

# Biochemistry

An interdepartmental B.S. biochemistry major is offered in the College of Arts and Sciences. The B.S. in biochemistry degree is managed by an interdepartmental committee composed of biochemists, bioorganic chemists, and molecular/cellular biologists. The committee administers the degree, monitors the academic program, provides research possibilities, and advises student majors. The director of the program is currently Linda J. Lowe-Krentz. Faculty in both Biological Sciences and Chemistry serve as advisors.

## BACHELOR OF SCIENCE DEGREE IN BIOCHEMISTRY

### BS BIOCHEMISTRY

#### Collateral Science Requirements

Select one of the following options: 9-10

#### Option A

PHY 010 & PHY 012 General Physics I and Introductory Physics Laboratory I

PHY 013 & PHY 022 General Physics II and Introductory Physics Laboratory II

#### Option B

PHY 011 & PHY 012 Introductory Physics I and Introductory Physics Laboratory I

PHY 021 & PHY 022 Introductory Physics II and Introductory Physics Laboratory II

Select one of the following options: <sup>2</sup> 10-12

#### Option A

MATH 051 Survey of Calculus I

MATH 052 Survey of Calculus II

MATH 043 Survey of Linear Algebra

#### Option B

MATH 021 Calculus I

MATH 022 Calculus II

MATH 023 Calculus III

One statistics course <sup>2</sup> 3

CSE 012 Introduction to Programming with Python 3

or ENGR 010 Applied Engineering Computer Methods

or BIOS 237 Introductory Molecular Modeling and Simulation

#### Required Chemistry Courses

CHM 040 Honors General Chemistry I <sup>3</sup> 4

CHM 041 Honors General Chemistry II <sup>3</sup> 4

CHM 110 & CHM 111 Organic Chemistry I and Organic Chemistry Laboratory I 4

CHM 112 & CHM 113 Organic Chemistry II and Organic Chemistry Laboratory II 4

CHM 194 Physical Chemistry for Biological Sciences 3

CHM 307 or CHM 364 Advanced Inorganic Chemistry Bioinorganic Chemistry 3

CHM 332 or CHM 336 Analytical Chemistry Clinical Chemistry 3

#### Required Biological Science courses

BIOS 041 & BIOS 042 Introduction to Cellular and Molecular Biology and Introduction to Cellular and Molecular Biology Laboratory 4

or BIOS 043 Phage Hunting Laboratory

BIOS 115 Genetics 3

BIOS 371 Elements of Biochemistry I 3

BIOS 372 Elements of Biochemistry II 3

BIOS 377 Biochemistry Laboratory 3

Advanced Laboratory 4

Electives in Biological Sciences (3 hours minimum) <sup>4</sup> 3

Technical Writing (2 hours minimum) 2

**Total Credits 75-78**

1

16 hours to be broadly distributed in fields of thought other than natural science and mathematics, including at least 8 hours each in humanities and social sciences.

2

Mathematics option and statistics course must be at least 12 hours combined.

3

The CHM 030 / CHM 031 sequence may be substituted.

4

The three credit hours of biological sciences electives are chosen with the approval of the adviser.

#### MODEL PATTERN ROSTER

First Year	Credits
CHM 040	4
CHM 041	4
BIOS 041 & BIOS 042	4
WRT 001	3
WRT 002	3
BIOS 090	3-4

Select one of the following:

MATH 051 & MATH 052

MATH 021 & MATH 022

Select one of the following:

PHY 010 & PHY 012

PHY 011 & PHY 012

**21-22**

Second Year	Credits
CHM 110 & CHM 111	4
CHM 112 & CHM 113	4
MATH 043 or 023	3
BIOS 115	3
BIOS 130 <sup>1</sup>	4

Select one of the following:

PHY 013 & PHY 022

PHY 021 & PHY 022

**18**

Third Year	Credits
CHM 194	3
CHM 332	3
BIOS 371	3
BIOS 372	3
BIOS 377	3
CSE 012	3

Technical Writing	2
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**20****Fourth Year****Credits**BIOS Advanced laboratory  
course(s)

BIOS elective

CHM 307	3
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**3****Total Credits: 62-63**

1

A statistics course from the MATH department could also fulfill the statistics requirement