

# HEALTH & DISEASE

(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:  
**(Health & Disease majors must choose option D, BIOL 43800-43900)**

- 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. BIOL 30100 Human Anatomy & Physiology (3 cr.; fall)
11. BIOL 30200 Human Anatomy & Physiology (3 cr.; spring)
12. BIOL 41600 Viruses & Viral Diseases (3 cr.; spring)

13. **Biology Electives: Nine credits** from the following: must choose at least **one** 500 level Biology course other than BIOL 54200

<p>BIOL 32800 Principles of Physiology (4 cr.; spring)</p> <p>BIOL 36600 Principles of Development (4 cr.; spring)</p> <p>BIOL 39500 Macromolecules (3 cr.; fall)</p> <p>BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)</p> <p>BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)</p> <p>BIOL 43200 Reproductive Physiology (3 cr.; alternate fall)</p> <p>BIOL 43600 Neurobiology (3 cr.; fall)</p> <p>BIOL 442xx Modular Laboratory Courses (various titles) (1-2 cr.; both)</p> <p>BIOL 44201 Intro to Protein Expression</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 &amp; Structural Aspects of Drug Design &amp; Action (3 cr.; spring)</p> <p>BIOL 48300 Environmental &amp; Conservation Biology (3 cr.; spring)</p> <p>BIOL 49300 Intro. to Ethology (3 cr.; fall)</p> <p>BIOL 50000 Intro. to Protein Expression (2 cr.; both)</p> <p>BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)</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 53700 Immunology (3 cr.; spring)</p> <p>BIOL 53800 Molecular, Cellular &amp; Developmental Neurobiology (3 cr.; spring)</p>	<p>BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)</p> <p>BIOL 54200 Neurophysiology Lab (1 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 55900 Endocrinology (3 cr.; fall)</p> <p>BIOL 56200 Neural Systems (3 cr.; spring)</p> <p>BIOL 57300 Molecular Biology of Animal Cells (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 Cellular Biology of Plants (3 cr.; fall)</p> <p>BIOL 59500 Developmental Biology (3 cr.; fall)</p> <p>BIOL 59500 Ecological Statistics (3 cr.; fall)</p> <p>BIOL 59500 Methods &amp; Measurement in Physical Biochemistry (3 cr.; fall)</p> <p>BIOL 59500 Protein Bioinformatics (2 cr.; spring)</p> <p>BIOL 59500 Sensory Ecology (3 cr.; alternate spring)</p> <p>BIOL 59700 Sex and Evolution (3 cr.; alternate fall)</p> <p>BCHM 56100<sup>1</sup> 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 53300<sup>1</sup> Introductory Biochemistry (3 cr.; fall)</p> <p>HORT 30100 Plant Physiology (4 cr.; fall)</p>
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Research (494 or 499), (maximum of 3 credits) will count toward the elective requirement.

<sup>1</sup> BCHM 56100 or CHM 53300 may count as a chemistry elective or as a biology elective but not both.

*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)
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 56100<sup>1</sup> General Biochemistry I (3 cr.; fall)
  - E. CHM 53300<sup>1</sup> 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)

## **PRE-PROFESSIONAL ELECTIVE** (choose one<sup>2</sup>)

- |               |                                 |               |                                   |
|---------------|---------------------------------|---------------|-----------------------------------|
| 1. ANTH 21200 | Culture, Food & Health          | 9. SOC 37400  | The Health of Americans           |
| 2. ANTH 34000 | Cultural Perspectives on Health | 10. SOC 57200 | Comparative Healthcare Systems    |
| 3. ANTH 35200 | Drugs, Culture & Society        | 11. SOC 57300 | Human Side of Medicine            |
| 4. HK 44000   | Human Diseases and Disorders    | 12. SOC 57400 | Social Organization of Healthcare |
| 5. HK 44500   | Epidemiology                    | 13. SOC 57600 | Health and Aging in America       |
| 6. PHIL 27000 | Biomedical Ethics               |               |                                   |
| 7. PHIL 29000 | Ethics & Animals                |               |                                   |
| 8. PSY 25100  | Health Psychology               |               |                                   |

## **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 0-16 credits

<sup>2</sup>This course may not be used to satisfy the College of Science General Education or Language & Culture requirements.