

# 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 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 395G Principles of Physiology (3 cr.; fall)
  - B. BIOL 395Y<sup>1</sup> Principles of Development (4 cr.; spring)
  - C. BIOL 438 General Microbiology (3 cr.; fall) **and** BIOL 439 Microbiology Lab (2 cr.; fall)
  
10. BIOL 395Y<sup>1</sup> Principles of Development (4 cr.; spring)
11. Two of these three courses:
  - A. BIOL 415 Intro. to Molecular Biology (3 cr.; fall)
  - B. BIOL 420 Eukaryotic Cell Biology (3 cr.; fall)
  - C. BIOL 481 Eukaryotic Genetics (3 cr.; spring)
  
12. BCHM 561 General Biochemistry I (3 cr.; both) **or** CHM 533 Introductory Biochemistry (3 cr.; fall)
13. BIOL 500I<sup>2</sup> Introductory Module: Protein Expression plus two additional modules of BIOL 500 (2 cr.; both) or 542 (1 cr.; both) (various titles)
14. One of these five courses:
  - A. BIOL 516 Molecular Biology of Cancer (3 cr.; spring)
  - B. BIOL 550 Plant Molecular Biology (3 cr.; spring)
  - C. BIOL 573 Molecular Biology of Animal Cells (3 cr.; fall)
  - D. BIOL 595D Developmental Biology (3 cr.; spring)
  - E. BIOL 595Z Cellular Biology of Plants (3 cr.; fall)
  
15. Six credits of the following:

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.; 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)
---	---

<sup>1</sup> BIOL 395Y can be used to satisfy both #9 and #10 above.

<sup>2</sup> Three credits of undergraduate research, approved by the Cell, Molecular and Development Area Committee, can be used to replace the lab modules.

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)

**PHYSICS**

One 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 - 26 credits