Elizabethtown College Department of Biology

Biology 212 Cell Biology
Spring Semester 2012

Instructor:	**Dr. Jane F. Cavender**	**Class/Laboratory Materials:**
Office: Laboratory	Lyet 242 Lyet 252	Alberts, et al., Essential Cell Biology 3th edition
Office Telephone:	(717) 361-1448	
Office Hours:	MWF 10:30-11	TW 1:30-3; Thurs. by appt

This Professor's Philosophy:

It has been well documented that the attention span of an average college student is approximately 2-3 minutes during a standard class lecture. In an attempt to combat, or compete with, the deluge of thoughts running rampant in the heads of my students, I have adopted a variety of active learning strategies. These activities are used in combination with material presented via the "basic" lecture format. I strongly believe that everyone has a unique mode of learning (hearing, writing, processing and recalling) facts and concepts. Thus, during the semester you will be exposed to a number of different techniques, hopefully some of which will "fit your style".

It is my desire that students completing this course have a firm understanding of the mechanisms of cellular biology and genetic disease. Your understanding the concepts will be tested by the examinations and your ability to tie concepts together. There is a large amount of material that must be covered during the semester. Much of the material will be presented in this class; however, a substantial amount will be left for you to master on your own and in your groups.

Although the lecture section is large, supplementary education strategies have been created so that your learning potential can be maximized. Small group activities and discussions will be incorporated for select topics. All lectures, labs and discussions are mandatory. I firmly believe that you must participate to learn. To maximize the learning potential of the class, each student will be assigned to a study/discussion/exam group. These groups will be determined during the first week of class. Each student is accountable to his or her group. Various strategies will be used to ensure that everyone in the group participates without any one member monopolizing the discussion or activity.

Group Assignments/Exams:

The groups to which you are assigned will last the entire semester. Your group members are your discussion mates, and exam team; and they may or may not be your lab partners (if you have the lab). Each exam section is worth 10% for each individual exam and 3% for the group test. The individual exam will take place in class the day that is indicated on the syllabus. The group exam is a take home test that will be done together by all of the group members. The group test is designed to build your analytical and critical thinking skills. You will be graded primarily on the thought processes used to obtain your answers, and not solely on getting the "right" answer. For the group tests you may use your notes and the text book, but you *MAY NOT* use the internet. I must stress

that it is *YOUR* thoughts that I want, not someone outside of my class. The final exam will have no group test component.

Summary of Grading:

1. 4 class exams (@11%)	44%
2. Final examination (20%)	20%
3. 4 Group exams (@4%)	16%
4. Peer evaluation	5%
5. Homework/Quiz/DOD	15%

Homeworks:

You will have 10 homework assignments that are designed to have you integrate the information in Chapters of the textbook into conceptual areas of learning. We will have a practice session with Chapter 1 (free of grading) for instructional purposes. In short you will use the key terms at the end of the chapter and create a concept map with the terms Grading the concept map, you will be given a check+, check, or check- grade. A check+ would be all the terms are connected logically, and/or specific reasons why you have omitted some terms are into "outlier boxes. A check is indicating that all the terms are present, but not sufficient information to help explain mechanisms or connections (i.e., effort was made, but not great). A check- would be lacking terms in bubbles and/or no processes/actions.

Disease of the Day (DOD)

Each student will be responsible (at least once) for opening the class with an interesting disease they you have "discovered" that relates to the material me are covering. You will have 5 minutes to state the disease name (spell it out on the board), describe how it is inherited and what faulty protein/mechanism is responsible for the described phenotype. These should be fun and informative. Once again you will be graded on a check+, check, or check–. The average amount (as stated above) is a C (for check), more is always better just do not exceed your time limit.

Statement on Disability:

"If you have a documented disability and need reasonable accommodations to fully participate in course activities or meet course requirements, you must
(1) contact the Coordinator of Learning Services and Disability Services, Lynn Davies, in the Center of Student Success, BSC 288, (717) 361-1549, daviesl@etown.edu, AND
(2) meet with me, the instructor, within two weeks of receiving a copy of the accommodation letter from Disability Services to discuss your accommodation needs and their implementation."

Integrity:

Lastly, I firmly believe in the Academic Pledge of Integrity that you all took upon entering Elizabethtown College. I trust all of my students and I also promise to "be honest and uphold integrity" in the classroom. If for any reason you feel the need to talk to me about honestly in the classroom or laboratory, my door is always open.

Student Learning Outcomes:

All Biology/Science Majors with a concentration in Biological Sciences will be able to:

1. Recall, integrate, and apply information from multiple biological fields, including genetics, molecular biology, cell biology, physiology, organismal diversity, evolutionary biology, ecology, mathematics, chemistry and/or physics.
2. Effectively research, synthesize and communicate scientific information.
3. Critically analyze and formulate logical conclusions from data.

All Biotechnology Majors will be able to:

1. Recall, synthesize, and apply material from multiple disciplines including biology, mathematics, chemistry and/or physics.
2. Demonstrate detailed knowledge of cellular processes.
3. Effectively research, synthesize and communicate scientific information.
4. Design and carry out experiments to address biological questions.
5. Critically analyze and formulate logical conclusions from data.
6. Effectively demonstrate appropriate cellular and molecular biology techniques when addressing scientific questions, doing so in accordance with accepted safety standards.
7. Develop and complete an independent research project.
8. Work effectively with others in a laboratory setting.

Tentative Lecture Syllabus

Week	Topic	Chapter	DOD #
1/17	Review Cells, Macromolecules, General Protein Structure and Function	**Ch 1, 2, 4**	**Dr C**
1/23	Membrane Structure and Function Group Data Analysis Activity (snake venom) Membrane Transport	**Ch 4, 11**	**1** **2** **3**
1/30	Membrane Proteins, Transport (continued) Membrane potential and diffusion Group Data Analysis Activity	**Ch 12**	**4** **5**
2/6	**Exam I (Ch 2,4,11,12)** Intracellular Compartments Transport- Signal & non-endomembrane **Speaker: Hypercholesterolemia and** Group Data Analysis Activity	**Ch 15**	**6** **7**
2/13	Transport – Vesicle/Endomembrane Human Diseases – LPS	**Ch. 15**	**8** **9**
2/20	**Speaker: Hunter's Syndrome** Group Data Analysis Activity Cytoskeleton/Dynamic Instability	**Ch.17**	**10**

2/27	**Or here: Speaker: Hunter's Syndrome** **Exam II (Ch 15,17)** Cell Signaling General principles of signals and receptors G-protein linked receptors & Enzyme linked receptors	**Ch.16**	**11**
2/28	Intracellular receptors Group Data Analysis Activity Signaling Activity	**Ch.16**	**12** **13** **14**
3/5	**Spring Break**		
3/12	"Other" receptors Extracellular Matrix and Cell Junctions and Signaling **Exam III (Ch 16,20)**	**Ch.20**	**15**
3/19	Cell Cycle Group Data Analysis Activity Cell Cycle Control Systems	**Ch 18**	**16** **17** **18**
3/26	Signaling and the Cell Cycle **Speaker: Cancer, Lymphoma**	**Ch.18**	**19**
4/2	Apoptosis Death By Design	**Ch.18+**	**20** **21**
4/9	**No Monday Class** Group Data Analysis Activity **Speaker: Breast Cancer**	**Ch. 20**	
4/16	Tissues and Cancer Group Data Analysis Activity	**Ch. 20**	**22** **23**
4/23	Differentiation Group Data Analysis Activity	**Ch. 20**	**24** **25**
4/30	**Exam IV (Ch 18,20+)** Catch-up Review for Final		
5/7	**Final Exam**		

The Disease of the Day number posted on the far right column indicates the day you are to present your 5 min fun facts. These time slots may vary by 1-2 lecture periods depending upon the guest speakers and the exam schedule. Just be prepared to present your disease on the original posting here since none will be earlier.