Cell Biology PCB 4023 - B51

Florida International University
Spring 2017

Course Time: Tuesday and Thursday 9:30 AM – 10:45 AM
Course Location: Academic Center One 194
Instructor: Helena Schmidtmayerova, Ph.D.
Office: AC I 383A
Office hours: Mon: 12:00 PM – 2:00 PM
Wed: 10:00 AM- 1:30 PM
Tue/Thur: 2:00 PM - 3:00 PM (except for the 2nd Thursday of the month) or by the appointment
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COURSE DESCRIPTION:
Cell Biology is an experimental science studying cell structures and functions. In this course you will explore in greater depth fundamental concepts from cell and molecular biology, such as the relationship between molecular structure and function, the dynamic character of cellular organelles, the use of chemical energy in running cellular activities, the observed unity and diversity at the macromolecular and cellular levels, and the mechanisms that regulate cellular activities. You will further uncover how disruption of these functions at cellular level may lead to human disorders.

COURSE GOAL is to translate a fundamental knowledge of cell biology and apply this knowledge to recognize connections between human diseases and functional disorders at the cellular and molecular levels. Upon completion of the course, students will be able to:

1. Explain basic properties of cells, distinguish prokaryotic and eukaryotic cell structure and function, and outline viral diversity
2. Describe the nature of biological molecules
3. Explain the function of enzymes as biological catalysts and define metabolic pathways
4. Recognize the relationship between the structure and function of the plasma membrane. Explain how substances are moved across cell membranes.
5. Recognize interactions between cells and their environment, outline the role of cell adhesion in inflammation and metastasis
6. Define structure and function of cytoplasmic membrane system and membrane trafficking. Explain human disorders resulting from defects in lysosomal function
7. Define structure and function of cytoskeletal elements, and identify the role of cytoskeleton in movement of materials and organelles within cells.
8. Explain cellular reproduction and outcome of meiotic nondisjunction
9. Define the role of cell signaling and signal transduction in communication between cells
10. Recognize the cause and the genetics of cancer
11. Explain basic cellular activities behind immune response to pathogens

LEARNING MATERIAL:

Gerald Karp, *"Cell and Molecular Biology: Concepts and Experiments* ", 7th edition, John Wiley & Sons, Inc. **(ISBN: 9781118571248 -** includes hard copy an access code to WileyPlus**).** Alternatively, you can purchase digital version that includes eBook and *WileyPlus* access code (**ISBN: 9781118498019**).

The textbook is your basic reference book. However, there will be additional readings as well. Course will be web-assisted via blackboard and assign readings will be posted on blackboard periodically throughout the semester. **You will need iClickers for in class activity.**

CLASS ATTENDANCE AND PARTICIPATION

- Class attendance is highly recommended**.** Class attendance will help you master the course material. In addition, exams may cover material not included in textbook or lecture PowerPoint outlines.
- In the case of missed lecture days or impending absences, **students are responsible for obtaining lecture notes and in-class announcement information from fellow classmates.**
- **All electronic communication equipment (i.e. phones, computers, i-pads) must be silenced** so as to not encumber the learning and thinking process of others.
  Disruptive behavior during lectures/exams is deemed inappropriate and will not be tolerated. I encourage you to limit use of computers, i-pads, tablets, etc. in the classroom. I want you to be an active participant of the course engaged in discussions and disputes.

HOW WILL YOU SUCCEED IN THIS COURSE?

Prepare and Participate: Be active in the classroom. Active class participation is very important and even though you might feel nervous to raise your hand and speak, please do so; ask questions, answer questions, trigger discussions, share what you have been reading. Any course material relevant question is appropriate, so do not hesitate to ask. Remember that having an inquisitive mind is vital for science and learning. You will discover that being active in the class will help you to learn. However, in order to be active in the class **you have to come prepared**. If you want to succeed in the class you have to do your work, complete your home assignments and readings
before coming to the class. Identify challenging concepts and material and prepare relevant questions for the class. Remember that: ***"The will to succeed is important, but what's more important is the will to prepare (Bobby Knight)".*** This applies not only to sport, but to your studies as well.

Communicate: Don't try to solve all class challenges by yourself. Talk.....Talk to your peers, talk to me. Come to my office and share your concerns, request further clarifications of the material, share your thoughts. Let me know if any of the material or class activity is challenging for you and you struggle with it. We will try to find solution together. Don't wait until the end of semester to do so; come early and come as many time as you need. If you can't come during my office hours, please take an appointment. It is important that you start doing this early in the semester in order to overcome obstacles and succeed.

HOW WILL YOUR PROGRESS BE ASSESSED?

Your progress will be assessed based on your performance in **three tests, the final cumulative exam, and class activities. The final cumulative exam is mandatory and will account for 200 points (20%) of your final grade.**

Grade Distribution:
Test1 – 200 points
Test 2 – 200 points
Test 3 – 200 points
Final exam – 200 points
Class activity – 200 points
Total: 1000 points = 100%

All tests will consist of multiple-choice, matching, true-false questions, and short answer questions.
Test make-up: You will be able to make-up for one missed test. **All make-up exams will have an assay format.**

There will be no make-up for the final exam unless circumstances beyond the student's control arise and are accompanied by the appropriate documentation:

-Death of an immediate family member requires official bereavement statement.
-Student/immediate family member with acute/terminal illness require an official hospital/clinic notification.
-Traffic accident requires official accident report.
-Jury duty requires county clerk summons.
-Military duty.

If granted, make-up for the final exam will have an assay format

Class activity will consist of iClicker questions, minute papers, and group activities that will NOT be posted online. **Class activity will NOT be announced in advance and you will NOT be able to make-up for them.** In addition, you might have homework assigned in class that will not be posted on Blackboard and will account for class activity as well.

You will form groups during 2nd week of the semester and work with your group on application and challenging problems. Points from iClickers, group activities, and other class assignments will be added and max points possible will correspond to 100% (=200 points).

Grading scale:

A	93 % - 100%
A-	90 % - 92.9 %
B+	88 % - 89.9 %
B	83 % - 87.9 %
B-	80 % - 82.9 %
C+	78 % - 79.9 %
C	70 % - 77.9 %
D	60 % - 69.9 %
F	<60%

EXAM DATES:

Test 1 – Thursday, February 2
Test 2 – Thursday, March 9
Test 3 – Thursday, April 13
FINAL EXAM- Tuesday, April 25, 9:45 AM – 11:45 AM

EXTRA CREDITS: You will have two options for earning extra credit. Your first option is completing Extra Credit Assignments in WileyPlus. You will NOT be able to make-up for this extra learning activities. Shortly, you miss the assignment; you miss the chance to get credits for it. How the extra credit be calculated? You will have 12 assignments. Points for each assignment may vary from 30 to 50 points. Maximum points possible will correspond to 100%. Your extra credit points will be calculated as follows:

Assignment 90 % - 100 % = Extra credit 60 points (6%)
Assignment 80 % - 89 % = Extra credit 50 points (5%)
Assignment 70 % - 79 % = Extra credit 40 points (4%)
Assignment 60 % - 69 % = Extra credit 30 points (3%)
Assignment 50 % - 59 % = Extra credit 20 points (2%)

Extra credit points will be added to your final score.

The second option to earn extra credit is short 5-8 minutes presentation of peer-review article relevant to the course material. The article has to be approved and presented following the class topic schedule. You can earn up to 40 (4%) points for presentation. Selection for presentation will be on the first come base, so don't wait until the last weeks to presents.

You can choose to do both extra credits and earn up to 100 points (10%).

IMPORTANT NOTE: Please remember that your grades are earned, not given. I will not answer emails or personal requests asking for better grades than earned in class. Your grades will be based on your achievements and class activity.

ACADEMIC MISCONDUCT POLICY:

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct (e.g. cheating, plagiarism, academic dishonesty), they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the FIU Student Handbook under the "Academic Misconduct" section."

If found cheating (the unauthorized use of books, notes, aids, electronic sources, or assistance from another person with respect to examinations, course assignments, or the unauthorized possession of examination papers or course materials, whether originally authorized or not) you will receive an "F", no exception.

TENTATIVE ASSIGNMENT SCHEDULE:
(Please be advised that the course syllabus schedule of events is subject to change)

Week	Subject	Assign chapters to read
1st week January 9-15	**Introduction to the study of cell**	**1**
2nd week January 16-22	**The chemical bases of life**	**2**
3rd week January 23-29	**Enzymes and metabolism**	**3**

4th week **January 30- February 5**	**Quiz 1: Thursday, February 2**	
5th week **February 6-12**	**The structure and the function of the plasma membrane**	**4**
6th week: **February 13-19**	**Interactions between cells**	**7**
7th week: **February 20- 26**	**Cytoplasmic membrane system**	**8**
8th week: **February 27 March 5**	**The cytoskeleton and cell motility**	**9**
9th week: **March 6- 12**	**Quiz 2: Thursday, March 9**	
10th week: **March 13- 19**	**Spring Break**	
11th week: **March 20-26**	**The cell nucleus** **Cellular reproduction**	**12** **14**
12th week: **March 27- April 2**	**Cell signaling**	**15**
13th week: **April 3 -9**	**Cancer**	**16**
14th week: **April 10-16**	**Quiz 3: Thursday, April 13**	
15th week: **April 17- 23**	**The immune system** **Review of cell biology**	**17**

FINAL EXAM: Tuesday, April 25, 2017, 9:45 AM – 11:45 AM