

Biological Engineering B.S.B.E. with Environmental Concentration

Biological Engineering B.S. with Environmental Concentration Eight-Semester Degree Program

The Bachelor of Science in Biological Engineering with Environmental Concentration program is eligible for students who want to participate in an Eight Semester Degree Program. See the Eight-Semester Degree Policy for more details. The plan below lists a semester-by-semester sequence of courses to finish the degree in eight semesters. State minimum core courses for engineering are listed at the bottom of this page. Students may submit a maximum of 4 hours of "D" in BENG courses for their degree.

Some courses are not offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course pre-requisites.

First Year	Units	
	Fall	Spring
GNEG 1111 Introduction to Engineering I	1	
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	
CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)	3	
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)	4	
U.S. History or Government Elective - Choose one course from the following (Satisfies General Education Outcomes 3.3 and 4.2):	3	
HIST 2003 History of the American People to 1877 (ACTS Equivalency = HIST 2113) or HIST 2013 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123) or PLSC 2003 American National Government (ACTS Equivalency = PLSC 2003)		
GNEG 1121 Introduction to Engineering II	1	
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)	3	
Freshman Engineering Science Elective	4	
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab) or BIOL 1543 and BIOL 1541L		

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MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034)		4
Year Total:	14	16

Second Year	Units	
	Fall	Spring
BENG 2632 Biological Engineering Design Studio	2	
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603)	4	
Sophomore Science Elective (whichever has not been taken)	4	
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab) or BIOL 1543 and BIOL 1541L		
MEEG 2003 Statics	3	
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture)	4	
BENG 2643 Biological Engineering Methods I		3
MATH 2584 Elementary Differential Equations		4
BIOL 2013 General Microbiology (ACTS Equivalency = BIOL 2004 Lecture) & BIOL 2011L General Microbiology Laboratory (ACTS Equivalency = BIOL 2004 Lab)		4
MEEG 2403 Thermodynamics or CHEG 2313 Thermodynamics of Single-Component Systems		3
Social Science Elective - Choose one course from the list below (Satisfies General Education Outcome 4.1) ¹		3
Year Total:	17	17

Third Year	Units	
	Fall	Spring
BENG 3653 Global Bio-Energy Engineering	3	
BENG 3663 Biological Engineering Methods II	3	
BENG 3733 Transport Phenomena in Biological Systems	3	
Choose one:	4	
CHEM 3603 Organic Chemistry I & CHEM 3601L Organic Chemistry I Laboratory		
CHEM 2613 Organic Physiological Chemistry (ACTS Equivalency = CHEM 1224 Lecture) & CHEM 2611L Organic Physiological Chemistry Laboratory (ACTS Equivalency = CHEM 1224 Lab)		
CVEG 3213 Hydraulics or MEEG 3503 Mechanics of Fluids or CHEG 2133 Fluid Mechanics	3	
BENG 3723 Unit Operations in Biological Engineering		3

BENG 3113 Measurement and Control for Biological Systems		3
CVEG 3223 Hydrology		3
Biological Elective (Environmental, choose from a list maintained by the department.)		3
Engineering Elective (Environmental), must choose:		3
CVEG 3243 Environmental Engineering		
Year Total:	16	15

Fourth Year	Units	
	Fall	Spring
BENG 4812 Senior Biological Engineering Design I	2	
BENG 4831 Biological Engineering Professionalism	1	
BENG 4743 Food and Bio-Product Systems Engineering	3	
BENG 4933 Sustainable Watershed Engineering	3	
Humanities Elective - Choose one course from the list below (Satisfies General Education Outcomes 3.2 and 5.1) ²	3	
Social Science Elective - Choose any course listed on the State Minimum Core.	3	
BENG 4823 Senior Biological Engineering Design II (Satisfies General Education Outcome 6.1)		3
BENG 4663 Sustainable Biosystems Designs		3
Technical Elective (Environmental), must choose:		3
CVEG 4243 Environmental Engineering Design		
Fine Arts Elective - Choose one course from the list below (Satisfies General Education Outcome 3.1): ³		3
Social Science Elective - Choose any course listed on the State Minimum Core.		3
Technical Elective (Environmental, choose from a list maintained by the department.)		3
Year Total:	15	18
Total Units in Sequence:		128

¹ This Social Science Elective should be selected from the following courses in order to meet State Minimum Core and the General Education Outcome 4.1: ANTH 1023, COMM 1023, GEOS 2003, GEOS 2003H, HDFS 1403, HDFS 2413, HDFS 2603, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2093, HUMN 1114H, HUMN 2114H, PLSC 2013, or RESM 2853.

² The Humanities Elective should be selected from the following courses in order to meet State Minimum Core and the General Education Outcomes 3.2 and 5.1: CLST 1003, CLST 1013, PHIL 2003, PHIL 2003C, PHIL 2003H, PHIL 2103, or PHIL 2103C.

³ The Fine Arts Elective should be selected from the following courses in order to meet the State Minimum Core and the General Education Outcome 3.1: ARHS 1003, COMM 1003, DANC 1003, MLIT 1003, MLIT 1003H, MLIT 1013, MLIT 1013H, MLIT 1333, THTR 1003, or THTR 1013.