

BIOLOGY

(for students entering Biology in Fall 2011 or later)

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
- 124 Total Credits

BIOLOGY:

1. BIOL 12100 Biology I: Diversity, Ecology and Behavior (2 cr.; fall)
2. BIOL 13100 Biology II: Development, Structure, and Function of Organisms (3 cr.; spring)
3. BIOL 13500 First Year Biology Lab (2 cr.; both) or BIOL 19500 CASPIE Laboratory (2cr.;both)
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) or BIOL 29500, Intro. to Evolution & Ecology (2 cr.; fall)
9. Intermediate Requirement: Choose one of these four options:
 - A. BIOL 32800 Principles of Physiology (4 cr.; spring)
 - B. BIOL 36600 Principles of Development (4 cr.; spring)
 - C. BIOL 39500 Macromolecules (3 cr.; fall)
 - D. BIOL 43800 General Microbiology (3 cr.; fall) and BIOL 43900 Microbiology Lab (2 cr.; fall)
10. Biology Electives: 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 39500 ¹	Macromolecules (3 cr.; fall)	BIOL 53300	Medical Microbiology (3 cr.; fall)
BIOL 41500	Intro. to Molecular Biology (3 cr.; fall)	BIOL 53800	Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
BIOL 41600	Viruses and Viral Diseases (3 cr.; spring)	BIOL 54100	Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 42000	Eukaryotic Cell Biology (3 cr.; fall)	BIOL 54900	Microbial Ecology (2 cr.; alternate spring)
BIOL 43600	Neurobiology (3 cr.; fall)	BIOL 55000	Plant Molecular Biology (3 cr.; spring)
BIOL 43800 ¹	General Microbiology (3 cr.; fall)	BIOL 56200	Neural Systems (3 cr.; spring)
BIOL 43900 ^{1,4}	Microbiology Lab (2 cr.; fall)	BIOL 57300	Molecular Biology of Animal Cells (3 cr.; fall)
BIOL 44400	Human Genetics (3 cr.; fall)	BIOL 59500	Protein Bioinformatics (2 cr.; spring)
BIOL 44600	Cellular Microbiology (3 cr.; spring)	BIOL 59500	Methods & Measurement in Physical Biochemistry (3 cr.; fall)
BIOL 47800	Intro to Bioinformatics (3 cr.; fall)	BIOL 59500	Cellular Biology of Plants (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)	BCHM 56100 ²	General Biochemistry I (3 cr.; fall)
BIOL 51100	Intro. to X-Ray Crystallography (3 cr.; spring)	BCHM 56200	General Biochemistry II (3 cr.; spring)
BIOL 51600	Molecular Biology of Cancer (3 cr.; spring)	BCHM 57200	Adv. Biochemical Techniques (2-4 cr.; fall)
BIOL 51700	Molecular Biology: Proteins (2 cr.; spring)	CHM 53300 ²	Introductory Biochemistry (3 cr.; fall)
BIOL 52900	Bacterial Physiology (3 cr.; spring)		

Group B:

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 ¹	Principles of Physiology (4 cr.; spring)	BIOL 58705	Animal Communication (3 cr.; alternate fall)
BIOL 36600 ¹	Principles of Development (4 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.; spring)
BIOL 48300	Environmental & Conservation Biology (3 cr.; spring)	BIOL 59500	Developmental Biology (3 cr.; fall)
BIOL 49300	Intro. to Ethology (3 cr.; fall)	BIOL 59500	Sensory Ecology (3 cr.; spring)
BIOL 53700	Immunology (3 cr.; spring)	BIOL 59700	Sex and Evolution (3 cr.; alternate fall)
BIOL 55900	Endocrinology (3 cr.; fall)	HORT 30100	Plant Physiology (4 cr.; fall)

Laboratory: Choose one option:

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

Research (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 32800 (Physiology), 36600 (Development), 39500 (Macromolecules), 43800, and 43900 may satisfy #9 above OR count as part of the 15 credit requirement (#10), but not both.

² BCHM 56100 or CHM 53300 may count as a chemistry elective or as a biology elective but not both.

³ If both BIOL 30100 & 30200 are completed, one of the two courses will count toward 15 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 If BIOL 43900 is used as part of requirement #9, the Laboratory requirement in #10 will be waived. Student must still take 15 other credits of biology.

CHEMISTRY

1. CHM 11500 General Chemistry (4 cr.; both)
2. CHM 11600 General Chemistry (4 cr.; both)
3. One of these three options:
 - 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)
 - C. CHM 25700 Organic Chemistry (4 cr.; both) and CHM 25701 Organic Chemistry Lab (1 cr.; both) and one of:
CHM 33300 Principles of Biochemistry (3 cr.; both) or BCHM 30700 Biochemistry (3 cr.; both)
4. One of these seven options:
 - 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)
 - D. BCHM 56100² General Biochemistry I (3 cr.; fall)
 - E. CHM 53300² Introductory Biochemistry (3 cr.; fall)
 - F. CHM 37200 Physical Chemistry (4 cr.; spring)
 - G. CHM 37300 Physical Chemistry (3 cr.; fall)

PHYSICS

One of these two options:

1. PHYS 22000 General Physics (4 cr.; both) and PHYS 22100 General Physics (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)

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 0-24 credits