Cellular Biology

Biol 350 - Fall Semester, 2016 Lecture: 3:00 pm to 4:15 pm

ALL MATERIAL FOR THIS COURSE IS AVAILABLE FOR DOWNLOAD ON DESIRE2LEARN

Instructor: George Gomez Office Hours: MR, 9:30-11:00; M 4:30-5:30
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Cell Biology is a discipline by which we attempt to gain an understanding of the structure and function of eukaryotic cells. This increasingly means studying the molecular mechanisms by which organelles and macromolecules interact to perform specific functions within and around each cell.

Student Learning Outcomes for Biology 350

Upon completion of this course, students will be expected to:

1. Identify the major eukaryotic organelles, describe the function of each
2. Describe how protein folding and modification mediates, regulates, and modulates all cellular function.
3. Outline the processes of macromolecule synthesis and traffic
4. Describe the components of the cytoskeleton and extracellular matrix, and discuss how their interrelationship affects cell shape, growth, function, and division.
5. Describe the mechanism of transport, energy generation and metabolism via transmembrane gradients
6. Discuss how cells receive signals from the extracellular environment, and hypothesize how these signals cause changes in cell structure or function.

Office Hours and email consultation

My posted office hours are MR, 9:30-11:00; M 4:30-5:30. This means that during this time, you will likely find me in my office. You also have the lab time (when you are not busy) to consult with me. Other times are dedicated to my research students, tutorial students, and time that I need to check your work or prepare material for the lectures.

If you wish to see me outside of office hours, please try to schedule an appointment. Otherwise, you might catch me when I am otherwise engaged with other pursuits, and thus impinging on my time dedicated to other academic pursuits.

I welcome all email inquiries, and I try my best to answer them as quickly as possible. Here is the caveat: if you wish to ask me a question by email, you must also include what you think is the correct answer. If you wish to request a meeting, please include a general topic of our meeting ("discuss the exam", "I have questions about the last lecture", etc.); this will help me prepare for our meeting. If you email to request a postponement/ delay for a submission deadline, please include a brief rationale for your request.

If your emails do not include such text, they will likely be ignored.

Remember that emails sent in the context of this course are professional communications. You are not texting your buddy, so using abbreviations like "LMK" or "WTF" are not acceptable. Use appropriate language for requests. Learning and using appropriate email etiquette is important for your professional development.

Course material and resources:

This course will be delivered in a "flipped lecture" format. What this means is that prior to coming to class, you will be given resources (lectures, short videos) beforehand. It is your job to watch this material BEFORE coming to class. The goal of these resources is to deliver the necessary content that you would need to know for the lecture. The videos will be accompanied by detailed text instructions as to the information that you need to know. **Make sure that you are prepared for every lecture!**

The lectures that follow will be dedicated to discussing the material and the applications of the material. So the class itself will focus on exact operating mechanisms, implications, etc. that will help you understand how the material that you learned applies to different types of situations that you have not seen before.

All material will be uploaded on D2L so that you may view it at your convenience. PDFs of the "lecture material" (Powerpoint slides) will also be uploaded on D2L; however, due to the nature of the class, we may not follow the slides in exact order. The slides will therefore serve as an outline for topics that you need to understand, as well as a content delivery system for items that you need to know.

While this seems that it is a lot of work, in the long run, you will actually spend less time studying for exams with this format.

Textbook

Molecular Biology of the Cell by B. Alberts: It is a complete and comprehensive textbook for cell biology and is a useful one to have as a desktop reference. Nearly all figures in the lecture come from the book. This is NOT a required textbook (in other words, you will not have assigned readings from the book)– you may use any cell biology resource that you wish, as long as you can find an adequate source that will allow you to obtain the information that you need. This book has both paper and electronic versions.

Attendance Policy

It is my job to help you learn Cell Biology. If you feel that you can learn it without coming to class, that is up to you. Hence, attendance will not be taken for lecture, but it is important that you remember that class participation and open discussion are important parts of the learning process. Consistent absenteeism merely demonstrates to me that you are not interested in interactive learning. It will not be acceptable, especially if you are begging me not to fail you for the course. Attendance at all lectures certainly works to your benefit, as exam questions will be based primarily on material covered in lecture.

Unexcused absences result in forfeiture of your rights to consult with me outside of class. If you miss class, don't expect me to spend any of my office hours helping you catch up. However, if you have the COURTESY to let me know that you will miss class for a legitimate reason (illness, surgery, med school interview, athletic event, etc.), then I will show you the same courtesy.

When you are in class, **be courteous to your classmates.** Believe it or not, some of them actually want to learn something, and they paid a lot of money to come to school. Examples of discourteous behavior include: distracting them (by any means, including using cell phone usage and text messaging), being unprepared for class and then wasting time by asking questions that about stuff that you should know, etc. If you are waiting for a phone call or text, or if you feel you would rather chat with your classmate, have the courtesy to do so OUTSIDE the classroom so that you don't distract your classmates

Grading Policy:

Final grades will be based on the total number of points accumulated by each individual over the course of the semester. Approximate letter grades will be posted for each examination in order to aid students in determining their relative performance on the exam. The grade for the lecture portion of the course will be derived from FOUR unit exams worth 100 points each (each exam score will be scaled to 100 points, regardless of the point value for the exam). The total score for the on-line assignments/quizzes will merely be added to the total, but will not exceed the equivalent of one exam.

Grading Scale

Final grades will be assigned using the following percentage scale:

94-100%	A	90-93.99	A-
87-90.99	B+	84-86.99	B
80-83.99	B-	77-79.99	C+
74-76.99	C	70-73.99	C-
66-69.99	D+	60-65.99	D
<60	F		

You must keep track of your own academic progress and make sure that your grades are where you want them to be. If you find yourself on the short end of the grades at the end of the semester, **NEVER ask me to bump your grade up for whatever reason** (because you need it to keep your scholarship, because your mother will kill you, etc.). If you do, the AUTOMATIC ANSWER will be an emphatic **"NO!"**, and I will make SURE that I will not bump it up at the end of the semester, even if you deserve it. Your performance should speak for itself – it is your job to make SURE that it does, and it is my job to grade you accordingly. This also removes all traces of possible favoritism, bribery, etc.

If you say that "you are worried about your grade", that's a no-brainer – EVERYONE should be worried about their grades. Your focus should not be on your grades but on whether you are learning how to understand the material.

Exam Format and Policies

Exams will constitute a large proportion of your grade; each exam (no matter what point value) will be weighted equally. **All exams will be administered on-line via Desire2Learn.** They will follow roughly the same format; sample exams are posted on D2L. Unit exams will cover material presented in the lectures as indicated on the course syllabus. Each exam will involve both objective and essay-type questions. Expect essay questions to require you to integrate basic concepts from the matter covered in the previous exam (don't worry – I will only ask about general concepts and things you SHOULD know, and not specific details). Exams will often contain application questions, where you will be given new information, and it will be up to you to apply your knowledge from the lecture. The fourth unit exam will be given during the final examination period and will not be comprehensive. Exams will require you to apply the concepts and techniques you have learned to situations not covered directly in class. The exact point value of all questions will be clearly indicated on the exam so that you can determine which questions to spend the most time answering.

Pointers for review will be distributed prior to each exam. The only things you need to MEMORIZE will be clearly outlined in the pointers. If, at any point in class, you ask me "do we

need to memorize this/know this for the exam?", the automatic answer will be YES, and I WILL put it in the exam, just for you.

For your reference and practice, sample exams from previous iterations of the course are posted on Desire2Learn. I STRONGLY encourage you to look at this material.

Students missing an exam must contact Dr. Gomez within 24 hours of the exam period or receive a failing grade for the exam. **In order for an absence to be excused, the student must provide a written excuse from the Student Health Service or a parent or guardian, and the excuse must contain a phone number for contacting the person who authored it.** Each case involving an excused absence will be dealt with on an individual basis.

Academic Code of Honesty

You are reminded of the Academic Code of Honesty in place at the University of Scranton. All tests and other graded assignments fall under the auspices of this policy. All graded materials (including laboratory notes and write-ups) must contain only work that you have completed yourself.

I HAVE A ZERO TOLERANCE POLICY FOR ACADEMIC DISHONESTY! That means that if you are caught violating the Academic Code (cheating, plagiarism, false reporting), **YOU AUTOMATICALLY FAIL THE COURSE**.

Seeking outside help:

Do not wait to seek help or tutoring. One major mistake that students make is that they do not seek outside help PRIOR to "getting in trouble". Try to seek help from outside sources as early as possible. Take advantage of my office hours.

This semester, I have assembled a team of students who have all taken the class before and who will also serve as teaching assistants for the laboratory. They are all registered as tutors through The Center for Teaching and Learning Excellence (CTLE). Seek their assistance early.

I am generally available by email, and will happily answer your questions electronically. However, when you ask me a question by email, you MUST include what you think is the correct answer to your question (and provide a brief rationale). If your email has a request for me, you must also provide a brief rationale behind your request. Otherwise, your question/request will be ignored.

Students with Disabilities

In order to receive appropriate accommodations, **students with disabilities must register with the Center for Teaching and Learning Excellence and provide relevant and current medical documentation.** Students should contact Mary Ellen Pichiarello (570-941-4039, LSC 580) for an appointment. For more information, please visit www.scranton.edu/disabilities.

Writing Center Services/CTLE

The Writing Center focuses on helping students become better writers. Consultants will work one-on-one with students to discuss students' work and provide feedback at any stage of the writing process. Scheduling appointments early in the writing progress is encouraged.

To meet with a writing consultant, stop by during the Writing Center's regular hours of operation, call (570) 941-6147 to schedule an appointment, or complete the Writing Assistance Request Form online. You can also schedule an online appointment using Google Docs and Google Talk.

Day	Date	Schedule of Topics	Chapter References
M	Aug 24	Course introduction	1 to 3
W	Aug 26	Review of Cellular Chemistry	1 to 3
M	Aug 31	Proteins: structure and function	3
W	Sep 2	Protein Synthesis and Processing	6
M	Sep 7	*LABOR DAY*	
W	Sep 9	Protein Synthesis and Processing	6
M	Sep 14	The Nature of Cell Membranes	10, 11
W	Sep 16	Nuclear Structures, Metabolism and Transport	12
M	Sep 21	**EXAM I**	
W	Sep 23	Golgi and vesicular transport	12, 13
M	Sep 28	Lysosomes, Endocytosis and Exocytosis	13
W	Sep 30	Cytoskeleton : Microtubules and Motors	16
M	Oct 5	Cytoplasm, Micro- & Intermediate Filaments	16
W	Oct 7	Cytoskeleton: Actin, Myosin, and Cell Motility	16
M	Oct 12	Integration lecture: Putting It All Together	
W	Oct 14	**EXAM II**	
M	Oct 19	*FALL BREAK*	
W	Oct 21	Cell Signaling: Ligands and Receptors	15
M	Oct 26	Second Messenger Signaling I	15
W	Oct 28	Second Messenger Signaling II	15
M	Nov 2	Receptor Kinases and Phosphatases	15
W	Nov 4	Receptor Kinases and Phosphatases II	15
M	Nov 9	Cell Signaling: Extracellular Matrix	19
W	Nov 11	Cell Signaling: Long Distance Communication	19
M	Nov 16	**EXAM III**	
W	Nov 18	Cell Cycle	17
M	Nov 23	Cell Cycle	17
W	Nov 25	*THANKGIVING*	
M	Nov 30	Cell Death and Senescence	18
W	Dec 2	Cell Growth and Differentiation	TBA
M	Dec 7	Cell Growth and Differentiation	
Finals Week		**EXAM IV**	

Point Distribution Timeline/Calendar

Below is an overview of all your assignments for both lecture and laboratory. This will give you an idea of where/when all your points will be earned, as well as help you plan your semester. These dates are **set in stone** unless exigent circumstances (weather, acts of God, acts of Provost/President) force us to change our schedule. Please refer to this EARLY and OFTEN.

Point Distribution Timeline

Fall Semester 2015

Week	Day	Date		Points Lecture	Points Lab
1	M	Aug 24			
2	*F*	*Sep 4*	Figure Legends Writing Assignment		10
3	M	Sep 7	*LABOR DAY*		
4	*Su*	Sep 13	Lab Report 1 (11:55 pm)		30
5	M	Sep 21	**EXAM I**	100	
6	M	Sep 28			
7	*Su*	*Oct 4*	Methods Writing Assignment (11:55 pm)		15
	M	Oct 5			
8	M	Oct 12			
	W	Oct 14	**EXAM II**	100	
9	M	Oct 19	*Fall Break*		
10	*Su*	*Oct 25*	Lab Report 2 (11:55 pm)		65
	M	Oct 26			
11	M	*Nov 2*			
12	Su	8-Nov	Abstract Writing Assignment (11:55 pm)		20
	M	Nov 9			
13	M	Nov 16	**EXAM III**	100	
14	M	Nov 23			
15	M	Nov 30			
	FR	*Dec 4*	Final Lab Report (11:55 pm)		100
			notebooks (5 entries, 5 pts each)		25
16	Finals Week		**EXAM IV**	100	
			Totals	400	265
				60%	40%

Week #		Sun	Mon	Tue	Wed	Thur	Fri	Sat
1	Aug	23	24 - classes begin	25	26	27	28	29
2	Sep	30	31	1	2	3	**Writing 1 (10 pts)**	5
3		6	7 Labor Day	8	9	10	11	12
4		**Lab Report 1 (30 pts)**	14	15	16	17	18	19
5		21	**Exam 1 (100 pts)**	22	23	24	25	26
6	Oct	27	28	29	30	1	2	3
7		**Writing 2 (15 pts)**	5	6	7	8	9	10
8		11	12	13	**Exam 2 (100 pts)**	15	16	17
9		FALL Break			21	22	23	24
10		**Lab Report 2 (65 pts)**	26	27	28	29	30	31
11	Nov	1	2	3	4	5	6	7
12		**Writing 3 (20 pts)**	9	10	11	12	13	14
13		15	**Exam 3 (100 pts)**	17	18	19	20	21
14		22	23	24	THANKSGIVING			
15	Dec	29	30	1	2	3	**FINAL LAB (100 pts)**	5
16		**6**	7	**Finals Week: Exam 4 (100 pts)**				12