



Jordan University of Science and Technology
Faculty of Pharmacy
Pharmacy Department

PHAR769 Molecular And Cellular Biology - JNQF Level: 9
First Semester 2024-2025

Course Catalog
3 Credit Hours. This course will focus on the basic features of cells, the internal organization of cells, and cell-cell interactions. Additionally, this course will cover a number of topics related to cellular signalling and the pathways that affect basic aspects of cell growth, division, and death. The course will also cover the knowledge necessary to understand protein synthesis, intracellular protein transport system, and protein degradation in eukaryotic cells. Many of these aspects will be reviewed in the context of how defects in such cellular processes produce pathological diseases.
Teaching Method: On Campus

Text Book	
Title	Basic Cell and Molecular Biology: What We Know and How Found Out.
Author(s)	Gerald Bergtrom, Ph.D.
Edition	4th Edition
Short Name	Ref #1
Other Information	ISBN: 978-0-9961502-5-5.

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #2	Cell Biology, Genetics, and Biochemistry for Pre-Clinical Students.	Renee J. LeClair.	2nd Edition	ISBN: 978-1-949373-42-4
Ref #4	Rang and Dale's Pharmacology	James M. Ritter, Rod Flower, Graeme Henderson, Yoon Kong Loke, David Macewan, and Humphrey P. Rang.	9th Edition	ISBN: 978-0-7020-7448-6.
Other resources	Other resources	Others resources	1st Edition	

Instructor	
Name	Dr. Rasha Khader
Office Location	M5 - L-4
Office Hours	Sun : 09:00 - 09:30 Sun : 11:30 - 13:30 Mon : 13:00 - 13:30 Tue : 09:00 - 09:30 Tue : 11:30 - 13:30 Wed : 13:00 - 13:30
Email	rekhader@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 13:00 - 14:30 Room: U

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Introduction to cell biology: An overview of cell structure and function.	Chapter 1 From Ref #1
Weeks 3, 4	The genome: DNA and chromosomes, DNA replication, and Control of gene expression.	Chapters 10 and 11 From Ref #2
Weeks 5, 6	Proteins: Synthesis, Shape and structure, and Degradation.	Chapter 3 From Ref #1, Chapter 1 From Ref #2, From Other resources
Weeks 7, 8	Cell cycle: Phases of the cell cycle, Regulation of the cell cycle, Cyclins and cyclin-dependent kinases, and Checkpoints.	Chapter 12.2-12.3 From Ref #2, From Other resources
Weeks 9, 10	Cell death: Necrosis and Apoptosis.	From Other resources
Week 11	Cell-Cell interactions: Cell adhesion proteins, Tight junctions, Gap junctions, and The extracellular matrix.	From Other resources

Weeks 12, 13	Receptors and downstream signaling pathways: G-protein coupled receptors and Receptor tyrosine kinases.	Chapter 3 From Ref #4
Week 14	Molecular aspects of pathological conditions: Cancer as an example.	From Other resources

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To describe the basic concepts of cellular and molecular biology including the cell genome and proteome. [1PLO-PET1.1] [1L9K1]	20%	Midterm Exam
To discuss the basic pathways of cell survival, division, death, and cell-cell interactions. [1PLO-PET1.1] [1L9K2]	30%	Midterm Exam, Final exam
To use different molecular and biological approaches to critical thinking and problem-solving of human disease. [1PLO-PET1.1] [1L9K3]	30%	Final exam
To illustrate the ability to critical writing in biological research. [1PLO-PET3.1] [1L9C4]	20%	Term paper and class presentation

PLO1.1	PLO2.1	PLO3.2	PLO3.3	PLO2.2	PLO2.3	PLO2.4	PLO3.1	PLO3.4	PLO3.5	PLO3.6	PLO4.1	PLO4.2	PLO4.3	PLO4.4	PLO5.1	PLO-PT1.1	PLO-PT2.1	PLO-PT2.2	PLO-PT3.1

Relationship to NQF Outcomes (Out of 100%)			
L9K1	L9K2	L9K3	L9C4
20	30	30	20

Evaluation	
Assessment Tool	Weight
Midterm Exam	30%
Term paper and class presentation	20%
Final exam	50%

Policy	
Attendance	Excellent attendance is expected. Per University regulations, if students miss more than 20% of the classes, then they will drop out of the registered course. It is the responsibility of the students to find out about any announcements or assignments they may have missed because of not attending their class.
Cheating	Cheating is a dishonest and unethical behaviour. It is prohibited. Any student caught cheating or attempting to cheat will be reported to the disciplinary committee to take measures per the University protocols.
Plagiarism	Plagiarism is an established act of misconduct. It is perceived by the academic community as unethical and dishonest. Plagiarism involves copying text or ideas from another source without appropriate reference. It will result in a failing grade for your assignment and usually further disciplinary action.
Collaboration and independence	Students are encouraged to work in groups and to discuss course material with each other. However, it is assumed that what the students hand in their assignments will be the results of their writing. Direct copying of answers is highly discouraged and is considered an act of academic dishonesty.
Exams	All exams are closed books and notes. Incomplete exams need approval from the dean or the chair of the department. Grades will not be given out via e-mail.
Reading assignments	Recommended reading material will be assigned by instructors. For each reading assignment, students are expected to prepare well for the particular topic and the in-class discussion.
Participation	Excellent participation in class is expected. Students are also encouraged to ask questions.
Withdrawal	Withdrawal from the course must meet the University deadline as stated in the student academic calendar.
Classroom etiquette	Make sure you arrive at class on time Respect people, places, and things Follow respectful discussion rules Listen respectfully Do not engage in aside conversations
Communication with the instructors	The course E-learning page is the ONLY place where announcements will be posted by the course instructors. You are encouraged to check the course E-learning page daily for announcements and/or updates. Also, the course instructors will use University email to reach out to students. You are encouraged to check your University email account regularly. Appropriate methods to contact the course instructor are via university email, university Teams, or via E-learning. Other methods of communication (such as social media accounts) are NOT allowed.

Email etiquette	<p>Students should communicate through their official University email accounts. Communication through personal email accounts (Yahoo, Gmail, Hotmail, etc.) or social media will NOT be accepted, and no response will be provided.</p> <p>Type your email into the body of the email NOT in the subject line.</p> <p>Provide a clear subject line. Preferably (MSc - Student ID number - Topic to discuss). Keep it short and to the point, but not vague. Class/Program, ID, and what the email is specifically about should be in the subject line.</p> <p>Body of the email: Your emails should always start with a formal greeting like you would in a letter, be brief (one screen length), check your spelling/grammar/punctuation, use a professional font (not decorative), and include a salutation aligned with your message (Thank you or sincerely).</p> <p>Avoid sending an email to your professor asking about grades or complaining about them. Schedule an appointment to meet in person to discuss areas for improvement if you have inquiries.</p> <p>Consider the impression your tone will make in the email. It is recommended to wait 24 hours before sending an email or responding to an email if you are emotionally charged.</p> <p>It is not appropriate to write in ALL CAPS. This conveys the impression that you are shouting at the recipient.</p> <p>Make sure you read and reread your email before sending it. Make sure your emails are grammatically correct, have proper titles, and are properly spelt.</p> <p>If you have multiple questions or the message runs long, you might consider revising the message or scheduling a face-to-face meeting.</p> <p>You should double-check your attachments. Refer to your attachments within the body of your email. It is advisable to avoid attaching large files and to consider sending the document as a PDF.</p> <p>Please allow sufficient time for a response. The sender and receiver should both allow sufficient time. As a rule of thumb, 24 work hours should be given.</p> <p>If sending emails after official work hours or during formal vacations, a delay in response is expected. Following that, if no response is received, you can follow up.</p>
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