BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
OPEN OPTION

A total of 128 credits required for graduation
(2025-2026 Catalog)

I. Communications (10 credits)

3 cr.	ENGL 1500 (FSSS)	Critical Thinking and Communication
3 cr.	ENGL 2500 (FSSS)	Written, Oral, Visual, and Electronic Composition
3 cr.	Comm. Elective	Select one of the courses below:
	ENGL 3090 (FS)	*Proposal and Report Writing*
	ENGL 3140 (FSSS)	*Technical Communication*
	MKT 4500 (FS)	*Advanced Professional Selling*
	SP CM 2120 (FSSS)	*Fundamentals of Public Speaking*
	SP CM 3120 (FS)	*Business and Professional Speaking*
	AG EDS 3110 (FS)	*Presentation and Sales Strategies for Ag Audiences*
1 cr.	LIB 1600 (FSSS)	Introduction to College Level Research

II. Mathematical Sciences (15 credits)

4 cr.	MATH 1650 (FSSS)	Calculus I
4 cr.	MATH 1660 (FSSS)	Calculus II
4 cr.	MATH 2670 (FSSS)	Elementary Differential Equations and Laplace Transforms
3 cr.	STAT 3050 (FSSS)	Engineering Statistics

III. Biological, Chemical and Physical Science Core (20 credits)

3 cr.	BIOL 2120 (FS)	Principles of Biology II
4 cr.	CHEM 1670 (FS)	General Chemistry for Engineering Students
	or CHEM 1770 & 1780	General Chemistry I and II
1 cr.	CHEM 1670L (FS)	Laboratory in General Chemistry for Engineers
	or CHEM 1770L (FS)	Laboratory in General Chemistry I
3 cr.	CHEM 3310 (FSSS)	Organic Chemistry I
1 cr.	CHEM 3310L (FSSS)	Organic Chemistry I Lab
3 cr.	MICRO 3020 (FSSS)	Biology of Microorganisms
4 cr.	PHYS 2310 (FSSS)	Introduction to Classical Physics I
1 cr.	PHYS 2310L (FS)	Introduction to Classical Physics I Lab

IV. Social Sciences and Humanities (12 credits)

3 cr.	U. S. Cultures & Communities 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 1010 (FS)	Engineering Orientation
1 cr.	A B E 1100 (S)	Experiencing Agricultural and Biosystems Engineering
3 cr.	A B E 1600 (S)	Engineering Problems with Computer Programming
3 cr.	A B E 1700 (FS)	Engineering Graphics and Introductory Design
3 cr.	A B E 3780 (FS)	Mechanics of Fluids
3 cr.	E M 3240 (FSSS)	Mechanics of Materials
1 cr.	Lab Elective	Select one of the courses below:
	ABE 3780L (FS) preferred	*Mechanics of Fluids Laboratory*
	EM 3270 (FS)	*Mechanics of Materials Laboratory*
1 cr.	C E 2710 (FSSS)	Engineering Foundations of Statics
2 cr.	C E 2720 (FSSS)	Applied Engineering Statics
3 cr.	I E 3050 (FSSS)	Engineering Economic Analysis
3 cr.	M E 2310 (FSSS)	Engineering Thermodynamics I
4 cr.	M E 4360 (FSSS)	Heat Transfer

VI. Biological Systems Engineering Core (30 credits)

1 cr.	A B E 2010 (FS)	Preparing for Workplace Seminar
3 cr.	A B E 2160 (F)	Fundamentals of Agricultural and Biosystems Engineering
2 cr.	A B E 2180 (S)	Project Management & Design in Agricultural and Biosystems Engr
1 cr.	A B E 2730 (FS)	CAD for Process Facilities and Land Use Planning
3 cr.	A B E 3160 (F)	Applied Numerical Methods for Agricultural and Biosystems Engr
4 cr.	A B E 3630 (FS)	Agri-Industrial Applications of Electric Power and Electronics
3 cr.	A B E 3800 (S)	Principles of Biological Systems Engineering
3 cr.	A B E 4040 (F)	Instrumentation for Agricultural and Biosystems Engineering
2 cr.	A B E 4150 (FS)	Agricultural and Biosystems Engineering Design I
2 cr.	A B E 4160 (FS)	Agricultural and Biosystems Engineering Design II
3 cr.	A B E 4510 (S)	Food and Bioprocess Engineering
3 cr.	A B E 4800 (F)	Engineering Analysis of Biological Systems

VII. Open Option (9 credits)

3 cr.	CHEM 3320 (FSSS)	Organic Chemistry II
1 cr.	CHEM 3320L (FSSS)	Organic Chemistry II Lab
1 cr.	MICRO 3020L (FS)	Microbiology Laboratory

The open option is appropriate for students not wishing to specialize in one of the two core options associated with the BSE major. This option is also appropriate for students who are considering professions outside of engineering such as law, medicine, management, or other agricultural- or biological-related disciplines. Students can take any 9 credits in 2000 or above level courses. Please see a BSE adviser for potential course sequence options.

Sequence I, II &III. *Select 9 credits of 2000 level or above (a few examples are listed below). See your advisor to develop a specific course sequence for your program*

9 cr.	Agron 2810, 3170 & 3380	Agronomy & Seed Sequence
9 cr.	BBMB 4040, 4050, & 4110	Biochemistry Sequence
9 cr.	COM S 2070, BCBIO 4010 & 4020	Bioinformatics Sequence
8-11 cr.	ABE 5110, HSHN 2760 & 5090, ME 3730	Fermentation Sequence
9 cr.	Gen 3130 + 3130L, 3200 & 3220	Genetics Sequence
9 cr.	A B E 3880, AGRON 3420, ME 4840	Globalization Sequence
9 cr.	MGMT 3100, 3130, 4140 or 4190	Management Sequence
8 cr.	ANS 2700, 3600 & 4600	Meat Science & Processing Sequence
9 cr.	ANS 3240, TSM 4550 & 4570	Petfood & Feed Processing Sequence
9 cr.	POL S 2150, 3190, & 3200	Political Science Sequence
9 cr.	JL MC 2010, 2020 & 3470	Science Writing Sequence

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