

# BIOSYSTEMS ENGINEERING: BIOPROCESSING & FOOD PROCESSING, BSBE

**Requirements for Students Matriculating in or before Academic Year 2019-2020.** 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	Composition I <sup>1</sup>	3
or ENGL 1313	Critical Analysis and Writing I	
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) <sup>1</sup>	4
MATH 2153	Calculus II (A) <sup>1</sup>	3
MATH 2163	Calculus III <sup>1</sup>	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 1114	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>		42
<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) <sup>1</sup>	4
PHYS 2114	University Physics II (LN) <sup>1</sup>	4

<i>Mathematics</i>		
MATH 2233	Differential Equations	3
<i>Engineering &amp; Engineering Science <sup>2</sup></i>		
ENGR 1332	Engineering Design with CAD for MAE	2
ENSC 2113	Statics <sup>1</sup>	3
ENSC 2143	Strength of Materials	3
ENSC 2213	Thermodynamics	3
ENSC 2613	Introduction to Electrical Science	3
ENSC 3233	Fluid Mechanics <sup>1</sup>	3
<i>Biosystems Engineering</i>		
BAE 1012	Introduction to Biosystems Engineering	2
BAE 1022	Experimental Methods in Biosystems Engineering	2
BAE 2013	Modeling in Biosystems Engineering <sup>1</sup>	3
BAE 3033	Advanced Biology and Material Science of Biomaterials	3
<b>Hours Subtotal</b>		38
<b>Major Requirements</b>		
<i>Common Professional School</i>		
STAT 4033	Engineering Statistics	3
or STAT 4073	Engineering Statistics with Design of Experiments	
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
Select one of the following:		4
BIOC 2344	Chemistry and Applications of Biomolecules	
BIOC 3653 & CHEM 3053	Survey of Biochemistry and Organic Chemistry I	
<b>Hours Subtotal</b>		36
<b>Electives</b>		
Select 8 (or 6) hours of engineering and/or science electives to be selected from an approved list upon consultation with an advisor		8
<b>Hours Subtotal</b>		8
<b>Total Hours</b>		124

<sup>1</sup> Courses that must be completed prior to admission to professional school.

<sup>2</sup> Complete ENSC 2113 Statics, ENSC 3233 Fluid Mechanics, and 2 other ENSC courses prior to admission to Professional School.

## **Other Requirements**

- Admission to Professional School is required. Refer to the OSU Catalog corresponding to your matriculation date for detailed admission requirements.
- A minimum grade of 'C' is required in each course that is a prerequisite for a major course.
- 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 2025.