

Chemical Engineering (MS)

Degree Requirements

With the ever-increasing pace of technological development in society, new opportunities are becoming available that require chemical engineering graduates with increased levels of specialization. The Department offers a Master of Science degree in Chemical Engineering that blends scholarship and research with advanced coursework to provide excellent training for students to pursue careers in the chemical industry. Graduate students have opportunities to undertake cutting-edge research with faculty for both thesis and project work. In addition, a course work-only program is also offered by the department for those who intend to further their professional development while pursuing a graduate degree. Students with a bachelor's degree in a major other than chemical engineering can qualify for admission by taking a prescribed series of undergraduate courses.

Admission To The MSChE Program

The following criteria supplement the College of Engineering admission criteria ([see Admission To Graduate Programs](#)):

- I. Regular Admission Requirements
 - A. A bachelors degree in chemical engineering.
 - B. A grade-point average of 3.0 or greater (A=4.0) on all undergraduate work is required.
 - C. A minimum score of 151 in the quantitative section and a minimum score of 141 in the verbal section of the Graduate Record Examination (GRE) is required.
 - D. A minimum score of 79 in the internet-based TOEFL or a minimum band score of 6.5 in the IELTS is required.
- II. Provisional Admission Requirements
 - A. A bachelors degree in chemistry, physics, mathematics or engineering.
 - B. A minimum grade-point average of 2.5 (A=4.0) on all undergraduate work is required.
 - C. A minimum score of 151 in the quantitative section and a minimum score of 141 in the verbal section of the Graduate Record Examination (GRE) is required.
 - D. A minimum score of 79 in the internet-based TOEFL or a minimum band score of 6.5 in the IELTS is required.

The minimum credit hour requirements for the different options pertaining to the MSChE degree are:

- Thesis Option 30 credit hours
- Project Option 30 credit hours
- Course Option 33 credit hours

Thesis Option First Year		Credit Hours
Fall		7
CHE 520	3 hrs	
Graduate Elective*	3 hrs	
CHE 501	1 hr	
Spring		7
CHE 521	3 hrs	
CHE 551	3 hrs	
CHE 501	1 hr	
Summer		3
CHE 592	3 hr	

Second Year		Credit Hours
Fall		7
CHE 510	3 hrs	
CHE 599	3 hrs	
CHE 501	1 hr	
Spring		6
CHE 525	3 hrs	
CHE 599	3 hrs	
CHE 501	0 hrs	
Note: Graduate Elective must be approved by department graduate coordinator		

Project Option First Year		Credit Hours
Fall		7
CHE 520	3 hrs	
Graduate Elective*	3 hrs	
CHE 501	1 hr	
Spring		7
CHE 521	3 hrs	
CHE 551	3 hrs	
CHE 501	1 hr	
Summer		3
CHE 592	3 hr	

Second Year		Credit Hours
Fall		7
CHE 510	3 hrs	
CHE 594	3 hrs	
CHE 501	1 hr	
Spring		6
CHE 525	3 hrs	
CHE 594	3 hrs	
CHE 501	0 hrs	
Note: Graduate Elective must be approved by department graduate coordinator		

Course Option First Year		Credit Hours
Fall		9

CHE 520	3 hrs	
MA 507	3 hrs	
*Graduate Elective	3 hrs	
Spring		9
CHE 521	3 hrs	
CHE 551	3 hrs	
*Graduate Elective	3 hr	

Second Year		Credit Hours
Fall		9
CHE 510	3 hrs	
MA 508	3 hrs	
SE 601	3 hr	
Spring		6
CHE 525	3 hrs	
*Graduate Elective	3 hrs	
*Note: Graduate Elective must be approved by department graduate coordinator		

Department Information

Department of Chemical and Biomolecular Engineering Staff		(251) 460-6160
Chair		F. Carl Knopf
Professors		Knopf, Leavesley, Sylvester, West
Associate Professors		Glover, Wheeler
Assistant Professors		Rabideau, Walker

Department of Chemical and Biomolecular Engineering website
<https://www.southalabama.edu/colleges/engineering/chbe/index.html>

Chemical Engineering is a profession in which knowledge of mathematics, chemistry, biology and other natural sciences gained by study, experience, and practice is applied with judgment to develop economical ways of using material and energy for the benefit of mankind. The program required for the degree of Bachelor of Science in Chemical Engineering provides fundamental instruction in mathematics, chemistry, biology, physics, and engineering. This education prepares the graduate to seek employment in petrochemical, pharmaceutical, healthcare, microelectronics, polymers, energy and environmental industries. In addition, the graduate is adequately prepared to pursue graduate school.

Chemical engineering students are required to take the Chemical Engineering discipline specific Fundamentals of Engineering (FE) examination in Alabama or another state prior to graduation. All electives must be approved by the student's advisor. Degree requirements include a minimum of 18 semester hours of approved electives in the Humanities and Social Sciences.

Satisfactory completion of the 126 hour program outlined below leads to a Bachelor of Science in Chemical Engineering. Students must also comply with the College of Engineering Requirements for a Degree, which are covered in the Bulletin under the College of Engineering.

BSCHE Program Educational Objectives

The educational objectives of the Department of Chemical & Biomolecular Engineering's undergraduate program are that, within a few years of program completion, graduates will have used the knowledge and skills gained through academic preparation and post-graduation experience so they have:

1. Advanced in the chemical engineering profession, obtained professional licensure, and applied engineering knowledge and problem-solving skills to multi-disciplinary projects.
2. Incorporated economic environmental, social, regulatory, constructability, safety, and sustainability considerations into the practice of chemical engineering.
3. Exhibited effective communication skills, teamwork, leadership, initiative, project management, and professional and ethical behavior.
4. Continued their technical and professional development, which may include graduate level education, continuing education, and participation in professional organizations.

BSCHE Student Outcomes

By the time of graduation from the BSCHE program, a student will have demonstrated attainment of the following outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The BSCHE curriculum is designed to ensure the attainment of the student outcomes.

The Bachelor of Science in Chemical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>