**BIOLOGY EDUCATION**  
(for students entering Biology in Fall 2010 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 30000-level completed at a Purdue campus
- At least one 50000-level Biology course other than BIOL 50000 or 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)
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. One of these four options:
   - A. **BIOL 32800** Principles of Physiology (4 cr.; spring)
   - B. **BIOL 36500** 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:
- **BIOL 39500** Macromolecules (3 cr.; fall)
- **BIOL 41500** Intro. to Molecular Biology (3 cr.; fall)
- **BIOL 41600** Viruses and Viral Diseases (3 cr.; spring)
- **BIOL 42000** Eukaryotic Cell Biology (3 cr.; fall)
- **BIOL 43600** Neurobiology (3 cr.; fall)
- **BIOL 43800** General Microbiology (3 cr.; fall)
- **BIOL 43900** Microbiology Lab (2 cr.; fall)
- **BIOL 44400** Human Genetics (3 cr.; fall)
- **BIOL 44600** Cellular Microbiology (3 cr.; spring)
- **BIOL 47800** Intro to Bioinformatics (3 cr.; fall)
- **BIOL 48100** Eukaryotic Genetics (3 cr.; spring)
- **BIOL 51100** Intro. to X-Ray Crystallography (3 cr.; fall)
- **BIOL 51400** Laboratory in Crystallography (2 cr.; fall)
- **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)

#### Group B:
- **BIOL 30100** Human Anatomy & Physiology (3 cr.; fall)
- **BIOL 30200** Human Anatomy & Physiology (3 cr.; spring)
- **BIOL 32800** Principles of Physiology (4 cr.; spring)
- **BIOL 36600** Principles of Development (4 cr.; spring)
- **BIOL 43200** Reproductive Physiology (3 cr.; fall)
- **BIOL 43800** Environmental & Conservation Biology (3 cr.; spring)
- **BIOL 49300** Intro. to Ethology (3 cr.; fall)
- **BIOL 53700** Immunology (3 cr.; spring)
- **BIOL 55900** Endocrinology (3 cr.; fall)

#### Laboratory: Choose one option:
- **BIOL 43900** Microbiology Lab (2 cr.; fall)
- **BIOL 50000** Protein Expression (2 cr.; both) and at least one additional credit of **BIOL 50000** (2 cr.; both) or **54200** (1 cr.; both) (various titles)

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.

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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 (2 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

BIED 2/11