

CELL, MOLECULAR AND DEVELOPMENTAL BIOLOGY

Graduation Requirements:

- A minimum 2.0 average in all biology courses required for this major
- A minimum of 32 credits at or above the 30000-level completed at a Purdue campus
- At least one 50000-level Biology course other than BIOL 50000 or 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)
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 (2 cr.; spring)

9. One of these four options: (**Cell, Molecular, and Developmental Biology majors must take BIOL 39500, Principles of Development (4 cr.; spring)**)
 - A. BIOL 39500 Principles of Physiology (4 cr.; spring)
 - B. BIOL 39500 Macromolecules (3 cr.; fall)
 - C. **BIOL 39500 Principles of Development (4 cr.; spring)**
 - D. BIOL 43800 General Microbiology (3 cr.; fall) **and** BIOL 43900 Microbiology Lab (2 cr.; fall)

10. Two of these three courses:
 - A. BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)
 - B. BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)

11. BIOL 48100 Eukaryotic Genetics (3 cr.; spring)
 BCHM 56100 General Biochemistry I (3 cr.; both) or CHM 53300 Introductory Biochemistry (3 cr.; fall)
12. BIOL 50000¹ Introductory Module: Protein Expression plus two additional modules of BIOL 50000 (2 cr.; both) or 54200 (1 cr.; both) (various titles)
13. One of these five courses:
 - A. BIOL 51600 Molecular Biology of Cancer (3 cr.; spring)
 - B. BIOL 55000 Plant Molecular Biology (3 cr.; spring)
 - C. BIOL 57300 Molecular Biology of Animal Cells (3 cr.; fall)
 - D. BIOL 59500 Cellular Biology of Plants (3 cr.; fall)
 - E. BIOL 59500 Developmental Biology (3 cr.; spring)

15. Six credits of the following:

BIOL 39500 Macromolecules (3 cr.; fall)	BIOL 53800 Molecular, Cellular & Developmental Neurobiology (3 cr.; spring)
BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)	BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
BIOL 41600 Viruses and Viral Diseases (3 cr.; spring)	BIOL 54900 Microbial Ecology (2 cr.; alternate spring)
BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)	BIOL 55000 Plant Molecular Biology (3 cr.; spring)
BIOL 43200 Reproductive Physiology (3 cr.; fall)	BIOL 55900 Endocrinology (3 cr.; fall)
BIOL 43600 Neurobiology (3 cr.; fall)	BIOL 56200 Neural Systems (3 cr.; spring)
BIOL 43800 General Microbiology (3 cr.; fall)	BIOL 57300 Molecular Biology of Animal Cells (3 cr.; fall)
BIOL 43900 Microbiology Lab (2 cr.; fall)	BIOL 58000 Evolution (3 cr.; spring)
BIOL 44400 Human Genetics (3 cr.; fall)	BIOL 58500 Ecology (3 cr.; fall)
BIOL 44600 Cellular Microbiology (3 cr.; spring)	BIOL 59100 Field Ecology (4 cr.; alternate fall)
BIOL 47800 Intro to Bioinformatics (3 cr.; fall)	BIOL 59200 Evolution of Behavior (3 cr.; spring)
BIOL 48100 Eukaryotic Genetics (3 cr.; spring)	BIOL 59500 Protein Bioinformatics (2 cr.; spring)
BIOL 48300 Environmental & Conservation Biology (3 cr.; alternate fall)	BIOL 59500 Developmental Biology (3 cr.; spring)
BIOL 49300 Intro. to Ethology (3 cr.; fall)	BIOL 59500 Animal Communication (3 cr.; alternate fall)
BIOL 51100 Intro. to X-Ray Crystallography (3 cr.; spring)	BIOL 59500 Methods & Measurement in Physical Biochemistry (3 cr.; fall)
BIOL 51600 Molecular Biology of Cancer (3 cr.; spring)	BIOL 59500 Cellular Biology of Plants (3 cr.; fall)
BIOL 51700 Molecular Biology: Proteins (2 cr.; spring)	BIOL 59700 Sex and Evolution (3 cr.; alternate fall)
BIOL 52900 Bacterial Physiology (3 cr.; spring)	BCHM 56200 General Biochemistry II (3 cr.; both)
BIOL 53300 Medical Microbiology (3 cr.; fall)	
BIOL 53700 Immunology (3 cr.; spring)	

¹ Three credits of undergraduate research, approved by the Cell, Molecular and Development Area Committee, may be used to replace some or all of the lab modules.

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)

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 24200 Intro to Heat and Thermal Physics (1 cr.; spring) 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 - 22 credits

CMDB 6/09