

# BIOLOGICAL ENGINEERING, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

## Program Requirements

Requirement	Credits
Requirements for the Minor	18-20

### Requirements for the Minor

The minor requires a minimum of 18 credits, at least 6 of which must be at the 400 level.

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (<https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10>). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
<b>Additional Courses</b>		
<i>Additional Courses: Require a grade of C or better</i>		
Select 3-4 credits from the following related science electives:		3-4
AGRO 28	Principles of Crop Management	
ANSC 201	Animal Science	
ASM/ERM 309	Measurement & Monitoring of Hydrologic Systems	
BIOL 110	Biology: Basic Concepts and Biodiversity	
BIOL 127	Introduction to Plant Biology	
BMB 211	Elementary Biochemistry	
BMB/MICRB 251	Molecular and Cell Biology I	
CHEM 202	Fundamentals of Organic Chemistry I	
CHEM 210	Organic Chemistry I	
FDSC 200	Introductory Food Science	
HORT 101	Horticultural Science	
MICRB 201	Introductory Microbiology	
SOILS 101	Introductory Soil Science	
Select 6-7 credits from the following 300-level BE courses:		6-7
BE 301	Mathematical Modeling of Biological and Physical Systems	
BE 302	Heat and Mass Transfer in Biological Systems	
BE 303	Structural Systems in Agriculture	
BE 304		
BE 305	Agricultural Measurements and Control Systems	
BE 306	Machines for Agricultural and Biological Processing	
BE 307	Principles of Soil and Water Engineering	
BE 308	Engineering Elements of Biochemistry and Microbiology	
Select 6 credits from the following 400-level BE courses:		6
BE 461	Design of Fluid Power Systems	

BE 462	Design of Wood Structures
BE 464	Bioenergy Systems Engineering
BE 465	Food and Biological Process Engineering
BE 467	Design of Stormwater and Erosion Control Facilities
BE 468	Microbiological Engineering
BE 477	Land-Based Waste Disposal
BE 487	Simulation Modeling for Water Resources Management

### Supporting Courses and Related Areas

*Supporting Courses and Related Areas: Require a grade of C or better*  
Select 3 credits of 400-level coursework or independent study in a related science or engineering field in consultation with the minor adviser 3