

# BIOSYSTEMS ENGINEERING: BIOPROCESSING & FOOD PROCESSING, BSBE

**Requirements for Students Matriculating in or before Academic Year 2024-2025.** 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: 124**

| Code  | Title   | Hours     |
|---|---|-----------|
| <b>General Education Requirements</b>   |   |           |
| <i>English Composition</i>  |   |           |
| 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> ) |   |           |
| ENGL 1113<br>or ENGL 1313   | Composition I<br>Critical Analysis and Writing I  | 3         |
| Select one of the following:  |   | 3         |
| ENGL 1213   | Composition II  |           |
| ENGL 1413   | Critical Analysis and Writing II  |           |
| ENGL 3323   | Technical Writing   |           |
| <i>American History &amp; Government</i>  |   |           |
| Select one of the following:  |   | 3         |
| HIST 1103   | Survey of American History  |           |
| HIST 1483   | American History to 1865 (H)  |           |
| HIST 1493   | American History Since 1865 (DH)  |           |
| POLS 1113   | American Government   | 3         |
| <i>Analytical &amp; Quantitative Thought (A)</i>  |   |           |
| MATH 2144   | Calculus I (A)  | 4         |
| MATH 2153   | Calculus II (A)   | 3         |
| MATH 2163   | Calculus III  | 3         |
| <i>Humanities (H)</i>   |   |           |
| Courses designated (H)  |   | 6         |
| <i>Natural Sciences (N)</i>   |   |           |
| Must include one Laboratory Science (L) course  |   |           |
| CHEM 1414   | General Chemistry for Engineers (LN)  | 4         |
| BIOL 1113<br>& BIOL 1111<br>or BIOL 1114  | Introductory Biology (N)<br>and Introductory Biology Laboratory (LN)<br>Introductory Biology (LN) | 4         |
| <i>Social &amp; Behavioral Sciences (S)</i>   |   |           |
| Course designated (S)   |   | 3         |
| <i>Additional General Education</i>   |   |           |
| Courses designated (A), (H), (N), or (S)  |   | 3         |
| <b>Hours Subtotal</b>   |   | <b>42</b> |
| <b>Diversity (D) &amp; International Dimension (I)</b>  |   |           |
| May be completed in any part of the degree plan   |   |           |
| Select at least one Diversity (D) course  |   |           |
| Select at least one International Dimension (I) course  |   |           |
| <b>College/Departmental Requirements</b>  |   |           |
| <i>Basic Science</i>  |   |           |

|   |   |            |
|---|---|------------|
| PHYS 2014   | University Physics I (LN)   | 4          |
| PHYS 2114   | University Physics II (LN)  | 4          |
| <i>Mathematics</i>  |   |            |
| MATH 2233   | Differential Equations  | 3          |
| <i>Engineering &amp; Engineering Science</i>  |   |            |
| ENGR 1322<br>or ENGR 1332   | Engineering Design with CAD<br>Engineering Design with CAD for MAE          | 2          |
| ENSC 2113   | Statics   | 3          |
| ENSC 2143   | Strength of Materials   | 3          |
| ENSC 2213   | Thermodynamics  | 3          |
| ENSC 2613   | Introduction to Electrical Science  | 3          |
| ENSC 3233   | Fluid Mechanics   | 3          |
| <i>Biosystems Engineering</i>   |   |            |
| BAE 1012  | Course BAE 1012 Not Found   | 2          |
| BAE 1022  | Experimental Methods in Biosystems Engineering                              | 2          |
| BAE 2013  | Computational Methods in Biosystems Engineering                             | 3          |
| BAE 3033  | Advanced Biology and Material Science of Biomaterials                       | 3          |
| <b>Hours Subtotal</b>   |   | <b>38</b>  |
| <b>Major Requirements</b>   |   |            |
| <i>Common Professional School</i>   |   |            |
| STAT 4033<br>or STAT 4073   | Engineering Statistics<br>Engineering Statistics with Design of Experiments | 3          |
| IEM 3503  | Engineering Economic Analysis   | 3          |
| BAE 3013  | Heat and Mass Transfer in Biological Systems                                | 3          |
| BAE 3023  | Instruments and Controls  | 3          |
| BAE 3213  | Energy and Power in Biosystems Engineering                                  | 3          |
| BAE 4001  | Professional Practice in Biosystems Engineering                             | 1          |
| BAE 4012  | Senior Engineering Design Project I   | 2          |
| BAE 4023  | Senior Engineering Design Project II  | 3          |
| <i>Specific Professional School</i>   |   |            |
| BAE 4283  | Bioprocess Engineering  | 3          |
| BAE 4413  | Food Engineering  | 3          |
| MICR 2123   | Introduction to Microbiology  | 3          |
| MICR 2132   | Introduction to Microbiology Laboratory                                     | 2          |
| BIOC 2344   | Chemistry and Applications of Biomolecules                                  | 4          |
| <b>Hours Subtotal</b>   |   | <b>36</b>  |
| <b>Electives</b>  |   |            |
| Select 8 hours of engineering and/or science electives to be selected from an approved list upon consultation with an advisor |   | 8          |
| <b>Hours Subtotal</b>   |   | <b>8</b>   |
| <b>Total Hours</b>  |   | <b>124</b> |

## Other Requirements

- A minimum 2.0 Technical GPA. The Technical GPA is calculated from all BAE prefixes or substitutions to BAE courses.

- A grade of "C" or better is required in following courses: BAE 2013, BAE 3013, BAE 3023, BAE 3033, BAE 3213, ENSC 2113, ENSC 2143, ENSC 2213, ENSC 2613, ENSC 3233.
- Students are required to complete the Fundamentals of Engineering (FE) exam prior to graduation.
- A minimum of 40 semester credit hours and 100 grade points must be earned in courses numbered 3000 or above.
- A 2.00 GPA or higher in upper-division hours.

## **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 2030.