

BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
BIOENVIRONMENTAL ENGINEERING OPTION

A total of 127 credits required for graduation
(2022-2023 Catalog)

- I. Communications (10 credits)**
- | | | |
|-------|-------------------------|---|
| 3 cr. | ENGL 150 (FSSS) | Critical Thinking and Communication |
| 3 cr. | ENGL 250 (FSSS) | Written, Oral, Visual, and Electronic Composition |
| 3 cr. | Comm. Elective | Select one of the courses below: |
| | <i>ENGL 309 (FS)</i> | <i>Proposal and Report Writing</i> |
| | <i>ENGL 314 (FSSS)</i> | <i>Technical Communication</i> |
| | <i>MKT 450 (FS)</i> | <i>Advanced Professional Selling</i> |
| | <i>SP CM 212 (FSSS)</i> | <i>Fundamentals of Public Speaking</i> |
| | <i>SP CM 312 (FS)</i> | <i>Business and Professional Speaking</i> |
| | <i>AG EDS 311 (FS)</i> | <i>Presentation and Sales Strategies for Ag Audiences</i> |
| 1 cr. | LIB 160 (FSSS) | Introduction to College Level Research |
- II. Mathematical Sciences (15 credits)**
- | | | |
|-------|-----------------|--|
| 4 cr. | MATH 165 (FSSS) | Calculus I |
| 4 cr. | MATH 166 (FSSS) | Calculus II |
| 4 cr. | MATH 267 (FSSS) | Elementary Differential Equations and Laplace Transforms |
| 3 cr. | STAT 305 (FSSS) | Engineering Statistics |
- III. Biological, Chemical and Physical Science Common Core (25 credits)**
- | | | |
|-------|---------------------------------|---|
| 3 cr. | BIOL 212 (FSSS) | Principles of Biology II |
| 4 cr. | CHEM 167 (FS) | General Chemistry for Engineering Students |
| | or CHEM 177 <u>and</u> 178 (FS) | General Chemistry I and II |
| 1 cr. | CHEM 167L (FS) | Laboratory in General Chemistry for Engineers |
| | or CHEM 177L (FS) | Laboratory in General Chemistry I |
| 2 cr. | CHEM 211 (FS) | Quantitative & Environmental Analysis |
| 2 cr. | CHEM 211L (FS) | Quantitative & Environmental Analysis Lab |
| 3 cr. | CHEM 231 (FSSS) | Elementary Organic Chemistry |
| 1 cr. | CHEM 231L (FSSS) | Elementary Organic Chemistry Lab |
| 3 cr. | MICRO 302 (FSSS) | Biology of Microorganisms |
| 1 cr. | MICRO 302L (FS) | Microbiology Laboratory |
| 4 cr. | PHYS 231 (FSSS) | Introduction to Classical Physics I |
| 1 cr. | PHYS 231L (FS) | Introduction to Classical Physics I Lab |
- IV. Social Sciences and Humanities (12 credits)**
- | | | |
|-------|---|--|
| 3 cr. | U. S. Diversity Course | |
| 3 cr. | International Perspective Course | |
| 6 cr. | Social Science and Humanities Electives (Select from departmental-approved list). | |
- V. Engineering Core (23 credits)**
- | | | |
|-------|----------------|--|
| R cr. | ENGR 101 (FS) | Engineering Orientation |
| 1 cr. | A B E 110 (S) | Experiencing Agricultural and Biosystems Engineering |
| 3 cr. | A B E 160 (S) | Engineering Problems with Computer Applications Laboratory |
| 3 cr. | A B E 170 (FS) | Engineering Graphics and Introductory Design |
| 3 cr. | A B E 378 (FS) | Mechanics of Fluids |
| 3 cr. | C E 274 (FSSS) | Statics of Engineering |
| 3 cr. | E M 324 (FSSS) | Mechanics of Materials |
| 1 cr. | E M 327 (FS) | Mechanics of Materials Laboratory |
| 3 cr. | I E 305 (FSSS) | Engineering Economic Analysis |
| 3 cr. | M E 231 (FSSS) | Engineering Thermodynamics I |

VI. Biological Systems Engineering Core (27 credits)

1 cr.	A B E 201 (FS)	Preparing for Workplace Seminar
3 cr.	A B E 216 (F)	Fundamentals of Agricultural and Biosystems Engineering
2 cr.	A B E 218 (S)	Project Management & Design in Agricultural and Biosystems Engr
1 cr.	A B E 273 (FS)	CAD for Process Facilities and Land Use Planning
3 cr.	A B E 316 (FS)	Applied Numerical Methods for Agricultural and Biosystems Engr
4 cr.	A B E 363 (FS)	Agri-Industrial Applications of Electric Power and Electronics
3 cr.	A B E 380 (S)	Principles of Biological Systems Engineering
3 cr.	A B E 404 (F)	Instrumentation for Agricultural and Biosystems Engineering
2 cr.	A B E 415 (FS)	Agricultural and Biosystems Engineering Design I
2 cr.	A B E 416 (FS)	Agricultural and Biosystems Engineering Design II
3 cr.	A B E 480 (F)	Engineering Analysis of Biological Systems

VII. Bioenvironmental Engineering Option (15 credits)

3 cr.	C E 326 (FS)	Principles of Environmental Engineering
3 cr.	C E 372 (FS)	Engineering Hydrology and Hydraulics
3 cr.	A B E 432 (S)	Nonpoint Source Pollution and Control
3 cr.	A B E 431 (F)	Design and Evaluation of Soil & Water Conservation Systems
3 cr.	Bioenvironmental Elective	Select one of the courses below
	<i>A B E 437 (alt F)</i>	<i>Watershed Modeling and Policy</i>
	<i>A ECL 418 (odd F)</i>	<i>Stream Ecology</i>
	<i>C R P 251(F)</i>	<i>Fundamentals of Geographic Information System</i>
	<i>ENSCI 270 (F)</i>	<i>Geospatial Technologies</i>
	<i>ENSCI 461I (4cr) (SS)</i>	<i>Introduction to GIS</i>
	<i>GEOL 452 (FS)</i>	<i>GIS for Geoscientists</i>
	<i>NREM 345 (S)</i>	<i>Natural Resource Photogrammetry and Geographic Info Syst.</i>
	<i>NREM 446 (F)</i>	<i>Integrating GPS & GIS for Natural Resources Management</i>
	<i>NREM 466 (odd S)</i>	<i>Ecosystem Services</i>
	<i>NREM 489 (F)</i>	<i>Survey of Remote Sensing Technologies</i>

**Please check the current catalog and Schedule of Classes for most recent offerings*