

NEUROBIOLOGY AND PHYSIOLOGY

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 500 or 542
- 124 Total Credits

BIOLOGY:

1. BIOL 121 Biology I: Diversity, Ecology and Behavior (2 cr.; fall)
2. BIOL 131 Biology II: Development, Structure, and Function of Organisms (3 cr.; spring)
3. BIOL 195T First Year Biology Lab (2 cr.; both)
4. BIOL 231 Biology III: Cell Structure and Function (3 cr.; fall)
5. BIOL 232 Laboratory in Biology III: Cell Structure and Function (2 cr.; fall)
6. BIOL 241 Biology IV: Genetics and Molecular Biology (3 cr.; spring)
7. BIOL 242 Laboratory in Genetics and Molecular Biology (2 cr.; spring)
8. BIOL 286 Introduction to Ecology (2 cr.; spring)
9. One of these three options:
 - A. BIOL 395G¹ Principles of Physiology (3 cr.; fall)
 - B. BIOL 395Y Principles of Development (4 cr.; spring)
 - C. BIOL 438 General Microbiology (3 cr.; fall) **and** BIOL 439 Microbiology Lab (2 cr.; fall)
10. BIOL 395G¹ Principles of Physiology (3 cr.; fall)
11. Two of these six courses:
 - A. BIOL 455 Animal Physiology (3 cr.; spring)
 - B. BIOL 495I Reproductive Physiology (3 cr.; fall)
 - C. BIOL 495N Intro. to Neurobiology (3 cr.; fall)
 - D. BIOL 538 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
 - E. BIOL 559 Endocrinology (3 cr.; fall)
 - F. BIOL 562 Neural Systems (3 cr.; spring)
12. One of these four courses:
 - A. BCHM 561 General Biochemistry (3 cr.; both)
 - B. CHM 372 Physical Chemistry (4 cr.; spring)
 - C. CHM 373 Physical Chemistry (3 cr.; fall)
 - D. CHM 533 Introductory Biochemistry (3 cr.; fall)
13. BIOL 500A² Animal Physiology Laboratory (2 cr.; spring) **or** BIOL 542N² Laboratory in Neurophysiology (1 cr.; fall)
14. Two additional modules of BIOL 500² (2 cr.; both) **or** 542² (1 cr.; both) (various titles)
15. Six credits of the following:

BIOL 301 ³ Human Anatomy & Physiology (3 cr.; fall) BIOL 302 ³ Human Anatomy & Physiology (3 cr.; spring) BIOL 395Y Principles of Development (4 cr.; spring) BIOL 415 Intro. to Molecular Biology (3 cr.; fall) BIOL 416 Molecular Virology (3 cr.; spring) BIOL 420 Eukaryotic Cell Biology (3 cr.; fall) BIOL 438 General Microbiology (3 cr.; fall) BIOL 439 Microbiology Lab (2 cr.; fall) BIOL 444 Human Genetics (3 cr.; fall) BIOL 446 Cellular Microbiology (3 cr.; spring) BIOL 455 Animal Physiology (3 cr.; spring) BIOL 478 Intro to Bioinformatics (3 cr.; fall) BIOL 481 Eukaryotic Genetics (3 cr.; spring) BIOL 483 Environmental & Conservation Biology (3 cr.; fall) BIOL 493 Intro. to Ethology (3 cr.; fall) BIOL 495I Reproductive Physiology (3 cr.; fall) BIOL 495N Intro. to Neurobiology (3 cr.; fall) BIOL 511 Intro. to X-Ray Crystallography (3 cr.; spring) BIOL 514 Laboratory in Crystallography (2 cr.; fall) BIOL 516 Molecular Biology of Cancer (3 cr.; spring) BIOL 517 Molecular Biology: Proteins (2 cr.; spring)	BIOL 529 Bacterial Physiology (3 cr.; spring) BIOL 533 Medical Microbiology (3 cr.; fall) BIOL 537 Immunology (3 cr.; spring) BIOL 538 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring) BIOL 541 Molecular Genetics of Bacteria (3 cr.; fall) BIOL 550 Plant Molecular Biology (3 cr.; spring) BIOL 559 Endocrinology (3 cr.; fall) BIOL 562 Neural Systems (3 cr.; spring) BIOL 573 Molecular Biology of Animal Cells (3 cr.; fall) BIOL 580 Evolution (3 cr.; spring) BIOL 585 Ecology (3 cr.; fall) BIOL 591 Field Ecology (4 cr.; alternate fall) BIOL 592 Evolution of Behavior (3 cr.; alternate spring) BIOL 595A Protein Bioinformatics (2 cr.; spring) BIOL 595D Developmental Biology (3 cr.; spring) BIOL 595G Animal Communication (3 cr.; alternate fall) BIOL 595K Methods & Measurement in Physical Biochemistry (3 cr.; fall) BIOL 595Z Cellular Biology of Plants (3 cr.; fall) BIOL 597 Sex and Evolution (3 cr.; alternate fall) BCHM 562 General Biochemistry II (3 cr.; both)
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¹ BIOL 395G can be used to satisfy both #9 and #10 above.

² Three credits of research, approved by the Neurobiology and Physiology area committee, can replace these modules.

³ If **both** BIOL 301 & 302 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 301 **or** 302 is completed, the credits will count **only** as free elective credit.

CHEMISTRY

1. CHM 115 General Chemistry (4 cr.; both)
2. CHM 116 General Chemistry (4 cr.; both)

3. One of these three options:

- A. CHM 255 Organic Chemistry (3 cr.; both) and CHM 255L Organic Chemistry Lab (1 cr.; both) and CHM 256 Organic Chemistry (3 cr.; both) and CHM 256L Organic Chemistry Lab (1 cr.; both)
- B. CHM 261 Organic Chemistry (3 cr.; fall) and CHM 263 Organic Chemistry Lab (1 cr.; fall) and CHM 262 Organic Chemistry (3 cr.; spring) and CHM 264 Organic Chemistry Lab (1 cr.; spring)
- C. CHM 257 Organic Chemistry (4 cr.; both) and CHM 257L Organic Chemistry Lab (1 cr.; both) and one of:
CHM 333 Principles of Biochemistry (3 cr.; both) or BCHM 307 Biochemistry (3 cr.; both)

PHYSICSOne of these two options:

1. PHYS 220 General Physics (4 cr.; both) and PHYS 221 General Physics (4 cr.; both)
2. PHYS 172 Modern Mechanics (4 cr.; both) and PHYS 272 Electric and Magnetic Interactions (4 cr.; both)

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 - 32 credits