

# B.S.Ch.E. in Chemical Engineering

[Overview](#)

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## Description

The B.S. in chemical engineering provides the student with a fundamental knowledge of chemical engineering science and prepares graduates for a variety of careers in industry and government, or for advanced study in engineering, business, or professional school.

**Minimum Total Credit Hours: 128**

## Goals/Mission Statement

### Program Educational Objectives

Graduates from the Department of Chemical Engineering of the University of Mississippi will be: 1. Globally competitive in the professional world; 2. Prepared for leadership and success in their chosen career or in continued education; 3. Equipped with flexible problem-solving skills to address complex professional and societal issues.

### Student Outcomes

In accordance with ABET accreditation requirements, BSChE students at the University of Mississippi should demonstrate the attainment of the following student outcomes: (a) an ability to apply knowledge of mathematics, science, and engineering (b) an ability to design and conduct experiments, as well as to analyze and interpret data (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability (d) an ability to function on multidisciplinary teams (e) an ability to identify, formulate, and solve engineering problems (f) an understanding of professional and ethical responsibility (g) an ability to communicate effectively (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (i) a recognition of the need for, and an ability to engage in life-long learning (j) a knowledge of contemporary issues (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

## Course Requirements

Specific requirements for the standard option in chemical engineering are as follows: Writ 101 and 102; Math 261, 262, 263, 264, and 353; Chem 105, 106, 115, 116, 221, and 225; Phys 211, 212, 221, 222; an advanced science (defined below); Engr 310, 313, 321, and 322; Ch E 101, 251, 307, 308, 317, 345, 411, 412, 417, 421, 423, 445, 446, 451, and 452; an engineering elective (defined below); 12 hours of technical electives of 300 or higher course number from engineering, science, or mathematics; and 3 hours of fine arts, 6 hours of humanities from the same department, 6 hours of social science from the same department, and 3 additional hours of humanities, social science, or a general education course as defined by the School of Engineering with the exception that speech and math content courses may not be used to satisfy any of these required 18 credits. Any of the following will satisfy the advanced science requirement: Engr 340, Engr 540, Ch E 543, Ch E 545, Ch E 547, Geol 314, Geol 415, Geol 450, G E 503, Chem 314, Chem 331, Chem 332, Chem 334, Chem 373, Chem 401, Chem 471, Chem 473, Phys 315, Phys 317, Phys 318, Phys 319, Phys 321, Phys 401, Phys 402, Bisc 301, Bisc 306, Bisc 318, Bisc 320, Bisc 327, or Bisc 335. Any of the following will satisfy the engineering elective requirement: Engr 309, Engr 330, Engr 340, Engr 360, Engr 573, C E 471, C E 472, or M E 534.

The following alternative courses may satisfy course requirements as specified:

- Alternatives to Ch E 101: Ch E 103 and Ch E 104, or Engr 100
- Alternative to Engr 313: The combination of Manf 251 and Manf 252
- Alternatives for 300-level technical electives: Chem 222, Manf 253, Manf 254, the combination of Bisc 160, 161, 162, and 163. In the case of the Bisc 160-163 series, the student must take all 8 credits to fulfill the requirement for one 3-credit technical elective. A maximum of 3 credits of Ch E 330 may be used to satisfy one of the technical elective requirements.

## Emphases in Chemical Engineering

As alternative to the standard or pre-med options in chemical engineering, a student may choose to obtain a B.S. in Chemical Engineering with one or more of the following four emphases: biotechnology, environmental, manufacturing (in collaboration with the Center for Manufacturing Excellence), and materials. The same general education and course requirements (defined above) apply to all emphases in chemical engineering. Taking specific advanced chemistry and elective courses satisfy specific emphasis requirements.

## Other Academic Requirements

Students in the Department of Chemical Engineering are encouraged to take the Fundamentals of Engineering examination prior to awarding of the baccalaureate degree.

## Specializations

- [Emphasis - Biotechnology](#)
- [Emphasis - Environmental](#)
- [Emphasis - Manufacturing](#)
- [Emphasis - Materials](#)
- [Pre-Med Option](#)
- [Standard Option](#)

