Summer 6-1-2020

BIOB 260.02B: Cellular and Molecular Biology

James D. Driver
University of Montana, Missoula, jim.driver@mso.umt.edu

BIOB 260 Cellular and Molecular Biology
Summer Session 2020. Online Course.

Instructor: Dr. Jim Driver. Electron Microscopy Laboratory, ISB 017
Office Hours. Just email me and I will try to get back to you in a timely manner.
Phone: 243-4669 Email: jim.driver@mso.umt.edu

Communication: An official UM email address must be used for **email correspondence** with the instructor, according to University policy. Grades cannot be discussed by email, according to FERPA.

Text: Required Text: Alberts *et al.*, Essential Cell Biology, 5th ed. Available from the UM Bookstore under BIOB 260 Section 01 or online from a variety of vendors.

UM Online – Moodle: Lectures will be posted in units containing materials to be covered for each upcoming exam. I reserve the right to alter the amount of material that will be covered for each exam. Lectures posted on Moodle will be in Powerpoint format.

I will post the lectures as only Powerpoints initially and then before you are responsible for the material in a quiz or exam I will add a voiceover to each lecture.

The lecture voiceover will explain the material in detail and also let you know what topics I think are most important and the areas that I will use to ask questions for the quizzes and the exams.

My voiceover may add additional material not necessarily in the Powerpoint in order to better explain the topic.

Exam questions will come from the topics outlined in the Powerpoint slides and on additional material on those topics found in the textbook and covered in class.
I STRONGLY encourage you to listen to my voiceover. I will also make announcements relevant to the class schedule and exam topics in this format.

Since I will not be able to go over every detail on a topic in the lectures I also strongly advise you to read the relevant topics in the textbook. This course can become very complex very quickly. There are a lot of little details (almost like at the molecular level) that will help you understand Molecular Biology better if you read the textbook in detail.

Course description
Cellular and Molecular Biology is designed to give students an overview of the cellular structures and molecular processes that are used by prokaryotic cells (Bacteria and Archaea) and eukaryotic cells (Protozoa, Algae, Fungi, and certain parasites) to grow, reproduce, and to cause disease. Upon successful completion of this course, you will have a more specific knowledge of cellular and subcellular biology including the relationship between intracellular organelle form and function, molecular building blocks, membranes, the central dogma, metabolism, signal transduction and the regulation of the cell cycle.

Learning outcomes
You will understand life at the cellular and subcellular levels; to think critically and solve scientific problems; and to appreciate the role molecular processes play in modern biology. This course will emphasize biological principles, scientific concepts, and information syntheses while fostering an appreciation of cellular structure and function as well as the role of genes and genetic processes at the molecular level. Also you will

- Recognize structures of the five major classes of building-block molecules that make up cellular macromolecules and membranes.
- Compare how the properties of water affect lipid membranes and the three-dimensional structures of macromolecules, and functional interactions between them.
- Outline the flow of matter and energy in the processes by which organisms fuel growth and cellular activities, and explain how these processes conform to the laws of thermodynamics.
- Using diagrams, demonstrate how the information in a gene is stored, replicated, and transmitted to daughter cells.
- Describe how the information in a gene directs expression of a specific protein.
- Describe how cells are organized, the differences between typical prokaryotic and eukaryotic cells, and the role of membranes, organelles and cytoskeletal elements in energy and information transformations.
- Compare the ways cells convert extracellular signals into intracellular signals that transduce information to govern cell division, cell death, and cell differentiation.

Testing and Exam Schedule.
Exam and quiz questions will come from topics and materials covered in the lectures and supplemented by material from the textbook.

Quiz 1 – Friday, May 15th	
Quiz 2 – Wednesday May 20th	Exam 1 – Friday, May 22nd
Quiz 3 - Wednesday May 27th	
Quiz 4 – Wednesday June 3rd	Exam 2 – Friday June 5th
Quiz 5 – Wednesday June 10th	
Quiz 4 – Wednesday June 17th	Exam 3 – Friday June 19th

Grading:
In this course there will be 3 regular semester exams of 100 points each and 6 weekly quizzes worth 50 points each. Exams will consist of mostly short answer questions and possibly some true/false and multiple choice questions. Your grade will be calculated as a percentage of total possible exam points. The following grading scheme will be used:
100 – 90% = A; 89.9 – 80% = B; 79.9 – 70% = C; 69.9 – 60.0% = D; < 60% = F
If you are taking this course as Pass/No Pass the University requirement for a Pass grade is the equivalent of a “C” or 70% or higher cumulative average on exams.

Classroom attendance, make-up exams.
Please access Moodle on a regular basis. The Powerpoint lectures with the voiceover should be listened to as I will add additional materials, usually from the book that may be used for questions on the quizzes or exams.

Make-up quizzes or exams will be permitted only with compelling and supported reasons.
Make-up exams will be scheduled at the convenience of the instructor.

Instructor's policy for accommodating disabilities
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Instructor's policy on academic honesty and plagiarism.
All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code.
Please keep this in mind for this online class. You are not allowed to work in groups to take the quizzes or exams. Remember, it is important for your career to understand this material. If you do not fully understand it now then your upper division courses will become very difficult indeed!