

MINOR IN CHEMICAL AND BIOLOGICAL ENGINEERING

The Minor in Chemical and Biological Engineering provides students with a strong foundation in applying engineering principles to solve problems at the interface of chemistry, biology, and materials science. This interdisciplinary program is designed to complement majors in engineering, natural sciences, and related fields by equipping students with knowledge and skills that support careers in biotechnology, pharmaceuticals, energy, environmental engineering, and advanced materials.

The minor emphasizes problem-solving, quantitative analysis, and interdisciplinary collaboration, preparing students for advanced study or careers in industries and research areas where chemistry and biology intersect with engineering.

Learning Objectives

Upon successful completion of this minor, students will have:

1. An understanding of fundamental chemical and biological processes and their integration in engineered systems.
2. Experience with core concepts in thermodynamics, transport phenomena, reaction engineering, and bioprocessing.
3. Practical skills in applying chemical and biological engineering approaches to address challenges in health, sustainability, and technology development.

Requirements Effective Spring 2026

Students must satisfactorily complete the total credits required for the minor. Minors and interdisciplinary minors require 12 or more upper-division (300- to 400-level) credits.

Additional coursework may be required due to prerequisites.

Code	Title	Credits
Lower Division:		
CBE 201	Material and Energy Balances	3
CBE 205	Fundamentals of Biological Engineering	3
CBE 210	Thermodynamic Process Analysis	3
Upper Division:		
CBE 320	Chemical and Biological Reactor Design	3
CBE 330	Process Simulation	3
CBE 331	Momentum Transfer and Mechanical Separations	3
Select one course from the following:		3-4
CBE 310	Molecular Concepts and Applications	
CBE 332	Heat and Mass Transfer Fundamentals	
CBE 340	Statistics for CBE Applications	
CBE 500	Chem & Biological Engineering Fundamentals	
CBE 504/ BIOM 504	Fundamentals of Biochemical Engineering	
CBE 522/ BIOM 522	Bioseparation Processes	

CBE 540/CIVE 540 Advanced Biological Wastewater Processing

CBE 560 Engineering of Protein Expression Systems

Program Total Credits:

21-22