

# Chemical Engineering — MS, PhD

## Program Degrees

- Chemical Engineering — MS ([http://bulletin.auburn.edu/thegraduateschool/graduatedegreesoffered/chemicalengineeringmchemsphd\\_major/chemicalengr\\_ms/](http://bulletin.auburn.edu/thegraduateschool/graduatedegreesoffered/chemicalengineeringmchemsphd_major/chemicalengr_ms/))
- Chemical Engineering — PhD ([http://bulletin.auburn.edu/thegraduateschool/graduatedegreesoffered/chemicalengineeringmchemsphd\\_major/chemicalengr\\_phd/](http://bulletin.auburn.edu/thegraduateschool/graduatedegreesoffered/chemicalengineeringmchemsphd_major/chemicalengr_phd/))

The Chemical Engineering Department offers graduate programs leading to the degrees of master of science and doctor of philosophy. Specialized courses and research training are provided in a wide variety of specialties within chemical engineering or related interdisciplinary areas. Some of these specialties include: surface science, biochemical engineering, catalysis, pulp and paper engineering, environmental engineering, waste conversion, computer-aided process design and simulation, novel bioseparations systems, chemical kinetics and reactor design, biomedical engineering, process control and optimization, thermodynamics, advanced energy research, mass and energy transfer, electrochemical engineering, polymer engineering, interfacial phenomena, process synthesis, material science, nanotechnology, and space science. Additionally, individualized interdisciplinary programs which cross the traditional departmental boundaries are encouraged. These may include collaborative work in chemistry, engineering disciplines, physics, mathematics, agriculture, forestry, biology, microbiology, genetics and health sciences or other areas.

The applicant must hold a bachelor's degree or its equivalent from an institution of recognized standing and must have the pre-requisite undergraduate experience in areas of study relevant to the proposed graduate program. The General Test of the Graduate Record Examination (GRE) is required. If the applicant's undergraduate degree is other than chemical engineering, an individualized plan of study will be developed to impart the critical skills inherent in the bachelor's chemical engineering program. All applicants will be evaluated on an individual basis by the Chemical Engineering Graduate Admissions Committee. The admissions committee will evaluate the undergraduate (and graduate) record, GRE scores, letters of recommendation and any experience in research. Non-core, non-duplicating, "A" grade graduate courses from another university are eligible as determined by the graduate program officer for transfer credit (maximum of 6 credit hours for Masters, 12 credit hours for PhD)

The master of science may be earned under a thesis or non-thesis option. There is not a language requirement for either option. For both options, a total of 30 semester hours of work is necessary and at least 21 hours must be in chemical engineering (CHEN). A total of 12 hours must be taken at the 7000 level or higher, the remaining 18 hours must be at the 6000 level or higher. The following core courses must be taken for a total of 9 hours:

Code	Title	Hours
CHEN 7100	Transport Phenomena	3
CHEN 7200	Chemical Engr Thermodynamics	3
CHEN 7250	Chemical Reaction Engineering	3
<b>Total Hours</b>		<b>9</b>

Students pursuing a MS with thesis degree should enroll in CHEN 7950 Graduate Seminar each semester of enrollment. These students may include six (6) hours of research and thesis as part of the 30 hours. After completion of the thesis, the student must pass a final oral examination defending the thesis. The non-thesis MS degree option does not have a residency, seminar, research or final oral exam requirement. The non-thesis degree can be earned entirely through the Auburn Engineering Graduate Online Program.

The doctor of philosophy provides for advanced course work and emphasizes original, creative research. A dissertation embodying the results of this research represents the major portion of the requirements for this degree. A minimum of 60 semester hours of graduate work past the bachelor's degree is necessary. Each student may include 10 hours of research and dissertation as part of the 60 hours. Four calendar years beyond the bachelor's degree or three past the master's degree usually are needed to complete the PhD. There are four (4) core graduate courses for a total of 12 credit hours:

Code	Title	Hours
CHEN 7100	Transport Phenomena	3
CHEN 7110	Chem Engr Anlys Adv Transport	3
CHEN 7200	Chemical Engr Thermodynamics	3

CHEN 7250	Chemical Reaction Engineering	3
<b>Total Hours</b>		<b>12</b>

Additional 18 credit hours of chemical engineering (minimum 9 credit hours) and/or other elective courses at 6000 level or higher is required. The remaining 30 credit hours are composed of research and dissertation (minimum 10 credit hours), formal courses (6000 level or higher), and graduate seminar.

The General Doctoral Examination consists of two parts, the “PhD Qualifying Examination” and the “PhD Preliminary Oral Examination”. The PhD Qualifying Examination will be successfully fulfilled by earning a B or higher in each of the four (4) core graduate courses above.

At the PhD Preliminary Oral Examination, the student will present to their Faculty Research Advisory Committee a thorough description and comprehensive discussion of his/her proposed dissertation research. Successful completion of the Preliminary Oral Examination requires unanimous approval of the student’s Faculty Research Advisory Committee. Upon successful completion of the PhD Qualifying and Preliminary Oral Examinations, the student advances to candidacy. After completion of the dissertation, the student must pass a final oral examination defending the dissertation.

There is no language requirement for the PhD.