Biology 180 – General Biology: Molecules, Cells, and Genetics

4 Credits, CRN # 10014
Fall 2012

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Office Hours: Mon 1-2 PM, Tues 2-3 PM, Wed 12-1 PM, Thurs 1:30-2:30 PM

Class Schedule:

Lecture	Room 2726	10:15 AM – 11:40 AM	Tuesday/Thursday
Laboratory	Room 2711	8:35 AM – 11:45 AM	Wednesday

Required Materials:

Textbook: Volume 1 Biology (Custom Edition), Campbell, et al.
Lab Manuals: General Biology: Molecules, Cells, and Genetics – Symbiosis Lab Manual
BioRad Lab Manual

Course Description:

This is one of two entry-level courses designed for life science majors, health care, and science educators intending to transfer to four-year institutions. However, the course is open to all students. This course will introduce students to molecules of cells, cell structures and functions, cell division, cellular respiration, photosynthesis, molecular biology, and genetics.

Course Objectives:

1. The student will understand the basic concepts of biology and explain and use the scientific method.
2. The student will describe the structure of atoms, and understand why chemical bonds form.
3. The student will explain the important properties of water molecules and carbon atoms for life.
4. The student will describe the different macromolecules in living organisms, and give examples of each type.
5. The student will understand the functions of cell organelles.
6. The student will explain the functions of the cell membrane.
7. The student will describe metabolism, and understand how enzymes assist in chemical reactions.
8. The student will explain the processes of cellular respiration and photosynthesis.
9. The student will understand the processes of cell communication.
10. The student will describe the processes of mitosis and meiosis, and how they are regulated.
11. The student will explain Mendelian inheritance, give examples of inheritance patterns, and work problems dealing with basic Mendelian genetics.
12. The student will describe chromosome structure and function, including DNA replication and repair, and give examples of genetic diseases at the chromosomal level.
13. The student will understand the processes of transcription and translation, and how DNA mutations cause changes in protein sequences.
14. The student will discuss modern DNA technologies, and their importance in life.

Institutional Learning Outcomes (ILOs): (1) Communication Skills, (2) Critical Thinking Skills, (3) Personal Responsibility, (4) Information Literacy, (5) Global Awareness

BIOL 180 SLOs:

Upon completion of this course students will be able to:

1. Write lab reports that demonstrate an understanding of the lab and the ability to draw conclusions based on data. (1, 2)
2. Discuss primary research literature and understand how science is performed and described. (4)
3. Demonstrate the ability to think like a scientist by coming up with a valid experimental design. (2)
4. Demonstrate critical-thinking skills on exam essay questions. (2)

Class Policies:

1. Class attendance and tardy policy follows the regulations in the IVC catalog.
2. Attendance will be taken at the start of each lecture and lab.
3. Students may be asked to drop the class if absent or tardy from more than 3 lectures and/or labs. **NOTE:** Family issues, travel issues, work-related problems, alarm clock failure, UFO sightings, etc., are not valid reasons for being late or absent to class! Only real emergencies will be considered to be excused absences. Excused absences must be documented.
4. The deadline for dropping a course without appearing on transcript is **Monday, September 3**.
5. The deadline for dropping a full-term class is **Saturday, November 10**.
6. No food or drinks in the lab. Only bottled water allowed in the classroom.
7. **Cell phones must be turned off at all times!** Ringing cell phones are a distraction both to me and to other students in the class. If you must use your cell phone during class, please take it outside, and then come back in when you are done. You should not be checking your phone, or texting, during lectures. If you are caught checking your phone, or texting, during class, you may be asked to leave for the day and will be marked absent.
8. **No talking during class!** Talking is a distraction to me and other students in the class. If you have

5. There will be **10** lab worksheets worth **10 points** each (**100 points** total). Lab worksheets are due at the end of the lab. Lab worksheets cannot be made up, except for extreme circumstances.
6. There will be **6** lab reports worth **30 points** each (**180 points** total). Lab reports are due at the start of lab one week after the completion of the lab. Lab reports will be due for the following labs – Diffusion & Osmosis, Enzymes, Cell Respiration, DNA Fingerprinting, pGLO, and PV92.
7. There will be extra credit available during the review sessions and exams.

Grading scale:

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Tentative Class Schedule (Tues/Thurs 10:15 AM – 11:40 AM lecture, Wed 8:35 AM –11:45 AM lab)

Week	Lecture (Tuesdays)	Lab (Wednesdays)	Lecture (Thursdays)
Aug 21-23	Introduction to the class	Introduction to the lab / Ch. 1 – Themes in the Study of Life	Ch. 1 – Themes in the Study of Life
Aug 28-30	Ch. 2 – Chemical Context of Life	Ch. 2 – Chemical Context of Life / Ch. 3 – Water	Ch. 4 – Carbon