

MCB 2210: CELL BIOLOGY

Lectures M/W/F – 1:25-2:15pm – Laurel Hall 102

Exams held in the Testing Center, 110 Arjona

Instructor: Dr. Dave Daggett, david.daggett@uconn.edu

Office Hours: By appointment, TLS 281.

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Office Hours: Tuesday & Wednesday, 4-6pm, BPB 401

Exams: The course will have 4 section exams and a cumulative final. The format for the exams will be multiple-choice. The first 3 section exams will be given on the dates listed below in the syllabus. The fourth section exam will be given along with the cumulative final on our assigned Final Exam day during Finals week. Your lowest-scoring section exam will be dropped during calculation of your final grade; the cumulative final cannot be dropped. Makeup exams will NOT be given! The 1-Exam Drop policy is there to accommodate unforeseen circumstances. However, you may ask for permission to take a section exam early if you cannot attend on the scheduled date. These requests will be considered on an individual basis. Students who must miss an exam due to religious observance should request to take the exam early. The University Senate has adopted the policy that “Students anticipating such a conflict should inform their instructor in writing within the first three weeks of the semester, and prior to the anticipated absence, and should take the initiative to work out with the instructor a schedule for making up missed work.”

Final Exams: The final cannot be dropped and, like all finals, cannot be missed! Final exam week for Fall 2017 takes place from Monday, December 11 through Sunday, December 15. Be aware that we take our Exams online in Arjona Hall, across multiple time slots on Exam day (see below). If you have a “bunched exams” conflict as defined by the DOS guidelines (www.dos.uconn.edu) with all the available Final Exam time slots, you MUST contact the professor directly to discuss rescheduling this exam.

Students who have other conflicts which they have, or should have had, advanced notice (religious obligation, legal/medical appointments...) MUST seek permission from DOS to reschedule their Final Exam ahead of time (see DOS website for deadlines). Finally, the DOS states that: “A student who is prevented by sickness or other unavoidable causes from attending a scheduled exam must apply to the DOS office for an excuse that will authorize the student’s instructor to give a makeup.” Vacations, previously purchased tickets or reservations, graduations, social events, misreading the exam schedule, and over-sleeping are not viable excuses for missing a final exam. The Dean of Students office is in the Wilbur Cross Building Rm. 203 (860-486-3426; www.dos.uconn.edu).

*******Exams will be taken at the Testing Center in Arjona Hall: Please read carefully!*******

Exams will be taken on computer terminals at the Testing Center. You must arrive at 110 Arjona at least 10 minutes before the exam period. You must have your UConn ID with you to sign in. You may only bring a pen or pencil to the computer terminal and scratch paper will be provided.

On each scheduled Exam day there will be multiple possible time periods to take the exam. Prior to the Exam, you must follow the Exam Registration link on the Husky CT site to sign up for **one** of the periods. They will be filled first come, first serve. At the start of the Exam Period, you will be given a password to access the Exam via the MCB 2210 HuskyCT site. The password will allow you access to the Exam only once, and the exam must be completed by the end of the Exam period.

Text Book: We are neither requiring nor recommending a specific text for this course. We feel that the lecture notes we provide (in which we have drawn from and synthesized the best elements of the available texts), together with class attendance and the problem sets will be all that most of you will need. Some of you may still decide that you want to have a textbook. For some students this is a good idea and will help to reinforce information presented in lecture. There is no one perfect book. Each covers most of the core material and each leaves out some information we feel is important. There are a number of possible textbook options. We have not ordered any of these from the bookstore, but all are available from Amazon and other sources. Some of the options are listed here:

1. If you feel that you need more explanation of concepts, but don't want to get bogged down with too much detail, we suggest Karp's Cell and Molecular Biology: Concepts and Experiments, 7th Edition, ISBN-13: 978-1118-20673-7, or Alberts' Essential Cell Biology, 4th Edition ISBN-13: 978-0-8153-4454-4

2. If you want more depth and detail, there are several excellent options:

Alberts, Molecular Biology of the Cell, 6th edition, ISBN-13:978-0-8153-4432-2

Lodish, Molecular Cell Biology, ISBN-13: 978-1-4292-3413-9

Also, earlier editions of the Alberts and Lodish books are available free on-line at

<http://www.ncbi.nlm.nih.gov/sites/entrez?db=Books&itool=toolbar> although the format is not ideal.

Web Site: A variety of materials will be made available on the course website at HuskyCT <https://learn.uconn.edu/webapps/portal/frameset.jsp>. Students should make extensive use of this resource. You should have each been assigned a HuskyCT identity and password which allows you access. If you do not know your ID, contact <http://netid.uconn.edu>. You need to become familiar with using the internet in general and this resource in particular (if you are not already). Help can be obtained from the TAs and from the computer center labs. The web site will contain links to information resources on the internet as well as problem sets, answers, and lecture outlines. This means that you can print out a copy of the lecture notes prior to class and bring them along. Lecture audio files will also be posted after each class. With all this information available, you will not need to take extensive notes during class. You should pay attention and attempt to understand the concepts while writing supplementary notes to reinforce the outline.

Problem Sets: A number of problem sets will be distributed on HuskyCT to accompany the lectures. We strongly suggest that you work through these problem sets, as many of the exam questions will be based on questions from the problem sets! (Note that exam questions will not be taken verbatim from the problem sets, they will be modified.) If you can answer the questions on the problem sets, you will likely be able to answer the exam questions. In other words, DO THE PROBLEM SETS AND ALL WILL BE WELL!

Strategy for Success: While you will learn many new terms and facts, the course emphasizes concepts. Exams will focus on the material covered in Lecture, and the Lecture Notes function as your textbook. Since most of the material presented is provided in the Lecture Notes, you do not need to take extensive notes during class, aside from points of clarification or emphasis. Lectures are your critical opportunity to follow along attentively and understand the logic of the topics presented. You can then

consolidate your understanding by thoroughly reading and reviewing the text in the Lecture Notes, along with the figures, diagrams and any supplemental videos, to help you make sure you can visualize these concepts. Review the Lecture Notes shortly after class and multiple times during the Exam block, and at the same time, begin to work through the related Problem Sets questions! Your engagement with the Problem Sets is critical to helping you understand the processes and integrate the information in the way you will be expected to on the Exams. Pay attention to how key experiments were conducted and interpreted. Focus on understanding the processes: many of the terms and details will stick with you because of your extensive Lecture Note reviewing and Problem Set work.

Exams will consist of multiple-choice questions.

Academic Misconduct Statement: Academic misconduct in any form is in violation of the University of Connecticut Student Conduct Code and will not be tolerated. This includes, but is not limited to: copying or sharing questions or answers on tests, plagiarism, claiming to have a conflict with the time scheduled for the final if the other exam is not actually occurring during the scheduled time, having someone else take tests for you. Depending on the act, a student could receive an F grade on the test, F grade for the course, or could be suspended or expelled. We take cheating very seriously. DO NOT DO IT.

MCB 2210 Syllabus

In this course, we will investigate the structural organization of cells and how these structures are utilized to accomplish the myriad tasks that cells perform. We will look at how cells are constructed and how signal transduction cascades are used to control cellular processes. Cell biology is a dynamic field; it focuses heavily on how things change with time and in response to alterations in the environment. Time-lapse video and animation will be used to help students develop a four-dimensional visualization of these processes. The functions of individual cells will then be related to the interactions of cells in tissues of multicellular organisms and to perturbations of cell function caused by human diseases.

Block 1:

Foundations: Basic organization of cells, some of the methods used to study cells, and a very brief refresher on membranes and proteins

Introduction: What are cells? What is their basic structure?

What are some of the techniques used to study cells?

Review of membranes and proteins

Membrane Transport and Introduction to Signal Transduction

Moving substances across the plasma membrane via transport proteins

Establishing membrane potentials and using them for cellular work

How cells receive external signals, transmit them through the cell, and respond.

Block 1 Exam: Fri, September 29

Block 2:

Synthesis and targeting of proteins to organelles

Nucleus, mitochondria, chloroplasts, peroxisomes, and the ER/Golgi.

Membrane trafficking and the endomembrane system

Vesicular transport of membranes and proteins; ER to Golgi and beyond. Exocytosis, endocytosis, phagocytosis, lysosomes.

Block 2 Exam: Friday, October 20

Block 3:

The Cytoskeleton and Cell Dynamics

Actin, Microtubules, and other Cytoskeletal Elements

Molecular Motor Proteins

Membrane and Organelle Dynamics

Mitosis and Cytokinesis

Block 3 Exam: Friday, November 10

Block 4:

Specialized Cells and Tissues

Cell Growth, Cell Cycle, Cell Death

Cell Connections and the Extracellular Matrix

Cell Movement, Motility, and Migration

Specialized Cells, Stem Cells, Pathogen-infected Cells, Cancer Cells

Block 4 Exam and Cumulative Final: To Be Announced.
