

# GENETICS

(for students entering Biology in Fall 2012 or later – revised July 2013)

## 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 Biology I: Diversity, Ecology and Behavior (2 cr.; fall) **or**  
BIOL 19500 Biodiversity, Ecology & Evolution (3 cr.; fall)
2. BIOL 13100 Biology II: Development, Structure, and Function of Organisms (3 cr.; spring) **or**  
BIOL 19500 Organismal Development & Physiology (3 cr.; spring)
3. BIOL 13500 1<sup>st</sup> Year Biology Lab (2 cr.; both) **or**  
BIOL 14501 1<sup>st</sup> Year Biology Lab w/Neuro Research Project (2 cr.; fall) **or**  
BIOL 14502 1<sup>st</sup> Year Biology Lab w/Micro Research Project (2 cr.; spring) **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 Intro. to Ecology and Evolution (2 cr.; spring)
9. Intermediate Requirement: Choose one of these eight options:  
**(Genetics majors may not use BIOL 43800, General Microbiology, to satisfy this requirement)**
  - a. BIOL 32800 Principles of Physiology (4 cr.; spring)
  - b. BIOL 36600 Principles of Development (3 cr.; spring)
  - c. BIOL 39500 Macromolecules (3 cr.; fall)
  - d. BIOL 41500 Intro. to Molecular Biology (3 cr.; fall)
  - e. BIOL 41600 Viruses & Viral Diseases (3 cr.; spring)
  - f. BIOL 42000 Eukaryotic Cell Biology (3 cr.; fall)
  - g. BIOL 43600 Neurobiology
  - h. BIOL 43800 General Microbiology (3 cr.; fall)
10. BIOL 44100 Senior Seminar in Genetics (1 cr.; spring)
11. BIOL 48100 Eukaryotic Genetics (3 cr.; spring)
12. One of these three courses:
  - a. CHM 49000 Biochemistry for Life Sciences (3 cr.; fall) **or**
  - b. BCHM 56100 General Biochemistry I (3 cr.; fall) **or**
  - c. CHM 53300 Introductory Biochemistry (3 cr.; fall)
13. BIOL 44201<sup>1</sup> Introductory Module: Protein Expression plus two additional modules of BIOL 442xx<sup>1</sup> (1-2 cr.; both) (various titles) or 54200<sup>1</sup> Neurophysiology (1 cr.; fall)
16. Biology Electives: Six credits of the following.<sup>2</sup>

BIOL 43800	General Microbiology (3 cr.; fall)	BIOL 58000	Evolution (3 cr.; fall)
BIOL 44400	Human Genetics (3 cr.; fall)	AGRY 53000	Plant Genetics (3 cr.; fall)
BIOL 47800	Intro to Bioinformatics (3 cr.; fall)	ANSC 51100	Population Genetics (3 cr.; fall)
BIOL 51600	Molecular Biology of Cancer (3 cr.; spring)	BCHM 56200	General Biochemistry II (3 cr.; spring)
BIOL 54100	Molecular Genetics of Bacteria (3 cr.; fall)		

<sup>1</sup>Three credits of research, approved by the Undergraduate Studies Committee, may replace some or all of these modules.

<sup>2</sup>Students generally must choose one 500 level BIOL course from this list.

## CHEMISTRY

1. CHM 11500 General Chemistry (4 cr.; both)
2. CHM 11600 General Chemistry (4 cr.; both)
3. One of these three options:
  1. 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)
  2. 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)
  3. 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)

Other requirements are on the back of this page.

## **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 - 18 credits