

BIOCHEMISTRY, CELL AND MOLECULAR BIOLOGY BACHELOR OF ARTS

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.A. Degree Requirements

The Bachelor of Arts major is intended to meet the needs of students interested in pursuing cross-disciplinary careers that merge a strong science background with a field of its application. These fields include medicine, bioinformatics, forensics, management, marketing, education, public relations, biophysics, biotechnology law and others upon approval of the BCMB Board of Directors.

| Code | Title | Hours |
|--------------------------------|---|-------|
| Select two of the following: 8 | | |
| 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 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

| | | |
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| BCMB 137 | ADVANCED MOLECULAR LS LAB | |
| BCMB 198 | BCMB INTERNSHIP | |
| BCMB 199 | BCMB RESEARCH | |

Other research credit can be applied with approval of advisor.

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| BCMB 195 | BCMB SENIOR CAPSTONE SEMINAR | 1 |
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Select one of the following: 3

| | | |
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| MATH 050 | CALCULUS I | |
| STAT 060 | STATISTICS FOR THE LIFE SCIENCES | |

| Career Area | | Hours |
|---|--|-------|
| Courses individually developed with Advisor | | 15 |

| Advanced Electives | | Hours |
|--|--|-------|
| Select six credits of Advanced Electives from the following: | | 6 |

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| BIO 104 | VIROLOGY | |
| BIO 116 | BIOINFORMATICS | |
| BIO 126 | DEVELOPMENTAL BIOLOGY | |
| BIO 176 | NEUROPHYSIOLOGY | |
| BIO 182 | IMMUNOLOGY | |
| BIO 185 | HUMAN GENETICS | |
| BIO 188 | STRUCTURAL BIOLOGY | |
| BIO 189 | REGULATORY BIOLOGY | |
| CHEM 161 | BIOPHYSICAL CHEMISTRY | |
| NSCI 126 | NEUROCHEMISTRY | |
| PHY 132 | MEDICAL BIOPHYSICS | |

Total Hours 69-82

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

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