BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
BIOENVIRONMENTAL ENGINEERING OPTION
A total of 128 credits required for graduation
(2014-2015 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. Elect. Select one of the courses below:
   ENGL 309 (FS) Report and Proposal Writing
   ENGL 314 (FS) Technical Communication
   MKT 343 (FS) Personal Sales
   SP CM 212 (FSSS) Fundamentals of Public Speaking
   AG EDS 311 (FS) Presentation and Sales Strategies for Ag Audiences
1 cr. LIB 160 (FSSS) Information Literacy

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 and Physical Science Common Core (22 credits)
4 cr. CHEM 167 (FS) General Chemistry for Engineering Students
   or CHEM 177 and 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
5 cr. PHYS 221 (FSSS) Introduction to Classical Physics I
5 cr. PHYS 222 (FSSS) Introduction to Classical Physics II
3 cr. BIOL 212 (FS) Principles of Biology II
3 cr. MICRO 302 (FS) Biology of Microorganisms
1 cr. MICRO 302L (FS) Microbiology Laboratory

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 Biological Systems Engineering
3 cr. A B E 160 (FS) Engineering Problems with Computer Applications Laboratory
3 cr. A B E 170 (FS) Engineering Graphics and Introductory Design
3 cr. E M 274 (FSSS) Statics of Engineering
3 cr. E M 324 (FSSS) Mechanics of Materials
1 cr. E M 327 (FSSS) Mechanics of Materials Laboratory
3 cr. M E 231 (FS) Engineering Thermodynamics I
6 cr. Mass Transport Seq. Select one sequences below:
   CH E 356/357 (FS) Transport Phenomena I and II
VI. Biological Systems Engineering Core (26 credits)
1 cr. A B E 201 (FS) Entrepreneurship Seminar
3 cr. A B E 216 (F) Fundamentals of Agricultural and Biological Engineering
2 cr. A B E 218 (S) Project Management and Design in Agriculture and Biosystems Engr.
3 cr. A B E 316 (F) Computer Applications and Systems Modeling
4 cr. A B E 363 (F) 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 Biological Engineering
2 cr. A B E 415 (FS) Biological Systems Engineering Design I
2 cr. A B E 416 (FS) Biological Systems Engineering Design II
3 cr. A B E 480 (F) Engineering Analysis of Biological Systems

VII. Bioenvironmental Engineering Option (20 credits)
3 cr. CHEM 231 (FSSS) Elementary Organic Chemistry
1 cr. CHEM 231L (FSSS) Laboratory in Elementary Organic Chemistry
2 cr. CHEM 211 (FS) Quantitative and Environmental Analysis
2 cr. CHEM 211 L (FS) Quantitative and Environmental Analysis Laboratory
3 cr. C E 326 (FS) Principles of Environmental Engineering
3 cr. A B E 431 (F) Design and Evaluation of Soil and Water Conservation Systems

Bioenvironmental Elective I. Select 3 credits from the following:
3 cr. C E 521 (F) Environmental Biotechnology
3 cr. C E 428 (S) Water and Wastewater Treatment Plant Design
4 cr. ENSCI 381 (F) Environmental Systems I: Introduction to Environmental Systems

Bioenvironmental Elective II. Select 3 credits from the following:
4 cr. BIOL 312 (FSSS) Ecology
3 cr. TSM 310 (S) Total Quality Improvement
3 cr. A B E 388 (F) Sustainable Engineering and International Development
3 cr. CH E 406 (F) Environmental Chemodynamics
3 cr. AGRON 405 (Alt. S) Environmental Biophysics
3 cr. A E 432 Nonpoint Source Pollution and Control
3 cr A E 537 (odd FL) Total Maximum Daily Load (TMDL) Dev. & Implementation
1 cr/ module A E 424 Air Pollution (5 modules)
1 cr A B E 273 CAD for Process Facilities and Land Use Planning

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