

# BIOCHEMISTRY

## Graduation Requirements:

- A minimum 2.0 average in all biology courses required for this major
- A minimum of 32 credits at or above the 300-level completed at a Purdue campus
- At least one 500-level Biology course other than BIOL 500 or 542
- 124 Total Credits

## **BIOLOGY:**

1. BIOL 121 Biology I: Diversity, Ecology and Behavior (2 cr.; fall)
2. BIOL 131 Biology II: Development, Structure, and Function of Organisms (3 cr.; spring)
3. BIOL 195T First Year Biology Lab (2 cr.; both)
  
4. BIOL 231 Biology III: Cell Structure and Function (3 cr.; fall)
5. BIOL 232 Laboratory in Biology III: Cell Structure and Function (2 cr.; fall)
6. BIOL 241 Biology IV: Genetics and Molecular Biology (3 cr.; spring)
7. BIOL 242 Laboratory in Genetics and Molecular Biology (2 cr.; spring)
8. BIOL 286 Introduction to Ecology (2 cr.; spring)
  
9. One of these three options:
  - A. BIOL 395G Principles of Physiology (3 cr.; fall)
  - B. BIOL 395Y Principles of Development (4 cr.; spring)
  - C. BIOL 438 General Microbiology (3 cr.; fall) and BIOL 439 Microbiology Lab (2 cr.; fall)
  
10. BIOL 415<sup>1</sup> Intro. to Molecular Biology (3 cr.; fall)
11. BIOL 420<sup>1</sup> Eukaryotic Cell Biology (3 cr.; fall)
12. BIOL 517<sup>1</sup> Molecular Biology: Proteins (2 cr.; spring)
  
13. One of these three courses:
  - A. BIOL 529<sup>1</sup> Bacterial Physiology (3 cr.; spring)
  - B. BIOL 550<sup>1</sup> Plant Molecular Biology (3 cr.; spring)
  - C. BIOL 573<sup>1</sup> Molecular Biology of Animal Cells (3 cr.; fall)
  
14. BIOL 500I Introductory Module: Protein Expression plus two additional modules<sup>2</sup> of BIOL 500 (2 cr.; both) or 542 (1 cr.; both) (various titles)
  
15. BCHM 561 General Biochemistry I (3 cr.; both)
16. BCHM 562 General Biochemistry II (3 cr.; both)

## **Alternate Course List** (see footnote #2 below)

- BIOL 416 Molecular Virology (3 cr.; spring)
- BIOL 438 General Microbiology (3 cr.; fall)
- BIOL 511 Intro. to X-Ray Crystallography (3 cr.; spring)
- BIOL 537 Immunology (3 cr.; spring)
- BIOL 595K Methods & Measurement in Physical Biochemistry (3 cr.; fall)

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<sup>1</sup> A substitution for one of requirements 10, 11, 12, or 13 may be made from the Alternate Course List.

<sup>2</sup> The two additional modules may be replaced by one of these: BIOL 439 Microbiology Lab (2 cr.; fall); or BIOL 514 Laboratory in Crystallography (2 cr.; fall); or by four credits of undergraduate research (BIOL 394, 494, or 499 – this must be approved in advance by the Biochemistry Area Committee).

*Chemistry and Physics requirements are on the back of this page.*

## BIOCHEMISTRY HONORS CURRICULUM

A 3.0 or higher graduation index is required to graduate in the Biochemistry Honors Curriculum.

In addition to the requirements listed for the Biochemistry program, at least two of the following courses/course sequences must be completed when fulfilling other requirements:

1. PHYS 172 Modern Mechanics (4 cr.; both) and PHYS 272 Electric and Magnetic Interactions (4 cr.; both)
2. CHM 321 Analytical Chemistry (4 cr.; fall)
3. CHM 373 Physical Chemistry (3 cr.; fall) and CHM 374 Physical Chemistry (4 cr.; spring)

1. CHM 115 General Chemistry (4 cr.; both)
2. CHM 116 General Chemistry (4 cr.; both)
3. CHM 261 Organic Chemistry (3 cr.; fall)
4. CHM 263 Organic Chemistry Lab (1 cr.; fall)
5. CHM 262 Organic Chemistry (3 cr.; spring)
6. CHM 264 Organic Chemistry Lab (1 cr.; spring)

7. One of these three courses:

- A. BCHM 221 Analytical Biochemistry (3 cr.; both)
- B. CHM 224 Intro. to Quantitative Analysis (4 cr.; spring)
- C. CHM 321 Analytical Chemistry (4 cr.; fall)

8. One of these two options:

- A. CHM 372 Physical Chemistry (4 cr.; spring)
- B. CHM 373 Physical Chemistry (3 cr.; fall) and CHM 374 Physical Chemistry (4 cr.; spring)

**MATH**

For the Biochemistry Major, you must choose one of the following calculus options when fulfilling CoS Core requirements: MA 161-162, MA 165-166, or MA 173.

**PHYSICS**

One of these two options:

- A. PHYS 220 General Physics (4 cr.; both) and PHYS 221 General Physics (4 cr.; both)
- B. PHYS 172 Modern Mechanics (4 cr.; both) and PHYS 272 Electric and Magnetic Interactions (4 cr.; both)

**COLLEGE OF SCIENCE CORE REQUIREMENTS**

Composition and Presentation; Teambuilding and Collaboration; Language and Culture; Great Issues; General Education; Multidisciplinary Experience; Mathematics; Statistics; Computing (see handout).

**FREE ELECTIVES**

Approximately 0 - 19 credits