

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 54200
- 120 Total Credits

BIOLOGY:

1. BIOL 12100 Biology I: Diversity, Ecology and Behavior (2 cr.; fall) **or**
BIOL 19500 Biodiversity, Ecology & Evolution (3 cr.; fall)
2. BIOL 13100 Biology II: Development, Structure, and Function of Organisms (3 cr.; spring) **or**
BIOL 19500 Organismal Development & Physiology (3 cr.; spring)
3. BIOL 13500 1st Year Biology Lab (2 cr.; both) **or**
BIOL 14501 1st Year Biology Lab w/Neuro Research Project (2 cr.; fall) **or**
IT 22600 Biotechnology Lab (2 cr.; fall)
4. BIOL 23100 Biology III: Cell Structure and Function (3 cr.; fall)
5. BIOL 23200 Laboratory in Biology III: Cell Structure and Function (2 cr.; fall)
6. BIOL 24100 Biology IV: Genetics and Molecular Biology (3 cr.; spring)
7. BIOL 24200 Laboratory in Genetics and Molecular Biology (2 cr.; spring)
8. BIOL 28600 Intro. to Ecology & Evolution (2 cr.; spring)
9. **Intermediate Biology Selective:** Choose one of these eight options:

A. BIOL 32800 ² Principles of Physiology (4 cr.; spring)	D. BIOL 41500 ² Intro. to Molecular Biology (3 cr.; fall)
B. BIOL 36700 ² Principles of Development (2 cr.; spring) plus BIOL 36701 ² Principles of Development Laboratory (1 cr.; spring)	E. BIOL 41600 ² Viruses & Viral Diseases (3 cr.; spring)
C. BIOL 39500 ² Macromolecules (3 cr.; fall)	F. BIOL 42000 ² Eukaryotic Cell Biology (3 cr.; fall)
	G. BIOL 43600 ² Neurobiology (3 cr.; fall)
	H. BIOL 43800 ² General Microbiology (3 cr.; fall)
10. **Biology Selectives: Twelve credits** from the following: must choose at least **one** Group A Selective, at least **one** Group B Selective, at least **one** course from the Biology Lab Selective list, and at least **one** 500-level course from the Group A Selectives or Group B Selectives.

Group A Selective:

BIOL 39500 ² Macromolecules (3 cr.; fall)	BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 41500 ² Intro. to Molecular Biology (3 cr.; fall)	BIOL 54900 Microbial Ecology (2 cr.; alternate spring)
BIOL 41600 ² Viruses and Viral Diseases (3 cr.; spring)	BIOL 55001 Eukaryotic Molecular Biology (3 cr.; fall)
BIOL 42000 ² Eukaryotic Cell Biology (3 cr.; fall)	BIOL 56200 Neural Systems (3 cr.; spring)
BIOL 43600 ² Neurobiology (3 cr.; fall)	BIOL 59500 Cellular Biology of Plants (3 cr.; alternate fall)
BIOL 43800 ² General Microbiology (3 cr.; fall)	BIOL 59500 Epigenetics in Human Disease (3 cr.; fall)
BIOL 43900 Microbiology Lab (2 cr.; fall)	BIOL 59500 Genetics & –Omics of Host-Microbe Interactions (3 cr.; fall)
BIOL 44400 Human Genetics (3 cr.; fall)	BIOL 59500 Methods & Measurement in Physical Biochemistry (3 cr.; fall)
BIOL 44600 Molecular Biology of Pathogens (3 cr.; spring)	BIOL 59500 Neural Mechanisms in Health & Disease (3 cr.; fall)
BIOL 47800 Intro to Bioinformatics (3 cr.; fall)	BIOL 59500 Neurobiology of Learning and Memory (3 cr.; fall)
BIOL 48100 Eukaryotic Genetics (3 cr.; spring)	BIOL 59500 Practical Biocomputing (3 cr.; spring)
BIOL 49500 Biological & Structural Aspects of Drug Design & Action (3 cr.; spring)	BIOL 59500 Protein Bioinformatics (2 cr.; spring)
BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)	BIOL 59500 Theory of Molecular Methods (3 cr.; spring)
BIOL 51600 Molecular Biology of Cancer (3 cr.; spring)	BCHM 56100 ¹ General Biochemistry I (3 cr.; fall)
BIOL 51700 Molecular Biology: Proteins (2 cr.; spring)	BCHM 56200 General Biochemistry II (3 cr.; spring)
BIOL 52900 Bacterial Physiology (3 cr.; spring)	CHM 33900 ¹ Biochemistry: A Molecular Approach (3 cr.; spring)
BIOL 53300 Medical Microbiology (3 cr.; fall)	CHM 53300 ¹ Introductory Biochemistry (3 cr.; fall)
BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)	

Group B Selective:

BIOL 30100 ³ Human Anatomy & Physiology (3 cr.; fall)	BIOL 58000 Evolution (3 cr.; spring)
BIOL 30200 ³ Human Anatomy & Physiology (3 cr.; spring)	BIOL 58500 Ecology (3 cr.; fall)
BIOL 32800 ² Principles of Physiology (4 cr.; spring)	BIOL 58705 Animal Communication (3 cr.; alternate fall)
BIOL 36700 ² Principles of Development (2 cr.; spring)	BIOL 59100 Field Ecology (4 cr.; alternate fall)
BIOL 43200 Reproductive Physiology (3 cr.; Alternate fall)	BIOL 59200 Evolution of Behavior (3 cr.; alternate spring)
BIOL 48300 Environmental & Conservation Biology (3 cr.; spring)	BIOL 59500 Ecological Statistics (3 cr.; fall)
BIOL 53700 Immunology (3 cr.; spring)	BIOL 59500 Sensory Ecology (3 cr.; alternate spring)
BIOL 55900 Endocrinology (3 cr.; fall)	HORT 30100 Plant Physiology (4 cr.; fall)

Biology Lab Selective: Choose one option:

1. BIOL 43900 Microbiology Lab (2 cr.; fall)
2. BIOL 59100 Field Ecology (4 cr.; alternate fall)
3. Lab Modules BIOL 44201 Protein Expression (2 cr.; both) **and** at least one additional credit of BIOL 442xx (1-2 cr.; both) (various titles) or 54200 Neurophysiology (1 cr.; fall)

Credits that will count toward the 12 credits but not toward the A or B or the laboratory requirement:

1. Undergraduate Research (BIOL 49400 or BIOL 49900, max of 3 credits)
2. BIOL 36701 Principles of Development Lab (1 cr.; spring)
3. BIOL 44100 Senior Seminar in Genetics (1 cr.; both)

Footnotes and other requirements are on the back of this page.

CHEMISTRY

1. **General Chemistry:**

- A. CHM 12901⁴ General Chemistry with a Biological Focus (5 cr.; fall)

2. **Organic Chemistry Selectives:** (Must choose one option)

- A. CHM 25500 Organic Chemistry (3 cr.; both) and CHM 25501 Organic Chemistry Lab (1 cr.; both) and CHM 25600 Organic Chemistry (3 cr.; both) and CHM 25601 Organic Chemistry Lab (1 cr.; both)
B. CHM 26505 Organic Chemistry (3 cr.; fall) and CHM 26300 Organic Chemistry Lab (1 cr.; fall) and CHM 26605 Organic Chemistry (3 cr.; spring) and CHM 26400 Organic Chemistry Lab (1 cr.; spring)

3. **Chemistry Selectives:**⁴ (must choose one of the eight options)

A. Analytical Chemistry

- a. BCHM 22100 Analytical Biochemistry (3 cr.; both)
b. CHM 22400 Introductory Quantitative Analysis (4 cr.; spring)
c. CHM 32100 Analytical Chemistry I (4 cr.; fall)

B. Biochemistry

- a. BCHM 56100¹ General Biochemistry I (3 cr.; both)
b. CHM 33900^{1,4} Biochemistry: A Molecular Approach (3 cr.; spring)
c. CHM 53300¹ Introductory Biochemistry (3 cr.; fall)

C. Physical Chemistry

- a. CHM 37200 Physical Chemistry (4 cr.; spring)
b. CHM 37300 Physical Chemistry (3 cr.; fall)

PHYSICS Selectives: One of these two options:

1. PHYS 23300 Physics for Life Sciences I (4 cr.; both) and PHYS 23400 Physics for Life Sciences II (4 cr.; both)
2. PHYS 17200 Modern Mechanics (4 cr.; both) and one of the following two choices:
A. PHYS 27200 Electric and Magnetic Interactions (4 cr.; both) or
B. PHYS 24100 Electricity and Optics (3 cr.; both) and PHYS 25200 Electricity and Optics Laboratory (1 cr.; spring)

UNIVERSITY CORE and 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 11-23 credits

BIOL 3/15

¹ BCHM 56100 or CHM 33900 or CHM 53300 may count as a Chemistry Selective or as Biology Selective, but not both.

² Courses chosen for the Intermediate Requirement may satisfy #9 above OR count as part of the 12 credit requirement (#10), but not both.

³ If both BIOL 30100 & 30200 are completed, one of the two courses will count toward 12 credit biology elective requirement. The other course will count as free elective. If only BIOL 30100 or 30200 is completed, the credits will count only as free elective credit.

⁴ Students who select 12901 for General Chemistry must also select CHM 33900 and 33901 for the Chemistry Selective. Students who end up with Special Case approval for some other Gen Chem courses may choose the other Chem Selective options.