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BIOB 260.R00: Cellular and Molecular Biology

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Cellular and Molecular Biology

BIOB 260

Autumn 2020

Zoom, MWF, 9:00 AM-9:50 AM

Discussion sessions: 50 minutes per week at various times

Instructors:

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Office hours MWF, 10:00 AM to 10:50 AM or by appointment (arrange by email).

Zoom (lecture): <https://umontana.zoom.us/j/99475446162>

Meeting ID: 994 7544 6162

The lecture on Zoom will be recorded.

Text: Alberts *et al.*, Essential Cell Biology, 5th ed.

Online homework: Smartwork5 via Moodle (<https://www.umt.edu/umonline/>)

Clicker: iClicker REEF polling app (www.iclicker.com/students/apps-and-remotes/apps)

Graduate Teaching Assistants: Heidi Abresch, Martha Dreyer, and Aaron Held

Learning outcomes: to 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. Students will be able to:

- Given the thermodynamic and kinetic characteristics of a biochemical reaction, predict whether it will proceed spontaneously and the rate at which it will proceed.
- Recognize structures of the four 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.
- From their structures, predict which solutes will be able to diffuse spontaneously through a pure phospholipid bilayer membrane and which will require transport by membrane-associated proteins.
- 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 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.

Required course prerequisites: C– or better in BIOB 160 and CHMY 123 or 143.

Grading:

There are a total of 570 points to earn:

- Three midterm exams, 100 points each (300 points total)

- One final exam, cumulative, 100 points

- Online homework (pre-class and post-class quizzes), 100 points total

- Lecture participation points, 50 points total (scaled from total clicker question points)

- Discussion section participation points, 20 points total

The top 10 to 20 percentile of class will be awarded a grade of A or A-. The median score of the class will approximately set the cutoff between grades of B- and C+. A total score of 50% or less will be a failing grade (F). Pluses (+) and minuses (-) will be used (A, A-, B+, B, B-, C+, C, C-, D+, D, and D-). A CR grade is equivalent to a D- or better and a NCR grade is equivalent to an F. There are no opportunities for extra credit.

There are **no make-ups** for missed clicker questions. Make-ups for missed exams are strongly discouraged, but requests with a compelling and verifiable excuse will be considered on a case-by-case basis.

You must submit your request to have an **exam re-graded** in writing to the professors within two weeks of the return of the graded exam and your exam will be completely re-graded.

Exams and quizzes: will cover material from lecture, discussion sections, and assigned reading. The first and second midterm exams are during class (9:00 AM) on September 18 and October 19. The third midterm exam and the final exam are given together at 8:00 AM on November 25. All exams will be open-book and will be given on Moodle along with Zoom: you must have access to an internet-linked device with a video camera.

The iClicker REEF polling app will be used for participation points (1 clicker point for responding to 75% of questions in each class and 1 clicker point for each answer, which will be scaled to 50 lecture participation points); you will need to have the app on an internet-connected device and participate synchronously with the Zoom-delivered lecture.

PDF files of lectures, supplementary material, and videos will be available to **download** or view from [Moodle](#). Links to lecture recordings will be posted.

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.

Accommodations to ensure accessibility of **students with disabilities** will be gladly made, but to qualify you must be registered with Disability Services for Students (DSS). Arrangements for accommodations on exams must be through DSS and students must take the exam at the same time as scheduled for the class.

Academic misconduct will be reported and handled as described in the University of Montana Student Conduct Code. *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.*

Dropping course or changing grading status will strictly follow the University policies and procedures, which are described in the catalog. Requests to drop the course or change the grading status to benefit a student's grade point average will not be approved.

We know that the **COVID-19 pandemic** has severely disrupted your lives and has presented formidable challenges to your education. The Cell and Molecular Biology professors, graduate teaching assistants and learning assistants endeavor to provide an engaging and safe learning experience in these adverse times. Please keep in touch with problems that arise.

The lecture portion will be remotely synchronous via Zoom and note that it will be recorded. The discussion sections will face-to-face, although we will accommodate students that would prefer or require a remote option.

Mask use is required within classrooms on campus; see [UM's face covering policy](#).

You have been provided with a Healthy Griz kit. We expect students to clean their personal work space when they arrive for class, and before they leave the classroom. Refill stations for cleaning supplies/hand sanitizer will be set up around campus; please learn where they are and use them.

Do not congregate outside the classroom before and after class.

Drinking liquids and eating food (which requires mask removal) is strongly discouraged within the classroom.

In case you have inadequate internet in your home or require a quick turnaround between face-to-face and remote classes, there will be a list of remote learning spaces with the days and times available for student use posted on the [Keep on Learning website](#). There will be signs posted outside of these buildings and rooms to indicate their availability.

Stay home and contact the Curry Health Center at (406) 243-4330 if you feel sick and/or if you are exhibiting COVID-19 symptoms.

If you are diagnosed with COVID-19, follow instructions for quarantine and contact your advisor so they can help you stay on track academically.

Please remain vigilant outside the classroom and help mitigate the spread of COVID-19.