Biology 203 – Fall 2009

Principles of Cell and Molecular Biology

General Information on Course Requirements and Grading

Introduction:

Biology 203, "Principles of Cell and Molecular Biology," is a course for biology majors. Note: this course is not a GE course; it is a required course for all biology majors.

In 203, we introduce principles that apply to all living organisms. The underlying theme is the unity of life while Biology 204 covers the diversity of life. Some of the biological disciplines that are touched on include biochemistry, cell biology, classical genetics, and molecular biology. Consequently, Biology 203 provides a foundation for much of your upper division coursework in biology, particularly Genetics and Evolution (Biol. 352) and Biochemistry, Cell, and Molecular Biology I, II, and III (Chemistry 365, Biology 366, and Biology 567).

Prerequisites:

Although Biology 203 is introductory in nature, we have a lot of ground to cover. Therefore, as a minimum background you should have **all of the following**:

1. A **college-level chemistry course** such as **Chem. 200** is required as a prerequisite. **You should not take Biology 203 course without Chem. 200 or its equivalent. You face possible course failure for lacking prerequisites.**
2. A **working knowledge of algebra** (graphing, interpreting graphs, simple equations, logs, exponents, etc.).

Crashing/Switching Lab Sections:

If you are planning to crash Bio203, please come to the first lecture for instructions and so that we can survey how many crashers we have. Go to the lab you would LIKE to crash and fill out the requested information making sure to have several lab sections as choices. Although we will try to accommodate students, due to the severe budget cuts we may not be able to find space for all those that would like to take Bio203.

If you have further questions you should contact the biology advising office (http://www.sci.sdsu.edu/bioadvise/index.html) for counseling.

Biology 203 Course Information:

All information for this course will be posted on Blackboard. The Biology 203 Blackboard site contains course information including the lecture schedule, lecture notes if they are available, and a bulletin board for course announcements. Students can obtain a free E-Mail account if they do not already have one; check in the Student Computing Center in the Love Library.

Course Organization:

Biology 203 is a team-taught course as are many courses for Biology majors. There are two lecturers who cover topics in their particular fields of expertise. The course is divided into 4 unequal segments:

Cell Structure and Function
Energy Metabolism

Classical Genetics
Molecular Biology

Instructor

Dr. Robert Zeller
Office: North Life Sciences 314
Phone: (619) 594-6458
email: rzeller(at)sunstroke.sdsu.edu
Office Hours: Tues/Thurs 9:30-10:30 AM
Or by appointment

If you must contact the instructor, make sure to put "Biol 203" at the beginning of the subject line in order to properly pass email spam filters. As a policy I do not return phone calls. If you happen to catch me by phone when I am in the office I will be glad to speak with you. The best way to contact me is by email.

Textbook Required/Lectures:

Campbell and Reece, *Biology* 8th Edition; Pearson/Benjamin Cummings, 2008

Publisher Website : www.campbellbiology.com

Assigned reading from the text accompanies each lecture and is indicated on the lecture outline. You are responsible for all text material assigned with emphasis on material that relates directly to the lectures. You need not bring the text to lecture. There is a Lecture Notebook and/or CD that may be packaged with the textbook; this contains figures from

the text and space for lecture notes. Some of you may have acquired the 7th edition of Campbell. The information in the two editions is essentially the same, but the course will rely on the information contained within the 8th edition of the textbook.

Lectures are intended to explain important concepts that are discussed in the text. Lectures will not be able to discuss in detail all of the material in a chapter. Therefore, you should read the chapters to supplement the lecture presentations.

Come prepared to lectures! You should have read the required material before lecture so that you can ask questions that may clarify any material that you do not understand. If you come to lecture without preparation, you will put yourself at a disadvantage for learning the material. The Blackboard site has links to helpful guides for preparing and studying for an introductory biology course.

Learning Objectives:

In this course you will learn the fundamentals of Cell and Molecular Biology - principles that apply to all living organisms.

By the end of the course, students will be able to:

- Describe the importance of water to biological systems
- Understand the basic principles of organic (carbon-based) chemistry as it relates to life
- Describe and understand the structure and function of large biological molecules
- Describe and understand the basic structures and properties of cells
- Understand and explain membrane structure and function
- Describe and understand the principles and processes of cellular metabolism and respiration
- Understand the process of photosynthesis
- Compare and contrast the similarities and differences between mitosis and meiosis
- Describe the principles of Mendelian genetics
- Describe and understand the principles and major features of the chromosomal and molecular basis of inheritance
- Understand the flow of genetic information from DNA to RNA to Protein and will be able to describe those processes at the molecular level
- Understand and describe the basic properties of gene regulation and cell communication

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Grading:

Your final grade will be calculated in the following way:

We use a point system and your grade will be based on a percentage basis. The point values of the lecture exams are shown on the lecture outline. Consult the lecture schedule for exam dates. The **Final Exam** is comprehensive, and segment coverage for this exam breaks down as follows:

Exam I material	**100 points**
Exam II material	**100points**
Exam III material	**100 points**
Final exam	**100 points from last section of course; 100 points comprehensive (Scantron)**

- During the lectures, there may be opportunities to earn extra credit – these opportunities will be explained in lecture. Attendance during lectures may be necessary to earn extra credit points.
- A series of self-study quizzes for each chapter will be provided on Blackboard. You should take advantage of these quizzes as they will help you to understand the material in this course.

Grades are earned on a straight percentage basis as shown below:

Scale:	**B+:** 88-89.9%	**C+:** 78-79.9%	**D+:** 68-69.9%	**F:** <59.9%
A: 93-100%	**B:** 83-87.9%	**C:** 73-77.9%	**D:** 63-67.9%	
A-: 90-92.9%	**B-:** 80-82.9%	**C-:** 70-72.9%	**D-:** 60-62.9%	

The lecture exams will be objective (mostly multiple choice) with possibly some short-answer essays (a sentence or two up to a couple of paragraphs). These exams will assess your knowledge of both lecture and reading assignments. **Questions will be drawn from both the lecture and reading assignments**. If you have a **legitimate excuse**, be sure to notify the appropriate lecturer **by the day after the exam** and be prepared to provide **written confirmation** (letter from your doctor etc.). Job-related excuses are not acceptable; you are responsible for arranging your work schedule around your classes.

Plagiarism/Cheating:

Any Blackboard bonus quizzes assigned during lecture must be your own work. Instances of cheating, including plagiarism, will result in the student being reported to the judicial office. Students caught cheating on an exam will receive a grade of "0" for that exam.

State Budget Cuts Cause Faculty Furloughs:

The devastating California state budget cuts prohibit faculty and staff at SDSU from working on at least two days per month during the 2009/10 academic year (18 days total).

The faculty furlough prohibits faculty members from teaching, being on campus, doing research, and consulting with students on two days per month. Faculty furlough days vary from faculty to faculty. My furlough days are the following: Sept. 7 and 21, Oct. 8 and 20, Nov. 16 and 24, Dec. 3, 11, 14. On those days, classes and office hours are cancelled and telephone and e-mail messages **will not** be answered.

The staff furlough causes most University, College, and Department Offices to close on the following days: Sept 11, 18; Oct 2, 16; Nov 13, 25; Dec 21, 22, 23, 24. Be sure to check with the appropriate office (dept. or college) to find out specific furlough days.

To avoid faculty and staff furloughs at SDSU in the future, you may want to contact your legislators in Sacramento so that they better understand how cutting the state budget for higher education affects your education and your future.

Final Note:

Biology 203 covers a lot of material. In order to pass the course, you should **keep up with the material on a daily basis. Attend lectures**, take detailed notes of your reading and the lecture (this involves more than copying down what the lecturer writes on the board!) either annotate or recopy your notes while the lecture is still fresh in your mind, and use the text to fill in gaps and correct ambiguities. Try to answer questions at the end of the text chapters or use the "Interactive Study" guide on CD ROM which comes with your text. Take advantage of the online resources provided by the textbook publisher. These are all proven mechanisms for obtaining command of the subject matter, but it requires time.

Each lecturer has specific office hours and a desire to help students understand the material. If you need assistance for any reason (for example to clarify a confusing concept or explain what the instructor expects, etc.) **take advantage of office hours.** If the posted times do not fit your schedule, arrange with the instructor a time of mutual convenience, but don't expect your instructor to drop whatever she/he is doing at the moment you drop by to help you. You can also contact your instructors by email, and this will often prove an efficient and quick way to obtain answers to simple questions.

Finally, be sure you understand the material as we go. Memorizing facts without understanding the conceptual framework is like trying to memorize 100 telephone numbers. Use the text and/or the instructor's office hours to sort out difficulties in understanding the material when these problems arise, not the day before the exam! Most students find that **the exams are hard!** They will test your understanding of concepts as well as the facts that support them. We will ask you to use your knowledge, not just spit it back. One method many students find successful is to study in small groups, but also leave time to study on your own. You should plan on devoting 10-12 hours per week study time (outside of class time).

Biology 203 Fall 2009 Lecture Schedule

Class Meeting	Day	Month	Date	Topic	Reading
1	Tues	Sept.	1	**Introduction: Review of Chemistry**	Ch. 2-4
2	Thurs.	Sept.	3	**Review of Chemistry (con't)**	Ch. 2-4
3	Tues	Sept.	8	**Carbohydrates and Lipids**	Ch. 5
4	Thurs.	Sept.	10	**Amino Acids and Proteins**	Ch. 5
5	Tues	Sept.	15	**Cell Structure**	Ch. 6
6	Thurs.	Sept.	17	**Membrane Structure and Transport**	Ch. 7
7	Tues	Sept.	22	**EXAM I**	
8	Thurs.	Sept.	24	**Energy, Enzymes and Metabolism**	Ch. 8
9	Tues	Sept.	29	**Respiration: Glycolosis and Krebs Cycle**	Ch. 9
10	Thurs.	Oct.	1	**Cell Respiration Mitochondrial Transport**	Ch. 9
11	Tues	Oct.	6	**Photosynthesis: Light and Dark Reactions**	Ch. 10
12	Thurs.	Oct.	8	**Furlough Day - Self Study**	Ch. 12, Ch. 13
13	Tues	Oct.	13	**Mitosis/Meiosis**	Ch. 12, Ch. 13
14	Thurs.	Oct.	15	**EXAM II**	
15	Tues	Oct.	20	**Furlough Day - Self Study**	Ch. 14
16	Thurs.	Oct.	22	**Genetics: Mendel and Beyond**	Ch. 14
17	Tues	Oct.	27	**Chromosomal Inheritance**	Ch. 15
18	Thurs.	Oct.	29	**DNA and it's Role in Heredity**	Ch. 16
19	Tues	Nov.	3	**From DNA to Protein I**	Ch. 17
20	Thurs.	Nov.	5	**From DNA to Protein II**	Ch. 17
21	Tues	Nov.	10	**EXAM III**	
22	Thurs.	Nov.	12	**Prokaryotic/Eukaryotic Gene Expression**	Ch. 18
23	Tues	Nov.	17	**Prokaryotic/Eukaryotic Gene Expression**	Ch. 18
24	Thurs.	Nov.	19	**Genomes and Their Evolution**	Ch. 21
25	Tues	Nov.	24	**Furlough Day - Self Study**	Ch. 21,11
26	Tues	Dec.	1	**Cell Signaling**	Ch. 11
27	Thurs.	Dec.	3	**Furlough Day - Self Study**	Ch. 20
28	Tues	Dec.	8	**Recombinant DNA Technology**	Ch. 20
	Thurs.	Dec.	10	**Recombinant DNA Technology/Review**	Ch. 20
	Tues	Dec.	15	**Final Exam 8:00-10:00**	