

BIO. 323 002C INTRODUCTORY MOLECULAR AND CELL BIOLOGY**LECTURER: Dr. Bea Holton****Spring 2014 – 3 credits – 3, 1hr lectures per week****OFFICE:** HS42**PHONE:** (920) 424-7087**E-MAIL:** holton@uwosh.edu.**OFFICE HOURS:** W 2-3:30pm; Th 2-3:30pm, or by appointment.**LECTURE HOURS:** 10:20-11:20am MWF in Halsey Science 175.

Instructor is SAFE – trained.

TEXT: Alberts, Bray, Hopkin, Johnson, Lewis, Raff, Roberts, Walter (2010) **Essential Cell****Biology**, 4th edition, Garland Science, Taylor and Francis Group, New York & London.

LEARNING OUTCOMES: 1) Students should learn concepts that are the foundation for understanding cell biology, physiology, medicine, evolutionary biology and aspects of ecology; 2) Students will improve their ability to write clearly, logically and appropriately for a science-oriented audience; 3) students will improve their critical thinking skills by analyzing figures, graphs and tables and applying the academic principles learned to the interpretation of these data.

Week	Topic	Chapter
Feb 3, 5, 7, 10	Protein structure and function	4
12, 14, 17	Membrane structure	11
19, 21, 24, 26	Membrane transport Hand out data for paper #1 Feb. 26	12
28, Mar. 3, 5	Cell communication	16
Mar. 7, 10, 12, 17	Intracellular compartments and transport Discuss data for paper Feb. 28, 1st draft Mar. 7, critique papers Mar. 12; Final draft due Mar 21	15
Mar. 14	EXAM #1	4, 11, 12, 16
19, 20, 31	Cytoskeleton Final draft due Mar. 15	17
Mar. 21	PAPER#1 DUE	
22-30	SPRING BREAK – don't forget to study...at least a bit!	
Apr. 2, 4, 7	Energetics Data for paper Apr. 7, Discuss data Apr. 9	14
Apr. 9, 14	Structure of DNA/chromosomes 1st draft Paper 2 on Apr. 18	5
Apr. 11	EXAM #2	15, 17, 14
16, 18, 21	DNA replication	6
23, 25	Transcription Critique papers on 23th	7
28, 30	Translation	7
May 2	PAPER #2 DUE	
May 1, 5, 7	Regulation of Gene Expression	8
9	EXAM #3	5, 6, 7, 8
May 12	Review for Final and Return Exam 3	
16	EXAM #4 THIS WILL BE COMPREHENSIVE!	

NOTE: This semester I will attempt to mostly 'flip' the class. That means that you should read the book and listen to podcasts BEFORE class periods and come prepared with questions about the material, e.g. concepts that you don't understand.

GRADING: 40% of the grade will be based on the first three, in-class exams, 20% on the comprehensive final exam (Exam #4), 30% on two, short, research-style papers and 10% on group participation. 93-100%

= A, 90-92 = A-, 87-89 = B+, 83-86 = B, 80-82 = B-, 77-79 = C+, 73-76 = C, 70-72 = C-, 67-69 = D+, 63-66 = D, 60-62 = D-, below 60% = F. Grades will only be "curved", if necessary. Cheating in any form (including plagiarism, excessive and/or undocumented paraphrasing) will NOT be tolerated. Students caught cheating will receive an F in the course and will be reported to the Dean of Students. Group participation grade will be based on your active work with your group.

MAKE-UP AND EARLY EXAMS: If you cannot be present for an exam, it is **your** responsibility to get in touch with me **at least one week before** the rest of the class writes the exam. Make-up exams will be available **only** if the student suffers a life-threatening illness and has a medical excuse to support that claim or if you are participating in a university-sponsored event.

ATTENDANCE POLICY: I will not take role in lecture. Attending lecture and good note-taking skills will increase your ability to do well in class. I do not publish lecture notes. I do post PowerPoint presentations on D2L. Pre recorded Podcasts are posted on D2L, but do not deceive yourself into thinking that a Podcast truly substitutes for coming to class! **Finally, we will be doing a fair amount of group work this semester....your group will need your participation so be there for them!**

SUGGESTIONS FOR SUCCESS IN THIS CLASS: We cover a lot of material in this course. I suggest that you 1) spend 6-9 hours per week studying the book, rewriting notes, learning processes covered in class, thinking about how different concepts fit together (I have/will upload to D2L concept maps that may help you with this process.), working problems in the book and completing steps 2 and 3. 2) On a huge piece of paper, draw an enormous cell and begin to fill in parts as we discuss them in class. 3) Practice drawing out (from memory) chemical structures, pathways and processes to make sure that you have learned them.....TEST YOURSELF!

WRITING ASSIGNMENTS:

General Instructions

I will provide you with selected data from the literature that are relevant to theories discussed in class. You are to treat the data as though they were your own and as though you wanted to present the data to others in your field as a publishable research paper. Consequently, you must (1) capture the interest of the reader by developing some background and explaining the significance of the hypothesis tested in your paper; (2), explain clearly the results so that the reader understands their meaning and draws the same conclusions as you as the paper is read, and, (3), discuss how your results expand upon knowledge published to date. Each paper will have:

- **Introduction** that gives some background information but mostly outlines questions in the field (that will be addressed by your data) and the significance of the work presented, i.e. what makes the study important. A rationale statement is often useful.

- **Results** section that explains the data. What do the data show? (To answer this question, you may also have to explain a bit about the techniques used and the rationale for doing specific experiments.) Why were certain controls done?

- **Discussion** section in which a reasonable new hypothesis for future work is formulated from the data.

This sounds like a lot of writing, but, in fact, the maximum page length will be no more than **two** typewritten, double-spaced pages (font no less than 12 point). The key is to think clearly, write concisely and say exactly what you mean...no more, no less.

You may discuss the data (and interpretations of the data) among themselves. You can also ask me questions, preferably in class where all can profit from the questions and answers.