**BIO 323: Introductory Molecular and Cell Biology**

**Spring Semester 2017**

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

**Office hours:** MWF 10:20-11:20

**Lecture Hours:** 9:10-10:10 am, Halsey Science Center 268

**Textbook:** Cell and Molecular Biology, 7th Edition by Gerald D. Karp

**Attendance Policy:** All students should attend every lecture. After teaching for 17 years, I can tell you that the number one reason for poor performance in my classes is being absent. Hearing the concepts discussed in lecture is the first step in learning the material. Lecture outlines are posted on D2L, but they are missing key information that you have to come to class to see, hear, and copy. Also, if you are not in class you will miss the random lecture quiz points, and these quiz points could have either a significantly positive or negative effect on your grade.

**About the Course:** This is one of the few courses still required of all Biology majors. Why? Two main reasons: one, we feel that any biologist should have a basic understanding of cell structure and function (which includes how cells communicate, both within a cell and between cells, and this involves interactions between molecules (hence the molecular half of the course). Second, this course is a prerequisite for Genetics and for Animal Physiology, which most of you will take. Doing well in this course (i.e. actually learning the material and not just memorizing for exams) will really help you in upcoming semesters.

**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 and stow your cell phone at the start of class to prevent interruptions from incoming calls. ***If I see you using your cell phone during class, I will deduct 10 points from your overall grade for each infraction.*** 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), ten 10-point quizzes to be given at random times during the course, and a 50 pt. review worksheet assigned the first week of class. 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 (550).

**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 2017:** (subject to change at discretion of instructor)

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| Lec | Date: | Topic | Karp chapter |
| 1 | Jan. 30 | Syllabus, Introduction to course, pre-test | \* |
| 2 | Feb. 1 | Chromosomes: Structure and Research history | 10.2-10.3 |
| 3 | Feb. 3 | Genome structure (worksheet due) | 10.4 |
|  |  |  |  |
| 4 | Feb. 6 | Genome analysis | 10.5-10.6 |
| 5 | Feb. 8 | Gene Expression and transcription | 11.1-11.2 |
| 6 | Feb. 10 | RNA and RNA processing | 11.3-11.5 |
|  |  |  |  |
| 7 | Feb. 13 | RNA and RNA processing | 11.3-11.5 |
| 8 | Feb. 15 | The genetic code and translation | 11.6-11.8 |
| \* | Feb. 17 | **Review for Exam 1** | \* |
|  |  |  |  |
| \* | Feb. 20 | **Exam 1 (Lectures 2-8)** | \* |
| 9 | Feb. 22 | Nuclear Structure | 12.1 |
| 10 | Feb. 24 | Gene Expression | 12.2-12.3 |
|  |  |  |  |
| 11 | Feb. 27 | Transcriptional Level Control | 12.4 |
| 12 | March 1 | Processing Level Control | 12.5 |
| 13 | March 3 | Translational and post-translational control | 12.6-12.7 |
|  |  |  |  |
| 14 | March 6 | DNA Replication and repair | 13 |
| 15 | March 8 | DNA Replication and repair | 13 |
| 16 | March 10 | Signaling | 15.1-15.2 |
|  |  |  |  |
| 17 | March 13 | Signaling | 15.3-15.4 |
| \* | March 15 | Review for Exam 2 | \* |
| \* | March 17 | **Exam 2 (Lectures 9-17)** | \* |
|  |  |  |  |
| \* | March 20-24 | Spring Break  |  |
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| 18 | March 27 | Introduction: What is a Cell? Prokaryotic vs. Eukaryotic Cells | 1.1-1.3 |
| 19 | March 29 | Membranes I: Membrane structure and function | 4.1-4.3 |
| 20 | March 31 | Membranes II: Membrane proteins and membrane fluidity | 4.4-4.5 |
|  |  |  |  |
| 21 | April 3 | Membranes III: Membrane transport | 4.6 |
| 22 | April 5 | Membrane IV: Membrane transport | 4.7 |
| 23 | April 7 | Membranes V: Nerve impulse transmission | 4.8 |
|  |  |  |  |
| 24 | April 10 | Intro to Endomembrane System | 8.1, 8.2 |
| 25 | April 12 | Endoplasmic Reticulum | 8.3 |
| \* | April 14 | Review for Exam 3 | \* |
|  |  |  |  |
| \* | April 17 | **Exam 3 (Lectures 18-25)** | **\*** |
| 26 | April 19 | Golgi Structure and Function | 8.4 |
| 27 | April 21 | Vesicular Transport | 8.5 |
|  |  |  |  |
| 28 | April 24 | Lysosomes and vacuoles | 8.6-8.7 |
| 29 | April 26 | Endocytosis and Exocytosis | 8.8-8.9 |
| 30 | April 28 | Cytoskeleton, microtubules | 9.1-9.3 |
|  |  |  |  |
| 31 | May 1 | Microtubules | 9.3 |
| 32 | May 3 | Microfilaments and Intermediate Filaments | 9.4-9.5 |
| 33 | May 5 | Muscle contraction and non-muscle motility | 9.6-9.7 |
|  |  |  |  |
| \* | May 8 | Course Wrap-up and Review for Exam 4 | \* |
| **\*** | May 10 | **Exam 4 Lectures (26-33)** | **\*** |
| **\*** | May 12 | **Exam 4 Lectures (26-33)** | **\*** |