

BI322 Cell Bio (Online)

Course Syllabus

Course Prerequisites

BI 214 or BI 282H 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

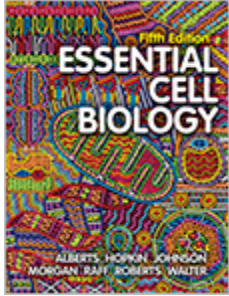
This course covers eukaryotic cell biology. You will learn the components of a eukaryotic cell and how they are inter-related; methods cell biologists use to study cells (including light microscopy, laser scanning confocal microscopy, electron microscopy, genomics, and other cutting edge techniques); 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

In each weekly module, there will be a page dedicated to each chapter to be covered, with an overview, focus material, and additional resources, such as videos, learning objectives and flashcards from the textbook.

Focus material.

I have provided additional material on subjects that delve beyond what is provided in the textbook. Often these concern subjects that are close to my heart, or concern subjects that get short shrift in the textbook, or are subject matters that I think one should know as a biology student with a molecular / cellular focus.

Techniques Modules.

These are provided to allow you to explore common cell biological techniques. Think of them as virtual field trips.

Discussions.

Each week I will provide a discussion topic that you will discuss with your group. I expect you to first try to answer the question and then make comments on other's answers in a respectful way. We will then go over the discussion topic and any other questions you have in office hour Zoom meetings.

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

Tests.

These are to be taken once and will help unlock the next week's module. They contribute more to your grade and will prepare you for the types of questions in the exams.

Exams.

There will be two midterm exams and one final exam. The exams will cover material from both readings and focus material. They are scheduled over several days, maximizing your flexibility as to when you can take them.

Student Engagement.

This course is an online, asynchronous course. Accordingly, the engagement with students is mostly via pre-recorded lectures and instructor-moderated discussion boards.

<i>Online interaction</i>	3 instructor-moderated discussion boards @ 2 hrs	6
<i>Assigned readings</i>	1 Chapter (35 pages) per week @ 5 hrs	50
<i>Lectures</i>	20 lectures @ 1.5 hours	30
<i>Film-viewing</i>	2 hrs per week	20
<i>Problem sets</i>	10 reading quizzes @ 0.5 hrs each	10
<i>Exercises</i>	Learning objectives or flash cards @ 0.5 hrs per week	5
	Total hours:	121

Office Hours

Office hour Zoom meetings 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. As a web-based course, participation is entirely voluntary, but I think the personal contact will help consolidate the material. Passcode: nucleus

In addition, you can schedule a personal Zoom 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	Notes
Surveys	3	5%	
Reading Quizzes	8	5%	
Tests	9	15%	2 worst scores will be dropped
Discussions	3	10%	
Midterms	2	35%	
Final	1	30%	

<i>Bin</i>	<i>Grade</i>
≤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.

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.

Although the goal of this online course is to maximize schedule flexibility, the amount of content makes it imperative to work through the material at a steady pace. For this reason, the Chapter materials are made available in a weekly sequence. By completing the tests and the discussion, you will be able to move on to the next module.

The techniques modules have less of a time constraint: you can work on that material whenever you want during the summer session.

	Chapters	Exams	Techniques Modules	
Week 1	07 DNA to Protein 08 Control of Gene Exp. 11 Membrane Structure	Midterm1	Microscopy	Genomics
Week 2	15 IC and Protein Transport 16 Cell Signaling			
Week 3	17 Cytoskeleton 18 The Cell-Division Cycle	Midterm2		
Week 4	20 Tissues, Stem Cells and Cancer	Final		