

University of Petra		
Faculty of Art & Sciences		كلية الآداب والعلوم
Department of chemistry		قسم الكيمياء

Course Syllabus

Year : 2019 / 2020

Semester: Second

Course No.	Course Title	Prerequisite	Co-requisite	Credit Hours Lab./ European Credit Transfer System (ECTS)
101213	Organic Chemistry Lab. (1)	101211	None	2/6

Instructor Name	e-mail	Office No.	Office ext.	Office Hours
Hadeel Al_Sinjilawi	halsinjilawi@uop.edu.jo	7203	7203	Sun. 12-1 Mon., Wed., 9:30-11

Coordinator's Name: (if applicable)	Hadeel Al-Sinjilawi
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Short Course Description	The course contents give student basic ideas of practical organic chemistry covering: separation and purification of organic compounds; synthesis using various techniques; identification of functional groups by different organic methods.
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Course Objectives

- To instill in students a sense of enthusiasm for organic chemistry, an appreciation of its application in different contexts and to involve them in an intellectually stimulating and satisfying experience of learning and studying.
- To develop in students the ability to apply their chemical knowledge and skills to the solution of theoretical and practical problems in chemistry.
- To provide students with a knowledge and skills base from which they can proceed to further studies in specialized areas of organic chemistry or multi-disciplinary areas involving organic chemistry.
- To generate in students an appreciation of the importance of organic chemistry in an industrial, economic, environmental and social context.

Course Intended Learning Outcomes (ILOs) and their Alignment with Program ILOs, Teaching and Learning Methods, and Assessment Methods:

Upon successful completion of this course, students are expected to achieve the following learning outcomes:

Course ILOs	Program ILOs	Teaching and Learning Method	Assessment Method
Knowledge (K)			
Demonstrate knowledge and understanding of essential facts and perform experiments that related to all experiments mentioned in the laboratory manual.	K (1)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams
Intellectual Skills (I)			
Estimate chemical data by performing calculations related to all experiments mentioned in the laboratory manual.	I (2)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams
Practical skills (P)			
Use of laboratory equipment and standard procedures & safely.	P (1)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams
Appreciate the importance of carrying out careful and precise measurements to generate reliable data.	P (2)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams
Prepare and separate compounds and analyze substances.	P (3)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams
Prepare scientific reports and make oral presentations.	P (4)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams
Transferable Skills (T)			
Communication skills, covering both written and oral communication.	T(1)	Lab Lectures, class discussion and Perform an experiment	Reports, discussions, exams

Course Schedule:

Week	Topics	Topic Details	Course ILO number	Reference
1	Introduction : Safety and Laboratory Rules	Explain the safety and laboratory rules which the student dealt with.	P1, T1	Laboratory Manual

2	Melting point	a- Determination of m.p. of pure compds. b- Identification of an unknown.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
3	Boiling points and distillation.	a- Determination of b.p. of a pure compds. b- Separation of a mixture.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
4	Recrystallization.	a- Selection of solvent. b- Purification of benzoic acid.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
5	Extraction.	a- Extraction of caffeine from tea leaves. b- Separation of two component mixture	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
6	Steam distillation.	a- Steam distillation of bromobenzene. b- Isolation of essential oils.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
7	Thin layer chromatography (TLC).	a- TLC of isomeric nitrobenzenes. b- Analysis of a drug.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
8	Dehydration of alcohols.	a- Cyclohexene from cyclohexanol. b- Tests for unsaturation.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
9	Nucleophilic substitution reactions.	a- Preparation of t-butyl chloride. b- Preparation of n-butyl bromide. c- Relative reactions of alkyl halides.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
10	Electrophilic aromatic substitution reactions.	a- Bromination of acetanilide. b- Nitration of bromobenzene. c- Relative rates of Bromination.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
11	Alcohols and phenols.	Tests for alcohols and phenols.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
12	Oxidation of alcohols.	a- Preparation of cyclohexanone. b- Preparation of adipic acid.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
13	Aldehydes and ketones.	Tests for aldehydes and ketones.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
14	Preparation of carboxylic acids.	a- Benzoic acid from benzonitrile.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
15	Esterification.	a- Preparation of aspirin. b- Preparation of methyl benzoate and isoamyl acetate.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
16	Preparation of sulfanilamide.	a- Chlorosulfonation of acetanilide. b- Ammonolysis of sulfonyl chloride. c- Selective hydrolysis of acetamido group.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual
17	Chemistry of amines.	Tests for amines.	K1, P1, P2, P3, P4, I2, T1	Laboratory Manual

Assessment Methods and Grading System:

Assessment method	Grade	Comments
Midterm Exam 21/4/2020	20	- All Exams are done on - line (electronic). - Every student should bring his own scientific calculator when entering the exam
Reports	30	

Evaluation	10	lab. Calculators are not allowed to be exchanged between students during exam. - Students are not allowed to carry their mobiles inside exam lab.
Final Exam	30	
Practical Quiz	10	
Total	100	

Learning References:

1- Textbook (s): Selected Experiments in Organic Chemistry, 2nd edition, Abdelnour, Qasem and Zahra.

2- References:

3- Other Resources: A lecture room with data show facility.
<<Labs, computer resources, lecture rooms needed for the course>>

Course Policies¹

- Attendance Policy: University regulations apply to attendance.
- Academic Honesty: Academic dishonesty is an unacceptable mode of conduct, and will not be tolerated in any form at University of Petra. All persons involved in academic dishonesty and plagiarism in any form will be disciplined in accordance with University rules and regulations.

Approved by	Name	Date	Signature
Head of Department	Dr. Abdel Mnim Twaiq	14/10/2019	
Faculty Dean	Prof. Rami Abdel Raheem	16/10/2019	

**Controlled
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¹ Additional information may be added in this section according to the nature of the course.