

Biology 312

Cell and Molecular Biology

SPRING SEMESTER 2021

3 Credits

Instructors: Tanya Miura and Scott Grieshaber

Tanya Miura tmiura@uidaho.edu
Office: Room 146 Life Sciences Building
Office Hours: TBA after spring break

Scott Grieshaber scottg@uidaho.edu
Office: Room: 133 Gibb Hall
Office Hours: Zoom <https://uidaho.zoom.us/j/84626241910>
TR 9:00-10:00am or by appointment

Lecture: MWF 9:30-10:20am
Renfrew Hall 111
Zoom: <https://uidaho.zoom.us/j/81435480801>

Section 01: HyFlex

Students enrolled in this section will attend lectures in-person or on zoom during the scheduled lecture time. The classroom capacity will accommodate all students enrolled in the HyFlex option to attend in-person. Students may choose to attend in-person or on zoom.

Section 02: Virtual Meeting

Students enrolled in this section will attend lectures on zoom during the scheduled lecture time.

Recorded lectures will be provided (if available) for University-approved excuses only. They will NOT be posted for general use.

Required Textbook:

Karp's Cell and Molecular Biology: Concepts and Experiments (8th edition) by Iwasa & Marshall
ISBN 9781119686385

*The electronic textbook, including online content, is automatically charged to your account upon course enrollment. Click on the 'WileyPLUS' tab on the course BBLearn site to access the eTextbook and additional online material.

Tips for success in class:

Attend class! Bring a copy of the slides and annotate them as we go. The lecture slide sets often include extra material that can be helpful but is not necessarily core material. Posted material might change slightly, in which case we will note this on BBLearn. Attending class will help you to sort this out and prevent you from getting overwhelmed with content.

Prepare for lectures and reinforce learning! Read the relevant sections in the textbook **prior** to lecture and use online resources and our office hours to help understand material. The

WileyPLUS material includes videos, interactive flashcards, etc. to support your learning. Use the resources that are most helpful to you. If you feel lost from the beginning, there are introductory tutorials in the Course-Wide Resources section of the WileyPLUS material.

Posted lecture materials: Lecture slides will be posted on BbLearn before class each day. Some slides will be updated right before class to correct or add content and this revised content will be posted and marked accordingly.

LECTURE OUTLINE: topics may change, Exam dates will NOT change

Part I Building and Fueling a Cell

Jan	13	Introduction / Chapter 1 / TM & SG
	15	Macromolecules / Chapter 2 / SG
	18	MLK Day No class
	20	Energetics / Chapter 3 / SG
	22	Membrane structure / Chapter 4 / SG
	25	Membrane function / Chapter 4 / SG
	27	Mitochondria: structure and TCA cycle / Chapter 5 / SG
	29	Mitochondria: electron transport and ATP synthesis / Chapter 5 / SG
Feb	01	Chloroplasts: photosynthesis and carbohydrate synthesis/ Chapter 6 / SG
	03	Nuclear structure / Chapter 12 / SG
	05	DNA structure and chromatin / Chapters 10 & 12 / SG
	08	Review Exam 1
	10	Exam 1 (covers lecture and readings through February 05)

Part II Information Processing in the Cell

	12	Transcription / Chapter 11 / SG
	15	President's Day No class
	17	mRNA processing / Chapter 11 / SG
	19	rRNA and tRNA processing / Chapter 11 / SG
	22	Translation / Chapter 11 / SG
	24	Cell cycle: DNA replication / Chapter 13 / SG
	26	Cell cycle: DNA repair / Chapter 13 / SG
Mar	01	Cell cycle: control / Chapter 14 / SG
	03	Cell cycle: mitosis, cytokinesis / Chapter 14 / SG
	05	Cell cycle: meiosis / Chapter 14 / SG
	08	Molecular biology techniques / Chapter 18.25 SG
	10	Review Exam 2
	12	Exam 2 (covers lecture and readings through March 08)

15-19 Spring Break No Class

Part III Regulation and Organization of Cellular Processes

- 22 Regulation of gene expression / Chapter 12 / TM
- 24 Regulation of gene expression / Chapter 12 / TM
- 26 Regulation of gene expression / Chapter 12 / TM

- 29 Regulation of gene expression / Chapter 12 / TM
- 31 Cell environment / Chapter 7 / TM
- Apr 02 Cell environment / Chapter 7 / TM

- 05 Cell environment / Chapter 7 / TM
- 07 Endomembrane system / Chapter 8 / TM
- 09 Endomembrane system / Chapter 8 / TM

- 12 Review for exam 3
- 14 **Exam 3 (covers lecture and readings through April 12)**

Part IV Cellular Movement and Communication

- 16 Cytoskeleton and Motility / Chapter 9 / TM

- 19 Cytoskeleton and Motility / Chapter 9 / TM
- 21 Cytoskeleton and Motility / Chapter 9 / TM
- 23 Cytoskeleton and Motility / Chapter 9 / TM

- 26 Cell signaling / Chapter 15 / TM
- 28 Cell signaling / Chapter 15 / TM
- 30 Apoptosis / Chapter 15 / TM

- May 03 Immune Response / Chapter 17 TM
- 05 Immune Response / Chapter 17 TM
- 07 Review for final / TM & SG

Wednesday, May 12 Final Exam (8:00 am – 10:00 AM)

Exams:

Exams will be taken on BBLearn. Students will have a block of time to take the exam on scheduled dates that will span the scheduled lecture period (7:30am-11:30am). Once started, the exam must be completed in 60 minutes. Note that this is 10 minutes longer than the normal class period. It is the students' responsibility to identify a location to take the exam to ensure they have uninterrupted time and a stable internet connection. Locations on campus include the classroom during our scheduled time, library, and study rooms in the student health building. An instructor will be available in REN 111 during scheduled exams if students enrolled in the HyFlex section prefer to take the exam in the classroom on their laptop computer.

There will be three exams (60 minutes and 100 points each) and a final exam (120 minutes; 200 points). The final exam will include 100 points on material covered after the 3rd exam and 100 points will cover comprehensive material from the entire semester.

The exams may be comprehensive; that is, they can cover materials from the beginning of the course.

- Exam questions will be based upon materials presented in lectures and assigned readings.
- All students will be required to take the final exam, and there will be no early finals given in this course.
- Correct spelling is important; incorrect spelling of an answer will result in a deduction of 25% of the worth of the question. Please draw neatly and clearly label all parts of an illustration.
- Exams may contain take-home questions
- Requests to regrade an exam are due in writing by 5 pm three days after exams are returned (regrade requests submitted after this time will not be accepted). Summing errors can be corrected at any time.

Make-up Exams:

If you know you will be absent for an upcoming exam, contact the instructor to make alternative arrangements. Make-up exams will only be provided for UI-approved excuses (documentation required). Any requests for make-up exams after the exam is given (for example, unexpected illnesses) will be at the discretion of the instructor and may be an all-essay exam.

Homework:

Five sets of homework questions, worth 5 points each, will be assigned through-out the semester. Due dates will be announced in class and posted on BBLearn. Homework will be completed on BBLearn.

Grading:

	Points
Hour exams (3 x 100 points each)	300
Final exam (1 x 200 points)	200
Homework (5 x 5 points each)	25
Total	525

Grades will be based solely upon the percentage of total points you have earned. No extra credit will be available.

90-100%	= A
80-89%	= B
70-79%	= C
60-69%	= D
0-59%	= F

Rules for the course

The rules for this course are outlined in the "Student Code of Conduct" for the University of Idaho. The most important of these rules are listed below:

ARTICLE II--ACADEMIC HONESTY.

1. Cheating on classroom or outside assignments, examinations, or tests is a violation of this code. Plagiarism, falsification of academic records, and the acquisition or use of test materials

without faculty authorization are considered forms of academic dishonesty and, as such, are violations of this code. Because academic honesty and integrity are core values at a university, the faculty finds that even one incident of academic dishonesty seriously and critically endangers the essential operation of the university and may merit expulsion. [rev. 7-98]

2. The operation of UI requires the accuracy and protection of its records and documents. To use, make, forge, print, reproduce, copy, alter, remove, or destroy any record, document, or identification used or maintained by UI violates this code when done with intent to defraud or misinform. Entrance without proper authority into any private office or space of a member of the faculty, staff, or student body is a violation of this code.

3. Instructors and students are responsible for maintaining academic standards and integrity in their classes. Consequences for academic dishonesty may be imposed by the course instructor. Such consequences may include but cannot exceed a grade of "F" in the course. The instructor should attempt to notify the student of the suspected academic dishonesty and give the student an opportunity to respond. The notice and the opportunity may be informal and need not be in writing. Penalties for any disciplinary infraction must be judicially imposed. [See [1640.02 C-5](#)] [rev. 7-98]

Learning Outcomes

In accordance with UI Learning Outcomes, it is expected that students will:

- Learn and Integrate: Students will apply their previous knowledge of biology to gain a basic understanding of the molecular basis of life.
- Think and Create: Students will be expected to apply the concepts and approaches learned here to solve future academic and professional problems.
- Communicate: Students will be expected to better communicate with others using the language of biology.
- Clarify Purpose and Perspective: It is expected that all students will gain important insights into molecular biology that allows them to exist, read and then contemplate this sentence.
- Practice Citizenship: It is every student's responsibility to share their knowledge with others as the general public is ill-informed on many relevant topics like gene and stem cell therapies.

Center for Disability Access and Resources

Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through CDAR located in the basement of the Bruce Pitman Center in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.

- Phone: 208-885-6307
- Email: cdar@uidaho.edu
- Website: <https://www.uidaho.edu/current-students/cdar>

Tutoring and College Success (TCS)

TCS offers three distinct services dedicated to student success:

- Vandal Tutoring provides drop-in style tutoring in person at the Library or online through <https://www.uidaho.edu/current-students/academic-support/asp/tcs/tutoring/find-a-tutor> at no cost to undergraduates.
- SI-PASS provides peer assisted study sessions for difficult courses. You can find the schedule of currently supported courses at <https://www.uidaho.edu/current-students/academic-support/asp/tcs/si>
- Academic Coaching offers students an opportunity to work with a coach, one on one, to improve their academic skills such as: effective studying, test taking, time management, and note taking. Visit <https://www.uidaho.edu/current-students/academic-support/asp/tcs/academic-coaching> to schedule an appointment, attend a workshop, or find resources.