

# 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

### College and University Requirements

ENGL 001	Critical Reading and Composition	3
ENGL 002	Research and Argument	3
First Year Seminar		3
Non-science Electives <sup>1</sup>		16

### 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** **100-103**

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
Dept 90 College Seminar	3
ENGL 001	3
ENGL 002	3
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	

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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

2 Biochemistry

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**

1

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