

## BIO 323: Introductory Molecular and Cell Biology Spring Semester 2013

**Lecturer:** Dr. Todd Kostman, HS 142, kostman@uwosh.edu

**Office hours:** MWF 10:10-11:10

**Lecture Hours:** 9:10-10:10 am, Halsey Science Center 175

**Textbook:** Cell and Molecular Biology, 6<sup>th</sup> Edition by Gerald D. Karp

**Attendance Policy:** All students must attend every lecture. I firmly believe that what I say is important (because I am so cool and knowledgeable); important enough to hear in person. Lecture outlines are posted on D2L but they are missing key information that you have to come to class to see and copy. Plus if you are not in class you will miss the lecture quiz points, and these quiz points could have either a significant positive or negative effect upon your grade.

**Introductory Molecular and Cell Biology and Promoting the Liberal Arts:** A liberal arts education refers to studies in a college or university intended to provide general knowledge and develop intellectual capacities. A liberal arts education prepares students for a variety of careers. This is different from other types of education where students develop professional or vocational skills for a specific job. The Biology, Microbiology and Medical Technology Majors are offered at UW-Oshkosh within the College of Letters and Science (COLS). The COLS emphasizes a liberal arts education. It promotes a liberal arts education model proposed by Carol Geary Schneider, president of the Association of American Colleges and Universities since 1998. Schneider stresses the idea that **ALL students receive an education of lasting value, relevant for the 21st century**. In her model learning should be: 1) "analytical, contextual and holistic thinking;" 2) "effective communication using multiple forms of expression;" 3) "critical reflection/informed action as citizens, producers, human beings;" 4) "ethical action for local and global communities;" and 5) "integrative learning."

At UW-Oshkosh, you will have a broad exposure to the liberal arts, while focusing on a topic that you are particularly interested in such as a biology or microbiology. BIO 323 (Introduction to Molecular and Cellular Biology) is core course within all three of the aforementioned majors. The unifying theme in this course is **the oneness of all earthly life forms**, attesting to their common evolutionary origin. As described in the COLS learning objectives, in addition to studying the factual content of the science, we will also consider its historical development, experimental basis, and relationship to other aspects of science and society.

**Use of Electronic Devices in Class:** In order to protect and foster the proper learning environment, the use of cell phones is not allowed during lecture. That includes sending or receiving voice or text messages, or even checking to see if new calls/messages have come in. Please turn your phone off at the start of class to prevent interruptions from incoming calls. Wireless laptop computers are allowed, but only if their use is limited to activities directly related to course performance such as taking notes or looking up content on the web. Use of portable music devices is not allowed in lecture at any time. Use of any electronic device during an exam will result in an automatic zero for that exam.

**Academic Misconduct:** Students are referred to the University of Wisconsin Oshkosh Student Discipline Code as detailed in Specific provisions of Chapter 14 of the State of Wisconsin Administrative Code. Any student(s) found in violation of any aspect of the above Code (as defined in sections UWS 14.02 and 14.03) will receive a sanction as detailed in UWS 14.05 and 14.06. Sanctions range from an oral reprimand to expulsion from the University of Wisconsin-Oshkosh. Students have the right to request a hearing and to appeal sanctions (as defined in UWS 14.08-14.10).

**Students with Disabilities:** Students with disabilities should contact the instructor in the first week of class in order to arrange all possible accommodations.

**Grading:** Grades will be based upon performance on four lecture exams (100 pts. each) and ten 10-point quizzes to be given at random times during both the course. Grading Scale: 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%=C-, 67-69%=D+, 63-66%=D, 60-62%=D-, below 60%=F. Grades will be calculated by dividing the total number of points earned by the total points possible (500).

**Make Up Exams:** If a student is not able to attend an exam, it is *his/her responsibility* to contact Dr. Kostman before the scheduled exam time. Make-up exams will only be given to **students suffering from a life-threatening illness and having a written medical excuse to support that claim.** Students will also need an excused absence to receive permission to make up a missed quiz.

**Tentative Lecture Schedule Spring 2013:** (subject to change at discretion of instructor)

Lect	Date:	Topic	Karp chapter
1	Jan. 28	Syllabus, Introduction to course, pre-test	*
2	Jan. 30	Basic Chemistry	2.4-2.5
3	Feb 1	Molecules-Proteins and Protein Structure	2.5-2.6
4	Feb. 4	Molecules-DNA and RNA	2.5, 2.6, 10.3
5	Feb. 6	Chromosomes: Structure and Research history	10.2, 10.4
6	Feb. 8	Genome and genome analysis	10.5-10.6
7	Feb. 11	Gene expression and transcription	11.1-11.2
8	Feb. 13	RNA and RNA processing	11.3-11.5
9	Feb. 15	RNA and RNA processing	11.3-11.5
10	Feb. 18	The genetic code and translation	11.6-11.8
*	Feb. 20	Review for Exam 1	*
*	Feb. 22	<b>Exam 1 (Lectures 2-10)</b>	*
11	Feb. 25	Gene expression: prokaryotes vs. eukaryotes	12.1-12.3
12	Feb. 27	Transcriptional control and processing	12.4-12.5
13	March 1	Transcriptional control and processing	12.4-12.5
14	March 4	Translational and post-translational control	12.6-12.7
15	March 6	DNA Replication and repair	13
16	March 8	DNA Replication and repair	13
17	March 11	DNA Replication and repair	13
*	March 13	Review for Exam 2	
*	March 15	<b>Exam 2 (Lectures 11-17)</b>	*
*	March 18-	Spring Break ☺	
18	March 25	Introduction: What is a Cell? Prokaryotic vs. Eukaryotic Cells	1.1-1.3

19	March 27	Metabolism	3.3
20	March 29	Membranes I: Membrane structure and function	4.1-4.3
21	April 1	Membranes II: Membrane proteins and membrane fluidity	4.4-4.6
22	April 3	Membranes III: Membrane transport	4.7
23	April 5	Membranes IV: Membrane transport nerve impulse transmission	4.8
24	April 8	Endomembrane System	8.1, 8.2
25	April 10	Endoplasmic Reticulum Function	8.3
*	April 12	Review for Exam 3	*
*	April 15	<b>Exam 3 (Lectures 18-25)</b>	*
26	April 17	Golgi Structure and Function	8.4
27	April 19	Vesicular Transport	8.5
28	April 22	Endocytosis and post-translational uptake	8.8, 8.9
29	April 24	Cytoskeleton, microtubules	9.1-9.3
30	April 26	Intermediate and Microfilaments	9.4-9.5
31	April 29	Muscle contraction and non-muscle motility	9.6-9.7
32	May 1	Cell signaling	15.1-15.2
33	May 3	G-protein and protein tyrosine mechanisms	15.3-15.4
*	May 6	Course Wrap-up and Review for Exam 4	*
*	May 8	<b>Exam 4 Lectures (26-33)</b>	*
*	May 10	<b>Exam 4 Lectures (26-33)</b>	*