

BIOLOGY EDUCATION

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^{1,2} Principles of Physiology (4 cr.; spring)
 - B. BIOL 36700^{1,2} Principles of Development (2 cr.; spring) **plus** BIOL 36701¹ Principles of Development Laboratory (1 cr.; spring)
 - C. BIOL 39500¹ Macromolecules (3 cr.; fall)
 - D. BIOL 41500¹ Intro. to Molecular Biology (3 cr.; fall)
 - E. BIOL 41600¹ Viruses & Viral Diseases (3 cr.; spring)
 - F. BIOL 42000¹ Eukaryotic Cell Biology (3 cr.; fall)
 - G. BIOL 43600¹ Neurobiology (3 cr.; fall)
 - H. BIOL 43800^{1,2} General Microbiology (3 cr.; fall)
10. **Biology Selectives: Ten 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 39500¹ Macromolecules (3 cr.; fall)
BIOL 41500¹ Intro. to Molecular Biology (3 cr.; fall)
BIOL 41600¹ Viruses and Viral Diseases (3 cr.; spring)
BIOL 42000¹ Eukaryotic Cell Biology (3 cr.; fall)
BIOL 43600¹ Neurobiology (3 cr.; fall)
BIOL 43800^{1,2} General Microbiology (3 cr.; fall)
BIOL 43900² Microbiology Lab (2 cr.; fall)
BIOL 44400² Human Genetics (3 cr.; fall)
BIOL 44600 Molecular Biology of Pathogens (3 cr.; spring)
BIOL 47800 Intro to Bioinformatics (3 cr.; fall)
BIOL 48100 Eukaryotic Genetics (3 cr.; spring)
BIOL 49500 Biological & Structural Aspects of Drug Design & Action (3 cr.; spring)
BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)
BIOL 51600 Molecular Biology of Cancer (3 cr.; spring)
BIOL 51700 Molecular Biology: Proteins (2 cr.; spring)
BIOL 52900 Bacterial Physiology (3 cr.; spring)
BIOL 53300 Medical Microbiology (3 cr.; fall)
BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)

- BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 54900 Microbial Ecology (2 cr.; alternate spring)
BIOL 55001 Eukaryotic Molecular Biology (3 cr.; fall)
BIOL 56200 Neural Systems (3 cr.; spring)
BIOL 59500 Cellular Biology of Plants (3 cr.; alternate fall)
BIOL 59500 Epigenetics in Human Disease (3 cr.; fall)
BIOL 59500 Genetics & –Omics of Host-Microbe Interaction (3 cr.; fall)
BIOL 59500 Methods & Measurement in Physical Biochemistry (3 cr.; fall)
BIOL 59500 Neural Mechanisms in Health & Disease (3 cr.; fall)
BIOL 59500 Neurobiology of Learning and Memory (3 cr.; fall)
BIOL 59500 Practical Biocomputing (3 cr.; spring)
BIOL 59500 Protein Bioinformatics (2 cr.; spring)
BIOL 59500 Theory of Molecular Methods (3 cr.; spring)
BCHM 56100 General Biochemistry I (3 cr.; fall)
BCHM 56200 General Biochemistry II (3 cr.; spring)
CHM 33900 Biochemistry: A Molecular Approach (3 cr.; spring)
CHM 53300 Introductory Biochemistry (3 cr.; fall)

Group B Selective:

- BIOL 30100³ Human Anatomy & Physiology (3 cr.; fall)
BIOL 30200³ Human Anatomy & Physiology (3 cr.; spring)
BIOL 32800^{1,2} Principles of Physiology (4 cr.; spring)
BIOL 36700^{1,2} Principles of Development (2 cr.; spring)
BIOL 43200 Reproductive Physiology (3 cr.; alternate fall)
BIOL 48300 Environmental & Conservation Biology (3 cr.; spring)
BIOL 53700 Immunology (3 cr.; spring)
BIOL 55900 Endocrinology (3 cr.; fall)

- BIOL 58000 Evolution (3 cr.; spring)
BIOL 58500² Ecology (3 cr.; fall)
BIOL 58705 Animal Communication (3 cr.; alternate fall)
BIOL 59100 Field Ecology (4 cr.; alternate fall)
BIOL 59200 Evolution of Behavior (3 cr.; alternate spring)
BIOL 59500 Ecological Statistics (3 cr.; fall)
BIOL 59500 Sensory Ecology (3 cr.; alternate spring)
BIOL 59900 Quantitative Physiology (3 cr.; spring)
HORT 30100² 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 10 credits but not toward the A or B or the laboratory requirement:

1. Undergraduate Research (BIOL 49400 or BIOL 49900, max of 2 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 12901 General Chemistry with a Biological Focus (5 cr.; fall)

2. Organic Chemistry Selectives: One of these two 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)

EDUCATION

1. EDCI 20500 Exploring Teaching as a Career (3 cr.; both)
2. EDCI 28500 Multiculturalism and Education (3 cr.; both)
3. EDPS 23500 Learning and Motivation (3 cr.; both)
4. EDPS 26500 The Inclusive Classroom (3 cr.; both)
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5. EDCI 27000 Introduction to Educational Technology and Computing (3 cr.; both)
6. EDST 20010 Educational Policies and Laws (1 cr.)
7. EDPS 32700 Assessment Literacy (1 cr.)
8. EDPS 43010 Secondary Classroom Management (1 cr.)
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9. EDCI 42100 The Teaching of Biology in Secondary Schools (3 cr.; fall)
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10. EDCI 30900 Reading in Middle and Secondary Schools: Methods and Problems (3 cr.; both)
11. EDCI 42800 Teaching Science in the Middle and Junior High School (2 cr.; spring)
12. EDCI 49800 Supervised Teaching Life Science Education (10 cr.; both)

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)

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 none

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¹ Courses chosen for the Intermediate Requirement may satisfy #9 and still count as part of the 10 credit requirement (#10).

² These courses are recommended for teaching majors.

³ If both BIOL 30100 & 30200 are completed, three of the six credits will count toward the 10 credit biology elective requirement. The other three credits will count as free electives. If only BIOL 30100 or 30200 is completed, the credits will count only as free elective credit.
