



Loyola University Chicago: Biol 251

John Felice Rome Center

Fall 2024

Tuesday | 6:45-9:15pm

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Office Hours: Tue. 6:15-6:45pm by appointment

Course Description

The cell is a fascinating, complex, and dynamic unit that forms the fundamental basis of unicellular and multicellular life. The cell makes active decisions involving signal transductions, membrane dynamics, gene expression regulation. The Cell Biology course provides a basic understanding of the structure and function of cell, cellular organelles, cellular components, and the functional interaction of the cell with its microenvironment. As you proceed through the lectures you will increase your knowledge and you will become able to apply this knowledge, skill, and awareness that are critical for any scientific career.

Besides lectures, the course includes active learning activities and discussions which are fundamental for successfully complete the course and achieve the learning objectives. Each of student is required to find, report on and critique a scientific paper related to a specific week's topic (one paper for each student during the entire semester)

Learning Outcomes

On completion of the course students should be able to:

- Develop the skills to understand the basics of cytological, biochemical, physiological and genetic aspects of the cell.
- Describe cellular processes common to all cells, to all eukaryotic cells as well as processes in certain specialized cells.
- Relate normal cellular structures to their functions.
- Identify and explain cellular processes and mechanisms that lead to physiological functions as well as examples of pathological state.
- Analyze, discuss and critically evaluate original literature in cell biology related to each week's topic
- Communicate results and interpretations of scientific research.

Studying for class

Cell Bio 251 covers a significant amount of material. The book is very detailed, but you are required to know the material discussed during lectures. Reading the book after lecture will allow you to better find and focus on the material covered in class. Study groups are good to prepare for the exam where you can share your knowledge and solve your doubts. Please, feel free to ask questions during lecture and during office hour by appointment. Attendance is strongly advised as the exam will focus on my lectures and corresponding slides and I will draw exam questions from them.

Required Text / Materials

"Molecular Biology of the Cell", Bruce Alberts et al; Garland Science 7th Edition

Students can purchase a digital **ebook** copy on the following link:

[Molecular Biology of the Cell | Bruce Alberts, Rebecca Heald, Alexander Johnson, David Morgan, Martin Raff, Keith Roberts, Peter Walter, John Wilson, Tim Hunt | W. W. Norton & Company \(wwnorton.com\)](https://www.wwnorton.com)

Assigned readings and power point slides of each lecture will be posted on Sakai a few days before each class.

Attendance Policy

In accordance with the JFRC mission to promote a higher level of academic rigor, all courses adhere to the following absence policy. Prompt attendance, preparation and active participation in course discussions are expected from every student.

- For all classes meeting once a week, students cannot incur more than one absence.
- For all classes meeting twice a week, students cannot incur more than two absences.
- For all classes meeting three times a week, students cannot incur more than two absences.

This course meets once a week, thus a total of one absence will be permitted.

Absences beyond these will result in 1% lowering of the final course grade.

The collective health of the JFRC is everyone's responsibility. Do not attend class if you are ill.

Assessment Components

Participation	5%
4 exams (Mid-term and Final Exam included)	75%
Review/Scientific original paper presentation	20%

Grading

There will be three non-cumulative exams during classes and the fourth one during final exam week. The exams will consist of multiple choice-type questions and short open questions.

Grade	Cut off	
A	94-100%	Excellent
A-	90-93%	
B+	87-89%	
B	84-86%	Good
B-	80-83%	
C+	77-79%	
C	74-76%	
C-	70-73%	
No passing grade		
D+	67-69%	
D	60-66%	Poor
F	0-59%	Failure

Academic Honesty

Plagiarism and other forms of academic dishonesty are unacceptable at the JFRC and will be dealt with in accordance with Loyola University Chicago's guidelines. Please familiarize yourself with Loyola's standards here: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml. You are responsible to comply with the LUC Student Handbook.

Late or Missed Assignments

Late or missed assignments will not be accepted for grading without the authorization of the instructor. **As per the JFRC academic policies, students who miss any scheduled exam or quiz, including a final exam at**

the assigned hours will not be permitted to sit for a make-up examination without approval of the Associate Dean of Academic Affairs. Permission is given rarely and only for grave reason; travel is not considered a grave reason. Make-up exams will only be given for documented absences.

Accessibility Accommodations

Students registered with the Student Accessibility Center requiring academic accommodations should contact the Office of the Dean at the John Felice Rome Center, the first week of classes.

Course Schedule

Tentative Lecture & Exam Schedule for fall semester 2024

Note: The following schedule is subject to change depending on pace of material coverage.

Date		Lecture	Week	Book Chapter*
September	T 3	Welcome and Introduction to Cell Bio Introduction to the Cell: Cell Biology, Chemistry and Biosynthesis, Energy and Enzymes	1	1-2
	T 10	Introduction to the Cell: Protein Structure, Protein Function, Protein Kinetics	2	3
	T 17	Genetic Mechanisms: from DNA to protein; Introduction, Transcription, Translation	3	6-7
	T 24	<i>Exam 1</i>	4	
October	T 1	Internal Organization of the Cell: Membrane Structure, Function and Transport	5	10-11
	T 8	Internal Organization of the Cell: Intracellular Compartments and Vesicular Transport	6	12-13
	T 15	<i>No classes- Fall semester break</i>		
	T 22	<i>Exam 2</i>	7	
	T 29	Internal Organization of the Cell: Mitochondria and Energy Conversion	8	14
November	T 5	Internal Organization of the Cell: Cytoskeleton and Molecular Motors Cells in their Social Context: Cell Junction, Cell Adhesion and Extracellular Matrix	9	16-19
	T 12	<i>Exam 3</i>	10	
	T 19	Mechanisms of Cell Communication: Signal Transduction, G-Protein Receptors, RTKs	11	15
	T 26	Mechanisms of Cell Communication: Signal Transduction, RTKs	12	17-18
December	T 3	Cell Cycle and Apoptosis	13	17-18
	T 10	<i>Exam 4</i>	14	

* Book chapters refer to Bruce Alberts et al "Molecular Biology of the Cell" 7th Edition.