Biology 312
Cell and Molecular Biology
SPRING SEMESTER 2020

3 Credits
Instructors: Tanya Miura and Scott Grieshaber

Tanya Miura
Office: Room 146 Life Sciences Building
Office Hours: TBA after spring break

Scott Grieshaber
Office: Room: 133 Gibb Hall
Office Hours: 8:30-9:30 TR

Lecture: MWF 9:30-10:20; Renfrew Hall 112

Required Textbook:
Karp’s Cell and Molecular Biology: Concepts and Experiments (8th edition) by Iwasa & Marshall
ISBN 9781119686385
*The electronic textbook is automatically charged to your account by enrollment in BBLearn. See BBLearn for ‘Opt-out’ option if you prefer to purchase a printed copy.

Tips for success in class:

Attend class! Bring a copy of the notes and annotate them as we go. The note set often includes extra material that can be helpful but is not necessarily core material. Posted note sets might change slightly, in which case we will note this on BB learn. Attending class will help you to sort this out and prevent you from getting overwhelmed with content. Read the text prior to lecture and use online resources and our office hours to help understand material that you are struggling with.

Posted in class sessions: 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 as well and marked accordingly.

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

Part I Building and Fueling a Cell
Jan 15 Introduction / Chapter 1 / TM & SG
17 Macromolecules / Chapter 2 / SG

20 MLK Day No class
22 Energetics / Chapter 3 / SG
24 Membrane structure / Chapter 4 / SG

27 Membrane function / Chapter 4 / SG
29 Mitochondria: structure and TCA cycle / Chapter 5 / SG
31 Mitochondria: electron transport and ATP synthesis / Chapter 5 / SG

Feb 03 Chloroplasts: photosynthesis and carbohydrate synthesis/ Chapter 6 / SG
05 Nuclear structure / Chapter 12 / SG
07 DNA structure and chromatin / Chapters 10 & 12 / SG

10 Review Exam 1
12 **Exam 1 (covers lecture and readings through February 07)**

**Part II Information Processing in the Cell**

14 Transcription / Chapter 11 / SG

17 **President’s Day No class**
19 mRNA processing / Chapter 11 / SG
21 rRNA and tRNA processing / Chapter 11 / SG

24 Translation / Chapter 11 / SG
26 Cell cycle: DNA replication / Chapter 13 / SG
28 Cell cycle: DNA repair / Chapter 13 / SG

Mar 02 Cell cycle: control / Chapter 14 / SG
04 Cell cycle: mitosis, cytokinesis / Chapter 14 / SG
06 Cell cycle: meiosis / Chapter 14 / SG

09 Review Exam 2
11 **Exam 2 (covers lecture and readings through March 09)**
13 Molecular biology techniques overview

16-20 **Spring Break No Class**

**Part III Regulation and Organization of Cellular Processes**

23 Regulation of gene expression / Chapter 12 / TM
25 Regulation of gene expression / Chapter 12 / TM
27 Regulation of gene expression / Chapter 12 / TM

30 Regulation of gene expression / Chapter 12 / TM

Apr 01 Cell environment / Chapter 7 / TM
03 Cell environment / Chapter 7 / TM
06 Cell environment / Chapter 7 / TM
08 Endomembrane system / Chapter 8 / TM
10 Endomembrane system / Chapter 8 / TM

13 Review for exam 3
15 **Exam 3 (covers lecture and readings through April 13)**

**Part IV Cellular Movement and Communication**

17 Cytoskeleton and Motility / Chapter 9 / TM
Exams

There will be three exams (50 minutes) and a final exam (120 minutes; 50% of the final exam will cover material covered after the 3rd exam and 50% 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 is 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 will be an all-essay exam.

Summary of your grade

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hour exams (3 / 100 points each)</td>
<td>300</td>
</tr>
<tr>
<td>Final exam (1 / 200 points)</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>500</strong></td>
</tr>
</tbody>
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Grading

Grades will be based solely upon the percentage of total points you have accumulated.
90% or greater of the total accumulated points = A
80% = B
70% = C
60% = D
Below 60% = 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.