

**BIO. 323 002C MOLECULAR AND CELL BIOLOGY****LECTURER: Dr. Bea Holton****Fall 2013 – 3 credits – 3, 1hr lectures per week****OFFICE:** HS42**PHONE:** (920) 424-7087**E-MAIL:** holton@uwosh.edu.**OFFICE HOURS:** Tu 12:10-2:10pm; F10:30am-12:30pm, or by appointment.**LECTURE HOURS:** 3-4:30pm MW, 3-4pm exam Fridays in Halsey Science 175.

Instructor is SAFE – trained.

**TEXT:** Alberts, Bray, Hopkin, Johnson, Lewis, Raff, Roberts,Walter (2010) **Essential Cell****Biology**, 3<sup>rd</sup> 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.

<b>Week</b>	<b>Topic</b>	<b>Chapter</b>
<b>Sept. 4,6,9,11</b>	Protein structure and function	4
13,16,18	Membrane structure	11
20,23,25,27	Membrane transport <b>Hand out data for paper #1 Sept. 23. Discuss data for paper Sept. 25, 1st draft Sept. 30, critique papers Oct. 4; Final draft due Oct. 18</b>	12
<b>Sept. 30, Oct. 2,4,7</b>	Cell communication	16
9,11,14,16	Intracellular compartments and transport	15
<b>Oct. 11</b>	<b>EXAM #1</b>	<b>4, 11, 12, 16</b>
<b>Oct. 18</b>	<b>PAPER #1 DUE</b>	
18,21,23	Cytoskeleton	17
25,28 30	Energetics <b>Data for paper Oct. 28. Discuss data Oct. 31, 1<sup>st</sup> draft due Nov.4, critique papers Nov. 11, final draft Nov. 18.</b>	14
<b>Nov.1,4</b>	Structure of DNA/chromosomes <b>1<sup>st</sup> draft Paper 2 on Nov. 4</b>	5
<b>Nov. 8</b>	<b>EXAM #2</b>	<b>15, 17, 14</b>
6,11	DNA replication <b>Critique papers on 11<sup>th</sup></b>	6
13,15	Transcription	7
18, 20	Translation	7
<b>Nov. 18</b>	<b>PAPER #2 DUE</b>	
22, 25	Chromosomal structure and gene regulation	8
<b>Nov. 27-Dec. 1</b>	<b>THANKSGIVING BREAK!!!</b>	
<b>Dec. 1,3</b>	Chromosomal structure and gene regulation	8
<b>6</b>	<b>EXAM #3</b>	<b>5, 6, 7, 8</b>
9	Review for Final	
<b>13</b>	<b>EXAM #4 THIS WILL BE COMPREHENSIVE!</b>	

**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.

**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. Early exams will be available **only** 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 will not repeat lectures nor do I publish lecture notes. I do post PowerPoint presentations (figures, only) on D2L. Lectures are Podcast, but do not deceive yourself into thinking that a Podcast truly substitutes for coming to lecture! **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 and describes the data. What do the data show? (You may have to explain a bit about the techniques used and the rationale for doing specific experiments.) Why were certain controls done? Be sure to cite data from the figures to support your claims.

- **Discussion** section in which a reasonable hypothesis is formulated from the data.

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.

All papers will be submitted to TurnItIn.