## CHEMICAL ENGINEERING: BIOMEDICAL/BIOCHEMICAL, BS

**Requirements for Students Matriculating in or before Academic Year 2017-2018.** Learn more about University Academic Regulation 3.1 ([link](http://catalog.okstate.edu/university-academic-regulations/#matriculation)).

**Minimum Overall Grade Point Average:** 2.00  
**Total Hours:** 134

### Code | Title | Hours
--- | --- | ---

**General Education Requirements**  
All General Education coursework requirements are satisfied upon completion of this degree plan.

#### English Composition
See Academic Regulation 3.5 ([link](http://catalog.okstate.edu/university-academic-regulations/#english-composition)).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1113</td>
<td>Composition I 1</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL 1313</td>
<td>Critical Analysis and Writing I</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following:  
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1213</td>
<td>Composition II</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 1413</td>
<td>Critical Analysis and Writing II</td>
<td></td>
</tr>
<tr>
<td>ENGL 3323</td>
<td>Technical Writing</td>
<td></td>
</tr>
</tbody>
</table>

#### American History & Government
Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 1103</td>
<td>Survey of American History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 1483</td>
<td>American History to 1865</td>
<td></td>
</tr>
<tr>
<td>HIST 1493</td>
<td>American History Since 1865</td>
<td></td>
</tr>
<tr>
<td>POLS 1113</td>
<td>American Government</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Analytical & Quantitative Thought (A)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 2144</td>
<td>Calculus I (A) 1</td>
<td>4</td>
</tr>
<tr>
<td>MATH 2153</td>
<td>Calculus II (A) 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 2163</td>
<td>Calculus III 1</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Humanities (H)
Select 3 hour course designated (H)  
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 3833</td>
<td>Biomedical Ethics (H) (or equivalent with Chemical Engineering Advisor approval)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Natural Sciences (N)**
Must include one Laboratory Science (L) course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1515</td>
<td>General Chemistry (LN) 1</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 1114</td>
<td>Introductory Biology (LN) 1</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Social & Behavioral Sciences (S)
Any course designated (S)  
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Hours Subtotal:** 43

### Diversity (D) & International Dimension (I)
May be completed in any part of the degree plan.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

### College/Departmental Requirements

#### Basic Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 2014</td>
<td>General Physics (LN) 1</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 2114</td>
<td>General Physics (LN) 1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Engineering**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 1111</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ENGR 1412</td>
<td>Introductory Engineering Computer Programming</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Engineering Science

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENSC 2113</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 2143</td>
<td>Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 2613</td>
<td>Introduction to Electrical Science</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 2213</td>
<td>Thermodynamics 1</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 3233</td>
<td>Fluid Mechanics 1</td>
<td>3</td>
</tr>
<tr>
<td>ENSC 3313</td>
<td>Materials Science</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Mathematics
Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 2013</td>
<td>Elementary Statistics (A)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 2023</td>
<td>Elementary Statistics for Business and Economics (A)</td>
<td></td>
</tr>
<tr>
<td>STAT 2053</td>
<td>Elementary Statistics for the Social Sciences (A)</td>
<td></td>
</tr>
<tr>
<td>STAT 4013</td>
<td>Statistical Methods I (A)</td>
<td></td>
</tr>
<tr>
<td>STAT 4033</td>
<td>Engineering Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 4053</td>
<td>Statistical Methods I for the Social Sciences (A)</td>
<td></td>
</tr>
<tr>
<td>STAT 4073</td>
<td>Engineering Statistics with Design of Experiments</td>
<td></td>
</tr>
</tbody>
</table>

#### Chemistry
Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 3053</td>
<td>Organic Chemistry 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>CHEM 3153</td>
<td>Organic Chemistry and Organic Chemistry Lab 1</td>
<td></td>
</tr>
<tr>
<td>BIOL 3653</td>
<td>Survey of Biochemistry and Biochemistry and Molecular Biology Laboratory 1</td>
<td></td>
</tr>
</tbody>
</table>

**Hours Subtotal:** 40

### Major Requirements

#### Mathematics
Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MATH 2233</td>
<td>Differential Equations 1</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 3263</td>
<td>Linear Algebra and Differential Equations</td>
<td></td>
</tr>
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</table>

#### Chemistry
Select one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 3433</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Chemical Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 2033</td>
<td>Introduction to Chemical Process Engineering 1</td>
<td>3</td>
</tr>
<tr>
<td>CHE 2581</td>
<td>Chemical Engineering Seminar I 1</td>
<td>1</td>
</tr>
<tr>
<td>CHE 3013</td>
<td>Rate Operations I</td>
<td>3</td>
</tr>
<tr>
<td>CHE 3113</td>
<td>Rate Operations II</td>
<td>3</td>
</tr>
<tr>
<td>CHE 3123</td>
<td>Chemical Reaction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CHE 3333</td>
<td>Introduction to Transport Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>CHE 3473</td>
<td>Chemical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CHE 3581</td>
<td>Chemical Engineering Seminar II</td>
<td>1</td>
</tr>
<tr>
<td>CHE 4002</td>
<td>Chemical Engineering Laboratory I</td>
<td>2</td>
</tr>
<tr>
<td>CHE 4112</td>
<td>Chemical Engineering Laboratory II</td>
<td>2</td>
</tr>
<tr>
<td>CHE 4124</td>
<td>Chemical Engineering Design I</td>
<td>4</td>
</tr>
</tbody>
</table>
Other Requirements

Admission to Professional School (required)
- Refer to the OSU Catalog corresponding to your matriculation date for detailed admissions requirements.

Graduation Requirements
1. A minimum GPA of 2.00 is required in all CHE, CHEM, ENGR, and ENSC coursework.
2. The major engineering design experience, capstone course, is satisfied by CHE 4124 Chemical Engineering Design I and CHE 4224 Chemical Engineering Design II.

Additional State/OSU Requirements
- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2023.

Courses that must be completed prior to admission to professional school.

Cannot use both ANSI 3423 Animal Genetics & BIOL 3023 General Genetics or BIOC 3653 Survey of Biochemistry & BIOC 3713 Biochemistry I.