

BIOLOGY EDUCATION

(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 from 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. **Ten 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:

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| <p>BIOL 39500¹ Macromolecules (3 cr.; fall)</p> <p>BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)</p> <p>BIOL 41600 Viruses and Viral Diseases (3 cr.; spring)</p> <p>BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)</p> <p>BIOL 43600 Neurobiology (3 cr.; fall)</p> <p>BIOL 43800¹ General Microbiology (3 cr.; fall)</p> <p>BIOL 43900¹ Microbiology Lab (2 cr.; fall)</p> <p>BIOL 44400 Human Genetics (3 cr.; fall)</p> <p>BIOL 44600 Cellular Microbiology (3 cr.; spring)</p> <p>BIOL 47800 Intro to Bioinformatics (3 cr.; fall)</p> <p>BIOL 48100 Eukaryotic Genetics (3 cr.; spring)</p> <p>BIOL 49500 Biological & Structural Aspects of Drug Design & Action (3 cr.; spring)</p> <p>BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)</p> <p>BIOL 51400 Laboratory in Crystallography (2 cr.; fall)</p> <p>BIOL 51600 Molecular Biology of Cancer (3 cr.; spring)</p> <p>BIOL 51700 Molecular Biology: Proteins (2 cr.; spring)</p> <p>BIOL 52900 Bacterial Physiology (3 cr.; spring)</p> | <p>BIOL 53300 Medical Microbiology (3 cr.; fall)</p> <p>BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)</p> <p>BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)</p> <p>BIOL 54900 Microbial Ecology (2 cr.; alternate spring)</p> <p>BIOL 55000 Plant Molecular Biology (3 cr.; spring)</p> <p>BIOL 56200 Neural Systems (3 cr.; spring)</p> <p>BIOL 57300 Molecular Biology of Animal Cells (3 cr.; fall)</p> <p>BIOL 59500 Protein Bioinformatics (2 cr.; spring)</p> <p>BIOL 59500 Methods & Measurement in Physical Biochemistry (3 cr.; fall)</p> <p>BIOL 59500 Cellular Biology of Plants (3 cr.; fall)</p> <p>BIOL 59500 Practical Biocomputing (3 cr.; spring)</p> <p>BCHM 56100² General Biochemistry I (3 cr.; fall)</p> <p>BCHM 56200 General Biochemistry II (3 cr.; spring)</p> <p>BCHM 57200 Adv. Biochemical Techniques (2-4 cr.; fall)</p> <p>CHM 53300² Introductory Biochemistry (3 cr.; fall)</p> |
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Group B:

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| <p>BIOL 30100³ Human Anatomy & Physiology (3 cr.; fall)</p> <p>BIOL 30200³ Human Anatomy & Physiology (3 cr.; spring)</p> <p>BIOL 32800¹ Principles of Physiology (4 cr.; spring)</p> <p>BIOL 36600¹ Principles of Development (4 cr.; spring)</p> <p>BIOL 43200 Reproductive Physiology (3 cr.; alternate fall)</p> <p>BIOL 48300 Environmental & Conservation Biology (3 cr.; spring)</p> <p>BIOL 49300 Intro. to Ethology (3 cr.; fall)</p> <p>BIOL 53700 Immunology (3 cr.; spring)</p> <p>BIOL 55900 Endocrinology (3 cr.; fall)</p> | <p>BIOL 58000 Evolution (3 cr.; spring)</p> <p>BIOL 58500 Ecology (3 cr.; fall)</p> <p>BIOL 58705 Animal Communication (3 cr.; alternate fall)</p> <p>BIOL 59100 Field Ecology (4 cr.; alternate fall)</p> <p>BIOL 59200 Evolution of Behavior (3 cr.; spring)</p> <p>BIOL 59500 Developmental Biology (3 cr.; fall)</p> <p>BIOL 59700 Sex and Evolution (3 cr.; alternate fall)</p> <p>HORT 30100 Plant Physiology (4 cr.; fall)</p> |
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Laboratory: Choose one option:

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| <p>BIOL 43900 Microbiology Lab (2 cr.; fall)</p> <p>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)</p> | <p>BIOL 59100 Field Ecology (4 cr.; alternate fall)</p> |
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Research (49400 or 49900), (maximum of 2 credits) will count toward the 10 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 **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.

Other requirements are on the back of this page.

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)

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)
5. EDCI 27000 Introduction to Educational Technology and Computing (3 cr.; both)
6. EDST 20000 History and Philosophy of Education (3 cr.; both)
7. EDCI 42100 The Teaching of Biology in Secondary Schools (3 cr.; fall)
8. EDCI 42800 Teaching Science in the Middle and Junior High School (2 cr.; spring)
9. EDCI 49800 Supervised Teaching Life Science Education (10 cr.; both)

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 - 3 credits