## BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
### FOOD ENGINEERING OPTION
A total of 128 credits required for graduation (2018-2019 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:
   - ENGL 309 (FS) Report and Proposal Writing
   - ENGL 314 (FSSS) 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, 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 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
8 cr. Recommendations for Chemistry Sequence I and II with labs

#### Food Engineering Option
Chem Seq I w/Lab (4 cr.)
   - CHEM 231 (3 cr.) + Elementary Organic Chemistry +
     231L (1 cr.) (FSSS) Elementary Organic Chemistry Lab
Chem Seq II w/ Lab (4 cr.)
   - FS HN 311 (3 cr.) + Food Chemistry +
     311L (1cr.) (F) Food Chemistry Lab (preferred for Food Engineering option)

#### Bioenvironmental and Biorenewable Resources Engineering Option
Chem Seq I w/Lab (4 cr.)
   - CHEM 231 (2 cr.) + Elementary Organic Chemistry +
     231L (2 cr.) (FSSS) Elementary Organic Chemistry Lab
Chem Seq II w/ Lab (4 cr.)
   - CHEM 211 (2 cr.) + Quantitative & Environmental Analysis +
     211L (2 cr.) (FS) Quantitative & Environmental Analysis Lab

#### Open Option
Chem Seq I w/Lab (4 cr.)
   - CHEM 331 (3 cr.) + Organic Chemistry I +
     331L (1 cr.) (FSSS) Organic Chemistry I Lab
Chem Seq II w/ Lab (4 cr.)
   - CHEM 332 (3 cr.) + Organic Chemistry II +
     332L (1 cr.) (FSSS) Organic Chemistry II Lab

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 (27 credits)
R cr. ENGR 101 (FS) Engineering Orientation
1 cr. ABE 110 (S) Experiencing Biological Systems Engineering
3 cr. ABE 160 (FS) Engineering Problems with Computer Applications Laboratory
3 cr. ABE 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. E M 378 (FSSS) Mechanics of Fluids
3 cr. IE 305 (FSSS) Engineering Economic Analysis
3 cr. M E 231 (FSSS) Engineering Thermodynamics I
4 cr. M E 436 (FSSS) Heat Transfer

VI. Biological Systems Engineering Core (30 credits)
1 cr. ABE 201 (FS) Preparing for Workplace Seminar
3 cr. ABE 216 (F) Fundamentals of Agricultural and Biosystems Engineering
2 cr. ABE 218 (S) Project Management & Design in Agricultural and Biosystems Engr
1 cr. ABE 273 (FS) CAD for Process Facilities and Land Use Planning
3 cr. ABE 316 (FS) Applied Numerical Methods for Agricultural and Biosystems Engr
4 cr. ABE 363 (FS) Agri-Industrial Applications of Electric Power and Electronics
3 cr. ABE 380 (S) Principles of Biological Systems Engineering
3 cr. ABE 404 (F) Instrumentation for Agricultural and Biosystems Engineering
2 cr. ABE 415 (FS) Agricultural and Biosystems Engineering Design I
2 cr. ABE 416 (FS) Agricultural and Biosystems Engineering Design II
3 cr. ABE 451 (S) Food and Bioprocess Engineering
3 cr. ABE 480 (F) Engineering Analysis of Biological Systems

VII. Food Engineering Option (9 credits)
3 cr. ABE 469 (S) Grain Processing and Handling
3 cr. FS HN 420 (F) Food Microbiology
3 cr. Food Elective Select one of the courses below

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