

NEUROBIOLOGY AND PHYSIOLOGY

(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 Introduction to Ecology and Evolution (2 cr.; spring) or BIOL 29500, Introduction to Evolution & Ecology (2 cr.; fall)

9. Intermediate Requirement: Choose one of these four options:

(Neurobiology and Physiology majors must choose BIOL 32800, Principles of Physiology)

- 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. Two of these six courses:

- A. BIOL 43200 Reproductive Physiology (3 cr.; alternate fall)
- B. BIOL 43600 Neurobiology (3 cr.; fall)
- C. BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
- D. BIOL 55900 Endocrinology (3 cr.; fall)
- E. BIOL 56200 Neural Systems (3 cr.; spring)
- F. BIOL 59900 Quantitative Physiology (3 cr.; spring)

11. One of these four courses:

- A. BCHM 56100 General Biochemistry (3 cr.; fall)
- B. CHM 37200 Physical Chemistry (4 cr.; spring)
- C. CHM 37300 Physical Chemistry (3 cr.; fall)
- D. CHM 53300 Introductory Biochemistry (3 cr.; fall)

12. BIOL 44202¹ Animal Physiology Laboratory (2 cr.; spring) or BIOL 54200¹ Laboratory in Neurophysiology (1 cr.; fall)

13. Two additional modules of BIOL 442xx¹ (1-2 cr.; both) (various titles) or 54200¹ Neurophysiology (1 cr.; fall)

14. Biology Electives: Six credits of the following in addition to the above requirements:

BIOL 30100 ² Human Anatomy & Physiology (3 cr.; fall)	BIOL 53700 Immunology (3 cr.; spring)
BIOL 30200 ² Human Anatomy & Physiology (3 cr.; spring)	BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
BIOL 36600 Principles of Development (4 cr.; spring)	BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)	BIOL 54900 Microbial Ecology (2 cr.; alternate spring)
BIOL 41600 Viruses and Viral Diseases (3 cr.; spring)	BIOL 55000 Plant Molecular Biology (3 cr.; spring)
BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)	BIOL 55900 Endocrinology (3 cr.; fall)
BIOL 43800 General Microbiology (3 cr.; fall)	BIOL 56200 Neural Systems (3 cr.; spring)
BIOL 43900 Microbiology Lab (2 cr.; fall)	BIOL 57300 Molecular Biology of Animal Cells (3 cr.; fall)
BIOL 44400 Human Genetics (3 cr.; fall)	BIOL 58000 Evolution (3 cr.; spring)
BIOL 44600 Cellular Microbiology (3 cr.; spring)	BIOL 58500 Ecology (3 cr.; fall)
BIOL 47800 Intro to Bioinformatics (3 cr.; fall)	BIOL 58705 Animal Communication (3 cr.; alternate fall)
BIOL 48100 Eukaryotic Genetics (3 cr.; spring)	BIOL 59100 Field Ecology (4 cr.; alternate fall)
BIOL 48300 Environmental & Conservation Biology (3 cr.; spring)	BIOL 59200 Evolution of Behavior (3 cr.; alternate spring)
BIOL 49300 Intro. to Ethology (3 cr.; fall)	BIOL 59500 Cellular Biology of Plants (3 cr.; fall)
BIOL 49500 Biological & Structural Aspects of Drug Design & Action (3 cr.; spring)	BIOL 59500 Developmental Biology (3 cr.; fall)
BIOL 43200 Reproductive Physiology (3 cr.; alternate fall)	BIOL 59500 Methods & Measurement in Physical Biochemistry (3 cr.; fall)
BIOL 43600 Intro. to Neurobiology (3 cr.; fall)	BIOL 59500 Protein Bioinformatics (2 cr.; spring)
BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)	BIOL 59700 Sex and Evolution (3 cr.; alternate fall)
BIOL 51600 Molecular Biology of Cancer (3 cr.; spring)	BIOL 59900 Quantitative Physiology (3 cr.; spring)
BIOL 51700 Molecular Biology: Proteins (2 cr.; spring)	BCHM 56200 General Biochemistry II (3 cr.; spring)
BIOL 52900 Bacterial Physiology (3 cr.; spring)	
BIOL 53300 Medical Microbiology (3 cr.; fall)	

¹ Three credits of research, approved by the Undergraduate Studies Committee, may replace some or all of these modules.

² If both BIOL 30100 & 30200 are completed, three of the six credits will count toward the six 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.

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)

PHYSICSOne 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 - 23 credits