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 54200
- 120 Total Credits

BIOLOGY:
1. BIOL 12100  Biolog I: Diversity, Ecology and Behavior (2 cr.; fall) or
   BIOL 19500  Biodiversity, Ecology & Evolution (3 cr.; fall)
2. BIOL 13100  Biolog 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
   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  Introduction to Ecology and Evolution (2 cr.; spring)
9. Intermediate Biology Selective: Choose one of these eight options:
   (Neurobiology and Physiology majors must choose BIOL 32800, Principles of Physiology)
   A. BIOL 32800  Principles of Physiology (4 cr.; spring)
   B. BIOL 36700  Principles of Development (2 cr.; spring) plus BIOL 36701  Principles of Development Laboratory (1 cr.; spring)
   C. BIOL 39500  Macromolecules (3 cr.; fall)
   D. BIOL 55900  Endocrinology (3 cr.; fall)
   E. BIOL 41500  Intro. to Molecular Biology (3 cr.; fall)
   F. BIOL 41600  Viruses & Viral Diseases (3 cr.; spring)
   G. BIOL 42000  Eukaryotic Cell Biology (3 cr.; fall)
   H. BIOL 43800  General Microbiology (3 cr.; fall)

10. Neurobiology & Physiology Selective: Two of these seven courses:
   A. BIOL 43200  Reproductive Physiology (3 cr.; alt fall)
   B. BIOL 43600  Neurobiology (3 cr.; fall)
   C. BIOL 53800  Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
   D. BIOL 59500  Neurobiology of Learning & Memory (3 cr.; fall)
   E. BIOL 56200  Neural Systems (3 cr.; spring)
   F. BIOL 59500  Neural Mechanisms in Health & Disease (3 cr.; fall)
   G. BIOL 59500  Neurobiology of Learning & Memory (3 cr.; fall)

11. Chemistry Selective: One of these five courses:
   A. BCHM 56100  General Biochem (3 cr.; fall)
   B. CHM 37200  Physical Chemistry (4 cr.; spring)
   C. CHM 37300  Physical Chemistry (3 cr.; fall)
   D. CHM 33900  Biochemistry: A Molecular Approach (3 cr.; spring)
   E. CHM 53300  Introductory Biochemistry (3 cr.; fall)

12. Neurobiology & Physiology Lab Selective: BIOL 44202 Animal Physiology Laboratory (2 cr.; fall) or BIOL 44215
    Multidisciplinary Design of Systems & Devices for Physiology Measurements (2 cr.; fall) or BIOL 54200
    Laboratory in Neurophysiology (1 cr.; fall)

13. Biology Lab Selectives: Two additional modules of BIOL 442xx (1-2 cr.; both) (various titles) or 54200 Neurophysiology (1 cr.; fall)

14. Biology Selective: Three credits of the following in addition to the above requirements:
   BIOL 30100  Human Anatomy & Physiology (3 cr.; fall)
   BIOL 30200  Human Anatomy & Physiology (3 cr.; spring)
   BIOL 36700  Principles of Development (2 cr.; spring)
   BIOL 36701  Lab in Principles of Development (1 cr.; spring)
   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 43200  Reproductive Physiology (3 cr.; alternate fall)
   BIOL 43600  Intro. to 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  Molecular Biology of Pathogens (3 cr.; spring)
   BIOL 47800  Intro to Bioinformatics (3 cr.; fall)
   BIOL 48100  Eukaryotic Genetics (3 cr.; spring)
   BIOL 48300  Environmental & Conservation Biology (3 cr.; spring)
   BIOL 49500  Biological & Structural Aspects of Drug Design & Action (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 54900  Microbial Ecology (2 cr.; alternate spring)
   BIOL 55001  Eukaryotic Molecular Biology (3 cr.; fall)
   BIOL 55900  Endocrinology (3 cr.; fall)
   BIOL 56200  Neural Systems (3 cr.; spring)
   BIOL 58000  Evolution (3 cr.; spring)
   BIOL 58500  Ecology (3 cr.; fall)
   BIOL 58705  Animal Communication (3 cr.; alternate fall)
   BIOL 59100  Field Ecology (4 cr.; alternate fall)
   BIOL 59200  Evolution of Behavior (3 cr.; alternate spring)
   BIOL 59500  Cellular Biology of Plants (3 cr.; alternate fall)
   BIOL 59500  Ecological Statistics (3 cr.; fall)
   BIOL 59500  Epigenetics in Human Disease (3 cr.; fall)
   BIOL 59500  Genetics & -omics of Host-Microbe Interactions (3 cr.; fall)
   BIOL 59500  Methods & Measurement in Physical Biochemistry (3 cr.; fall)
   BIOL 59500  Neural Mechanisms in Health & Disease
   BIOL 59500  Neurobiology of Learning & Memory (3 cr.; fall)
   BIOL 59500  Sensory Ecology (3 cr.; alternate spring)
   BIOL 59500  Protein Bioinformatics (2 cr.; spring)
   BIOL 59500  Theory of Molecular Methods (3 cr.; fall)

Footnotes and other requirements are on the back of this page
CHEMISTRY
1. General Chemistry:
   A. CHM 12901 General Chemistry with a Biological Focus (5 cr.; fall)

2. Organic Chemistry Selectives: One of these two 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)

PHYSICS Selectives:
   One of these two options:
   1. PHYS 23300 Physics for Life Sciences I (4 cr.; both) and PHYS 23400 Physics for Life Sciences II (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)

UNIVERSITY CORE and 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 6-21 credits

1 A 500-level BIOL course must be taken as part of requirement #10 or #13.
2 Three credits of research, approved by the Undergraduate Studies Committee, may replace some or all of these modules.
3 If both BIOL 30100 & 30200 are completed, three of the six credits will satisfy the 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.
4 Students who select 12901 for General Chemistry must also select CHM 33900 and 33901 for the Chemistry Selective. Students who end up with Special Case approval for some other Gen Chem courses may choose the other Chem Selective options.