### REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

**GALLOGLY COLLEGE OF ENGINEERING**

**THE UNIVERSITY OF OKLAHOMA**

**Program**
- Chemical Engineering (Pre-Medical/Biomedical Engineering) - B163
- Bachelor of Science in Chemical Engineering

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**Accredited by the Engineering Accreditation Commission of ABET**, [http://www.abet.org](http://www.abet.org)

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum, including all prerequisite courses. Chemical engineering courses are sequential and usually offered only in the semester shown; note prerequisites.

Two college-level courses in a single foreign language are required; this may be satisfied by successful completion of 2 years in a single foreign language in high school. Students who must take foreign language at the University will have an additional 6-10 hours of coursework.

Courses designated as Core I, II, III, IV, or Capstone are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list.

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#### OU encourages students to complete at least 34 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

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**Year** | **FIRST SEMESTER** | **SECOND SEMESTER** | **CREDIT HOURS**
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**FRESHMAN** |  |  |  
ENGL 1113 | Principles of English Composition (Core I) | 3 | ENGL 1213 or EXPO 1213 | Principles of English Composition (Core I) or Expository Writing | 3
CHEM 1315 | General Chemistry (Core II) | 1 | 5 | CHEM 1435 | General Chemistry II: Signature Course | 5
MATH 1914 | Differential and Integral Calculus I (Core I) | 2 | 4 | MATH 2924 | Differential and Integral Calculus II | 4
HIST 1483 | United States, 1492 to 1865 (Core IV) | 1 | 3 | PHYS 2514 | General Physics for Engineering and Science Majors | 4
ENGR 1411 | Freshman Engineering Experience | 3 | 1 |  |  |

**CREDIT HOURS** | **16** | **16** |

**SOPHOMORE** |  |  |  
MATH 2934 | Differential and Integral Calculus III | 2 | 4 | MATH 3113 | Introduction to Ordinary Differential Equations | 3
PHYS 2524 | General Physics for Engineering and Science Majors | 3 | 4 | CH E 2003 | Chemical Engineering Computing/Statistics | 3
CH E 2033 | Chemical Engineering Fundamentals | 1 | 3 | CH E 3113 | Momentum, Heat and Mass Transfer | 3
CHEM 3053 | Organic Chemistry I: Biological Emphasis | 1 | 3 | CHEM 3153 | Organic Chemistry II: Biological Emphasis | 3
ENGR 2002 | Professional Development | 2 | 2 | CHEM 3152 | Organic Chemistry Laboratory: Biological Emphasis | 2
 |  |  |  | CHEM 3423 | Physical Chemistry I | 3

**CREDIT HOURS** | **16** | **17** |

**JUNIOR** |  |  |  
BIOL 1114 | Introductory Zoology | 1 | 4 | CH E 3333 | Separation Processes | 3
BIOL 1211 | Introductory Zoology Lab |  | 1 | CH E 3432 | Unit Operations Laboratory | 2
CH E 3123 | Momentum, Heat and Mass Transfer II | 3 | 3 | CH E 4473 | Kinetics | 3
CH E 3473 | Chemical Engineering Thermodynamics | 3 | 3 | CHEM 3421 | Physical Chemistry Laboratory | 1
CH E 3723 | Numerical Methods for Engineering Computation | 3 | 3 | CHEM 3153 | Approved Elective, Social Science (Core III) | 4
 |  |  |  | CHEM 3423 | Approved Elective, Western Civ. & Culture (Core IV) | 3
CHEM 3653 | Introduction to Biochemistry | 1 | 3 | P SC 1113 | American Federal Government (Core III) | 3
 |  |  |  | CHEM 3423 | American Federal Government (Core III) | 3

**CREDIT HOURS** | **17** | **18** |

**SENIOR** |  |  |  
CHEM 3653 | Introduction to Biochemistry (G) (additional work is required to earn graduate credit) | 1 | 3 | ENGR 2411 | Applied Engineering Statics | 1
 |  |  |  | CHEM 3313 | Structure and Properties of Materials | 3
 |  |  |  | CHEM 3423 | Advanced Process Design (Capstone) | 3
CH E 4153 | Process Dynamics and Control | 3 | 3 | BIOL 3101 | Principles of Physiology Lab | 1
CH E 4253 | Process Design & Safety | 3 | 3 | CHEM 3153 | Technical Elective II | 3
CH E 4262 | Chemical Engineering Design Laboratory | 2 | 3 | CHEM 3723 | Approved Elective, Non-Western Culture (Core IV) | 4
BIOL 3103 | Principles of Physiology | 3 | 3 | CHEM 3423 | Approved Elective, Artistic Forms (Core IV) | 5
ENGR 2431 | Electrical Circuits | 6 | 1 |  |  |
ENGR 3431 | Electromechanical Systems | 5 | 1 |  |  |

**CREDIT HOURS** | **16** | **17** |

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1. CHEM 1315 can be substituted with CHEM 1335 or CHEM 1425 (H) (Fall only). CHEM 1435 can be substituted with CHEM 1415.
2. MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.
3. Engineering transfer students may take ENGR 3511 in place of ENGR 1411.
4. To be chosen from the University-Wide General Education Approved Course List. Three of these 12 hours must be upper-division (3000-4000). One of these courses should be an English course 2000-level or above. See list in the Class Schedule.
5. Pre-med students are required to consult the Pre-Med advisor as well as their Chemical Engineering advisor for necessary medical school information. Note: Additional Electives for Pre-Medical are required.
6. It is recommended that ENGR 2431 and ENGR 3431 be taken in the same semester. The courses are offered in sequential five-week blocks during the semester.
## Requirements for the Bachelor of Science in Chemical Engineering

### TECHNICAL ELECTIVES

#### PRE-MEDICAL

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<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Technical Elective I</strong></td>
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<tr>
<td></td>
<td>Choose one of the following:</td>
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<tr>
<td>BIOL 3113</td>
<td>Cell Biology</td>
<td>3</td>
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<tr>
<td>BIOL 3333</td>
<td>Genetics</td>
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<tr>
<td>BIOL 4843</td>
<td>Molecular Biology</td>
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<tr>
<td></td>
<td><strong>Technical Elective II</strong></td>
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<tr>
<td></td>
<td>Choose one course from bioengineering courses with prior faculty approval</td>
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#### BIOMEDICAL ENGINEERING

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<th>Code</th>
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<tbody>
<tr>
<td></td>
<td><strong>Technical Elective I</strong></td>
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<tr>
<td>CH E 4203</td>
<td>Bioengineering Principles</td>
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<tr>
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<td><strong>Technical Elective II</strong></td>
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<td>Choose one approved biological content elective</td>
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