Biology 121, Fall 2014
MWF 10:00-10:50 Wall 210

Instructor: Chris Hill Office:Science 127; chill@coastal.edu; 349-2567
Class Webpage: http://ww2.coastal.edu/chill/bio121

Office hours: I will be available before and after class each day. Drop by any time other time as well; my door is usually open. If you can't catch me in person, leave a note, drop me an e-mail or call and we'll find a time we can meet.

Text: Campbell, N.A and J. B. Reece (2014) *Biology, 10th ed*. Mastering Biology code not required.

The nature of this course, and course goals: Biology 121 is the first part of a two semester introductory series, designed for science majors. We'll cover cells, genetics, biochemistry, and a bit about how science works.

Student Learning Outcomes:
Upon completion of the course you should be able to demonstrate an understanding of basic concepts and processes in biology, including:

- *The process of science*: You should be able to…
- ✓ … describe science as a way of knowing, and how science differs from other ways of knowing.
- ✓ … outline the scientific method, including providing definitions and examples of hypotheses, experimental tests, and controls
- *The chemistry of life*: You should be able to…
- ✓ …define and give examples of elements, compounds, and subatomic particles.
- ✓ …describe and differentiate different types of chemical bonds.
- ✓ …describe the importance of carbon and of water to life on earth.
- ✓ …when given a simple molecular formula, suggest a structure for the molecule.
- ✓ …describe what makes a molecule polar, how polar compounds behave, and how polar molecules influence living things.
- ✓ …recognize the chemical structure & describe the function of biological macromolecules.
- *The cell*: You should be able to….
- ✓ …describe basic cell structure and function.
- ✓ …sketch the structure of cellular membranes, and list functions for them.
- ✓ …describe in detail the processes of cellular respiration and photosynthesis.
- ✓ …sketch a typical cell cycle and common variations.
- *Genetics*: You should be able to….
- ✓ …relate the inheritance of observable characteristics to what is happening in the chromosomes and DNA.
- ✓ …describe the molecular processes of inheritance
- ✓ …describe the chain of events that leads from information stored in the nucleus via transcription and translation to effects on the phenotype.

Exams, makeup exams, and the comprehensive final: There will be four hour exams, worth 100 points each, and a semicomprehensive final, also worth 100 points. You get to drop your lowest hour exam grade, but you do not get to drop the final.

Quizzes: We will have frequent quizzes in class. Quizzes days will not be announced in advance. Just expect them every day. Quiz scores all together will count as much as one exam (100 pts.). Quiz questions will be drawn from the same pool as test questions. These quizzes serve two purposes – they encourage you to keep abreast of the material, and they give you a preview of the type of questions you will see on tests. There are no makeups on quizzes. If I hand out a quiz at the start of class, and you are late, you do not get to take the quiz. Occasionally I will give a homework problem or worksheet instead of a quiz.

Attendance Policy: Test material will be drawn from both lectures and readings, but *mostly from lectures*. Consistent attendance is important to your doing well in the course, and you should strive to miss **no** classes during the term. If you are absent on the day of an quiz, or when a worksheet is due, you get no credit for it (see above under quizzes). If you are going to be absent on the day of an exam for a documented, university-recognized reason (see the course catalog), let me know promptly, in advance if possible, and I will arrange a makeup. Absences from exams for other than university-recognized reasons, or without documentation, will result in a zero for that exam.

Academic integrity: I think the shortest statement is the clearest: no cheating. And don't pretend that you don't know that copying someone else's work is cheating. Allowing others to copy/cheat off you counts the same as cheating yourself.

Grading Scale:

Percentage	Grade
>90%	A
87-90%	B+
80-87%	B
77-80%	C+
70-77%	C
67-70%	D+
60-67%	D
59% or below	F

Note that biology majors need to earn a C or better to get credit for bio 121.

SEQUENCE OF TOPICS	CHAPTER IN TEXT
Introduction to the course. Scientific method. Evolution.	1
Life = Chemistry! Yup, chemistry.	2
Water	3
Carbon Chemistry in biological molecules	4
Biological Macromolecules, in part	5
Wednesday September 10: EXAM 1	
Biological Macromolecules, continued	5
All living things are constructed of cells. What's in a cell?	6
Membranes organize and control cell functions.	7
Life is Energy, and Enzymes make everything work	8
Wednesday October 1: EXAM 2	
Generating and managing energy in cells – cellular respiration; the Krebs cycle	9
We all run on solar energy, and we owe it all to plants	10
Cell growth and division	12
Sexual reproduction at the cellular level	13
Monday, 27 October: EXAM 3	
Living things pass information to their offspring. Peas.	14
More Mendelian Genetics, and Beyond Mendel	14
How chromosomes are inherited (and what does that have to do with genes?)	15
The universal language of living things: DNA contains the message	16
Passing it on – how DNA is copied	16
From Gene to Protein	17
Friday November 21: EXAM 4	
Basics of DNA technology : Cloning your own. Or TBA*	20
Wednesday December 10 (11 am): Cumulative FINAL EXAM	

Important note: The order of topics will be as above, but exactly which topics are covered for each exam may vary from the schedule. For each hour exam, you will be responsible for all material covered in class since the last hour exam.