

Course Syllabus

1	Course title	<i>Pharmaceutical Organic Chemistry</i>
2	Course number	1201215
3	Credit hours	3
	Contact hours (theory, practical)	3 Theory per week and separate 3hr practical per week
	Course Level /Hours according to Jordan National Qualifications Framework (JNQF)Standards	7th/115 hr
4	Prerequisites/co-requisites	0303231/ الكيمياء العضوية (1)
5	Program title	Bachelor of Pharmacy & Pharm. D
6	Program code	-
7	Awarding institution	The University of Jordan
8	School	Pharmacy
9	Department	Pharmaceutical Sciences
10	Course level	Undergraduate
11	Year of study and semester (s)	2023-2024, second Semester 25 2 2024
12	Other department (s) involved in teaching the course	-
13	Main teaching language	English
14	Delivery method	Face to face Synchronous learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online
15	Online platforms(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom Others, E. Learning.....
16	Issuing/Revision Date	25/2/ 2024

17 Course Coordinator:

Name: Prof. Ali M. Qaisi	Contact hours:
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18 Other instructors:

Name: **Prof. Yusuf Al-Hiari**

Office number: 312

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Contact hours: 9:30-10:30 am. Mon. & Wed.

19 Course Description:

As stated in the approved study plan.

This course will cover the different organic functional groups carried by organic compounds and drugs, heterocycles and polycyclic compounds focusing on the biological role of these functional groups/nuclei in the structural formula of drugs. The topics will include the physical and chemical properties, chemical reactions, methods of preparation and mechanisms including pharmaceutical compound. Additionally, the course will confer the stereo-chemical aspects of these systems focusing on their effect on drugs activities.

20 Course aims and outcomes:

A- Aims:

1. To provide students with the significance of different functional groups in organic compounds, and the importance of these functional groups in the structural formula of drugs.
2. Students should understand the chemical and physical behavior and synthetic reactions of different functional groups and their significance in pharmacy.
3. To illustrating different chemical reactions, methods of preparation and mechanisms for the different classes of organic compounds.
4. Introducing more advanced topics in pharmaceutical organic chemistry such as Medicinal Chemistry, Analytical Chemistry and SARS.
5. Provide students with the importance of the different organic nuclei from which most of the drugs consist, (Heterocyclic compounds and poly-cyclic compounds).
6. Students should understand the chemical and physical behavior of hetero-aromatics (π -deficient and π -excessive systems) and their importance in pharmacy.
7. Student will be able to understand the importance of stereo-chemical aspects and their relationships with drugs activities

B- Students Learning Outcomes (SLOs):

Upon successful completion of this course, students will be able to:

Disriptors	CLO No.	SLOs of the program (PLOs) SLOs of the course (CLOs)	Learner	Problem-Solver	Manufacturer	Professional
Knowledge	K1	Recognize the physical and chemical properties of organic compounds comprise certain functional groups (alcohols, phenols, aldehydes & ketones, carboxylic acids & derivatives, amines, nitro compounds and organo-sulphur compounds) of such compounds and relationship with biological activities.				
	K2	Recognize the physical and chemical properties of heterocyclic and poly-carbocyclic compounds with examples of biologically active compounds possessing these nuclei.				
	K3	Recognise the significance of stereo-chemical characteristics organic compounds and their effect on the biological activities				
Skills	S1	Use the acquired skills in synthesizing simple organic compound of certain biological activities along with correlation of the concept of SARS in medicinal and other pharmaceutical fields.				
	S2	Illustrate adequate theoretical skills for classification & identification of functional groups, chemical nuclei based on their chemical and physical behavior.				
	S3	Develop problem solving experience while attempting to find solutions (method of preparation) for certain pharmaceutically useful organic				

		compounds supported by electronic and internet experience(websites, and PC software like drawing software).				
Competencies	C1	Show responsibility, accountability and commitment by complying with tutor's instructions and relevant university regulations				

21. Topic Outline and Schedule: Oct 2023-Jan. 24

Week	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended/ Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Alcohols & phenols	K1	Face to face Dr. Al-Hiari			Exams,	1,2
	1.2	Alcohols & phenols	K1	Face to face			=	1,2
2	2.1	Alcohols & phenols	K1	Face to face			=	1,2
	2.2	Alcohols & phenols	K1	Face to face			=	1,2
3	3.1	Ethers & epoxides	K1	Face to face			=	1,2
	3.2	Aldehydes & ketones	K1	Face to face			=	1,2
4	4.1	Aldehyde s & ketones	K1	Face to face			=	1,2
	4.2	Aldehyde s & ketones	K1	Face to face			=	1,2
5	5.1	Aldehyde s & ketones	K1	Face to face			=	1,2
	5.2	Carboxylic acids	K1	Face to face			=	1,3
	5.3	Quiz						
6	6.1	Carboxylic acids & derivatives	K1	Face to face			=	1,2,3

	6.2	Carboxylic acids & derivatives	K1, S1,S2	Face to face			Assinment, video, webpage	1,2,3
7	7.1	Nitro & amino compounds	K1	Face to face			quizzes & Assignments	1,2,3
	7.2	Organo-sulphur compounds	K1	Face to face Dr. Ali Qaisi			quizzes & Assignments	1,2,3
	7.3	- Organo-sulphur compounds	K1,S1				quizzes & Assignments	1,2,3
8	8.1	Mid Term	K1-2					
	8.2	Heterocyclic compounds	K2, S1	Face to face			Exam	1,2,4
9	9.1	Heterocyclic compounds	K2, S1	Face to face			=	1,2,4
	9.2	Heterocyclic compounds	K2, S1	Face to face			=	1,2,4
10	10.1	Heterocyclic compounds	K2, S1	Face to face			=	1,2,4
	10.2	Heterocyclic compounds	K2, S1	Face to face			=	1,2,4
11	11.1	Heterocyclic compounds	K2, S1	Face to face			=	1,2,4
	11.2	Heterocyclic compounds	K2, S1	Face to face			quizzes & Assignments	1,2,4
		Main Assignment	K1,C1, S1, S2					

12	12.1	Heterocyclic compounds	K2,S1, S2	Face to face			quizzes & Assignments	1,2,4
	12.2	Stereo-chemistry and drugs	K3	Face to face			=	2,3
13	13.1	Stereo-chemistry and drugs	K3	Face to face			=	2,3
	13.2	Stereo-chemistry and drugs	K3	Face to face			=	2,3
14	14.1	Stereo-chemistry and drugs	K3, S1, S2	Face to face			=	2,3
	14.2	Poly-carbocyclic compounds	K2	Face to face				2,3
15	15.1	Poly-carbocyclic compounds	K2	Face to face			quizzes & Assignments	2,3
	15.2	Poly-carbocyclic compounds	S1, S2, C1	teams			software	Web and CD

22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Midterm exam.	30	Topics 1-6	K1 & S1	8 th week	On campus
Quiz	10	Topic 1-3	K1, S2	5 th week	On campus
Assignment	10	Topic 7	K2, S1, S2 & C1	11 th week	On campus
Final exam.	50	All Topics	K1, K2, K3, S1 & S2	15-16 th week	On campus

23 Course Requirements

Students should have:

- Computer
- Internet connection
- Active university account on Moodle (e-learning) website
- Active university account on Microsoft Teams

24 Course Policies:

- A- Attendance policies: **compulsory**
- B- Absences from exams and submitting assignments on time: **zero mark, unless there is a documented excuse approved by lecturer or dean to get an incomplete reset**
- C- Health and safety procedures: **students' clinic and the university hospital are in the vicinity**
In addition to adequate ambulance service
- D- Honesty policy regarding cheating, plagiarism, misbehavior: **tough disciplinary measures within The University bylaws could be taken**
- E- Grading policy: **a scale of (A=4, A-=3.75, B+=3.5, B=3, B-=2.75, C+=2.5, C=2, C-=1.75, D+=1.5, D=1, D-=0.75 and F=zero)**
- F- Available university services that support achievement in the course: **Library, adequate lecture**
- **Rooms, internet connection and students accounts on Teams and E-learning platforms,**
 - Moodle (e-learning) website
 - Microsoft Teams institutional subscription

25 References:

- A- Required book(s), assigned reading and audio-visuals:
- 1- Foundation of molecular pharmacology, volume 1, Medicinal and pharmaceutical chemistry, J. B. Stenlake, 1st edition 1979, 2nd edition 2005
 - 2- Organic Chemistry, John E. McMurry, 8th edition 2012 or latest edition.
- B- Recommended books, materials, and media:
- 3- Organic Chemistry, Robert T. Morrison, Robert N. Boyd, 6th edition 1992 or latest
 - 4- Heterocyclic chemistry, by J.A. Joule, K. Mills and G.F. Smith, 1995 or latest edition



26 Additional information:

Some lectures (whenever necessary) are video recorded and uploaded on Microsoft-Teams platform for students to follow up

Name of Course Coordinator: **Prof. Yusuf Al-Hiari** Signature: ----- Date: **25/2/2024**

Head of Curriculum Committee/Department: ----- Signature: ----- -----
Head of Department: ----- Signature: ----- ---
Head of Curriculum Committee/Faculty: ----- Signature: ----- ---

Dean: ----- Signature: -----