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College of Veterinary Medicine

THE COLLEGE OF VETERINARY MEDICINE offers a fully accredited program of training leading to the degree of doctor of veterinary medicine. The degree requires four years in the professional curriculum after completion of a pre-professional curriculum which may take four years or more for the average applicant.

Admission
Each year 120 students are admitted to the four-year program for the doctorate in veterinary medicine. Admitted students are residents of Alabama or residents of Kentucky admitted by contract through the Southern Regional Education Board (SREB); or at-large residents (non-Alabama and non-contract students). Alabama and SREB students must have a minimum GPA of 2.5 on a 4.0 system on all course work attempted. A grade of D on any required course will not be accepted. At-large (non-Alabama and non-SREB) students must have a minimum GPA of 3.0 on a 4.0 scale. At-large applicants must be citizens of the United States and will be required to pay non-resident university fees. As part of the admissions process, the Committee on Admissions and Standards of the College of Veterinary Medicine requires a personal interview. The College of Agriculture, the College of Sciences and Mathematics and the School of Forestry and Wildlife Sciences offer Pre-Veterinary curricula and are responsible for pre-veterinary counseling. In addition to academic requirements, candidates are expected to have animal experience and to have worked with a veterinarian for a minimum of 400-500 hours.

All applicants must apply through the Veterinary Medical College Application Service (VMCAS). Additional information, including an electronic application, is available from the Association of American Veterinary Medical Colleges at http://www.aavmc.org/. Kentucky students must provide proof of residency from their college/university or from their state council on post-secondary education.

Minimum Requirements for Pre-Veterinary Medicine
A bachelor’s degree or completion of the Core Curriculum as stated in the General Information section in this Bulletin.

Specific Course Requirements
Minimum pre-veterinary requirements for Alabama residents are those listed for the pre-veterinary curriculum in either the College of Agriculture, College of Sciences and Mathematics or the School of Forestry and Wildlife Sciences. Non-Alabama and SREB applicants must have acceptable equivalents which have been approved by the College of Veterinary Medicine.

All transfer courses must be equivalent in hours and content. Courses will not be waived on the basis of degrees or “practical experience.” Pass-Fail or Satisfactory-Unsatisfactory grades are not acceptable in required courses. Consideration will not be extended to anyone with an overall GPA of less than 2.5 or anyone who is not a bona fide resident of Alabama or Kentucky at the time of application (Non-resident/non-contract students must have a GPA of 3.0 or better).

Standardized Examination
Applicants must complete the Graduate Record Examination (verbal and quantitative) within five calendar years prior to the anticipated date of enrollment. Results of the GRE must be officially reported to the Office of Academic Affairs, College of Veterinary Medicine by September 15th.

Application Procedure
Admission to the College of Veterinary Medicine must be gained through formal application made by the VMCAS deadline preceding the fall semester in which admission is desired. All applicants must be citizens of the United States.

The electronic application is available from the Association of American Veterinary Medical Colleges (www.aavmc.org). An Auburn University College of Veterinary Medicine processing fee of $100 is required of all applicants. An additional $50 is required upon acceptance of all who have not previously attended Auburn University.

The final selection of students is made by the Committee on Admissions and Standards of the College of Veterinary Medicine, Auburn University. The right is reserved to accept or reject any applicant.

Under the Regional Plan for Veterinary Training, the College of Veterinary Medicine currently serves Alabama and Kentucky. The land-grant institution in each state participating under the SREB plan maintains counseling and guidance service for students desiring admission to the College of Veterinary Medicine. Students attending other institutions should contact the pre-health profession advisor in their state for information concerning admission requirements.
Scholastic Requirements

All applicants and students in the professional program are subject to the academic and disciplinary regulations of the College of Veterinary Medicine in addition to those of Auburn University.

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

Any student who receives a D in any course will be placed on academic probation. If the student receives a second D in the same calendar year or academic year, they will be required to withdraw from the College of Veterinary Medicine.

Clinical courses are unique in that the art and skills to be developed in them can be acquired only through full participation in the laboratories. Attendance in these courses is required except in case of illness or other extenuating circumstances as may be judged by the involved instructor. Grading in these clinical laboratory courses is primarily by subjective evaluation. When a course involves student rotation through several disciplines, the student must receive a passing grade in each area before a passing grade can be assigned for the course.

Any student who earns a D or F in any clinical rotation will be placed on academic probation. If the student receives a second or third D or F during clinical rotations, (i.e. D-D-F or D-D-D) that student will be required to withdraw from the College of Veterinary Medicine. If the college admissions and standards committee allows readmission, the student may be required to repeat all experiences to meet the requirements for the clinical year.

The responsibility for counseling is shared by the faculty of this College and the Department of Clinical Psychology.

Non-Scholastic Requirements

Health Insurance: Students enrolled in the professional curriculum are required to provide evidence of health insurance coverage.

Required Withdrawal

The faculty of the College of Veterinary Medicine reserves the right to require the withdrawal at any time of any student who in the judgment of the admissions and standards committee is not profiting from the instruction offered, who is neglectful, irregular, dishonest or indifferent in the performance of required duties and studies or whose character or conduct is inconsistent with good order of the veterinary college or with the standard of the veterinary profession.

Requirements for Graduation

To be eligible for the DVM degree, candidates must complete all of the required courses in the order listed in the curriculum in veterinary medicine along with at least four hours of elective credit, with a minimum overall GPA of 2.25. In addition, each senior must participate in a clinicopathologic conference (CPC) to fulfill their oral communication requirement. Following completion of all academic work, each student is required to serve a preceptorship of eight weeks with an approved veterinarian. A certificate of satisfactory completion of a preceptorship is required for graduation.

A graduation fee must be paid at the beginning of the term of graduation and all indebtedness due the institution must be paid prior to graduation.

Major

• Veterinary Medicine

Minor

• Public Health (p. 17)
Program

- Anatomy, Physiology and Pharmacology (p. 13)
- Veterinary Clinical Sciences (p. 14)

VM-Biomedical Sciences Courses

**VBMS 2100 INTRODUCTION TO PUBLIC HEALTH (3)** LEC. 3. Lecture and discussion of historic advances in public health leading to discussion of diseases affecting the health of people in Alabama today.

**VBMS 3010 INTRODUCTION TO EPIDEMIOLOGY (3)** LEC. 3. Principles of epidemiology, with emphasis on approaches for prevention/control of diseases of humans and animals. Broad applications of studies of populations will be stressed.

**VBMS 3050 VETERINARY MEDICINE STUDY ABROAD (2)** AAB/FLD. 30. This 2 week course is intended to introduce students to the challenges of maintaining health in domestic, wild and commercial land and marine animals through exposure to diverse ecological environments of Australia's land and marine parks.

**VBMS 3903 REPRODUCTIVE SCIENCE AND HEALTH (3)** LEC. 3. P/C, One basic organismal biology, physiology or similar life science course. Sophomore level or higher. Foundational physiologic concepts in reproductive science linked to important animal and human reproductive health issues. May count either ANSC 3600 or VBMS 3600.

**VBMS 4830 GLOBAL AND COMPARATIVE HEALTH SYSTEMS (3)** LEC. 3. Departmental approval. Different national approaches to providing health care for the population will be compared to the US system.

**VBMS 4910 OBSERVING NEEDS IN PUBLIC HEALTH (3)** LEC. 3. Through volunteer service to public health agency students will develop an understanding of the importance for volunteers to support community public health needs.

**VBMS 4980 UNDERGRADUATE RESEARCH (1-3)** RES. Directed, supervised undergraduate research in veterinary biomedical sciences (VBMS). Course may be repeated for a maximum of 9 credit hours.

**VBMS 4987 HONORS RESEARCH (1-3)** RES. Pr. Honors College. Supervised undergraduate research in veterinary biomedical science. May count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

**VBMS 4997 HONORS THESIS (1-3)** RES. Pr. Honors College. Undergraduate honors thesis development in veterinary biomedical science. May Count either VBMS 4987 or VBMS 4997. Course may be repeated for a maximum of 9 credit hours.

**VBMS 6111 VETERINARY ANATOMY I (4)** LAB. 12. Departmental approval. Gross anatomy of the dog and cat including skeletal and muscular systems, neck, thorax, limbs, abdomen, pelvis, head, and nervous system. Credit will not be given for VMED 5111 and VBMS 6111.

**VBMS 6121 VETERINARY ANATOMY II (3)** LAB. 9. Pr. VBMS 6111. In-depth study of the gross anatomy of the ox, horse, and minor species (chicken) with inclusion of clinical relevance. In-dept presentation of a specific anatomy topics related to course material. May count either VMED 5121 or VBMS 6120.

**VBMS 7000 NEUROANATOMY (5)** LEC. 3. LAB. 4. Departmental approval. Functional morphology of nervous system from input/output through the long systems; limbic relations to endocrine and autonomic nervous system. Comparative among primates and domestic animals.

**VBMS 7010 PATHWAYS TO SUCCESSFUL RESEARCH (1)** LEC. 1. An introduction to topics pertinent to performance of a successful graduate program and in the conduction of responsible research.

**VBMS 7020 MICROSCOPIC ANATOMY I (3)** LEC. 1. LAB. 4. Departmental approval. A detailed study of and preparation of the basic tissues. Light microscopy and electron microscope preparations are used to describe and interpret morphology.

**VBMS 7030 MICROSCOPIC ANATOMY II (3)** LEC. 1. LAB. 4. Departmental approval. Light microscopy and electron microscopy detailed study of the cardiovascular, hemopoietic, digestive, urinary and respiratory systems of domestic animals.

**VBMS 7040 ADVANCED PHYSIOLOGY OF REPRODUCTION (3)** LEC. 3. Pr. ANSC 3600 and BIOL 6240 or VBMS 7150. Departmental approval. Developmental, physiological, endocrinological, cellular and molecular mechanisms regulating reproduction, with emphasis on mammalian systems.
Auburn University

VBMS 7050 DEVELOPMENTAL NEUROBIOLOGY (3) LEC. 3. Departmental approval. Overview of the development of the nervous system. Emphasis will be directed towards understanding sensory systems, development, plasticity and function.


VBMS 7070 ENDOCRINOLOGY (4) LEC. 4. Pr. BCHE 7200 and BCHE 7260 and BIOL 6600 or departmental approval. Molecular and cellular endocrinology and physiological regulation of hormone synthesis, secretion, and action in mammalian species. Emphasis will be placed on metabolic regulatory hormones.

VBMS 7080 MOLECULAR ENDOCRINOLOGY (2) LEC. 2. Pr. VBMS 7070. Departmental approval. Examination of the literature of hormonal synthesis, secretion and mechanism of action with emphasis on receptors, second messenger systems, and gene regulation.

VBMS 7090 CLINICAL PHARMACOLOGY (3) LEC. 3. Departmental approval. The actions and effects of drugs on human beings. Acceptable courses in biochemistry and physiology;

VBMS 7100 ADVANCED CARDIOLOGY I (2) LEC. 2. Graduate students in Biomedical Sciences, College of Veterinary Medicine and must have a DVM or equivalent. Topics about advanced diagnostics and therapeutics in cardiovascular disease will be discussed.


VBMS 7120 MEMBRANE PHYSIOLOGY (3) LEC. 2. LAB. 3. Departmental approval. The classic and modern aspects of biological membranes. Labs include patch clamp, reconstruction of ion channels in bilayers, Langmuir-Blodgett techniques, and other methods.

VBMS 7130 VETERINARY MEDICINE DIAGNOSTIC ULTRASONOGRAPHY (3) LEC. 3. Pr. (VMED 9120 or VMED 9121 or VMED 5120) and VMED 5121. The principles and practice of veterinary medical diagnostic ultrasonography as they are utilized in evaluating normal and abnormal anatomy. All animals are used in this course. Veterinary anatomy and/or DVM degree.

VBMS 7140 PHYSIOLOGY I (5) LEC. 5. Departmental approval. Cellular, Cardiovascular, Renal and Respiratory Physiology.

VBMS 7150 PHYSIOLOGY II (4) LEC. 4. Pr. VBMS 7140. Departmental approval. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VBMS 7160 NEUROSCIENCE (3) LEC. 3. Departmental approval. An overview of neuroscience on the subcellular, cellular and system levels.

VBMS 7170 ANATOMY, PHYSIOLOGY, PHARMACOLOGY SEMINAR (1) SEM. 1. Required of all graduate students in Anatomy, Physiology, and Pharmacology.

VBMS 7180 RECEPTOROLOGY (4) LEC. 4. Pr. VBMS 7070.

VBMS 7190 VETERINARY MEDICAL COMMUNICATIONS TRAINING (1) LEC. 10. LAB. 6. SU. No P or C required. Restricted to only Biomedical Science Masters students, both degree and non-degree seeking, in the College of Veterinary Medicine. Introduce communication skills necessary to build veterinary-client relationships and trust.

VBMS 7210 RADIATION BIOLOGY (4) LEC. 4. Exploration of biological, physical, and chemical basis of radiotherapy with emphasis on the biological effects of ionizing radiation at the cellular and molecular level. Effects of irradiation on the tumor, normal tissues, and the patient will be addressed. DVM degree; Residency in Radiation Oncology or Radiology or Small Animal Oncology and registered in the Graduate School.

VBMS 7220 STRUCTURE AND FUNCTION OF COMPANION ANIMAL SKIN (3) LEC. 3. The course will cover the comparative aspects of the structure and function of the skin of companion animals in healthy and diseases states.

VBMS 7240 ADVANCED SCIENCE OF CANINE AND EQUINE LOCOMOTION (3) LEC. 3. Attendees will learn about the science of biomechanics, muscle physiology and how they apply to locomotion or athletics and working dog and horse.

VBMS 7250 NORMAL RADIOLOGICAL ANATOMY (3) LEC. 3. A detailed study of the normal structure, size and position of the various organs of the cat, dog, horse, cow, and other veterinary species as they appear on plain and contrast radiographs. DVM Degree, acceptance in an established residency program.
VBMS 7260 ADVANCED RADIOLOGY (3-5) LEC. Detailed study of concepts and techniques of all imaging procedures. For graduate students and residents in DCS program or DVM or equivalent.

VBMS 7270 RADIOLOGICAL INTERPRETATIONS (1-3) LEC. The interpretation of various diagnostic imaging modalities used in veterinary medicine and their applications in the diagnostic work-up of clinical cases presenting to the College of Veterinary Medicine. DVM Degree.

VBMS 7280 PHYSICS OF DIAGNOSTIC IMAGING (3) LEC. 3. Principles of physics related to the imaging modalities of diagnostic radiology, ultrasonography, magnetic resonance imaging, scintigraphy, computed tomography, and radiation therapy. Students will study physics at the atomic level but must also develop an understanding of construction, function, and hazards of modern imaging equipment. DVM Degree.

VBMS 7290 GRADUATE SEMINAR (1) SEM. 1. Departmental approval. A mandatory graded seminar presentation, held in conjunction with the VBMS seminar series, presenting the resident student's individual Master of Science degree research topic including pertinent review, hypothesis, materials, results, and discussion of findings.

VBMS 7330 EVIDENCE BASED EQUINE SURGERY (3) LEC. 3. DVM and enrollment in the College of Veterinary Medicine's Equine Medicine or Surgery Residency. Provides an introduction to evidence based medicine and meta-analysis with application to topics in equine surgery.

VBMS 7340 LARGE ANIMAL SURGERY AND MEDICINE SEMINAR (1) SEM. 1. Departmental approval. Seminar required of all graduate students in large animal surgery and medicine. Meets at scheduled intervals each year.


VBMS 7370 ADVANCED LARGE ANIMAL ORTHOPEDIC SURGERY (5) LEC. 3. LAB. 2. Research and advanced techniques for orthopedic surgical procedures in large domestic animals.

VBMS 7380 ADVANCED FOOD ANIMAL MEDICINE (3) LEC. 3. In-depth study of food animal medical diseases of all body systems with emphasis on pathophysiologic mechanisms. Departmental approval; DVM degree.

VBMS 7390 ADVANCED EQUINE MEDICINE (3) LEC. 3. Departmental approval. Detailed etiology, symptoms, pathogenesis, treatment, and prevention of the medical diseases affecting the various systems and organs of the equine, bovine, ovine, and porcine species.

VBMS 7400 GYNECOLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Diseases and problems of the reproductive system in the female domestic animals. Normal and abnormal conditions of various species are covered. Departmental approval; DVM degree.

VBMS 7410 ANDROLOGY OF LARGE DOMESTIC ANIMALS (3) LEC. 3. Diseases and problems of the reproductive system in male domestic animals. Departmental approval; DVM degree.

VBMS 7420 ADVANCED VETERINARY ANESTHESIOLOGY (4) LEC. 4.

VBMS 7430 HEALTH MAINTENANCE OF FOOD ANIMALS (3) LEC. 5. Departmental approval. Research in production medicine. Principles of production medicine to enhance animal health and productivity.


VBMS 7450 SELECTED TOPICS IN GRADUATE EDUCATION RESEARCH (1) LEC. 1. SU. Departmental approval. Overview of research funding strategies, grant preparation, transfer of research technology and patents, research ethics, etc.

VBMS 7460 BACTERIAL PATHOGENESIS (3) LEC. 3. Pr. VBMS 7510 or BIOL 4520. Departmental approval. Molecular and cellular basis of virulence of bacterial pathogens of animals.

VBMS 7470 ADVANCED EPIDEMIOLOGY (3) LEC. 3. Departmental approval. Advanced epidemiological techniques and their application to disease research, clinical retrospective and prospective studies, and disease outbreak investigation. Introductory statistics course.
VBMS 7480 METHODS IN IMMUNOLOGY (5) LEC. 1. LAB. 8. Departmental approval. Theoretical concepts underlying immunological methods combined with practical hands-on immunological experimentation focused on application to research in the biological sciences.

VBMS 7490 DIAGNOSTIC TECHNIQUES IN VETERINARY MICROBIOLOGY (4) LEC. 1. LAB. 9. Departmental approval. Techniques used in modern diagnostic microbiology laboratories.

VBMS 7500 CELLULAR AND MOLECULAR IMMUNOLOGY (3) LEC. Pr. BIOL 6500. Departmental approval. Current literature in immunobiology, emphasis on cellular/biochemical/genetic basis of immune response.

VBMS 7510 QUALITY SYSTEMS IN HEALTH SCIENCES (3) LEC. 3. Overview of regulations, standards, and foundational principles for quality systems and processes illuminating the application to health sciences.

VBMS 7520 EUKARYOTIC MOLECULAR BIOLOGY (3) LEC. 3. Genetic mechanisms by which eukaryotic cells replicate, communicate and differentiate. Current literature will be used extensively.

VBMS 7530 EXPERIMENTAL TECHNIQUES IN MOLECULAR AND CELL BIOLOGY (3) LEC. 2. LAB. 6. Nucleic acid detection/amplification/sequencing, protein/antibody chemistry, flow cytometry, photo/electron microscopy fluorochromes, radioisotopes, centrifugation, cell/embryo culture.

VBMS 7540 CURRENT TOPICS IN MOLECULAR VIROLOGY (3) LEC. 3. Pr. VBMS 7520 and BIOL 6260. Departmental approval. Viral gene expression and evasion of host defense mechanisms.

VBMS 7550 PATHOLOGY (1-3) LEC. SU. Departmental approval. Diagnostic interpretation of lesions and test results. Special topics or current issues in pathology to meet the particular needs of students. DVM degree or equivalent; Course may be repeated for a maximum of 3 credit hours.

VBMS 7560 GENERAL PATHOLOGY (4) LEC. 3. LAB. 3. Fundamental alterations of disease. Departmental approval; Satisfactory courses in histology and physiology.

VBMS 7570 DIAGNOSTIC PATHOLOGY (1-3) LEC. SU. Diagnosis of animal diseases using necropsy procedures and histopathology. Required every semester of all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7580 SURGICAL PATHOLOGY (1-3) LEC. SU. Histopathologic diagnosis of surgical biopsy specimens. Required every semester for all graduate students and residents in pathology. DVM degree. Course may be repeated for a maximum of 3 credit hours.

VBMS 7590 AVIAN PATHOLOGY (4) LEC. 4. Departmental approval. Comparative avian pathology emphasizing cause, pathogenesis and lesions associated with diseases; differential diagnosis and diagnostic procedures to confirm a diagnosis.

VBMS 7600 ADVANCED CLINICAL PATHOLOGY I (3) LEC. 3. Pr. VMED 5230 or VMED 9230. Departmental approval. The lymphohematopoietic system. Normal components and evaluation of disease states.

VBMS 7610 ADVANCED CLINICAL PATHOLOGY II (3) LEC. 3. Pr. VBMS 5230. Departmental approval. Laboratory evaluation of organ function; disease pattern recognition.

VBMS 7620 DIAGNOSTIC ONCOLOGY (3) LEC. 3. Pr. VMED 5220 or VMED 9220. Departmental approval. Principles of gross and microscopic interpretation of animal neoplasms using basic and specialized techniques.

VBMS 7630 BASIC AND CLINICAL ONCOLOGY (3) LEC. 3. Comparative aspects of the etiology, pathophysiology, diagnosis and treatment of cancer.

VBMS 7640 MECHANISMS OF DISEASE (3) LEC. 3. Pr. VMED 5220 or VMED 9220. Departmental approval. VMED 5220 or equivalent.

VBMS 7650 VETERINARY PROTOZOOLOGY AND ENTOMOLOGY (3) LEC. 3. Departmental approval. Current topics in immunology, physiology, molecular biology, pathogenicity, etc. of selected protozoal and arthropod parasites.

VBMS 7660 VETERINARY HELMINTHOLOGY (3) LEC. 3. Departmental approval. Current topics in immunology, physiology, biochemistry, molecular biology, epidemiology, and pathogenicity of selected helminth parasites.
VBMS 7670 PATHOLOGY PARASITIC DISEASES (3) LEC. 2. LAB. 2. Pr. VBMS 7560. Departmental approval. Gross and microscopic pathology of parasitic diseases of veterinary importance.

VBMS 7680 PATHOLOGY SEMINAR (1) LEC. 1. Pr. VMED 5220 or VMED 9220. Departmental approval. Weekly conference to discuss gross and histologic pathology in animal tissues.

VBMS 7690 READING IN IMMUNOLOGY AND INFECTIOUS DISEASE (1) LEC. 1. SU. Pr. BIOL 6500 or VBMS 7500. To familiarize students with current scientific literature in immunology and the methods employed. Or equivalent.

VBMS 7700 COMBINATORIAL BIOCHEMISTRY AND PHAGE DISPLAY (4) LEC. 1. LAB. 6. In-depth study of combinatorial biochemistry and phage display as a tool for development of new drugs, vaccines and diagnostics for veterinary medicine.


VBMS 7720 DEVELOPMENTAL MOLECULAR BIOLOGY (3) LEC. 3. Pr. VBMS 7520. Genetic mechanisms by which eukaryotes differentiate from single cells to complex multicellular organisms will be covered. Important examples of biomedical dysfunction will be used to illustrate developmental pathways. Current literature will be used extensively.

VBMS 7730 APPLIED CYTOLOGY (2) LEC. 2. Systematic review of normal and abnormal cytologic findings in veterinary species. Participation in a residency training program at the Auburn University College of Veterinary Medicine.

VBMS 7740 CLINICAL VETERINARY MICROBIOLOGY (1) LEC. 1. SU. Directed discussion group reviewing the current, clinical scientific literature in veterinary microbiology and veterinary infectious disease research. Course may be repeated for a maximum of 5 credit hours.

VBMS 7750 GRADUATE COLLOQUIUM IN VETERINARY CLINICAL SCIENCE (1) CLN. 1. Departmental approval. Forum to present topics relevant to the students clinical and research interests. This a mandatory seminar for graduate students in the Department of Clinical Science. DVM degree Course may be repeated for a maximum of 5 credit hours.

VBMS 7760 ADVANCED VETERINARY NEUROSURGERY (5) LEC. 3. LAB. 2. Enrolled in the CVM’s MS or PHD program. Veterinary neurosurgery. All aspects of veterinary neurosurgery will be covered. Content delivery is via didactic lecture, small group discussion, and skills laboratories.

VBMS 7770 ADVANCED SMALL ANIMAL GENERAL SURGERY (3) LEC. 2. LAB. 3. Application of critical thinking skills to perioperative plans and tasks. DVM or VMD degree, or equivalent.

VBMS 7780 VETERINARY WOUND MANAGEMENT AND RECONSTRUCTIVE SURGERY (4) LEC. 2. LAB. 2. Techniques in veterinary wound management and reconstructive surgery in large and small animals. DVM degree or equivalent.

VBMS 7790 SMALL ANIMAL ORTHOPEDICS (5) LEC. 5. Review of orthopedic diseases in small animals, interactive review of recent literature and advanced laboratory sessions intended for residents in small animal surgery. DVM degree or equivalent.

VBMS 7800 ADVANCED SMALL ANIMAL NEUROLOGY (3) LEC. 3. Advanced study of neurodiagnostics and non-surgical therapy of neurological disorders in small domestic animals.

VBMS 7810 ADVANCED SMALL ANIMAL MEDICINE I (3-5) LEC. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical urogenital diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7820 ADVANCED SMALL ANIMAL MEDICINE II (3-5) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical gastrointestinal diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7830 ADVANCED SMALL ANIMAL MEDICINE III (3-5) LEC. 3. Departmental approval. Special study of the causes, methods of diagnosis, treatment and control of non-surgical cardiovascular and respiratory diseases of small animals. DVM degree; Course may be repeated for a maximum of 5 credit hours.

VBMS 7840 ADVANCED SMALL ANIMAL MEDICINE IV (3-5) LEC. Departmental approval. Molecular biology lectures and techniques related to diagnostic and research application to clinical problems in small animal veterinary medicine. DVM degree; Course may be repeated for a maximum of 5 credit hours.
VBMS 7850 ADVANCED VETERINARY MEDICAL SPECIALTY TRAINING (1-4) LEC. 1. LAB. 2. SU. Course may be repeated for a maximum of 6 credit hours.

VBMS 7870 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7880 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC MEDICINE (3) LEC. 1. LAB. 6. Pr. VBMS 7870. Advanced ophthalmology with emphasis on ophthalmic surgery.

VBMS 7890 ADVANCED VETERINARY OPHTHALMOLOGY: OPHTHALMIC BASIC SCIENCES (3) LEC. 3. Advanced ophthalmology with emphasis on diagnosis, pathophysiology and treatment of ocular diseases of domestic animals. DVM degree or equivalent.

VBMS 7910 ADVANCED EQUINE CRITICAL CARE I (2) LEC. 2. Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

VBMS 7920 ADVANCED EQUINE CRITICAL CARE II (2) LEC. 2. Introduce students to the mechanisms of disease, state of the art knowledge/procedures & treatment of conditions relevant to the critical equine patient.

VBMS 7950 GRADUATE SEMINARS IN VETERINARY CLINICAL SCIENCES (1) SEM. 1. SU. Departmental approval. Presentation of thesis research. DVM degree

VBMS 7970 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCES (1-5) RES. Research problems for graduate students, under supervision of faculty, in variety of specialized disciplines related to the biomedical sciences. Faculty approval. Course may be repeated for a maximum of 15 credit hours.

VBMS 7980 NON-THESIS PROJECT (1-3) LEC. 3. SU. Departmental approval. Non-thesis project, to be determined by faculty advisor and student's graduate advisory committee. DVM degree

VBMS 7990 RESEARCH AND THESIS IN BIOMEDICAL SCIENCES (1-10) MST. Credit to be arranged. Course may be repeated with change in topics.

VBMS 8360 ADVANCED EQUINE MEDICINE I: GI DISEASE (2) LEC. 2. Advanced topics in equine gastrointestinal disease are discussed. Topics include pathophysiology, pharmacology, and specific therapy of GI disease in horses. Graduate standing in Biomedical Sciences, College of Veterinary Medicine. Must have DVM or equivalent.

VBMS 8370 ADVANCED EQUINE MEDICINE II: RENAL/ENDOCRINE (2) LEC. 2. Advanced topics in equine renal and endocrine disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8380 ADVANCED EQUINE MEDICINE III: NEUROMUSCULAR (2) LEC. 2. Advanced topics in equine neuromuscular disease are discussed. Topics include pathophysiology, pharmacology, and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8390 ADVANCED EQUINE MEDICINE IV: CARDIORESPIRATORY (2) LEC. 2. Advanced topics in equine cardiorespiratory disease are discussed. Topics include pathophysiology, pharmacology and specific therapies. Graduate standing in Biomedical Sciences, College Veterinary Medicine. Must have DVM or equivalent.

VBMS 8950 BIOMEDICAL SCIENCES SEMINAR (1) SEM. 1. SU. Recent advances in biochemistry, cell biology and molecular biology will be critically presented and discussed by graduate faculty and students.

VBMS 8990 RESEARCH AND DISSERTATION (1-10) DSR. Course may be repeated with change in topics.

Veterinary Medicine Courses

VMED 9000 ORIENTATION TO VETERINARY MEDICINE (0) SEM. 1. SU. Overview of organized veterinary medicine, history of the profession, professional responsibilities and privileges, and career opportunities within the profession.

VMED 9010 VETERINARY MEDICAL ETHICS AND LAW (2) LEC. 25. Provide a foundation in veterinary medical ethics and legal issues associated with veterinary medicine. Course may be repeated for a maximum of 6 credit hours.
VMED 9020 VETERINARY MEDICINE AND THE LAW (1) LEC. 13. Laws relating to the veterinary profession, public policies, and government regulations.

VMED 9030 VETERINARY EPIDEMIOLOGY AND ZOOkses (2) LEC. 30. Basic principles of epidemiology including mechanisms of transmission, disease prevention, diagnosis, and assessment of human health risks. Course may be repeated for a maximum of 6 credit hours.

VMED 9040 VETERINARY FOOD SAFETY (2) LEC. 30. Provide a basic awareness of the most common foodborne diseases and methods to protect consumers from foodborne disease. Course may be repeated for a maximum of 6 credit hours.

VMED 9062 CLINICOPATHOLOGY CONFERENCE CRITICAL THINKING (1) LEC. 14. SU. Review and assessment of material presented in a case-based format by faculty and house officers to develop and refine clinical thinking and critical thinking skills. Course may be repeated with change in topics.

VMED 9110 PHYSIOLOGY I (5) LEC. 72. LAB. 3. Cellular, Cardiovascular, Renal, and Respiratory Physiology.

VMED 9111 VETERINARY ANATOMY I (SMALL ANIMAL) (4) LEC. 44. LAB. 94. Basic concepts of body structure and small animal gross anatomy with veterinary medical applications. Credit will not be given for both VMED 9111 and VBMS 6111.

VMED 9120 PHYSIOLOGY II (4) LEC. 57. Gastrointestinal Physiology, Metabolism, Endocrinology, and Reproductive Physiology.

VMED 9121 VETERINARY ANATOMY II (3) LEC. 38. LAB. 57. In-depth study of the gross anatomy of the ox, horse, and minor species with inclusion of clinical relevance.

VMED 9130 GENETIC AND CELLULAR BASIS OF ANIMAL DISEASE (1) LEC. 15. One credit course focused on the relationship between genetics and animal diseases.

VMED 9131 BASIC MICROANATOMY/DOMESTICS ANIMALS (3) LEC. 15. LAB. 54. Functional comparative microstructure of cells, basic tissues, cardiovascular system, urinary system, skeleton and osteogenesis, respiratory system, and blood of domestic animals.

VMED 9141 ORGANOLOGY OF DOMESTIC ANIMALS (2) LEC. 5. LAB. 56. Comparative microstructure of the digestive system, lymphoid system, endocrine system, integumentary system, reproductive system, and placentation of domestic animals.

VMED 9150 DIAGNOSTIC IMAGING (2) LEC. 27. LAB. 12. Basic radiographic and ultrasonographic physics; introduction to computed tomography, magnetic resonance imaging, and nuclear imaging.

VMED 9151 VETERINARY NEUROSCIENCES (4) LEC. 44. LAB. 24. Gross and microscopic morphology and physiology of the peripheral and central nervous systems. Course may be repeated for a maximum of 12 credit hours.

VMED 9180 VETERINARY ETHOLOGY (2) LEC. 28. Basic concepts of ethology and other approaches to animal behavior, introduce diagnostic and treatment methods, discuss relevant cases. Course may be repeated for a maximum of 6 credit hours.

VMED 9190 INTRODUCTION TO VETERINARY PHARMACOLOGY (1) LEC. 16. An organized foundation of information to develop clinical thinking skills in veterinary pharmacology. Course may be repeated for a maximum of 16 credit hours.

VMED 9200 VETERINARY PARASITOLOGY I (3) LEC. 37. LAB. 13.5. Platyhelminthes, trematodes, and nematodes of domestic animals.

VMED 9210 VETERINARY PARASITOLOGY II (2) LEC. 17. LAB. 10. Arthropods, protozoa, helminths, and acanthocephalans of domestic animals. Parasiticides.

VMED 9220 PRINCIPLES OF VETERINARY PATHOLOGY (3) LEC. 35. LAB. 20. General principles of pathology and mechanisms of disease processes affecting animals.

VMED 9230 VETERINARY CLINICAL PATHOLOGY (3) LEC. 47. LAB. 8. Laboratory test principles and results interpretations in evaluation of hematopoietic, coagulation, hepatic, renal, gastrointestinal, acid/base and fluid status of animals.

VMED 9240 PRINCIPLES OF VETERINARY IMMUNOLOGY (3) LEC. 41. LAB. 6. Principles underlying the immune system's ability to protect animals from disease and mechanisms by which immune responses contribute to disease.

VMED 9250 VIROLOGY AND PRIONS (2) LEC. 23. LAB. 6. Principles of infectious agents and their pathogenic attributes, infectious diseases of animals, and mechanisms of antimicrobial agents. Course may be repeated for a maximum of 6 credit hours.
VMED 9260 VETERINARY PHARMACOLOGY (3) LEC. 45. LAB. 8. Overview of drugs relevant to veterinary practice; pharmacodynamics, pharmacokinetics, clinical application.

VMED 9262 CLINICAL PHARMACOLOGY AND THERAPEUTICS (1) LAB. 20. Use of group based discussion to create therapeutic plan for specific patients with a target disease. Satisfactory advancement into the second of the professional (DVM) program.

VMED 9270 INTRODUCTION TO CYTOLOGY (1) LEC. 3. LAB. 10. The principles and practice of evaluation of blood films, cytologic preparations, and urine sediments from various veterinary species.

VMED 9280 BACTERIOLOGY AND MYCOLOGY (3) LEC. 34. LAB. 20. Veterinary bacterial and fungal pathogens, diseases caused by each, prevention, treatment and presumptive laboratory diagnoses. Course may be repeated for a maximum of 9 credit hours.

VMED 9301 PHYS DIAG LG AND SMALL ANIMAL (2) LEC. 18. LAB. 30. Basic approach to physical examination of large and small animals.

VMED 9310 INTRODUCTION TO SURGERY (2) LEC. 18. LAB. 19.5. Current standing in the DVM professional curriculum and completion of the first 3 semesters of the professional program. Introduction to the fundamental principles and techniques of veterinary surgery.

VMED 9311 SURGICAL PRACTICUM (1) LEC. 1. LAB. 16. Aseptic technique, instrument handling, suture patterns, surgical ties, anesthetic administration/monitoring, surgical incision/tissue handling, wound closure, postoperative patient management.

VMED 9320 LARGE ANIMAL NUTRITION (2) LEC. 28. LAB. 4. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 5320 or VMED 5420. Course may be repeated for a maximum of 6 credit hours.

VMED 9330 EXOTIC COMP. ANIMAL MED. (2) LEC. 30. Care, diagnosis, and treatment of exotic companion animals. May count either VMED 5330 or VMED 5430. Course may be repeated for a maximum of 6 credit hours.

VMED 9340 EMERGENCY MEDICINE AND CRITICAL CARE (2) LEC. 28. Emergency presentations, critical care management.

VMED 9350 VETERINARY TOXICOLOGY (2) LEC. 30. LAB. 15. Poisons and poisonous plants affecting large and small animals, chemical properties, signs, lesions, diagnosis, treatment.

VMED 9360 PRODUCTION PREVENTATIVE MEDICINE (3) LEC. 57. Principles of disease prevention and maximization of production application of food safety principles.

VMED 9370 ONCOLOGY (1) LEC. 17. Diagnostic and therapeutic measures used to manage animals with oncologic diseases.

VMED 9380 PHYSICAL DIAGNOSIS II (1) LEC. 4. LAB. 14. Continued experience in the performance of routine physical examination in small and large animal species. Satisfactory advancement into the second year of the professional (DVM) program.

VMED 9410 APPLIED CLINICAL IMAGING (2) LEC. 2. Define and describe abnormalities of various systems detected through imaging. Course may be repeated for a maximum of 6 credit hours.

VMED 9420 SMALL ANIMAL NUTRITION (2) LEC. 28. LAB. 4. Proper nutrition for health and disease prevention and treatment in large animals in different stages of life. May count either VMED 9320 or VMED 9420. Course may be repeated for a maximum of 6 credit hours.

VMED 9430 POULTRY MEDICINE (2) LEC. 30. The care, diagnosis, and treatment of poultry. May count either VMED 9330 or VMED 9430. Course may be repeated for a maximum of 6 credit hours.

VMED 9500 SPECIALIZED TOPICS IN VETERINARY MEDICINE (2) LEC. 30. Focused instruction on topics of interest in veterinary medicine. Course may be repeated for a maximum of 8 credit hours.

VMED 9502 CURRENT TOPICS IN VETERINARY MEDICINE (1) LEC. 1. SU. Emerging topics in veterinary medicine, current literature. Course may be repeated for a maximum of 15 credit hours.

VMED 9510 HEMOLYMPHATIC SYSTEM (1) LEC. 15. LAB. 6. Diagnosis, treatment and prevention of diseases affecting the integumentary and hemolymphatic systems. Course may be repeated for a maximum of 3 credit hours.

VMED 9520 CARDIOVASCULAR (2) LEC. 25. LAB. 13. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the cardiovascular system.
VMED 9530 RESPIRATORY SYSTEM (3) LEC. 41. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the respiratory system.

VMED 9540 SMALL ANIMAL ALIMENTARY SYSTEM (2) LEC. 34. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment and prevention of diseases affecting the alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9550 URINARY SYSTEM (2) LEC. 29. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of disease affecting the urinary system.

VMED 9560 ENDOCRINE SYSTEM (2) LEC. 25. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases of the endocrine system.

VMED 9570 REPRODUCTIVE SYSTEM (4) LEC. 66. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment; and prevention of diseases of the reproductive system. Course may be repeated for a maximum of 12 credit hours.

VMED 9580 NERVOUS SYSTEM (2) LEC. 36. LAB. 6. Pathophysiology, pathologic lesions, radiographic and ultrasonographic lesions, diagnosis, treatment, and prevention of diseases affecting the nervous system.

VMED 9590 MUSCULOSKELETAL SYSTEM (3) LEC. 42. LAB. 4. Pathophysiology; pathologic, radiographic and ultrasonographic lesions; diagnosis; treatment; and prevention of diseases affecting the musculoskeletal system.

VMED 9601 VETERINARY CLINICAL ROTATIONS (3) LEC. 3. Clinical experiences through various specialty service in the Veterinary Medical Teaching Hospital. Course may be repeated with change in topics.

VMED 9602 RESEARCH PROBLEMS IN BIOMEDICAL SCIENCE (1-10) RES. SU. Research problems in a variety of specialized disciplines for veterinary students and advanced undergraduates.

VMED 9611 VETERINARY CLINICAL ROTATIONS-ELECTIVES (3) LEC. 3. SU. Clinical experiences through various specialty services in the Veterinary Medical Teaching Hospital. Course may be repeated for a maximum of 9 credit hours.

VMED 9621 CLINICAL ROTATIONS IN VET MED (2) CLN. 80. Clinical practicum experiences in large and small animal teaching hospitals on the veterinary medical campus. Course may be repeated with change in topics.

VMED 9631 ALTERNATE ROTATIONS IN VET MED (2) CLN. 80. SU. Clinical practicum experiences in alternative large and small animal experiences as documented in college procedures. Course may be repeated with change in topics.

VMED 9640 LARGE ANIMAL ALIMENTARY SYSTEM (2) LEC. 36. Pathophysiology, pathologic lesions, diagnosis, treatment and prevention of diseases affecting the large animal alimentary system. Course may be repeated for a maximum of 6 credit hours.

VMED 9670 SPECIAL SENSES SYSTEMS (1) LEC. 19. LAB. 4. Common procedures for evaluation, diagnosis and treatment of eye disorders in domestic species are covered to provide basic veterinary ophthalmology knowledge to veterinary students.

VMED 9700 INTRODUCTION TO ANESTHESIA (3) LEC. 33. LAB. 16. Principles and practices of veterinary anesthesia in large and small animals.

VMED 9710 PRACTICE MANAGEMENT (1) LEC. 1. SU. Fundamental principles of effective client, personnel, practice and business management for the veterinarian.

VMED 9720 DISASTER MEDICINE FOR VETERINARIANS (2) LEC. 1. SU. Pr. (VMED 9111 or VMED 5111). Role of the veterinarian in responding to natural and man made disasters.

VMED 9721 APPLIED ANATOMY I (1) LAB. 3. Pr. VMED 5111 or VMED 9111. Detailed anatomical basis for small animal surgical approaches.

VMED 9731 APPLIED ANATOMY II (1) LAB. 3. Pr. (VMED 9111 or VMED 5111). Detailed anatomical basis for small animal diagnostics and therapeutics.

VMED 9740 APPLIED COMPANION ANIMAL BEHAVIOR (2) LEC. 2. Pr. VMED 9300 or VMED 9180 or VMED 5300 or VMED 5180. Diagnosis, treatment and client education on selected behavior problems in companion animals.
VMED 9741 EQUINE LIMB JOINTS AND FOOT (1) LAB. 3. SU. Pr. VMED 9121 or VMED 5121. A study of the functional anatomy of the joints and foot of the horse fore and hind limbs.

VMED 9750 DIAGNOSTIC VETERINARY ULTRASONOGRAPHY (2) LEC. 2. LAB. 1. Pr. (VMED 9121 or VMED 5121) or (VMED 9150 or VMED 5150). Basic physics, instrumentation, and scanning techniques of ultrasonography. Normal sonographic anatomy correlated with the cross-sectional anatomy of body structures and organs.

VMED 9770 ADVANCED VETERINARY DERMATOLOGY (1) LEC. 1. SU. Pr. VMED 9510 or VMED 5510. Clinical dermatology in a case-based format.

VMED 9790 SMALL ANIMAL WOUND MANAGEMENT AND SURGERY (1) LEC. 1. SU. Pr. (VMED 9510 or VMED 5510) and (VMED 9310 or VMED 5310). Wound management, reconstructive/salvage surgery.

VMED 9800 APPLIED SMALL ANIMAL NEUROLOGY (1) LEC. 1. SU. Clinical management of commonly occurring neurologic diseases of small domestic animals.

VMED 9801 PRECEPTORSHIP (3) LAB. 320. SU. Training in a practice situation under the direct supervision of a veterinarian or, under certain conditions, in specialized programs. Approval of Preceptorship Committee.

VMED 9810 INTEGUMENTARY SYSTEM (2) LEC. 29. LAB. 6. Diagnosis, treatment and prevention of diseases affecting the integumentary system.

VMED 9820 ADVANCED REPRODUCTIVE TECHNIQUES (2) LEC. 2. Pr. VMED 9120 or VMED 5120. Techniques associated with embryo transfer, fetal sexing, in-vitro fertilization, applied and experimental techniques in cattle emphasized.

VMED 9840 WILDLIFE DISEASES (1) LEC. 1. SU. Control and role of veterinarian in prevention of disease in wild animals, specifically wildlife indigenous to U.S.

VMED 9880 EQUINE REPRODUCTION (1) LEC. 1. Reproductive physiology, endocrinology, breeding soundness evaluation, breeding management and advanced technologies.

VMED 9950 CLINICOPATHOLOGIC CONFERENCE (1) SEM. 15. SU. Oral presentation of veterinary clinical case or case material.

VMED 9960 SPECIAL PROBLEMS (1) LEC. 1. SU. Introduction to veterinary literature, evaluation of recent articles, references, reports on veterinary medicine.

VMED 9995 VETERINARY CLINICAL ROTATIONS - EXTERNSHIPS (0) CLN. SU. Successful completion of didactic veterinary curriculum. Students will participate in clinical rotations including specialty rotations.

**Anatomy, Physiology and Pharmacology**

(See Biomedical Sciences (http://bulletin.auburn.edu/theschools/graduatedegreeoffered/biomedicalsciencesmsphd_major))
## Veterinary Clinical Sciences

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VMED 9580 Nervous System 2
VMED 9330 Exotic Comp. Animal Med. 2
VMED 9062 Clinicopathology Conference Critical Thinking 1
VMED 9590 Musculoskeletal System 3
VMED 9262 Clinical Pharmacology and Therapeutics 1
Electives 1-3
VMED 9310 Introduction to Surgery 2

**SUMMER**

**P4**

**SUMMER**

VMED 9621 Clinical Rotations in Vet Med (total of 12 hours of VMED 9621) 2
VMED 9062 Clinicopathology Conference Critical Thinking 1

**Fall**

VMED 9621 Clinical Rotations in Vet Med (total 19 hours of VMED 9621) 2
VMED 9062 Clinicopathology Conference Critical Thinking 1

**Spring**

VMED 9621 Clinical Rotations in Vet Med (total of 14 hours of VMED 9621) 2
VMED 9801 Preceptorship 3
VMED 9950 Clinicopathologic Conference 1
UNIV 4AA0 University Graduation 0

**TOTAL HOURS - 157**

Rotations will be set up in blocks of two 2-week rotations.

There are 24 2-week rotations that each student must complete, 15 are required rotations and 9 are elective rotations that the student must select from an approved list.
Minors

Minor

• Public Health (p. 17)
### Veterinary Medicine Minors

#### Public Health

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Total Hours: 15
## Curriculum in Veterinary Medicine

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<td>Clinicopathology Conference Critical Thinking</td>
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<td>Clinical Rotations in Vet Med (total of 12 hours</td>
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<tr>
<td>TOTAL HOURS</td>
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Rotations will be set up in blocks of two 2-week rotations. There are 24 2-week rotations that each student must complete, 15 are required rotations and 9 are elective rotations that the student must select from an approved list.
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