

## Bi322 - Cell Biology - Winter 2018

**Instructor:** Dr. Nicola Barber

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**BULA:** Nico Maier

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**Time:** Classes: Tuesday and Thursday 2-3:20 pm (Chapman 220)  
Discussion: Thursday 9, 10, 11am (Science Library B042)

|                                    |                          |                   |
|------------------------------------|--------------------------|-------------------|
| <b>Office hours:</b> Nicola Barber | Tues. & Thurs. 3:20-4:00 | Chapman 220       |
| Heather Le Bleu                    | Tues. 5:30-6:30          | 360 Onyx          |
| Stephanie Ostresh                  | Thursday 8:00-8:50       | 360 Onyx          |
| Lila Kaye                          | Tues. 11:00-11:50        | B009 Sci. Library |

**Email:** Please include "Bi322" in the subject line, so your email can be attended to in time. We will try to answer your email in a timely manner; however, we do not often check our email in the evenings or during weekends.

**Website:** **Canvas** - Syllabus, course materials, assignments and grades will be posted.

### Required text:

Molecular Biology of the Cell, Sixth Edition (Alberts et al.)

### Required supplies:

i>clicker (available in the Duck Store): Be sure to register your i>clicker on **Canvas**.

4"x6" index cards: We will typically use 1 index card per class (so you can share a package).

### Course Description

The cell is an amazing, complex and dynamic unit of life. We will explore various aspects of how eukaryotic cells in particular carry out their many basic functions while interacting with their environment. We will investigate how defects at the cellular level lead to disease states, examine the primary literature, and consider experimental design and analysis.

### Course Learning Goals

By the end of the semester, you should be able to:

- Model the dynamic nature of cellular processes, and how a cell receives and responds to information from its environment.
- Explain and compare the structures and functions of organelles.
- Communicate how defects at the cellular level lead to disease states and could be targeted for specific therapies.
- Develop testable hypotheses based on provided information, design experiments to test hypotheses, and analyze and interpret provided data.
- Read, evaluate and synthesize primary literature articles in cell biology.

## Grading

| Category               | %          | Point Breakdown   |
|------------------------|------------|---|
| Class Prep Homework    | 10         | 15 Canvas “quizzes” due before each class (lowest 2 dropped)                      |
| iClicker               | 5          | iClicker points in every class. Lowest two scores will be dropped. (see iClicker) |
| Discussion Assignments | 10         | 10 assignments 1% each  |
| Poster Presentation    | 20         | Detailed rubric will be provided.   |
| Midterm 1              | 15         |   |
| Midterm 2              | 15         |   |
| Final Exam             | 25         |   |
| <b>Total</b>           | <b>100</b> |   |

| Grade | %       |
|-------|---------|
| A+    | 97-100  |
| A     | 93-96.9 |
| A-    | 90-92.9 |
| B+    | 87-89.9 |
| B     | 83-86.9 |
| B-    | 80-82.9 |
| C+    | 77-77.9 |
| C     | 73-76.9 |
| C-    | 70-72.9 |
| D+    | 67-69.9 |
| D     | 60-66.9 |
| F     | 0-59.9  |

### Exams:

There will be two midterms and a final, collectively accounting for 55% of your course grade. Exams will be cumulative, because concepts will overlap substantially over the term, but the focus of each exam will be on material covered since the preceding exam. Exams can contain material from class work, assigned online lectures, assigned readings, and discussions, and will include both multiple choice and open-ended questions. The exam schedule is listed on the last page. Early exams and makeup exams will NOT be offered.

### Class preparation:

It is expected that you complete assigned readings and review any posted sources before attending class. Lecture homework is due immediately before Class. Discussion homework is due at the beginning of discussion unless otherwise noted.

**Lecture preparation homework:** Starting with Class 2 there will be a lecture prep homework assignment due before the beginning of each lecture class. These count for 10% of your final grade but the lowest 2 scores will be dropped.

**iClicker:** There will be iClicker questions in every class. Points will be earned two different ways: (1) 1-point questions: 1 point will be awarded based on participation alone, not on whether the question is answered correctly; (2) 2-point questions: 2 points for the correct answer, 1 point for an incorrect answer. Your two lowest daily iClicker scores will be dropped and the total weighted to 5% of your grade.

**Discussions:**

Discussions will be led by Stephanie Ostresh (9 and 10 am) and Heather Le Bleu (11 am). The purpose of the discussion section is to give you practice tackling cell biological problems and dissecting primary literature articles. You will also form poster groups in discussion section and do follow up work on midterm exams. There are homework assignments associated with discussion section.

**Poster Assignment:**

During the last week of class we will hold a poster session similar to those held at academic conferences. Students will work in groups throughout the quarter to create poster presentations on a the cell biological basis of a disease and therapy. Attendance at the poster session is mandatory.

**General policy on missed assignments:**

Assignments must be turned in on time and there are no early exams or make-up exams. If you miss a midterm or homework assignment due to unavoidable circumstances your grade will be calculated based on the remaining exams or assignments. If you anticipate an extended absence please contact the instructor.

**No Extra Credit**

There will be no opportunities for extra credit. Please do not ask for exceptions.

**Classroom etiquette:**

Please arrive on time. Classes and discussions begin promptly on the hour. Please do not leave early as this is disruptive to everyone. If you have an unusual circumstance and must leave early, please inform the instructor, and sit near the exit so your leaving is not disruptive. Finally, please be respectful of your fellow students.

**Devices in class:**

Research suggests that writing notes on paper helps you learn and study better. But if you have a need or preference to use a laptop, that's fine. Please avoid doing things that aren't related to the class.

**Academic integrity:**

You are expected to do your own work on homework, discussion section assignments, and exams. Academic misconduct, including cheating and plagiarism, will not be tolerated. You may not use an i>clicker registered to someone else or to allow someone else to use an i>clicker registered to you. You are encouraged to discuss ideas with other students and study together, but do not copy someone else's work or allow anyone to copy yours. All students are expected to conform to the [Student Conduct Code](#). Please note that Instructors are **required** to file a written report of any academic misconduct with the Director of Student Conduct and Community Standards.

**Inclusive Learning:**

We aim to build an inclusive learning environment. We understand that our members represent a rich variety of backgrounds and perspectives. We are committed to providing an atmosphere for learning that respects diversity. While working together to build this community we ask all members to:

- share their unique experiences, values and beliefs.
- be open to the views of others.
- honor the uniqueness of their colleagues.
- appreciate the opportunity that we have to learn from each other.
- value each other's opinions and communicate in a respectful manner.
- keep confidential discussions that the community has of a personal (or professional) nature.

If there are aspects of the instruction or design of this course that result in barriers to your participation, please let us know as early as possible, in person or via email. You may also wish to contact [Accessible Education Services](#) in 164 Oregon Hall, by phone at (541) 346-1155 or [uoaec@uoregon.edu](mailto:uoaec@uoregon.edu). We welcome the chance to help you learn, and will work with you to make it a positive experience.

**Assigned text and online lectures:**

Assigned readings are from the 6th edition of Molecular Biology of the Cell (Alberts et al.) There will be at least one copy available in the science library on reserve. The [4th edition of Molecular Biology of the Cell](#) is also freely available for searching online through PubMed books. Please note that there are always some differences in page numbers for assigned readings, topic arrangement and current knowledge between editions. Online video lectures will be posted to Canvas and will usually be found on [iBiology.org](http://iBiology.org). It is essential to complete reading assignments and watch assigned online lectures prior to class as class time will be devoted to applying knowledge, solving problems and group discussions. Details of assigned lecture prep will be posted to Canvas.

**Overview of classes, discussions, readings, homeworks and exams**

| Week | Class         | Date        | Lectures, Discussions and Exams              | Readings, lecture preps, assignments  |
|------|---------------|-------------|--|---|
| 1    | Class 1       | 1/9         | Cellular organization                        | Read 641-645 (review).  |
|      | Class 2       | 1/11        | Membrane proteins, transporters and channels | HW2 due. Read 576-581, 597-600, 607-611. Watch <a href="#">Yan</a> .                            |
|      | Discussion 1  | 1/11        | Discussion 1: Primary literature intro       |   |
| 2    | Class 3       | 1/16        | Cell signaling                               | HW3 due. Read 153-158, 813-814, 818-821, 832-833, 850-857. Watch <a href="#">Wittinghofer</a> . |
|      | Class 4       | 1/18        | Protein sorting                              | HW4 due. Read 645-657, 669-681. Watch <a href="#">NPC videos</a> .                              |
|      | Discussion 2  | 1/18        | Discussion 2: Article 1                      | Read Article 1. Article 1 Assignment due  |
| 3    | Class 5       | 1/23        | Vesicle transport 1                          | HW5 due. Read 695-703, 710-722. Watch <a href="#">Schekman</a> .                                |
|      | Class 6       | 1/25        | Vesicle transport 2                          | HW6 due. Read 730-744. Watch <a href="#">Lippincott-Schwartz</a> .                              |
|      | Discussion 3  | 1/25        | Discussion 3: Midterm 1 review               |   |
| 4    | <b>EXAM</b>   | <b>1/30</b> | <b>MIDTERM 1</b>                             |   |
|      | Class 7       | 2/1         | Mitochondria and ATP production              | HW7 due. Read 753-759, 774-778. Watch <a href="#">Nunnari</a> .                                 |
|      | Discussion 4  | 2/1         | Discussion 4: Midterm 1 revisit              | Poster groups and topics due.   |
| 5    | Class 8       | 2/6         | Apoptosis                                    | HW8 due. Read 1021-1032. Watch <a href="#">Wang</a> .   |
|      | Class 9       | 2/8         | Ubiquitin, proteasome, autophagy             | HW9 due. Read 357-362, 722-730. Watch <a href="#">Deshaies</a> .                                |
|      | Discussion 5  | 2/8         | Discussion 5: Article 2                      | Read Article 2. Article 2 Assignment due  |
| 6    | Class 10      | 2/13        | Actin cytoskeleton                           | HW10 due. Read 889-914. Watch <a href="#">Pollard</a> .   |
|      | Class 11      | 2/15        | Cell migration and adhesion                  | HW11 due. Read 915-925, 951-960. Watch <a href="#">Theriot</a> .                                |
|      | Discussion 6  | 2/15        | Discussion 6: Midterm 2 review               |   |
| 7    | <b>EXAM</b>   | <b>2/20</b> | <b>MIDTERM 2</b>                             |   |
|      | Class 12      | 2/22        | Microtubules                                 | HW12 due. Read 925-944. Watch <a href="#">Hyman</a> .   |
|      | Discussion 7  | 2/22        | Discussion 7: Midterm 2 revisit              | Abstract and annotated bibliography for poster due.   |
| 8    | Class 13      | 2/27        | Cell cycle                                   | HW13 due. Read 963-977. Watch <a href="#">Morgan</a> .  |
|      | Class 14      | 3/1         | Mitosis                                      | HW14 due. Read 978-1004. Watch <a href="#">McIntosh</a> .                                       |
|      | Discussion 8  | 3/1         | Discussion 8: Article 3                      | Read Article 3. Article 3 Assignment due  |
| 9    | Class 15      | 3/6         | Meiosis                                      | HW15 due. Read 1004-1010. Watch <a href="#">Dernburg</a> .                                      |
|      | Class 16      | 3/8         | Cancer                                       | HW15 due. Read 1104-1113 Watch <a href="#">Beckerle</a> .                                       |
|      | Discussion 9  | 3/8         | Discussion 9: Article 4                      | Read Article 4. Article 4 Assignment due.   |
| 10   | Class 17      | 3/13        | Poster Presentations                         | Poster due  |
|      | Class 18      | 3/15        | Poster Presentations                         | Poster due  |
|      | Discussion 10 | 3/15        | Discussion 10: Poster/Final review           | Poster due  |
| 11   | <b>EXAM</b>   | <b>3/20</b> | <b>FINAL EXAM 12:30 pm</b>                   |   |

*NOTE: Subject to change. Unless noted, readings are Molecular Biology of the Cell 6e, lectures [iBiology.org](#).*