

BIOSYSTEMS ENGINEERING

Catalog Year 2015-2016, 2016-2017, 2017-2018 (2015-2016 Curriculum)

FRESHMAN YEAR (Gen. Engr.)			
ENGR 1020/1021 Engineering Disciplines and Skills	2(1,1)	ENGR 1410/1411 Programming and Problem Solving	3(1,2)
CH 1010 General Chemistry	4(3,3)	CH 1020 General Chemistry	4(3,3)
MATH 1060 Calculus of One Variable I	4(4,0)	MATH 1080 Calculus of One Variable II	4(4,0)
ENGL 1030 Composition I or AP Test	3(3,0)	PHYS 1220 Physics w/Calculus I	3(3,0)
Arts/Hum/SS Requirement ¹	3	ENGR 2100 Engineering Graphics	2(1,3)
16		16	

¹ Students should choose courses to fulfill Arts/Humanities, Social Sciences, Cross-Cultural Awareness, Science/Technology in Society General Education requirements.

SOPHOMORE YEAR			
BE 2120/2121 Fundamentals of BE	2(1,3)	BE 2100/2101 Introduction to Biosystems Engr.	2(1,3)
CE 2010 Statics ²	3(3,0)	CE 2080 Dynamics ²	2(2,0)
MATH 2060 Calculus of Several Variables	4(4,0)	MATH 2080 Intro. Ord. Diff. Equations	4(4,0)
PHYS 2210 Physics w/Calculus II	3(3,0)	ME 3100 Thermodynamics	3(3,0)
Biology Requirement ³	4(3,3)	MICR 3050/3501 General Microbiology	4(3,3)
16		15	

² Statics: CE 2010; Dynamics: CE 2080; alternatively ME 2010 for both

³ BIOL 1030/1050 or BIOL 1100

JUNIOR YEAR			
BE 3200/3201 Principles Practices Geomatics	3(1,3)	BE 3220 Watershed Hydrology/Sedimentology	3(3,0)
BE 4100/4101 Biol. Kinetics/Reactor Modeling	3(2,3)	BE 4120 Heat and Mass Transport BE	3(3,0)
CE 3410/3411 Introduction to Fluid Mechanics	4(3,2)	BE 4380/4381 Bioprocess Engr Design	3(2,2)
ECE 2070 Basic Electrical Engineering	2(2,0)	BE 4150/4151 Instr. and Process Control for BE	3(2,3)
ECE 2080 Electrical Engineering Lab I	1(0,2)	CH 2230 Organic Chemistry	3(3,0)
BIOL 4410 General Ecology	3(3,0)	CH 2270 Organic Chemistry Laboratory	1(0,3)
16		16	

SENIOR YEAR - Bioprocess Engineering Emphasis			
BE 4740 BE Capstone Design/Project Mgmt	2(1,3)	Engineering Requirement ⁴	3
BE 4750 Biosystems Engr Capstone Design	2(0,6)	Global Sustainability Requirement ⁵	3
BE 4280 Biochem Engr	3(3,0)	Arts/Hum/SS Requirement ¹	9
BCHM 3050 Biochemistry	3(3,0)		
BIOL 4340/4341 Biol. Chem. Tech Lab	2(1,3)		
CE 2060/2061 Structural Mechanics	4(3,3)		
16		15	

126 Total Semester Hours

⁴ Engineering course 3000-level or above or other approved course (Minimum 6000 level for BS/MS program).

⁵ Global Sustainability Requirement: Choose from Sustainability Minor courses or other approved course.

SENIOR YEAR - Ecological Engineering Emphasis			
BE 4740 BE Capstone Design/Project Mgmt	2(1,3)	BE 4240 Ecological Engineering	3(3,0)
BE 4750 Biosystems Engr Capstone Design	2(0,6)	Engineering Requirement ⁴	3
BE 4210/4211 Engr. Syst. Soil Water Management	2(1,3)	Global Sustainability Requirement ⁵	3
Ecological Requirement ⁶	3	Arts/Hum/SS Requirement ¹	6
CE 2060/2061 Structural Mechanics	4(3,3)		
Arts/Hum/SS Requirement ¹	3		
16		15	

126 Total Semester Hours

⁴ Engineering course 3000-level or above or other approved course (Minimum 6000 level for BS/MS program).

⁵ Global Sustainability Requirement: Choose from Sustainability Minor courses or other approved course.

⁶ Ecological Requirement: Choose from BIOL, FOR, PES, WFB, 3000-level or above or other approved course.

Notes:

^A A 2.0 engineering GPA required for graduation

^B Biosystems Engineering students are allowed to enroll in upper-level BE courses only when the following prerequisites have been completed with C or better: MATH 2060, 2080, PHYS 2210, CE 2010, 2080, 3410, ME 2010, 3100.

^C Biosystems Engineering students are encouraged to complete a Minor, Coop Ed program, Internship (BE 3700) and/or a Study Abroad Program.

^D Departmental Honors Program (BE H3000/H3010/H4000) is available for qualifying students.

General Education Requirements