNIV 2720 THE HUMAN ODYSSEY II (3)** LEC. 3. Examines the human endeavor from the 18th century through the present by exploring connections between the sciences and humanities.

**UNIV 2727 HONORS HUMAN ODYSSEY II (3)** LEC. 3. Pr. Honors College. Examines the human endeavor from the 18th century through the present by exploring connections between the sciences and humanities.

**UNIV 2940 AUBURN ABROAD (0) AAB. Pr. 2.25 GPA.** Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

**UNIV 2945 AUBURN ABROAD (0) FLD. Pr. 2.25 GPA.** Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

**UNIV 2960 SCHOOL OF RECORD TRANSIENT COURSE (0) AAB/FLD.** Must be Auburn transient student. Auburn University is the "School of Record" for transient students seeking academic credit for international programs provided by independent vendors. Course content will vary by individual program.

**UNIV 3000 AUBURN EXCHANGE_UNDERGRADUATE (1-12) IND.** Office of International Programs - Auburn Abroad approval and approval of individual department sponsoring the exchange program. Full time 12 hour placeholder course for Undergraduate Exchange Students. Course may be repeated for a maximum of 12 credit hours.

**UNIV 3510 EUROPEAN ODYSSEY (3) FLD. 2.** Summer study-abroad program in Rome, Florence, Paris, London, Edinburgh; through visits to churches, historic sites, contemporary buildings, museums, galleries, parks, piazzas, rivers, trains, restaurants, theatres and stores, students will research selected aspects of Western mythology and religion, Roman Empire, society and culture, art and architecture, Renaissance, Enlightenment and Reformation, and industrial and scientific revolutions.

**UNIV 3517 HONORS EUROPEAN ODYSSEY (3) FLD. 2.** Summer study-abroad program in Rome, Florence, Paris, London, Edinburgh; through visits to churches, historic sites, contemporary buildings, museums, galleries, parks, piazzas, rivers, trains, restaurants, theatres and stores, students will research selected aspects of Western mythology and religion, Roman Empire, society and culture, art and architecture, Renaissance, Enlightenment and Reformation, and industrial and scientific revolutions.

**UNIV 4900 GENERIC EXTERNAL TRANSFER CREDIT (.67-13.34) LEC. 2.** Course may be repeated for a maximum of 13.34 credit hours.

**UNIV 4920 CURRICULAR PRACTICAL TRAINING (0) PRA.** For international students and scholars on U.S. OS EV approved Academic Training. Office of International Education authorized enrollments only.

**UNIV 4940 AUBURN ABROAD (0) AAB. Pr. 2.25 GPA.** Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

**UNIV 4945 AUBURN ABROAD (0) AAB/FLD. Pr. 2.25 GPA.** Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

**UNIV 4AA0 UNIVERSITY GRADUATION (0) LEC.**

**UNIV 5940 AUBURN ABROAD (0) AAB. Pr. 3.00 GPA.** Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

**UNIV 5945 AUBURN ABROAD (0) AAB/FLD. Pr. 3.00 GPA.** Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.
UNIV 6000 AUBURN EXCHANGE_GRADUATE (1-9) IND. Office of International Programs - Auburn Abroad approval and approval of the individual department sponsoring the exchange program. Variable credit hour placeholder course (1-9 credit hours) based on courses taken by outgoing AU Exchange Students. This placeholder carries tuition cost based on outgoing AU student's residency.

UNIV 6300 ABROAD TRANSFER-GR (0) AAB/IND. Completion of Office of International Programs-Auburn Abroad-Transfer application and Study Abroad Transfer Credit Form. Full time placeholder, zero credit hours. Allows graduate students to obtain financial aid, some scholarships (requires individual scholarship source approval).

UNIV 7000 INTERNATIONAL GRADUATE EXPERIENCE (0) LEC. 1. SU. This course is designed to provide new international graduate students with an orientation to academic and local culture in the United States.

UNIV 7010 RURAL STUDIO CERTIFICATE (0) LEC. 3.

UNIV 7020 RURAL STUDIO CERTIFICATE I (0) LEC. 3.

UNIV 7030 RURAL STUDIO CERTIFICATE II (0) LEC. 3.

UNIV 7940 AUBURN ABROAD (0) AAB. Pr. 3.00 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

UNIV 7945 AUBURN ABROAD (0) AAB/FLD. Pr. 3.00 GPA. Student must meet Auburn Abroad plus any individual program requirements for all study abroad programs (offered by AU or others); an Auburn Abroad application must submitted and approved by OIE prior to participation/departure.

**Veterinary Medicine - VMED**

**Courses**

VMED 7230 CUTANEOUS DISORDERS OF LARGE AND EXOTIC ANIMALS (3) LEC. 3, IND/LEC. 9-12. In depth review of the common and uncommon dermatologic conditions affecting large animal and exotic animal species, including emphasis on those conditions considered zoonotic.

VMED 7860 ADVANCED TECHNIQUES IN POPULATION MEDICINE (1) LEC. 1. SU. Techniques for investigation of disease problems in populations with emphasis on computer software specialized for outbreak investigation and disease mapping.

VMED 7946 EPIDEMIOLOGY AND ONE HEALTH (3) LEC. 3. This course will review the principles of epidemiology as they apply to the One Health Initiative. Emphasis will be placed on the rich history of the discipline and how it applies to the one health concept.

VMED 9000 ORIENTATION TO VETERINARY MEDICINE (0) SEM. 1. SU. Overview of organized veterinary medicine, history of the profession, professional responsibilities and privileges, and career opportunities within the profession.

VMED 9010 VETERINARY MEDICAL ETHICS & LAW (1) LEC. 15. Provide a foundation in veterinary medical ethics and legal issues associated with veterinary medicine. Course may be repeated for a maximum of 6 credit hours.

VMED 9020 VETERINARY MEDICINE AND THE LAW (1) LEC. 13. Laws relating to the veterinary profession, public policies, and government regulations.

VMED 9030 VETERINARY EPIDEMIOLOGY & ZOONOSES (2) LEC. 30. Basic principles of epidemiology including mechanisms of transmission, disease prevention, diagnosis, and assessment of human health risks. Course may be repeated for a maximum of 6 credit hours.

VMED 9040 VETERINARY FOOD SAFETY (2) LEC. 30. Provide a basic awareness of the most common foodborne diseases and methods to protect consumers from foodborne disease. Course may be repeated for a maximum of 6 credit hours.

VMED 9050 PROFESSIONAL DEVELOPMENT AND BUSINESS FUNDAMENTALS (1) LEC. 15. Auburn University CVM Professional Development and Business Fundamentals course is a 1 credit-hour course encompassing the study, understanding and application of pertinent business disciplines guiding the decision-making responsibilities of practice owners, veterinarians, veterinary students, veterinary technicians and practice managers that seek to improve profitability and efficiency allowing for a competitive advantage and long term success in their personal and professional careers.
VMED 9062 CLINICOPATHOLOGY CONFERENCE CRITICAL THINKING (1) LEC. 14. SU. Review and assessment of material presented in a case-based format by faculty and house officers to develop and refine clinical thinking and critical thinking skills. Course may be repeated with change in topics.

VMED 9110 PHYSIOLOGY I (5) LEC. 72. LAB. 3. Cellular, Cardiovascular, Renal, and Respiratory Physiology.

VMED 9111 VETERINARY ANATOMY I (SMALL ANIMAL) (4) LEC. 44. LAB. 94. Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Credit will not be given for both VMED 5111 and VBMS 6111.

VMED 9120 PHYSIOLOGY II (4) LEC. 57. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VMED 9121 VETERINARY ANATOMY II (3) LEC. 38. LAB. 57. In-depth study of the gross anatomy of the ox, horse, and minor species with inclusion of clinical relevance.

VMED 9130 GENETIC AND CELLULAR BASIS OF ANIMAL DISEASE (1) LEC. 15. One credit course focused on the relationship between genetics and animal diseases.

VMED 9131 BASIC MICROANATOMY/DOMESTICS ANIMALS (3) LEC. 15. LAB. 54. Functional comparative microstructure of cells, basic tissues, cardiovascular system, urinary system, skeleton and osteogenesis, respiratory system, and blood of domestic animals.

VMED 9141 ORGANOLOGY OF DOMESTIC ANIMALS (2) LEC. 5. LAB. 56. Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary system, reproductive system, and placentation of domestic animals.

VMED 9150 DIAGNOSTIC IMAGING (2) LEC. 27. LAB. 12. Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

VMED 9151 VETERINARY NEUROSCIENCES (4) LEC. 44. LAB. 24. Gross and microscopic morphology and physiology of the peripheral and central nervous systems. Course may be repeated for a maximum of 12 credit hours.

VMED 9180 VETERINARY ETHOLOGY (2) LEC. 28. Basic concepts of ethology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases. Course may be repeated for a maximum of 6 credit hours.

VMED 9190 INTRODUCTION TO VETERINARY PHARMACOLOGY (1) LEC. 16. An organized foundation of information to develop clinical thinking skills in veterinary pharmacology. Course may be repeated for a maximum of 16 credit hours.

VMED 9200 VETERINARY PARASITOLOGY I (3) LEC. 37. LAB. 13.5. Platyhelminthes, trematodes, and nematodes of domestic animals.

VMED 9210 VETERINARY PARASITOLOGY II (2) LEC. 17. LAB. 10. Arthropods, protozoa, helminths, and acanthocephalans of domestic animals. Parasiticides.

VMED 9220 PRINCIPLES OF VETERINARY PATHOLOGY (3) LEC. 35. LAB. 20. General principles of pathology and mechanisms of disease processes affecting animals.

VMED 9230 VETERINARY CLINICAL PATHOLOGY (3) LEC. 47. LAB. 8. Laboratory test principles and results interpretations in evaluation of hematopoietic, coagulation, hepatic, renal, gastrointestinal, acid/base and fluid status of animals.

VMED 9240 PRINCIPLES OF VETERINARY IMMUNOLOGY (3) LEC. 41. LAB. 6. Principles underlying the immune system's ability to protect animals from disease and mechanisms by which immune responses contribute to disease.

VMED 9250 VIROLOGY & PRIONS (2) LEC. 23. LAB. 6. Principles of infectious agents and their pathogenic attributes, infectious diseases of animals, and mechanisms of antimicrobial agents. Course may be repeated for a maximum of 6 credit hours.

VMED 9260 VETERINARY PHARMACOLOGY (3) LEC. 45. LAB. 8. Overview of drugs relevant to veterinary practice; pharmacodynamics, pharmacokinetics, clinical application.

VMED 9262 CLINICAL PHARMACOLOGY AND THERAPEUTICS (1) LAB. 20. Use of group based discussion to create therapeutic plan for specific patients with a target disease. Satisfactory advancement into the second of the professional (DVM) program.

VMED 9270 INTRODUCTION TO CYTOLOGY (1) LEC. 3. LAB. 10. The principles and practice of evaluation of blood films, cytologic preparations, and urine sediments from various veterinary species.
VMED 9280 BACTERIOLOGY & MYCOLOGY (3) LEC. 34. LAB. 20. Veterinary bacterial and fungal pathogens, diseases caused by each, prevention, treatment and presumptive laboratory diagnoses. Course may be repeated for a maximum of 9 credit hours.

VMED 9301 PHYSICAL DIAGNOSES OF LARGE AND SMALL ANIMALS (2) LEC. 18. LAB. 30. Basic approach to physical examination of large and small animals.

VMED 9310 INTRODUCTION TO SURGERY (2) LEC. 18. LAB. 19.5. Current standing in the DVM professional curriculum and completion of the first 3 semesters of the professional program. Introduction to the fundamental principles and techniques of veterinary surgery.

VMED 9311 SURGICAL PRACTICUM (1) LEC. 1. LAB. 16. Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/tissue handling, wound closure, postoperative patient management.

VMED 9320 LARGE ANIMAL NUTRITION (2) LEC. 28. LAB. 4. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 5320 or VMED 5420. Course may be repeated for a maximum of 6 credit hours.

VMED 9330 EXOTIC COMPANION ANIMAL MEDICINE (2) LEC. 30. Care, diagnosis, and treatment of exotic companion animals. May count either VMED 5330 or VMED 5430. Course may be repeated for a maximum of 6 credit hours.

VMED 9340 EMERGENCY MEDICINE AND CRITICAL CARE (2) LEC. 28. Emergency presentations, critical care management.

VMED 9350 VETERINARY TOXICOLOGY (2) LEC. 30. LAB. 15. Poisons and poisonous plants affecting large and small animals, chemical properties, signs, lesions, diagnosis, treatment.

VMED 9360 PRODUCTION PREVENTATIVE MEDICINE (3) LEC. 57. Principles of disease prevention and maximization of production application of food safety principles.

VMED 9370 ONCOLOGY (1) LEC. 17. Diagnostic and therapeutic measures used to manage animals with oncologic diseases.

VMED 9380 PHYSICAL DIAGNOSIS II (1) LEC. 4. LAB. 14. Continued experience in the performance of routine physical examination in small and large animal species. Satisfactory advancement into the second year of the professional (DVM) program.

VMED 9410 APPLIED CLINICAL IMAGING (2) LEC. 2. Define and describe abnormalities of various systems detected through imaging. Course may be repeated for a maximum of 6 credit hours.

VMED 9420 SMALL ANIMAL NUTRITION (2) LEC. 28. LAB. 4. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 9320 or VMED 9420. Course may be repeated for a maximum of 6 credit hours.

VMED 9430 POULTRY MEDICINE (2) LEC. 30. The care, diagnosis, and treatment of poultry. May count either VMED 9330 or VMED 9430. Course may be repeated for a maximum of 6 credit hours.

VMED 9480 VETERINARY SERVICE LEARNING AND OUTREACH (2) LEC. 2. SU. This course is designed to introduce the future veterinarian to the challenges and rewards associated with provision of veterinary health care to underserved communities. It will consist of didactic lectures intended to stimulate dialogue with key partners and with service experiences that will help the student progressively build the confidence, skills and knowledge necessary to provide veterinary services to underserved communities.

VMED 9500 SPECIALIZED TOPICS IN VETERINARY MEDICINE (2) LEC. 30. Focused instruction on topics of interest in veterinary medicine. Course may be repeated for a maximum of 8 credit hours.

VMED 9502 CURRENT TOPICS IN VETERINARY MEDICINE (1) LEC. 1. SU. Emerging topics in veterinary medicine, current literature. Course may be repeated for a maximum of 15 credit hours.

VMED 9510 HEMOLYMPH/INTEGUMENTARY SYSTEM (1) LEC. 15. LAB. 6. Diagnosis, treatment and prevention of diseases affecting the integumentary and hemolymphatic systems. Course may be repeated for a maximum of 3 credit hours.

VMED 9520 CARDIOVASCULAR SYSTEM (2) LEC. 25. LAB. 13. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.

VMED 9530 RESPIRATORY SYSTEM (3) LEC. 41. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system.
VMED 9540 SMALL ANIMAL ALIMENTARY SYSTEM (2) LEC. 34. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9550 URINARY SYSTEM (2) LEC. 29. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of disease affecting the urinary system.

VMED 9560 ENDOCRINE SYSTEM (2) LEC. 25. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine system.

VMED 9570 REPRODUCTIVE SYSTEM (4) LEC. 66. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system. Course may be repeated for a maximum of 12 credit hours.

VMED 9580 NERVOUS SYSTEM (2) LEC. 36. LAB. 6. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

VMED 9590 MUSCULOSKELETAL SYSTEM (3) LEC. 42. LAB. 4. Pathophysiology; pathologic, radiographic and ultrasonographic lesions; diagnosis; treatment; and prevention of diseases affecting the musculoskeletal system.

VMED 9601 VETERINARY CLINICAL ROTATIONS (3) LEC. 3. Clinical experiences through various specialty service in the Veterinary Medical Teaching Hospital. Course may be repeated with change in topics.

VMED 9602 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCE (1-10) RES. SU. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates.

VMED 9611 VETERINARY CLINICAL ROTATIONS-ELECTIVES (3) LEC. 3. SU. Clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Course may be repeated for a maximum of 9 credit hours.

VMED 9621 CLINICAL ROTATIONS IN VETERINARY MEDICINE (2) CLN. 80. Clinical practicum experiences in large and small animal teaching hospitals on the veterinary medical campus. Course may be repeated with change in topics.

VMED 9631 ALTERNATIVE ROTATIONS IN VETERINARY MEDICINE (2) CLN. 80. SU. Clinical practicum experiences in alternative large and small animal experiences as documented in college procedures. Course may be repeated with change in topics.

VMED 9640 LARGE ANIMAL ALIMENTARY SYSTEM (2) LEC. 36. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases affecting the large animal alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9650 CANINE SPORTS MEDICINE AND REHABILITATION (1) LEC. 1. SU. Activities, requirements, and disorders encountered in canine athletes; role of veterinarian in care and rehabilitation; current research.

VMED 9670 SPECIAL SENSES SYSTEMS (1) LEC. 19. LAB. 4. Common procedures for evaluation, diagnosis and treatment of eye disorders in domestic species are covered to provide basic veterinary ophthalmology knowledge to veterinary students.

VMED 9690 REPTILE AND AMPHIBIAN MEDICINE (1) LEC. 1. SU. Diseases, treatment, husbandry, handling, restraint, examination, sample collection in reptiles and amphibians.

VMED 9700 INTRODUCTION TO ANESTHESIA (3) LEC. 33. LAB. 16. Principles and practices of veterinary anesthesia in large and small animals.

VMED 9710 PRACTICE MANAGEMENT (1) LEC. 1. SU. Fundamental principles of effective client, personnel, practice and business management for the veterinarian.

VMED 9720 DISASTER MEDICINE FOR VETERINARIANS (2) LEC. 1. SU. Pr. (VMED 9111 or VMED 5111). Role of the veterinarian in responding to natural and man made disasters.

VMED 9721 APPLIED ANATOMY I (1) LAB. 3. Pr. VMED 5111 or VMED 9111. Detailed anatomical basis for small animal surgical approaches.

VMED 9731 APPLIED ANATOMY II (1) LAB. 3. Pr. (VMED 9111 or VMED 5111). Detailed anatomical basis for small animal diagnostics and therapeutics.
VMED 9740 APPLIED COMPANION ANIMAL BEHAVIOR (2) LEC. 2. Pr. VMED 9300 or VMED 9180 or VMED 5300 or VMED 5180. Diagnosis, treatment and client education on selected behavior problems in companion animals.

VMED 9741 EQUINE LIMB JOINTS AND FOOT (1) LAB. 3. SU. Pr. VMED 9121 or VMED 5121. A study of the functional anatomy of the joints and foot of the horse fore and hind limbs.

VMED 9750 DIAGNOSTIC VETERINARY ULTRASONOGRAPHY (2) LEC. 2. LAB. 1. Pr. (VMED 9121 or VMED 5121) or (VMED 9150 or VMED 5150). Basic physics, instrumentation, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

VMED 9770 ADVANCED VETERINARY DERMATOLOGY (1) LEC. 1. SU. Pr. VMED 9510 or VMED 5510. Clinical dermatology in a case-based format.

VMED 9790 SMALL ANIMAL WOUND MANAGEMENT AND SURGERY (1) LEC. 1. SU. Pr. (VMED 9510 or VMED 5510) and (VMED 9310 or VMED 5310). Wound management, reconstructive/salvage surgery.

VMED 9800 APPLIED SMALL ANIMAL NEUROLOGY (1) LEC. 1. SU. Clinical management of commonly occurring neurologic diseases of small domestic animals.

VMED 9801 PRECEPTORSHIP (3) LAB. 320. SU. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs. Approval of Preceptorship Committee.

VMED 9810 INTEGUMENTARY SYSTEM (2) LEC. 29. LAB. 6. Diagnosis, treatment and prevention of diseases affecting the integumentary system.

VMED 9820 ADVANCED REPRODUCTIVE TECHNIQUES (2) LEC. 2. Pr. VMED 9120. Techniques associated with embryo transfer, fetal sexing, in-vitro fertilization, applied and experimental techniques in cattle emphasized.

VMED 9830 VETERINARY MEDICINE AND THE PUBLIC (1) LEC. 1. SU. News events related to veterinary medicine and the role of the veterinarian in public education and public policy.

VMED 9840 WILDLIFE DISEASES (1) LEC. 1. SU. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

VMED 9860 ADVANCED TECHNIQUES IN POPULATION MEDICINE (1) LEC. 1. SU. Techniques for investigation of disease problems in populations with emphasis on computer software specialized for outbreak investigation and disease mapping.

VMED 9880 EQUINE REPRODUCTION (1) LEC. 1. Reproductive physiology, endocrinology, breeding soundness evaluation, breeding management and advanced technologies.

VMED 9950 CLINICOPATHOLOGIC CONFERENCE (1) SEM. 15. SU. Oral presentation of veterinary clinical case or case material.

VMED 9960 SPECIAL PROBLEMS (1) LEC. 1. SU. Introduction to veterinary literature, evaluation of recent articles, references, reports on veterinary medicine.

VMED 9995 VETERINARY CLINICAL ROTATIONS - EXTERNSHIPS (0) CLN. SU. Successful completion of didactic veterinary curriculum. Students will participate in clinical rotations including specialty rotations.

**VM-Biomedical Sciences VBMS**

**Courses**

VBMS 2100 INTRODUCTION TO PUBLIC HEALTH (3) LEC. 3. Lecture and discussion of historic advances in public health leading to discussion of diseases affecting the health of people in Alabama today.

VBMS 3010 INTRODUCTION TO EPIDEMIOLOGY (3) LEC. 3. Principles of epidemiology, with emphasis on approaches for prevention/control of diseases of humans and animals. Broad applications of studies of populations will be stressed.

VBMS 3050 VETERINARY MEDICINE STUDY ABROAD (2) AAB/FLD. 30. This 2 week course is intended to introduce students to the challenges of maintaining health in domestic, wild and commercial land and marine animals through exposure to diverse ecological environments of Australia's land and marine parks.
VBMS 3903 REPRODUCTIVE SCIENCE AND HEALTH (3) LEC. 3. P/C, One basic organismal biology, physiology or similar life science course. Sophomore level or higher. Foundational physiologic concepts in reproductive science linked to important animal and human reproductive health issues. May count either ANSC 3600 or VBMS 3600.

VBMS 4830 GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3) LEC. 3. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

VBMS 4910 OBSERVING NEEDS IN PUBLIC HEALTH (3) LEC. 3. Through volunteer service to public health agency students will develop an understanding of the importance for volunteers to support community public health needs.

VBMS 4980 UNDERGRADUATE RESEARCH (1-3) RES. Directed, supervised undergraduate research in veterinary biomedical sciences (VBMS). Course may be repeated for a maximum of 9 credit hours.

VBMS 4987 HONORS RESEARCH (1-3) RES. Pr. Honors College. Supervised undergraduate research in veterinary biomedical science. May count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 4997 HONORS THESIS (1-3) RES. Pr. Honors College. Undergraduate honors thesis development in veterinary biomedical science. May Count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

VBMS 6111 VETERINARY ANATOMY I (4) LAB. 12. Departmental approval. Gross anatomy of the dog and cat including skeletal and muscular systems, neck, thorax, limbs, abdomen, pelvis, head, and nervous system. Credit will not be given for VMED 5111 and VBMS 6111.

VBMS 6121 VETERINARY ANATOMY II (3) LAB. 9. Pr. VBMS 6111. In-depth study of the gross anatomy of the ox, horse, and minor species (chicken) with inclusion of clinical relevance. In-dept presentation of a specific anatomy topics related to course material. May count either VMED 5121 or VBMS 6120.

VBMS 7000 NEUROANATOMY (5) LEC. 3. LAB. 4. Departmental approval. Functional morphology of nervous system from input/output through the long systems; limbic relations to endocrine and autonomic nervous system. Comparative among mammals.

VBMS 7010 PATHWAYS TO SUCCESSFUL RESEARCH (1) LEC. 1. An introduction to topics pertinent to performance of a successful graduate program and in the conduction of responsible research.

VBMS 7020 MICROSCOPIC ANATOMY I (3) LEC. 1. LAB. 4. Departmental approval. A detailed study of and preparation of the basic tissues. Light microscopy and electron micrograph preparations are used to describe and interpret morphology.

VBMS 7030 MICROSCOPIC ANATOMY II (3) LEC. 1. LAB. 4. Departmental approval. Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoietic, digestive, urinary and respiratory systems of domestic animals.

VBMS 7040 ADVANCED PHYSIOLOGY OF REPRODUCTION (3) LEC. 3. Pr. ANSC 3600 and BIOL 6240 or VBMS 7150. Departmental approval. Developmental, physiological, endocrinological, cellular and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.

VBMS 7050 DEVELOPMENTAL NEUROBIOLOGY (3) LEC. 3. Departmental approval. Overview of the development of the nervous system. Emphasis will be directed towards understanding sensory systems, development, plasticity and function.


VBMS 7070 ENDOCRINOLOGY (4) LEC. 4. Pr. BCHE 7200 and BCHE 7260 and BIOL 6600 or departmental approval. Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion, and action in mammalian species. Emphasis will be placed on metabolic regulatory hormones.

VBMS 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems, and gene regulation.

VBMS 7090 CLINICAL PHARMACOLOGY (3) LEC. 3. Departmental approval. The actions and effects of drugs on human beings. Acceptable courses in biochemistry and physiology;

VBMS 7100 ADVANCED CARDIOLOGY I (2) LEC. 2. Graduate students in Biomedical Sciences, College of Veterinary Medicine and must have a DVM or equivalent. Topics about advanced diagnostics and therapeutics in cardiovascular disease will be discussed.

VBMS 7120 MEMBRANE PHYSIOLOGY (3) LEC. 2. LAB. 3. Departmental approval. The classic and modern aspects of biological membranes. Labs include patch clamp, reconstruction of ion channels in bilayers, Langmuir-Blodgett techniques, and other methods.

VBMS 7130 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3) LEC. 3. Pr. (VMED 9120 or VMED 9121 or VMED 5120) and VMED 5121. The principles and practice of veterinary medical diagnostic ultrasonography as they are utilized in evaluating normal and abnormal anatomy. All animals are used in this course. Veterinary anatomy and/or DVM degree.

VBMS 7140 PHYSIOLOGY I (5) LEC. 5. Departmental approval. Cellular, Cardiovascular, Renal and Respiratory Physiology.

VBMS 7150 PHYSIOLOGY II (4) LEC. 4. Pr. VBMS 7140. Departmental approval. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VBMS 7160 NEUROSCIENCE (3) LEC. 3. Departmental approval. An overview of neuroscience on the subcellular, cellular and system levels.

VBMS 7170 ANATOMY, PHYSIOLOGY, PHARMACOLOGY SEMINAR (1) SEM. 1. Required of all graduate students in Anatomy, Physiology, and Pharmacology.

VBMS 7180 RECEPTOROLOGY (4) LEC. 4. Pr. VBMS 7070.

VBMS 7190 VETERINARY MEDICAL COMMUNICATIONS TRAINING (1) LEC. 10. LAB. 6. SU. No P or C required. Restricted to only Biomedical Science Masters students, both degree and non-degree seeking, in the College of Veterinary Medicine. Introduce communication skills necessary to build veterinary-client relationships and trust.

VBMS 7210 RADIATION BIOLOGY (4) LEC. 4. Exploration of biological, physical, and chemical basis of radiotherapy with emphasis on the biological effects of ionizing radiation at the cellular and molecular level. Effects of irradiation on the tumor, normal tissues, and the patient will be addressed. DVM degree; Residency in Radiation Oncology or Radiology or Small Animal Oncology and registered in the Graduate School.

VBMS 7220 STRUCTURE AND FUNCTION OF COMPANION ANIMAL SKIN (3) LEC. 3. The course will cover the comparative aspects of the structure and function of the skin of companion animals in healthy and diseases states.

VBMS 7230 CUTANEOUS DISORDERS OF LARGE AND EXOTIC ANIMALS (3) LEC. 3. IND/LEC. 9-12. In depth review of the common and uncommon dermatologic conditions affecting large animal and exotic animal species, including emphasis on those conditions considered zoonotic.

VBMS 7240 ADVANCED SCIENCE OF CANINE AND EQUINE LOCOMOTION (3) LEC. 3. Attendees will learn about the science of biomechanics,muscle physiology and how they apply to locomotion or theathletics and working dog and horse

VBMS 7250 NORMAL RADIOLOGICAL ANATOMY (3) LEC. 3. A detailed study of the normal structure, size and position of the various organs of the cat, dog, horse, cow, and other veterinary species as they appear on plain and contrast radiographs. DVM Degree, acceptance in an established residency program.

VBMS 7260 ADVANCED RADIOLOGY (3-5) LEC. Detailed study of concepts and techniques of all imaging procedures. For graduate students and residents in DCS program or DVM or equivalent. Course may be repeated for a maximum of 5 credit hours.

VBMS 7270 RADILOGICAL INTERPRETATIONS (1-3) LEC. The interpretation of various diagnostic imaging modalities used in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine. DVM Degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7280 PHYSICS OF DIAGNOSTIC IMAGING (3) LEC. 3. Principles of physics related to the imaging modalities of diagnostic radiology, ultrasonography, magnetic resonance imaging, scintigraphy, computed tomography, and radiation therapy. Students will study physics at the atomic level but must also develop an understanding of construction, function, and hazards of modern imaging equipment. DVM Degree.

VBMS 7290 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. A mandatory graded seminar presentation, held in conjunction with the VBMS seminar series, presenting the resident student's individual Master of Science degree research topic including pertinent review, hypothesis, materials, results, and discussion of findings.
VBMS 7300 AVIAN DIAGNOSTIC PATHOLOGY (1-3) LAB. SU. Residents enrolled in the Veterinary Biomedical Sciences Avian Pathology specialty program will interpret lesions for the diagnosis of avian diseases using necropsy procedures. Focus will be placed on an integrated comparative understanding of the pathophysiology of disease in commercial poultry. Course may be repeated for a maximum of 3 credit hours.

VBMS 7310 ADVANCED VETERINARY ANESTHESIOLOGY (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver a lecture on a topic related to the overarching subject for that semester course. The lecture will be delivered at an in-depth level utilizing currently scientific literature, text books, and other reference materials resulting in delivery of state of the art information. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7320 EVALUATION OF CURRENT AND EMERGING LITERATURE IN VETERINARY ANESTHESIA (1) LEC. 1. This course will be delivered in weekly one hour lecture format. The presenter for each lecture will rotate between course students and veterinary faculty. For each hour, the presenter will be required to deliver an in-depth evaluation and summary of two medical journal manuscripts related to veterinary anesthesiology. The presenter will be required to discuss the manuscript format, study design, data analysis, results, and conclusions including discussion on the pros and cons of the study. Manuscript selection for each class will be at the discretion of the presenter and copies of the manuscripts will be made available electronically to all faculty and students of the course one week prior to the class. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have a DVM degree or equivalent. Course may be repeated for a maximum of 9 credit hours.

VBMS 7330 EVIDENCE BASED EQUINE SURGERY (3) LEC. 3. DVM and enrollment in the College of Veterinary Medicine’s Equine Medicine or Surgery Residency. Provides an introduction to evidence based medicine and meta-analysis with application to topics in equine surgery.

VBMS 7340 LARGE ANIMAL SURGERY AND MEDICINE SEMINAR (1) SEM. 1. Departmental approval. Seminar required of all graduate students in large animal surgery and medicine. Meets at scheduled intervals each year.


VBMS 7370 ADVANCED LARGE ANIMAL ORTHOPEDIC SURGERY (5) LEC. 3. LAB. 2. Research and advanced techniques for orthopedic surgical procedures in large domestic animals.

VBMS 7380 ADVANCED FOOD ANIMAL MEDICINE (3) LEC. 3. In-depth study of food animal medical diseases of all body systems with emphasis on pathophysiologic mechanisms. Departmental approval; DVM degree.

VBMS 7390 ADVANCED EQUINE MEDICINE (3) LEC. 3. Departmental approval. Detailed etiology, symptoms, pathogenesis, treatment, and prevention of the medical diseases affecting the various systems and organs of the equine, bovine, ovine, and porcine species.

VBMS 7400 GYNECOLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Diseases and problems of the reproductive system in the female domestic animals. Normal and abnormal conditions of various species are covered. Departmental approval; DVM degree.

VBMS 7410 ANDROLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Diseases and problems of the reproductive system in male domestic animals. Departmental approval; DVM degree.

VBMS 7420 ADVANCED VETERINARY ANESTHESIOLOGY (4) LEC. 4.

VBMS 7430 HEALTH MAINTENANCE OF FOOD ANIMALS (3) LEC. 5. Departmental approval. Research in production medicine. Principles of production medicine to enhance animal health and productivity.


VBMS 7450 SELECTED TOPICS IN GRADUATE EDUCATION RESEARCH (1) LEC. 1. SU. Departmental approval. Overview of research funding strategies, grant preparation, transfer of research technology and patents, research ethics, etc.
VBMS 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

VBMS 7470 ADVANCED EPIDEMIOLOGY (3) LEC. 3. Departmental approval. Advanced epidemiological techniques and their application to disease research, clinical retrospective and prospective studies, and disease outbreak investigation. Introductory statistics course.

VBMS 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.

VBMS 7490 DIAGNOSTIC TECHNIQUES IN VETERINARY MICROBIOLOGY (4) LEC. 1. LAB. 9. Departmental approval. Techniques used in modern diagnostic microbiology laboratories.

VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (3) LEC. Pr. BIOL 6500. Departmental approval. Current literature in immunobiology, emphasis on cellular/biochemical/genetic basis of immune response.

VBMS 7510 QUALITY SYSTEMS IN HEALTH SCIENCES (3) LEC. 3. Overview of regulations, standards, and foundational principles for quality systems and processes illuminating the application to health sciences.

VBMS 7520 EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

VBMS 7530 EXPERIMENTAL TECHNIQUES IN MOLECULAR AND CELL BIOLOGY (3) LEC. 2. LAB. 6. Nucleic acid detection/amplification/sequencing, protein/antibody chemistry, flow cytometry, photo/electron microscopy fluorochromes, radioisotopes, centrifugation, cell/embryo culture.

VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7520 and BIOL 6260. Departmental approval. Viral gene expression and evasion of host defense mechanisms.

VBMS 7550 PATHOLOGY (1-3) LEC. SU. Departmental approval. Diagnostic interpretation of lesions and test results. Special topics or current issues in pathology to meet the particular needs of students. DVM degree or equivalent; Course may be repeated for a maximum of 3 credit hours.

VBMS 7560 GENERAL PATHOLOGY (4) LEC. 3. LAB. 3. Fundamental alterations of disease. Departmental approval; Satisfactory courses in histology and physiology.

VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3) LEC. SU. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester of all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7580 SURGICAL PATHOLOGY (1-3) LEC. SU. Histopathologic diagnosis of surgical biopsy specimens. Required every semester for all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7590 AVIAN PATHOLOGY (4) LEC. 4. Departmental approval. Comparative avian pathology emphasizing cause, pathogenesis and lesions associated with diseases; differential diagnosis and diagnostic procedures to confirm a diagnosis.

VBMS 7600 ADVANCED CLINICAL PATHOLOGY I (3) LEC. 3. Pr. VMED 5230 or VMED 9230. Departmental approval. The lymphohematopoietic system. Normal components and evaluation of disease states.

VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3) LEC. 3. Pr. VBMS 5230. Departmental approval. Laboratory evaluation of organ function; disease pattern recognition.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3) LEC. 3. Pr. VMED 5220 or VMED 9220. Departmental approval. Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques.

VBMS 7630 BASIC AND CLINICAL ONCOLOGY (3) LEC. 3. Comparative aspects of the etiology, pathophysiology, diagnosis and treatment of cancer.

VBMS 7640 MECHANISMS OF DISEASE (3) LEC. 3. Pr. VMED 5220 or VMED 9220. Departmental approval. VMED 5220 or equivalent.
VBMS 7650 VETERINARY PROTOZOOLOGY AND ENTOMOLOGY (3) LEC. 3. Departmental approval. Current topics in immunology, physiology, molecular biology, pathogenicity, etc. of selected protozoal and arthropod parasites.

VBMS 7660 VETERINARY HELMINTHOLOGY (3) LEC. 3. Departmental approval. Current topics in immunology, physiology, biochemistry, molecular biology, epidemiology, and pathogenicity of selected helminth parasites.

VBMS 7670 PATHOLOGY PARASITIC DISEASES (3) LEC. 2. LAB. 2. Pr. VBMS 7560. Departmental approval. Gross and microscopic pathology of parasitic diseases of veterinary importance.

VBMS 7680 PATHOLOGY SEMINAR (1) LEC. 1. Pr. VMED 5220 or VMED 9220. Departmental approval. Weekly conference to discuss gross and histologic pathology in animal tissues.

VBMS 7690 READINGS IN IMMUNOLOGY AND INFECTIOUS DISEASE (1) LEC. 1. SU. Pr. BIOL 6500 or VBMS 7500. To familiarize students with current scientific literature in immunology and the methods employed. Or equivalent.

VBMS 7700 COMBINATORIAL BIOCHEMISTRY AND PHAGE DISPLAY (4) LEC. 1. LAB. 6. In-depth study of combinatorial biochemistry and phage display as a tool for development of new drugs, vaccines and diagnostics for veterinary medicine.


VBMS 7720 DEVELOPMENTAL MOLECULAR BIOLOGY (3) LEC. 3. Pr. VBMS 7520. Genetic mechanisms by which eukaryotes differentiate from single cells to complex multicellular organisms will be covered. Important examples of biomedical dysfunction will be used to illustrate developmental pathways. Current literature will be used extensively.

VBMS 7730 APPLIED CYTOLOGY (2) LEC. 2. Systematic review of normal and abnormal cytologic findings in veterinary species. Participation in a residency training program at the Auburn University College of Veterinary Medicine.

VBMS 7740 CLINICAL VETERINARY MICROBIOLOGY (1) LEC. 1. SU. Directed discussion group reviewing the current, clinical scientific literature in veterinary microbiology and veterinary infectious disease research. Course may be repeated for a maximum of 5 credit hours.

VBMS 7750 GRADUATE COLLOQUIUM IN VETERINARY CLINICAL SCIENCE (1) CLN. 1. Departmental approval. Forum to present topics relevant to the students clinical and research interests. This a mandatory seminar for graduate students in the Department of Clinical Science. DVM degree Course may be repeated for a maximum of 5 credit hours.

VBMS 7760 ADVANCED VETERINARY NEUROSURGERY (5) LEC. 3. LAB. 2. Enrolled in the CVM's MS or PhD program. Veterinary neurosurgery. All aspects of veterinary neurosurgery will be covered. Content delivery is via didactic lecture, small group discussion, and skills laboratories.

VBMS 7770 ADVANCED SMALL ANIMAL GENERAL SURGERY (3) LEC. 2. LAB. 3. Application of critical thinking skills to perioperative plans and tasks. DVM or VMD degree, or equivalent.

VBMS 7780 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (4) LEC. 2. LAB. 2. Techniques in veterinary wound management and reconstructive surgery in large and small animals. DVM degree or equivalent.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (5) LEC. 5. Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery. DVM degree or equivalent.

VBMS 7800 ADVANCED SMALL ANIMAL NEUROLOGY (3) LEC. 3. Advanced study of neurodiagnostics and non-surgical therapy of neurological disorders in small domestic animals.

VBMS 7810 ADVANCED SMALL ANIMAL MEDICINE I (3-5) LEC. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7820 ADVANCED SMALL ANIMAL MEDICINE II (3-5) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical gastrointestinal diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.
VBMS 7830 ADVANCED SMALL ANIMAL MEDICINE III (3-5) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical cardiovascular and respiratory diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7840 ADVANCED SMALL ANIMAL MEDICINE IV (3-5) LEC. Departmental approval. Molecular biology lectures and techniques related to diagnostic and research application to clinical problems in small animal veterinary medicine. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7850 ADVANCED VETERINARY MEDICAL SPECIALTY TRAINING (1-4) LEC. 1. LAB. 2. SU. Course may be repeated for a maximum of 6 credit hours.

VBMS 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 1. LAB. 6. Pr. VBMS 7870. Advanced ophthalmology with emphasis on ophthalmic surgery.

VBMS 7890 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7910 ADVANCED EQUINE CRITICAL CARE I (2) LEC. 2. Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

VBMS 7920 ADVANCED EQUINE CRITICAL CARE II (2) LEC. 2. Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

VBMS 7946 EPIDEMIOLOGY AND ONE HEALTH (3) LEC. 3. This course will review the principles of epidemiology as they apply to the One Health Initiative. Emphasis will be placed on the rich history of the discipline and how it applies to the one health concept.

VBMS 7950 GRADUATE SEMINARS IN VETERINARY CLINICAL SCIENCES (1) SEM. 1. SU. Departmental approval. Presentation of thesis research. DVM degree

VBMS 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES (1-5) RES. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences. Faculty approval. Course may be repeated for a maximum of 15 credit hours.

VBMS 7980 NON-THESIS PROJECT (1-3) LEC. SU. Departmental approval. Non-thesis project, to be determined by faculty advisor and student's graduate advisory committee. DVM degree

VBMS 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES (1-10) MST. Credit to be arranged. Course may be repeated with change in topics.

VBMS 8360 ADVANCED EQUINE MEDICINE I: GI DISEASE (2) LEC. 2. Advanced topics in equine gastrointestinal disease are discussed. Topics include pathophysiology, pharmacology, and specific therapy of GI disease in horses. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have DVM or equivalent.

VBMS 8370 ADVANCED EQUINE MEDICINE II: RENAL/ENDOCRINE (2) LEC. 2. Advanced topics in equine renal and endocrine disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8380 ADVANCED EQUINE MEDICINE III: NEUROMUSCULAR (2) LEC. 2. Advanced topics in equine neuromuscular disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8390 ADVANCED EQUINE MEDICINE IV: CARDIORESPIRATORY (2) LEC. 2. Advanced topics in equine cardiorespiratory disease are discussed. Topics include pathophysiology, pharmacology and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8950 BIOMEDICAL SCIENCES SEMINAR (1) SEM. 1. SU. Recent advances in biochemistry, cell biology and molecular biology will be critically presented and discussed by graduate faculty and students.
VBMS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Wildlife Sciences - WILD

Courses

WILD 1100 WILDLIFE FOOD PLOT ESTABLISHMENT (2) LEC. 2. Fundamental concepts, issues, and concerns related to wildlife food plots and practical procedures for establishment of wildlife food plots. Fall.

WILD 1200 HUNTING AND FISHING THE WORLD (3) LEC. 3. Provides students with an introduction to the diversity of hunting and fishing opportunities available worldwide, the types of businesses that cater to these opportunities, and how these recreational activities contribute to game conservation and management.

WILD 2050 WILDLIFE CONSERVATION HISTORY AND LAW (3) LEC. 3. The history of wildlife conservation in North America, the conservation problems that have arisen since European settlement, and the laws and practices that have evolved to remedy them. Fall.

WILD 2400 SPORTING FIREARMS AND ARCHERY (2) LEC. 2. Provides students with a thorough understanding of the role of sporting firearms and archery equipment in hunting and the wildlife enterprise management field, including the variety of equipment available and their effectiveness with different game species.

WILD 3280 WILDLIFE ECOLOGY, CONSERVATION, AND MANAGEMENT (3) LEC. 3. Pr. BIOL 1030 or BIOL 1037. Fundamentals of wildlife management theory, application, and administration. Fall.

WILD 3500 OUTDOOR SAFETY AND LIABILITY (1) LEC. 1. Exposes students to the safety and liability risks associated with outdoor activities that are common in the wildlife enterprise industry. Students will learn techniques to meet the needs of clientele, while maximizing revenue and minimizing risks.

WILD 3600 WILDLIFE ENTERPRISE FIELD TECHNIQUES (3) LEC. 2. LAB. 2. Pr. WILD 3280. Equip students majoring in wildlife enterprise management with the technical skills to complete a variety of tasks related to wildlife habitat and population management on private properties used in recreational or lodge enterprises.

WILD 3800 INTRODUCTION TO WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (1) LEC. 1. Pr. WILD 2050 and WILD 3280. Provide students with knowledge of important wildlife management issues in southern Africa. Students will develop an understanding of pressing wildlife management issues in the region and learn how to apply that knowledge to future learning.

WILD 3810 STUDY ABROAD - WILDLIFE MANAGEMENT IN SOUTHERN AFRICA (3) AAB. 60. Pr. WILD 3800. Travel overseas to Swaziland and South Africa to engage in many of southern Africa's most pressing wildlife management issues.

WILD 4310 WILDLIFE MANAGEMENT TECHNIQUES (3) LEC. 1. LAB. 6. Pr. WILD 5280 or WILD 5290. Intensive study of field and laboratory techniques used to manage wildlife populations, including censusing, habitat mapping, prescribed burning, GIS and computer simulation.

WILD 4400 PROBLEM SOLVING IN WILDLIFE SCIENCES (2) LEC. 2. Pr. WILD 3280. "C" or better in WILD 3280. Applied training and tools used to solve problems in wildlife science. Spring.

WILD 4500 ADVANCED WILDLIFE ENTERPRISE MANAGEMENT (3) LEC. 3. Pr. WILD 3280 or MKTG 3310 or ACCT 2810 or HOSP 2400. Integration and synthesis of the skills learned throughout the Wildlife Enterprise Management curriculum. Because wildlife enterprises are unique in the business world, students will learn to apply various material from previous courses to managing a wildlife enterprise.

WILD 4890 WILDLIFE POPULATION SCIENCE (3) LEC. 2. LAB. 2. Pr. WILD 3280 or WILD 3750 and BIOL 3060. WILD 3280 & WILD 3750 with a C or better. Principles of wildlife population dynamics, estimation of population parameters, and application of these principles and techniques to wildlife conservation and management.

WILD 4910 WILDLIFE SCIENCES SUMMER PRACTICUM (8) PRA. 8. Pr. WILD 3750 and WILD 4400 and BIOL 3060 and (FORY 3100 or BIOL 5120) and (BIOL 5740 or BIOL 5760 or FISH 5380). "C" or better in WILD 3750 and WILD 5400. Training and tools for wildlife ecology, conservation, and management, with emphasis on applied problem-solving. Summer.

WILD 4920 WILDLIFE MANAGEMENT INTERNSHIP (4) PRA. 4. SU. Departmental approval. Practical job experience under joint supervision of the Internship advisor and appropriate state, federal, or private agency. Training will prepare student for potential career employment.
WILD 4930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 6 credit hours.

WILD 4967 HONORS SPECIAL PROBLEMS (1-3) IND. Pr. Honors College. Topics of an undergraduate nature pertinent to wildlife sciences. Course may be repeated for a maximum of 3 credit hours.

WILD 4970 SPECIAL TOPICS (1-4) AAB. Course may be repeated for a maximum of 8 credit hours.

WILD 4997 HONORS THESIS (1-6) IND. Pr. Honors College. Departmental approval. Directed research and writing of honors thesis. Course may be repeated for a maximum of 6 credit hours.

WILD 5280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280 and BIOL 3060. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants. Fall.

WILD 5290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280 and BIOL 3060. WILD 3280 (C or better) and BIOL 3060. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps. Spring.

WILD 5410 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. Pr. WILD 3280. Familiarizes students with basic philosophy, biology, and techniques related to managing negative human wildlife interactions.

WILD 5750 ANALYSIS FOR WILDLIFE SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 2010 or STAT 2017 or STAT 2510 or STAT 2513 or STAT 2610 or STAT 3010. Applied training in data analysis tools commonly used in wildlife sciences. Spring.

WILD 5880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (4) LEC. 3. LAB. 4. Pr. WILD 3280 and BIOL 3060. BIOL 3060 and C or better in WILD 3280. The wildlife value, management, and restoration of common southeastern habitats.

WILD 5950 SEMINAR (1) SEM. 1. Pr. BIOL 3060 or WILD 3280 or FORY 4230. Discussion of scientific publications from a selected area in wildlife sciences. Course may be repeated for a maximum of 6 credit hours.

WILD 6280 AVIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected waterfowl, galliforms, gruiforms, raptors, shorebirds, doves and pigeons, woodpeckers and neotropical migrants. Fall.

WILD 6290 MAMMALIAN ECOLOGY AND MANAGEMENT (2) LEC. 2. Pr. WILD 3280. Intensive study of the ecology and management of selected artiodactyls, rodents, lagomorphs, bats, carnivores, and herps. Fall.

WILD 6410/6416 HUMAN-WILDLIFE CONFLICTS (3) LEC. 2. LAB. 1. This course is designed to familiarize students with the basic philosophy, biology, and techniques related to managing negative human wildlife interactions. Spring.

WILD 6750 ANALYSIS FOR WILDLIFE SCIENCES (4) LEC. 3. LAB. 2. Applied training in data analysis tools commonly used in wildlife sciences. Spring.

WILD 6880 WILDLIFE HABITAT ASSESSMENT AND MANAGEMENT (3) LEC. 2. LAB. 4. Pr. WILD 3280. C or better in WILD 3280. The wildlife value, management, and restoration of common southeastern habitats.

WILD 7070 UPLAND WILDLIFE ECOLOGY (4) LEC. 3. LAB. 6. Pr. WILD 5280 or WILD 6280. Application of wildlife ecological theories and methods with emphasis on upland species and habitats. Several overnight field trips may be made. Fall.

WILD 7080 FOREST WILDLIFE ECOLOGY AND MANAGEMENT (4) LEC. 4. Pr. WILD 5280 or WILD 6280. In-depth discussions into life history, biology, ecology, and management of important wildlife species of forested ecosystems. Management strategies for each species emphasized. Summer.

WILD 7100 APPLIED ECOLOGICAL MODELING (2) LEC. 2. Principles and techniques for modeling ecological systems in applied, management decision oriented contexts.

WILD 7150 ADVANCED ANALYSIS FOR ECOLOGICAL SCIENCES (4) LEC. 3. LAB. 2. Pr. STAT 7000. Applied training in advanced analytical procedures commonly used in ecological sciences including modeling of survival, reproduction, habitat selection, population growth, density-dependence, and morphometrics. Spring.

WILD 7200 WILDLIFE NUTRITIONAL ECOLOGY (3) LEC. 3. Exploration of the basic nutrient requirements of free-ranging wildlife and comparison of requirements to related domestic species. Fall of odd years.
WILD 7250 WILDLIFE POPULATION ANALYSIS (3) LEC. 2. LAB. 3. Pr. WILD 6400 and WILD 7150. Estimation of survival and success rates for wildlife and fisheries populations. Theoretical approaches for model selection and population modeling. Spring, even years.

WILD 7350 WATERFOWL BIOLOGY AND MANAGEMENT (4) LEC. 3. LAB. 3. Pr. WILD 5280 or WILD 6280. Taxonomy, biology and management of waterfowl with emphasis on North American species. Spring of odd years.

WILD 7650 INTRODUCTION TO BAYESIAN MODELING IN NATURAL RESOURCES (2) LEC. 1. LAB. 2. Pr. WILD 7150. or instructor approval. Bayesian hierarchical modeling of ecological data. Advantages and criticisms of such models. Use of software for hierarchical modeling.

WILD 7930 DIRECTED STUDIES (1-3) IND/LEC. Departmental approval. Directed studies in subject matter not covered by an existing course or to supplement knowledge gained from existing course offerings. Course may be repeated for a maximum of 9 credit hours.

WILD 7970 SPECIAL TOPICS (1-4) IND. Departmental approval. Provides graduate students seeking the master's degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 7990 RESEARCH AND THESIS (1-12) MST. Credit to be arranged.

WILD 8930 DIRECTED STUDIES (1-3) IND. Course may be repeated for a maximum of 9 credit hours.

WILD 8970 SPECIAL TOPICS (1-4) RES. Departmental approval. Provides graduate students seeking the doctoral degree opportunities to work with individual wildlife science professors to investigate timely research topics. Course may be repeated for a maximum of 12 credit hours.

WILD 8990 RESEARCH AND DISSERTATION (1-12) DSR.

Women's Studies - WMST

Courses

WMST 2100 INTRODUCTION TO WOMEN'S STUDIES (3) LEC. 3. Interdisciplinary examination of the definitions of gender and impact of culture on the construction of gender. Diversity of representation, reflecting upon the histories of woman from a local and global perspective will be the keynote of the course.

WMST 3900 DIRECTED READINGS IN WOMEN STUDIES (1-3) LEC. Departmental approval. Directed study in an area of special interest. Course may be repeated for a maximum of 3 credit hours.

WMST 4980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Departmental approval. Focus on the feminist theorists who have analyzed gender subordination. Students will become acquainted with a variety of the theorists and with the history of feminist activism.

WMST 5980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 6980 FEMINIST THEORY (3) LEC. 3. Pr. WMST 2100. Perspectives on feminist theory, with emphasis on intersections of race, class, sexual orientation, and gender as they affect women's position in culture.

WMST 7910 TEACHING PRACTICUM (1) LEC. 1. Pr. (WMST 5980 or WMST 6980). Intended women's studies minor. Feminist pedagogical theory and practice. Course may be repeated for a maximum of 2 credit hours.
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