CHEMICAL ENGINEERING: PRE-MEDICAL, BSCH

Requirements for Students Matriculating in or before Academic Year 2023-2024. Learn more about University Academic Regulation 3.1 (http://catalog.okstate.edu/university-academic-regulations/#matriculation).

Minimum Overall Grade Point Average: 2.00
Total Hours: 131

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements</td>
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<tr>
<td></td>
<td>All General Education coursework requirements are satisfied upon completion of this degree plan</td>
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<tr>
<td>English Composition</td>
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<tr>
<td>See Academic Regulation 3.5 (<a href="http://catalog.okstate.edu/university-academic-regulations/#english-composition">http://catalog.okstate.edu/university-academic-regulations/#english-composition</a>)</td>
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<tr>
<td>ENGL 1113</td>
<td>Composition I</td>
<td>3</td>
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<tr>
<td>or ENGL 1313</td>
<td>Critical Analysis and Writing I</td>
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<tr>
<td>Select one of the following:</td>
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<tr>
<td>ENGL 1213</td>
<td>Composition II</td>
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<tr>
<td>ENGL 1413</td>
<td>Critical Analysis and Writing II</td>
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<tr>
<td>ENGL 3323</td>
<td>Technical Writing</td>
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<tr>
<td>American History &amp; Government</td>
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<td>Select one of the following:</td>
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<tr>
<td>HIST 1103</td>
<td>Survey of American History</td>
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<tr>
<td>HIST 1483</td>
<td>American History to 1865 (H)</td>
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<tr>
<td>HIST 1493</td>
<td>American History Since 1865 (DH)</td>
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<tr>
<td>POLS 1113</td>
<td>American Government</td>
<td>3</td>
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<tr>
<td>Analytical &amp; Quantitative Thought (A)</td>
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<tr>
<td>MATH 2144</td>
<td>Calculus I (A)</td>
<td>4</td>
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<tr>
<td>MATH 2153</td>
<td>Calculus II (A)</td>
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</tr>
<tr>
<td>MATH 2163</td>
<td>Calculus III</td>
<td>3</td>
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<tr>
<td>Humanities (H)</td>
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<td></td>
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<tr>
<td>Any course designated (H)</td>
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<tr>
<td>Natural Sciences (N)</td>
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<tr>
<td>Must include one Laboratory Science (L) course</td>
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<tr>
<td>CHEM 1515</td>
<td>Chemistry II (LN)</td>
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<tr>
<td>BIOL 1113</td>
<td>Introductory Biology (N)</td>
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<tr>
<td>&amp; BIOL 1111</td>
<td>and Introductory Biology Laboratory (LN)</td>
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<tr>
<td>or BIOL 1114</td>
<td>Introductory Biology (LN)</td>
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<tr>
<td>Social &amp; Behavioral Sciences (S)</td>
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<tr>
<td>Select 3 hours from any course designated (S)</td>
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<tr>
<td>Hours Subtotal</td>
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<tr>
<td>Diversity (D) &amp; International Dimension (I)</td>
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<tr>
<td>May be completed in any part of the degree plan</td>
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<tr>
<td>Select at least one Diversity (D) course</td>
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<tr>
<td>Select at least one International Dimension (I) course</td>
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<tr>
<td>College/Departmental Requirements</td>
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<tr>
<td>Basic Science</td>
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<tr>
<td>PHYS 2014</td>
<td>University Physics I (LN)</td>
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<tr>
<td>PHYS 2114</td>
<td>University Physics II (LN)</td>
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</table>

Chemistry

CHEM 3053 | Organic Chemistry I                        | 3     |
CHEM 3112 | Organic Chemistry Laboratory               | 2     |
CHEM 3153 | Organic Chemistry II                       | 3     |

Chemical Engineering

CHE 2023 | Introduction to Chemical Engineering       | 3     |
CHE 2059 | Introduction to Chemical Process Engineering | 3     |
CHE 2581 | Chemical Engineering Seminar I             | 1     |
CHE 3013 | Rate Operations I                          | 3     |
CHE 3113 | Rate Operations II                         | 3     |
CHE 3123 | Chemical Reaction Engineering              | 3     |
CHE 3333 | Introduction to Transport Phenomena        | 3     |
CHE 3473 | Chemical Engineering Thermodynamics        | 3     |
CHE 3581 | Chemical Engineering Seminar II            | 1     |
CHE 4002 | Chemical Engineering Laboratory I          | 2     |
CHE 4112 | Chemical Engineering Laboratory II         | 2     |
CHE 4124 | Chemical Engineering Design I              | 4     |
CHE 4224 | Chemical Engineering Design II             | 4     |
CHE 4581 | Chemical Engineering Seminar III           | 1     |
CHE 4843 | Chemical Process Instrumentation and Control | 3     |

Controlled Electives

Advanced Chemical Science

Select three hours from the following: 3

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>PHYS 3023</td>
<td>General Genetics</td>
<td>4</td>
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<tr>
<td>or MICR 3033</td>
<td>Cell and Molecular Biology</td>
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</tbody>
</table>
CHE 3202 & CHE 3211 Interdisciplinary Design and Build for Chemical Systems I and Interdisciplinary Design and Build for Chemical Systems II
CHE 4073 Introduction to Tissue Engineering
CHE 4133 Introduction to Catalysis and Photocatalysis
CHE 4283 Bioprocess Engineering
CHE 4293 Biomedical Engineering
CHE 4323 Electrochemical Engineering
CHE 4343 Environmental Engineering
CHE 4493 Introduction to Molecular Modeling and Simulation
CHE 4523 Introduction to Colloid Processing
CHE 4533 Colloidal and Interfacial Phenomena
CHE 4543 Introduction to Chemical Engineering Data Science
CHE 4603 Introduction to Membrane Separations
CHE 4753 Introduction to Applied Numerical Computing for Scientists and Engineers
CHE 4773 Introduction to Computational Fluid-Particle Dynamics

Bioengineering/Bioscience Electives
Select 3 hours of the following: 3
- BAE 3113 Biological Applications in Engineering
- BAE 4413 Food Engineering
- BIOC 3223 Physical Chemistry for Biologists
- BIOC 3653 Survey of Biochemistry
- BIOC 3713 Biochemistry I
- BIOC 3723 Biochemistry and Molecular Biology Laboratory
- BIOC 4113 Molecular Biology
- BIOL 3023 General Genetics
- BIOL 3214 Human Anatomy
- CHE 4283 Bioprocess Engineering
- CHE 4293 Biomedical Engineering
- CHE 5283 Advanced Bioprocess Engineering
- CHE 5293 Advanced Biomedical Engineering

Total Hours 131

1. Humanities courses - should select one from ENGL and one ART, ENGL, FLL, MUSI, PHIL or TH to also meet medical school requirements.

2. Social & Behavioral Sciences courses – should select from ANTH, PSYC, or SOC to also meet medical school requirements.

Graduation Requirements

1. A minimum GPA of 2.00 is required in all CHE coursework.
2. Must Receive a "C" or better in the following CHE courses: CHE 2023, CHE 2033, CHE 3013, CHE 3113, CHE 3123, CHE 3333, CHE 3473, and CHE 4002.

3. 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 2029.