HEALTH & DISEASE

(for students entering Biology in Fall 2012 or later – revised July 2013)

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**
   BIOL 14502 1st Year Biology Lab w/Micro Research Project (2 cr.; spring) **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 Requirement:** Choose one of these eight options:
   (Health & Disease majors must choose option H, BIOL 43800)
   - A. BIOL 32800 Principles of Physiology (4 cr.; spring)
   - B. BIOL 36600 Principles of Development (3 cr.; spring)
   - C. BIOL 39500 Macromolecules (3 cr.; fall)
   - D. BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)
   - E. BIOL 41600 Viruses & Viral Diseases (3 cr.; spring)
   - F. BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)
   - G. BIOL 43600 Neurobiology (3 cr.; fall)
   - **H. BIOL 43800 General Microbiology (3 cr.; fall)**

10. BIOL 30100 Human Anatomy & Physiology (3 cr.; fall)
11. BIOL 30200 Human Anatomy & Physiology (3 cr.; spring)
12. BIOL 43900 Lab in Microbiology (2 cr.; fall)

13. One of these three courses[1]:
    - A. BIOL 41600 Viruses & Viral Diseases (3 cr.; spring) or
    - B. BIOL 53700 Immunology (3 cr.; spring) or
    - C. BIOL 55900 Endocrinology (3 cr.; fall)

14. **Biology Electives: Six credits** from the following:[1]

BIOL 32800 Principles of Physiology (4 cr.; spring)
BIOL 36600 Principles of Development (3 cr.; spring)
BIOL 39500 Macromolecules (3 cr.; fall)
BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)
BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)
BIOL 43200 Reproductive Physiology (3 cr.; alternate fall)
BIOL 43600 Neurobiology (3 cr.; fall)
BIOL 442xx Modular Laboratory Courses (various titles) (1-2 cr.; both)
BIOL 44201 Intro to Protein Expression
BIOL 44400 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 48300 Environmental & Conservation Biology (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 53700 Immunology (3 cr.; spring)
BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 54200 Neurophysiology Lab (1 cr.; fall)
BIOL 54900 Microbial Ecology (2 cr.; alternate spring)
BIOL 55900 Endocrinology (3 cr.; fall)
BIOL 56200 Neural Systems (3 cr.; spring)
BIOL 58000 Evolution (3 cr.; fall)
BIOL 58500 Ecology (3 cr.; spring)
BIOL 58705 Animal Communication (3 cr.; alternate fall)
BIOL 59100 Field Ecology (4 cr.; alternate fall)
BIOL 59200 Evolution of Behavior (3 cr.; spring)
BIOL 59500 Cellular Biology of Plants (3 cr.; fall)
BIOL 59500 Ecological Statistics (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 Protein Bioinformatics (2 cr.; spring)
BIOL 59500 Sensory Ecology (3 cr.; alternate spring)
BCHM 56100[2] General Biochemistry I (3 cr.; fall)
BCHM 56200 General Biochemistry II (3 cr.; spring)
CHM 53300[2] Introductory Biochemistry (3 cr.; fall)
HORT 30100 Plant Physiology (4 cr.; fall)

Research (494 or 499), (maximum of 3 credits) will count toward the elective requirement.

[1] A 500-level BIOL class (other than 54200) must be taken as part of requirement #13 or #14. The course taken for #13 may not also be used for #14.
[2] 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[2] General Biochemistry I (3 cr.; fall)
   - E. CHM 49000 Biochemistry for Life Sciences (3 cr.; fall)
   - F. CHM 53300[2] Introductory Biochemistry (3 cr.; fall)
   - G. CHM 37200 Physical Chemistry (4 cr.; spring)
   - H. 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)[3]

1. ANTH 21200 Culture, Food & Health
2. ANTH 34000 Cultural Perspectives on Health
3. ANTH 35200 Drugs, Culture & Society
4. HK 44000 Human Diseases and Disorders
5. HK 44500 Epidemiology
6. PHIL 27000 Biomedical Ethics
7. PHIL 28000 Ethics & Animals
8. PSY 25100 Health Psychology
9. SOC 37400 Medical Sociology
10. SOC 57200 Comparative Healthcare Systems
11. SOC 57300 Human Side of Medicine
12. SOC 57400 Social Organization of Healthcare
13. SOC 57600 Health and Aging in Social Context

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 0-12 credits

[3]This course may not be used to satisfy the College of Science General Education or Language & Culture requirements.

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