

Course Plan for Bachelor Program - Study Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-4.0E
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Study Plan No.	2021/2022	University Specialization	Bachelor of Pharmacy
Course No.	0201216	Course Name	Pharmaceutical Organic Chemistry (2)
Credit Hours	3	Prerequisite *Co-requisite	Pharmaceutical Organic Chemistry (1)
Course Type	☐ Mandatory University Requirement ☐ University Elective Requirement	☐ Faculty Mandatory Requirement ☐ Support course family requirements	☒ Mandatory Requirement ☐ Elective Requirement
Teaching Style	☐ Full Online Learning	☐ Blended Learning	☒ Traditional Learning
Teaching Model	☐ 1 Synchronous: 1 Asynchronous	☐ 1 Face to Face: 1 Asynchronous	☒ 2 Traditional

Faculty Member and Study Divisions Information (to be filled in each semester by the subject instructor)

(to be filled in each semester by the faculty/instructor)					
Name	Academic rank	Office No.	Phone No.	E-mail	
Office Hours (Days/Time)	Sunday, Tuesday, Thursday ()		Monday, Wednesday ()		
Division number	Time	Place	Number of Students	Teaching Style	Approved Model
				Traditional Learning	2 Traditional

Brief Description

This course explores the structures and chemical transformations of organic molecules. It introduces important functional groups in molecules and explains their reactivity. This course assists students to define a possible scheme for compounds' synthesis. It also addresses basic concepts of electronic structures and applies these concepts to solve problems from various areas of organic chemistry, including reactivity patterns and synthesis.

Learning Resources

Course Book Information (Title, author, date of issue, publisher ... etc)	Organic Chemistry, T.W.G. Solomons and C.B. Fryhle, 12 th Edition, 2016, John Wiley & Sons.
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	1. Organic Chemistry by Hart, Craine, Hart, and Hadad, 13 th Edition, 2011, Brooks/Cole. 2. Organic Chemistry by McMurry, 9 th Edition, 2016, Brooks/Cole.
Supporting Websites	-
The Physical Environment for Teaching	☒ Classroom ☐ Labs ☒ Virtual Educational Platform ☐ Others
Necessary Equipment and Software	Moodle
Supporting People with Special Needs	-
For Technical Support	E-Learning & Open Educational Resources Center Email: clearning@zuj.edu.jo ; Phone: +962 6 429 1511 ext. 425/362

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Course learning outcomes (K= Knowledge, S= Skills, C= Competencies)

No.	Course Learning Outcomes	The Associated Program Learning Output Code
Knowledge		
The student should be able to:		
K1	Explain the physical and chemical properties of organic compounds and the effect of electron-donating and electron-withdrawing groups on these properties.	MK2
K2	Identify suitable conditions and reagents for chemical reactions.	MK2
K3	Predict reaction mechanisms.	MK2
Skills		
The student should be able to:		
S1	Draw the mechanistic pathways of reaction mechanisms.	MS4
S2	Apply IUPAC nomenclature rules to convert between chemical names and structures.	MS4
S3	Predict the outcome of organic reactions based on given substrates and reagents.	MS4

Mechanisms for Direct Evaluation of Learning Outcomes

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm Exam	30%	30%	30%	30%
Participation / Practical Applications	0%	0%	30%	30%
Asynchronous Interactive Activities	30%	30%	0%	0%
Final Exam	40%	40%	40%	40%

Note 1: Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.

Note 2: According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).

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Schedule of Simultaneous / Face-to-Face Encounters and their Topics

Week	Subject	Learning Style*	Reference ** (Pages in Course Book)
1	Ethers and Epoxides	Lecture Participatory learning Problem-based learning	504-533
2	Aromatic Compounds	Lecture Participatory learning Problem-based learning	632-674
3	Aromatic Compounds	Lecture Participatory learning Problem-based learning	632-674
4	Reactions of Aromatic Compounds	Lecture Participatory learning Problem-based learning	676-727
5	Reactions of Aromatic Compounds	Lecture Participatory learning Problem-based learning	676-727
6	Phenols	Lecture Participatory learning Problem-based learning	964-980
7	Aldehydes and Ketones: Nucleophilic Addition to the carbonyl group	Lecture Participatory learning Problem-based learning	729-765
8	Aldehydes and Ketones: Nucleophilic Addition to the carbonyl group	Lecture Participatory learning Problem-based learning	729-765
9	Reactions at the α Carbon of Carbonyl Compounds: Enols and Enolates Midterm Exam	Lecture Participatory learning Problem-based learning	832-857
10	Condensation and Conjugate Addition Reactions of Carbonyl Compounds	Lecture Participatory learning Problem-based learning	869-897
11	Carboxylic Acids and Their Derivatives	Lecture Participatory learning Problem-based learning	779-830
12	Carboxylic Acids and Their Derivatives	Lecture Participatory learning Problem-based learning	779-830
13	Amines	Lecture Participatory learning Problem-based learning	911-963
14	Amines	Lecture Participatory learning	911-963

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		Problem-based learning	
15	Heterocyclic compounds	Lecture Participatory learning Problem-based learning	388-408 (Supportive Book 1)
16	Final Exam	-	-

* Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.

** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.

Schedule of Asynchronous Interactive Activities (in the case of e-learning and blended learning)

Week	Task / Activity	Reference	Expected Results
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