



Jordan University of Science and Technology

Faculty of Pharmacy

Pharmacy Department

PHAR324 Medicinal Chemistry 3 - JNQF Level: 7

Second Semester 2023-2024

Course Catalog

3 Credit Hours. The course covers the structure-activity relationships, physicochemical properties, and pharmacological activities of chemotherapeutic agents used to treat cancer, bacteria, fungi, and viruses. In addition, selected case studies will be discussed to illustrate the concept of the rational drug design and strategies applied during drug development.

Teaching Method: On Campus

Text Book

Title	Foye's principles of medicinal chemistry
Author(s)	Thomas L. Lemke, David A. Williams
Edition	9th Edition
Short Name	Ref. 1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref. 2	An Introduction to Medicinal Chemistry	Graham Patrick	6th Edition	
Ref. 3	Wilson and Gisvold's textbook of organic medicinal and pharmaceutical chemistry	John H. Block, John M. Beale	12th Edition	

Instructor

Name	Dr. Islam AlKhawaldeh
Office Location	P2 L-2
Office Hours	Sun : 10:00 - 13:00 Mon : 11:30 - 12:30 Wed : 11:30 - 12:30 Thu : 12:30 - 13:30
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Instructor

Name	Dr. Israa Isawi
Office Location	-
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Instructor

Name	Dr. LARA ALFAKHORI
Office Location	-

Office Hours	Sun : 10:30 - 11:00 Mon : 10:00 - 13:00 Tue : 12:30 - 13:30 Thu : 09:00 - 11:00
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Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 08:30 - 09:30 Room: D4202
Section 2: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: D4203
Section 3: Lecture Time: Sun, Tue, Thu : 11:30 - 12:30 Room: NF37
Section 4: Lecture Time: Mon, Wed : 08:30 - 10:00 Room: PH2104
Section 5: Lecture Time: Mon, Wed : 10:00 - 11:30 Room: PH2106

Prerequisites		
Line Number	Course Name	Prerequisite Type
303232	PHAR323 Medicinal Chemistry 2	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2	Antimicrobial agents: Sulfonamides and Quinolones	Chapter 33 From Ref. 1
Weeks 3, 4, 5, 6	B-lactam antibiotics: Penicillin, Cephalosporins, Carbapenems, and Monobactams	Chapter 33 From Ref. 1
Weeks 7, 8	Tetracyclines, Aminoglycosides, and Macrolide Antibiotics	Chapter 33 From Ref. 1
Week 9	Antifungal agents	Chapter 35 From Ref. 1
Week 9	Antiviral agents	Chapter 38 From Ref. 1
Weeks 10, 11, 12, 13	Cancer chemotherapy	Chapter 9 and 21 From Ref. 2

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Explain the relationship between the drug's structure and pharmacological action of the different anti-infective and anti-cancer drugs. [1PLO1.1] [1L7K1, 1L7S2]	35%	First Exam, Second Exam, Final Exam
Predict, based on composition and 3D structure, the pharmacodynamic and pharmacokinetic profiles of drugs and their physicochemical properties-activity relationship [1PLO1.1] [1L7K1, 1L7S1, 1L7S2]	50%	First Exam, Second Exam, Final Exam
Analyze the in vitro potency and in vivo efficacy of the drug. [1PLO1.1] [1L7S1]	5%	First Exam, Second Exam, Final Exam
Identify the necessary structural alterations that can be made to address side effect concerns. [1PLO3.1] [1L7S1, 1L7S2]	5%	First Exam, Second Exam, Final Exam
Identify the various Computer Aided Drug Design (CADD) techniques and tools that aid in the different phases of drug design. [1PLO4.3] [1L7K1]	5%	Active Learning

Relationship to Program Student Outcomes (Out of 100%)															
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
90							5						5		

Relationship to NQF Outcomes (Out of 100%)		
L7K1	L7S1	L7S2
39.17	24.17	36.67

Evaluation	
Assessment Tool	Weight
First Exam	23%
Second Exam	32%
Active Learning	5%
Final Exam	40%

Policy	
Communicating with Instructors	<ul style="list-style-type: none"> - Students should communicate through their official JUST emails. Communication through personal email accounts (yahoo, Gmail, Hotmail, etc.) or social media will NOT be accepted, and no response will be provided. - Students are required to check their emails and the E-learning page of the course regularly for announcements and notifications.
Exams	<ul style="list-style-type: none"> - All exams are closed books and notes. - The final exam is comprehensive (covers all the material). - The first, second, and midterm incomplete exams need approval from the departments' heads. - The final incomplete exams need approval from the dean.
Cheating	<p>Prohibited; The commitment of the acts of cheating and deceit such as copying during examinations, altering examinations for re-grade, plagiarism of homework assignments, and in any way representing the work of others as your own is dishonest and will not be tolerated. Standard JUST policy will be applied.</p> <p>المادة 7: إذا ضبط الطالب أثناء الامتحان أو الاختبار متلبساً بالغش فتوقع عليه العقوبات التالية مجتمعة:</p> <p>أ- اعتباره راسياً في ذلك الامتحان أو الاختبار.</p> <p>ب- الغاء تسجيله في بقية المساقات المسجل لها في ذلك الفصل.</p> <p>ج- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه.</p>
Attendance	<ul style="list-style-type: none"> - Attendance is mandatory and will be recorded regularly. - Excellent attendance is expected. - Students who miss more than 20% of the classes will be dropped from the course as per JUST policy. - If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.
Active learning and students' participation	<ul style="list-style-type: none"> - Students are expected to actively participate in class discussions.
Withdraw	<ul style="list-style-type: none"> - Last day to drop the course is before the twelve (12th) week of the current semester
Classroom Etiquette	<ul style="list-style-type: none"> - Respect <ul style="list-style-type: none"> o Respect people, places, and things. o Raise your hand to speak. o Listen respectfully. o Food and drink are not permitted in class. o Do not engage in aside conversations. - Participation or Disruption: <ul style="list-style-type: none"> o Do not hesitate to ask questions at any time, especially if you are unsure of something. o Listen to other students' questions to avoid asking the same question five minutes later. o Allow your classmates to participate in class discussions and refrain from taking advantage of all opportunities for active participation. - Cell Phones and Electronic Devices: <ul style="list-style-type: none"> o Texting is not permitted in class. o The use of cell phones, smartphones, or other mobile communication devices is disruptive and is therefore prohibited during class without permission. o Your phone should be turned off. If you must keep your phone on, you should set it to vibrate or silent mode and leave class if you receive an emergency call. o Except in emergencies, those using such devices must leave the classroom for the remainder of the class period. o Do not use your laptop in class for browsing the Internet or using social media while in class. - Missing a Class <ul style="list-style-type: none"> o Do not miss classes. It is not appropriate to ask the professor if you missed anything important if you miss class. Obviously, something of importance was missed, you missed a whole class! o Whenever you are absent from class, it is your responsibility to make up the work and to get notes, not your professor's. o If you need to leave early, notify the instructor. - Be Punctual <ul style="list-style-type: none"> o Make sure you arrive to class on time.

Virtual Classroom Etiquette	<ul style="list-style-type: none"> - Be on time to class. - Be in a quiet place and comfortable space. - Mute your microphone when you are not speaking. - Turn on your video (optional). - Raise your virtual hand should you have any questions or want to contribute to class discussion. - It is the responsibility of students to secure internet connections for their online courses to avoid interruptions and inconvenience during class time.
Email Etiquette	<ul style="list-style-type: none"> - Type your email in the body of the email NOT in the subject line. - Provide a clear subject line. Keep it short and to the point, but not vague. Name, class, and what the email is specifically about should be in the subject line. - 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). - 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. - Consider the impression your tone will make in the email. It is recommended waiting 24 hours before sending an email or responding to an email if you are emotionally charged. - It is not appropriate to write in ALL CAPS. This conveys the impression that you are shouting at the recipient. - Make sure you read and reread your email before sending it. Make sure your emails are grammatically correct, have proper titles, and are properly spelled. - If you have multiple questions or the message runs long, you might consider revising the message or scheduling a face-to-face meeting. - 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. - 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. 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.

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