BI322 Cell Bio (in Person)

Course Syllabus

Course Prerequisites

Bi214 or Bi282H or equivalent are required. CH 331 is recommended. If you are uncertain about whether you have met the prerequisites, please email me. *If you lack the prerequisites, I encourage you to read Chapters 1 - 5 of the textbook, Essential Cell Biology (5th edition) before the start of the course.*

Expected Learning Outcomes

This course covers eukaryotic cell biology. You will learn the components of a eukaryotic cell and how they are inter-related; methods cell biologists use to study cells (including light microscopy, laser scanning confocal microscopy, electron microscopy, genomics, and other cutting edge techniques); and a glimpse of the role of cells in development and cancer. We will not cover plant cells or prokaryotic cells in great detail.

The goals of this course are to give you:

(1) a basic knowledge of the fundamental concepts of cell biology;

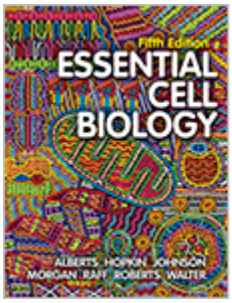
(2) a working cell biology vocabulary;

(3) an understanding of the methods used by cell biologists;

(4) practice thinking analytically and synthesizing information, so that you will be better equipped to read and critically analyze primary scientific literature or media reports on cell biology topics (e.g. stem cell research).

Course textbook

Required readings are mostly from the new 5th edition of Essential Cell Biology (ECB). This is available as a hard copy or as an ebook: 5th Edition ECB (Links to an external site.)



W. W. Norton & Company, Inc.
independent publishers since 1923

Essential Cell Biology
Fifth Edition
Alberts • Hopkin • Johnson
Morgan • Raff • Roberts • Walter

Required reading is to help you understand the lectures, and help you do well on the quizzes. Quizzes will be limited to material covered in the reading; exams will be limited to the material covered in lecture.

Course Website.

We will use Canvas as a course website. The site will contain class postings, details on the readings, links to cell biology movies and other resources that you will need to do well on the exams, and copies of important class materials. Please contact me immediately if you do not have the resources or knowledge to access this website.

iClickers.

We will be using iClickers during lectures and their use will contribute to your participation grade. Please make sure that you have an iClicker and know how to use it.

Discussions Sections.

Most sections will start with a short quiz on the readings or will be a review session for the midterms. Most discussion sections will emphasize methodology relevant to the class, including light, electron and confocal microscopy, antibody production and uses, DNA microarrays, etc. Several “field trips” are planned, including to the electron microscopy facility, and the genomics facility.

Readings and Reading Quizzes.

Reading quizzes serve as a tool to ensure that you are absorbing the reading material, and can be taken twice.

Readings cover the following Chapters from the textbook (see Table below).

Chapter	Title	Page Numbers	Pages
7	From DNA to Protein	227-264	37
8	Control of Gene Expression	267-294	27
11	Membrane Structure	365-388	23
15	Intracellular Compartments and Protein Transport	495-531	36
16	Cell Signaling	533-572	39
17	Cytoskeleton	573-608	35
18	The Cell-Division Cycle	609-648	39
20	Tissues, Stem Cells, and Cancer	691-734	43
		Total:	279
		Average:	35

Exams.

There will be two midterm exams and one final exam. The exams will cover material from both lectures and readings, but with an emphasis on lectures.

Student Engagement.

Engagement with students is mostly via lectures, readings and instructor-moderated discussions.

Discussions	10 instructor-moderated discussions @ 1 hr	10
Assigned readings	1 Chapter (35 pages) per week @ 5 hrs	50

Lectures	20 lectures @ 1.5 hours	30
Film-viewing	1.5 hrs per week	15
Problem sets	10 reading quizzes @ 1 hrs each	10
Exercises	Learning objectives or flash cards @ 0.5 hrs per week	5
	Total hours:	120

Office Hours

Office hour will be every Tuesday from noon to 1pm. Some of these will serve as follow up for discussion assignments, and all will offer a chance to ask any questions. In addition, you can schedule a personal meeting with me by emailing me: pwash@uoregon.edu

Grading Scale and Rubric

A+: Work of unusual distinction, only used when a student's performance significantly exceeds all requirements and expectations for the assignment. This grade is rarely awarded.

A: Excellent grasp of the material, with precise and insightful analysis and arguments. Must be well executed and reasonably free of errors. Can signify strong performance across the board, or exceptional performance in one aspect of the assignment offsetting somewhat less strong performance in another.

B: Work that satisfies the main criteria of the assignment, and demonstrates good command of the material, but does not achieve the level of excellence that characterizes work of A quality.

C: Work that demonstrates a basic grasp of the material and satisfies at least some of the assigned criteria reasonably well.

D: Work that demonstrates a poor grasp of the material and/or is executed with little regard for college standards, but which exhibits some engagement with the material.

F: Work that is weak in every aspect, demonstrating a basic misunderstanding of the material and/or disregard for the assigned question or prompt.

Plus (+) is added to a grade when the student's performance is at the upper end of the range for that grade.

Minus (-) is added to a grade when the student's performance is at the lower end of the range for that grade.

Your course grade will be based on the point distribution below:

Assignment	**Number**	**Contribution**
Surveys	3	5%
Reading Quizzes	8	15%
Participation	-	5%
Midterms	2	45%
Final	1	30%

Bin	*Grade*
≤50	F
≤60	D-
≤63.3	D
≤66.7	D+
≤70	C-
≤73.3	C
≤76.7	C+
≤80	B-
≤83.3	B
≤86.7	B
≤90	B+
≤93.3	A-
≤96.7	A
≤100	A+

Professional Conduct.

You are expected to follow the student conduct code; academic dishonesty includes cheating, plagiarizing or knowingly supplying false information. If you are aware of academic dishonesty occurring, please contact me.

COVID-19 Policy

This class is in person. All present should be vaccinated and boosted per UO policies. Masks are appreciated. I will not wear a mask while lecturing, but may wear a mask in closer settings, eg office hours. If you test positive, have close interaction with someone who tests positive or if you start showing symptoms please refrain from coming to class to protect others. Here are links to the UO COVID-19 Safety Resources, a symptom self-check and a list of symptoms.

Students with Disabilities.

The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 360 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.

Schedule.

Below, find a typical schedule for the course:

Week	Lecture Topic	ECB4 Chapter	Quiz	Discussion Section
1	Intro, gene expression	7		
	gene expression	7		
2	gene regulation	8	1 (gene expression)	
	gene regulation	8		Quiz 1. + 'omics (P.W.)
3	cellular membranes	11	2 (gene reg + membranes)	
	Intracellular transport	15		Quiz 2. + Sequencing/Genomics (Doug Turnbull)
4	Vesicle transport	15	3 (intra. transport)	

	Midterm 1			Quiz 3. + review
5	cell signaling	16	4 (ves. transport)	
	cell signaling	16		Quiz 4. + EM (Denise Niell/Josh Razink)
6	cytoskeleton	17	5 (cell signaling)	
	cytoskeleton	17		Quiz 5. + midterm 1 review
7	cell division	18	6 (cytoskeleton)	
	cell division	18		Quiz 6. + fluorescence microscopy (Joseph Bruckner)
8	tissues and cell junctions	20	7 (cell div)	
	Midterm 2			Quiz 7. + review
9	stem cells	20	8 (cell div 2 + tissues)	
	cancer	20		Quiz 8. + antibodies (Nick Sattler)
10	TBD research lecture			Review
11	**Final Exam (12:30)**			