

BIOCHEMISTRY, CELL AND MOLECULAR BIOLOGY BACHELOR OF SCIENCE

Program Overview

The biochemistry, cell and molecular biology (BCMB) major prepares students for careers at the critically important interface between biology, chemistry and physics, many of which are in high demand.

Our curriculum follows national guidelines from our professional organization, the American Society for Biochemistry and Molecular Biology (<http://www.asbmb.org/>) (ASBMB). It emphasizes the molecular aspects of biology and life science aspects of chemistry. It emphasizes student-centered curricula, early participation in research and broad-based skills development.

B.S. Degree Requirements

The Bachelor of Science degree is appropriate for all the careers described for the B.A. but is especially well-suited for more laboratory intensive careers such as molecular life science industries (biotechnology, drug, food, agriculture and clinical industries) and graduate programs in molecular life sciences (biochemistry, cell and molecular biology, genetic engineering and medicinal chemistry). The major follows the guidelines of the American Society for Biochemistry and Molecular Biology.

Code	Title	Hours
Select one of the following:		4
BIO 001 & 001L	BIOLOGICAL SCIENCES FOR NON-MAJORS and BIOLOGY LABORATORY	
BIO 012 & 012L	GENERAL/PRE-PROFESSIONAL BIOLOGY I and GENERAL/PRE-PROFESSIONAL BIOLOGY I LAB	
BIO 013 & 013L	GENERAL/PRE-PROFESSIONAL BIOLOGY II and GENERAL/PRE-PROFESSIONAL BIOLOGY II LAB	
BIO 018 & 018L	INTRODUCTION TO ANATOMY AND PHYSIOLOGY and ANATOMY AND PHYSIOLOGY LAB	
BIO 019 & 019L	INTRODUCTION TO BOTANY and BOTANY LAB	
BIO 105	INTRODUCTION TO GENETICS	3
BIO 165	CELL BIOLOGY	4
BIO 186	MOLECULAR BIOLOGY	3
BIO 187L	APPLIED MOLECULAR BIOLOGY LAB	1-3
CHEM 001	GENERAL CHEMISTRY I	3
CHEM 002	GENERAL CHEMISTRY II	3
CHEM 003	GENERAL CHEMISTRY I LAB	1
CHEM 004	GENERAL CHEMISTRY II LAB	1
CHEM 081	ANALYTICAL METHODS	4
CHEM 097	ORGANIC CHEMISTRY I	3
CHEM 098	ORGANIC CHEMISTRY I LAB	1
CHEM 108	ORGANIC CHEMISTRY II	3
CHEM 110	ORGANIC CHEMISTRY II LAB	1
CHEM 130	BIOCHEMISTRY I: FUNDAMENTALS	3

CHEM 131	BIOCHEMISTRY I: FUNDAMENTALS LAB	1
CHEM 132	BIOCHEMISTRY II: METABOLISM	3
CHEM 133	BIOCHEMISTRY II: METABOLISM LAB	1
Select at least one credit of a research equivalent experience from the following:		1-12
BCMB 137	ADVANCED MOLECULAR LS LAB	
BCMB 198	BCMB INTERNSHIP	
BCMB 199	BCMB RESEARCH	
Other research credit can be applied with approval of advisor		
Select one of the following:		4
CHEM 161	BIOPHYSICAL CHEMISTRY	
CHEM 165	THERMODYNAMICS AND KINETICS	
CHEM 182	INSTRUMENTAL METHODS OF ANALYSIS	
BCMB 195	BCMB SENIOR CAPSTONE SEMINAR	1
MATH 050	CALCULUS I	3
PHY 011	GENERAL PHYSICS I	4
PHY 012	GENERAL PHYSICS II	4
Total Hours		60-73

In addition to programmatic requirements, students are responsible for satisfying all requirements of the Drake Curriculum (<https://catalog.drake.edu/archive/2024-2025/undergraduate/academic-information/drake-curriculum/>), including Areas of Inquiry (AOI)

Student must also satisfy university graduation requirements (<https://catalog.drake.edu/archive/2024-2025/undergraduate/academic-information/graduation-requirements/>) for all undergraduate students..