

BIOLOGY

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 395G¹ Principles of Physiology (3 cr.; fall)
 - B. BIOL 395Y¹ Principles of Development (4 cr.; spring)
 - C. BIOL 438¹ General Microbiology (3 cr.; fall) and BIOL 439¹ Microbiology Lab (2 cr.; fall)

10. **Fifteen credits** from the following: must choose at least **one** from each of Groups A and B, and at least **one** course from the Laboratory list below.

Group A:

BIOL 415	Intro. to Molecular Biology (3 cr.; fall)	BIOL 533	Medical Microbiology (3 cr.; fall)
BIOL 416	Molecular Virology (3 cr.; spring)	BIOL 538	Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
BIOL 420	Eukaryotic Cell Biology (3 cr.; fall)	BIOL 541	Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 438 ¹	General Microbiology (3 cr.; fall)	BIOL 550	Plant Molecular Biology (3 cr.; spring)
BIOL 439 ¹	Microbiology Lab (2 cr.; fall)	BIOL 562	Neural Systems (3 cr.; spring)
BIOL 444	Human Genetics (3 cr.; fall)	BIOL 573	Molecular Biology of Animal Cells (3 cr.; fall)
BIOL 446	Cellular Microbiology (3 cr.; spring)	BIOL 595A	Protein Bioinformatics (2 cr.; spring)
BIOL 478	Intro to Bioinformatics (3 cr.; fall)	BIOL 595K	Methods & Measurement in Physical Biochemistry (3 cr.; fall)
BIOL 481	Eukaryotic Genetics (3 cr.; spring)	BIOL 595Z	Cellular Biology of Plants (3 cr.; fall)
BIOL 495N	Intro. to Neurobiology (3 cr.; fall)	BCHM 561 ²	General Biochemistry I (3 cr.; both)
BIOL 511	Intro. to X-Ray Crystallography (3 cr.; spring)	BCHM 562	General Biochemistry II (3 cr.; both)
BIOL 514	Laboratory in Crystallography (2 cr.; fall)	BCHM 572	Adv. Biochemical Techniques (2-4 cr.; fall)
BIOL 516	Molecular Biology of Cancer (3 cr.; spring)	CHM 533 ²	Introductory Biochemistry (3 cr.; fall)
BIOL 517	Molecular Biology: Proteins (2 cr.; spring)		
BIOL 529	Bacterial Physiology (3 cr.; spring)		

Group B:

BIOL 301 ³	Human Anatomy & Physiology (3 cr.; fall)	BIOL 559	Endocrinology (3 cr.; fall)
BIOL 302 ³	Human Anatomy & Physiology (3 cr.; spring)	BIOL 580	Evolution (3 cr.; spring)
BIOL 395G ¹	Principles of Physiology (3 cr.; fall)	BIOL 585	Ecology (3 cr.; fall)
BIOL 395Y ¹	Principles of Development (4 cr.; spring)	BIOL 591	Field Ecology (4 cr.; alternate fall)
BIOL 455	Animal Physiology (3 cr.; spring)	BIOL 592	Evolution of Behavior (3 cr.; spring)
BIOL 483	Environmental & Conservation Biology (3 cr.; fall)	BIOL 595D	Developmental Biology (3 cr.; spring)
BIOL 493	Intro. to Ethology (3 cr.; fall)	BIOL 595G	Animal Communication (3 cr.; alternate fall)
BIOL 495I	Reproductive Physiology (3 cr.; fall)	BIOL 597	Sex and Evolution (3 cr.; alternate fall)
BIOL 537	Immunology (3 cr.; spring)	HORT 301	Plant Physiology (4 cr.; fall)

Laboratory: Choose one option:

BIOL 439	Microbiology Lab (2 cr.; fall)
BIOL 500I	Protein Expression (2 cr.; both) <u>and</u> at least one additional credit of BIOL 500 (2 cr.; both) or 542 (1 cr.; both) (various titles)
BIOL 514	Laboratory in Crystallography (2 cr.; fall)
BIOL 591	Field Ecology (4 cr.; alternate fall)

Research (394 or 494 or 499), (maximum of 3 credits) will count toward the 15 credit requirement but will not count toward the Group A or B or the laboratory requirement.

¹ BIOL 395G, 395x, 438, and 439 may satisfy #9 above and still count as part of the 15 credit requirement (#10).

² BCHM 561 or CHM 533 may count as a chemistry elective or as a biology elective but not both.

³ If both BIOL 301 & 302 are completed, three of the six credits will count toward the 15 credit biology elective requirement. The other three credits will count as free electives. If only BIOL 301 or 302 is completed, the credits will count only as free elective credit.

Other requirements are on the back of this page.

1. CHM 115 General Chemistry (4 cr.; both)
2. CHM 116 General Chemistry (4 cr.; both)

3. One of these three options:

- A. CHM 255 Organic Chemistry (3 cr.; both) and CHM 255L Organic Chemistry Lab (1 cr.; both) and CHM 256 Organic Chemistry (3 cr.; both) and CHM 256L Organic Chemistry Lab (1 cr.; both)
- B. CHM 261 Organic Chemistry (3 cr.; fall) and CHM 263 Organic Chemistry Lab (1 cr.; fall) and CHM 262 Organic Chemistry (3 cr.; spring) and CHM 264 Organic Chemistry Lab (1 cr.; spring)
- C. CHM 257 Organic Chemistry (4 cr.; both) and CHM 257L Organic Chemistry Lab (1 cr.; both) and one of:
CHM 333 Principles of Biochemistry (3 cr.; both) or BCHM 307 Biochemistry (3 cr.; both)

4. One of these seven options:

- A. BCHM 221 Analytical Biochemistry (3 cr.; both)
- B. CHM 224 Introductory Quantitative Analysis (4 cr.; spring)
- C. CHM 321 Analytical Chemistry I (4 cr.; fall)
- D. BCHM 561² General Biochemistry I (3 cr.; both)
- E. CHM 533² Introductory Biochemistry (3 cr.; fall)
- F. CHM 372 Physical Chemistry (4 cr.; spring)
- G. CHM 373 Physical Chemistry (3 cr.; fall)

PHYSICS

One of these two options:

1. PHYS 220 General Physics (4 cr.; both) and PHYS 221 General Physics (4 cr.; both)
2. 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 4 - 33 credits