

Course Information and Syllabus

BI 322: Cell Biology Spring 2016

Course Description

Cell biology is a broad but fascinating field that explores the structural and mechanical processes of eukaryotic and prokaryotic cells. Cell biologists ask any number of questions such as: how does a single cell develop into a multicellular organism? or how do cancer drugs distinguish tumor cells from healthy ones? or how do neurons relay messages to other neuronal and muscle cells? The cell continues to yield its mysteries to us as our technology improves. Using molecular biology techniques and powerful imaging tools we can begin to understand the elaborate processes of the cell. In this class we will sample several topics from cell biology, read landmark research papers and student will conduct a small research project and present their topic with a poster presentation. This class is suitable for those who are planning to apply to either graduate or medical school or to the person especially enthused with beauty and functionality of the cell.

Course Objectives

1) Primary Literature: Students can read a primary research article and identify the question asked and hypothesis proposed, explain the reason behind the experiments, dissect the results found in the figures/graphs/tables, and draw the essential conclusions of the paper.

2) Oral Communication: Students can clearly present information they have researched in the style of a poster presentation, mimicking the style that would be found at a scientific conference.

3) Content: Students will be able to

- identify the features of the eukaryotic cell and explain the functions of the various components.
- explain the mechanism of transcription and translation, and how gene expression is regulated.
- describe the process of development from gametes to a multicellular organism
- identify the key features of the cell cycle:
 - explain the major events involved in mitosis and cytokinesis
 - describe the fundamentals of DNA replication
 - explain the relationship between the cell cycle and cancer, and the mechanism behind some of the treatments used.
- explain the fundamental features and functions of the endomembrane system
 - describe the structure of cell membranes, and explain the mechanisms the cell employs to transport substances from one side to another.
 - Explain how the endomembrane trafficking system is used for endocytosis, exocytosis and intercellular transport.
- describe the types of cell communication and process of cell signaling
- Identify the different kinds of cytoskeleton, and the basics of how each type works

General Course Information

<i>Instructor</i>	<i>email</i>	<i>office hours</i>
Amy Connolly	amyc@uoregon.edu	1:30-3:00 pm Monday in 360 Onyx

<i>GTF</i>	<i>email</i>	<i>office hours</i>
Sarah Casper	casper@uoregon.edu	TBD

Email Etiquette:

- I typically do not check my email in the evenings or weekends, so please plan your questions accordingly.
- When emailing the instructor or GTF, please include "BI 322" in the subject line. This helps ensure that we will not overlook your email by accident.

Time and Location

Lecture:	101 Knight Library	MW	10:00 am – 11:20 am
Discussions:	111 Huestis	W	1:00pm - 1:50pm 2:00pm - 2:50pm 3:00pm- 3:50pm

Website

All class information will be posted on Canvas.

Required Supplies

iClicker (available in the Duck Store)
A recent edition of a cell biology text book (see below)

Readings

Mandatory: Primary literature can be found on the schedule and should be read prior to discussion. Homework, discussion activities, and tests will require you have read these.

Recommended: Essential Cell Biology, Alberts, Bray, Hopkins, Johnson, Lewis, Raff, Roberts, Walters , 4th addition

This book can be used as a way of clarifying the concepts we went through in lecture. The textbook readings will correlate to the lectures, and will be a good way reinforce knowledge and answer your questions.

Grading

Clicker Quizzes	5%
Participation	5%
Exam 1	15%
Exam 2	15%
Final Exam	20%
Homework	20%
Poster presentation	20%

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
98+	94- 97	90- 93	87- 89	84- 86	80- 83	77- 79	74- 76	70- 73	67- 69	64- 66	60- 63	59-

Homework

- Homework assignments are posted on Canvas. The homework assignments should be downloaded, printed, and turned in on time.
- Due dates can be found on the Schedule
- Will post one week prior.
- **Late homework will not be accepted.**

Lecture Participation

We are using iClickers as a way to facilitate classroom participation and discussion. Bring them everyday. You will earn 5 points a day for participation. You will need to register your iClicker on Blackboard at some point during the first few weeks of class to ensure that your participation is being scored.

You are allowed two absences in lecture without being penalized. This is in place in case you have forgotten your clicker or have problems with it, if you are sick, or if your needing to be absent for some reason

Clicker Quizzes

Every day you will have a single question quiz relating to the content we are discussing. Just as with the lecture participation (see above), two quizzes will be dropped. This is in place in case you are sick, have problems with your clicker, forgot your clicker, or you are needing to be absent for some reason.

Exams

There will be three exams: two midterms and one final. Study guides will be posted.

No make-up exams will be given, unless there is a legitimate reason (which includes a serious illness, documented by a note from your physician or a family emergency). Missed exams for any other reason will receive a 0.

Grades will be posted on Canvas The final date for adjustments to any grade is one week after the exam has been returned to the student.

The Final Word on Grades:

You will find that your course instructors work hard to support your learning, and provide multiple opportunities for you to be successful. At the end of the term, when your grade has been calculated, please do not request any opportunities for extra credit, or your grade to be bumped up to the next grade level. No such request will be granted.

Classroom Etiquette

Please arrive on time. Lectures and discussion sections 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 sit near the exit so that you may leave quietly. Please be respectful of your fellow students.

Discussion of Controversial Issues:

In this class, we may discuss information that could be sensitive to people from all walks of life. As a biology instructor I feel it is my job to inform you of facts relating to gender, race, disability, sexual orientation and all of the variation that encompasses a wide spectrum of human genetics. The information we discuss is not intended to single out a group or to convince people of any one particular viewpoint.

Discussion of Medical Issues:

In this class, we will be discussing information relating to disease treatment, medicine, genetic testing and gene therapy. As your instructor I can inform you of the various kinds of technology we are either developing or use, but I can not advise you on your own personal choices. I am not a medical doctor. If you are interested in how the things we have talked about may influence you, I would suggest talking to your medical doctor about it.

Inclusiveness

The University of Oregon is working to create inclusive learning environments. Please notify the instructor if there are aspects of the instruction or design of this course that result in barriers to your participation. You may also wish to contact the Accessible Education Center in 164 Oregon Hall at 541.346.1155 or uoaec@uoregon.edu.

Plagiarism & Cheating

Plagiarism and cheating will not be tolerated. You are expected to do your own work on all homework, assignments, and exams. Using another student's iClicker during class constitutes cheating. You are encouraged to discuss ideas with other students and study together, but do not copy anyone else's work, and don't allow anyone else to copy your work. All students are expected to conform to the student conduct code (see URL below) - students not in compliance will be brought to the attention of the University.

Student Conduct Code

http://www.uoregon.edu/~stl/programs/student_judi_affairs/conduct-code.htm

Inclement Weather

If there is an ice storm, it is possible that we will cancel classes, even if the University remains open. Cancellation notices will be posted on Blackboard.

Overview of Classes

	Class
Mon, Mar 28	Introduction and Gene Expression
Wed, Mar 30	Gene Expression
Discussion 1: Wed, Mar 30	Introduction
Mon, April 4	Development I (Meiosis, Embryo Development, Polarity)
Wed, April 6	Development II (Maternal Expression, Induced Pluripotency)
Discussion 2: Wed, April 6	Homework 1 on article due Discuss article 1
Mon, April 11	Cell Cycle
Wed, April 13	Mitosis
Discussion 3: Wed, April 13	Review for Exam 1
Mon, April 18	Exam 1
Wed, April 20	DNA replication and repair
Discussion 4: Wed, April 20	Review missed questions for Exam 1 Groups and topics due.
Mon, April 25	Cell Signaling
Wed, April 27	Cancer Treatment
Discussion 5: Wed, April 27	Homework 2 on article due Discuss article 2
Mon, May 2	Cytoskeleton
Wed, May 4	Membrane Structure
Discussion 6: Wed, May 4	Review for Exam 2
Mon, May 9	Exam 2
Wed, May 11	Membrane Trafficking
Discussion 7: Wed, May 11	Homework 3 due (abstract and outline for poster presentation due) Review missed questions from Exam 2
Mon, May 16	Transport Across Membrane
Wed, May 18	Mitochondria
Discussion 8: Wed, May 18	Homework 4 due on article Discuss article
Mon, May 23	Poster Presentation
Wed, May 25	Poster Presentation
Discussion 9: Wed, May 25	Extra time for Poster presentations
Mon, May 30	Memorial Day
Wed, Jun 1	Genetic engineering: Past and Future (CRISPR)
Discussion 10: Wed, Jun 1	Homework 5 due on article Discuss article
Friday June 10	Final Exam: