

CELL, MOLECULAR AND DEVELOPMENTAL BIOLOGY

(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 Intro. to Ecology and Evolution (2 cr.; spring) or BIOL 29500, Intro. to Evolution & Ecology (2 cr.; fall)
9. Intermediate Requirement: Choose one of these four options:
(Cell, Molecular, and Developmental Biology majors must take BIOL 36600, Principles of Development (4 cr.; spring))
 - 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 three courses:
 - A. BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)
 - B. BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)
 - C. BIOL 48100 Eukaryotic Genetics (3 cr.; spring)
11. BCHM 56100 General Biochemistry I (3 cr.; fall) or CHM 53300 Introductory Biochemistry (3 cr.; fall)
12. BIOL 44201¹ Introductory Module: Protein Expression plus two additional modules of BIOL 442xx¹ (1-2 cr.; both) (various titles) OR 54200¹ (1 cr.; both) Neurophysiology (1 cr.; fall)
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)
14. Biology Electives: 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.; alternate 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 58705	Animal Communication (3 cr.; alternate fall)
BIOL 47800	Intro to Bioinformatics (3 cr.; fall)	BIOL 59100	Field Ecology (4 cr.; alternate fall)
BIOL 48100	Eukaryotic Genetics (3 cr.; spring)	BIOL 59200	Evolution of Behavior (3 cr.; spring)
BIOL 48300	Environmental & Conservation Biology (3 cr.; spring)	BIOL 59500	Cellular Biology of Plants (3 cr.; fall)
BIOL 49300	Intro. to Ethology (3 cr.; fall)	BIOL 59500	Developmental Biology (3 cr.; spring)
BIOL 49500	Biological & Structural Aspects of Drug Design & Action (3 cr.; spring)	BIOL 59500	Ecological Statistics (3 cr.; 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	Protein Bioinformatics (2 cr.; spring)
BIOL 51700	Molecular Biology: Proteins (2 cr.; spring)	BIOL 59500	Sensory Ecology (3 cr.; alternate spring)
BIOL 52900	Bacterial Physiology (3 cr.; spring)	BIOL 59700	Sex and Evolution (3 cr.; alternate fall)
BIOL 53300	Medical Microbiology (3 cr.; fall)	BCHM 56200	General Biochemistry II (3 cr.; spring)
BIOL 53700	Immunology (3 cr.; spring)		

¹ Three credits of undergraduate research, approved by the Undergraduate Studies 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 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 - 19 credits

CMDB 8/11