MICROBIOLOGY

(for students entering Biology in Fall 2012 or later – modified 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 1st Year Biology Lab (2 cr.; both) **or**
   BIOL 14501 1st Year Biology Lab w/Neuro Research Project (2 cr.; fall) **or**
   BIOL 14502 1st 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 & Evolution (2 cr.; spring)

9. Intermediate Requirement: Choose one of these eight options:
   (Microbiology majors must choose option H, BIOL 43800)
   - 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 (3 cr.; fall)
   - **H. BIOL 43800 General Microbiology (3 cr.; fall)**

10. BIOL 41600 Viruses and Viral Diseases (3 cr.; spring)
11. BIOL 43900 Microbiology Lab (2 cr.; fall)
12. BIOL 52900 Bacterial Physiology (3 cr.; spring)
13. BIOL 54100 Molecular Genetics of Bacteria (3 cr.; fall)
14. CHM 49000 Biochemistry for Life Sciences (3 cr.; fall) **or** BCHM 56100 General Biochemistry (3 cr.; fall)

15. Biology Elective: Three credits of the following:
    - BIOL 44600 Molecular Biology of Pathogens (3 cr.; spring)
    - BIOL 47800 Intro to Bioinformatics (3 cr.; fall)
    - BIOL 44201 Introductory Module: Protein Expression plus two additional modules of BIOL 442xx (1-2 cr.; both) or 54200 (1 cr.; fall)
    - BIOL 53300 Medical Microbiology (3 cr.; fall)
    - BIOL 54900 Microbial Ecology (2 cr.; alternate spring) plus one credit of BIOL 442xx (1-2 cr.; both) or 54200 (1 cr.; fall)
    - BCHM 56200 General Biochemistry II (3 cr.; spring)

(requirements for the Microbiology major continue on the back of this page.)

MICROBIOLOGY HONORS CURRICULUM

A 3.0 or higher graduation index is required to graduate in the Microbiology Honors Curriculum

In addition to the requirements listed for the Microbiology program, the following three choices must be completed:

1. 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)
2. CS 15800 C Programming (3 cr.; both) **or** CS 17700 Programming with Multimedia Objects (4 cr.; both)
3. MA 26100 Multivariate Calculus (4 cr.; both)

and at least three of the following five choices must be completed:

1. PHYS 17200 Modern Mechanics (4 cr.; both) and PHYS 27200 Electric and Magnetic Interactions (4 cr.; both)
2. CHM 32100 Analytical Chemistry (4 cr.; fall)
3. One of these two options:
   - A. CHM 37200 Physical Chemistry (4 cr.; spring)
   - B. CHM 37300 Physical Chemistry (3 cr.; fall) and CHM 37400 Physical Chemistry (4 cr.; spring)
4. STAT 50300 Statistical Methods for Biology (3 cr.; both)
5. MA 26200 Linear Algebra and Differential Equations (4 cr.; both)

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 0-20 credits

MICR, MICH 8/13