

University of Petra		 جامعة البتراء - خمسة وعشرون عاماً University of Petra Anniversary
Faculty of Arts and Sciences Department of Chemistry		

### Course Syllabus

Year: 2019/2020

Semester: 20192

Course No.	Course Title	Prerequisite	Co-requisite	Credit Hours Lectures / Lab.	ECTS
101212	Organic Chemistry (2)	101211	-	3/0	5 ECTS: European Credit Transfer System

Instructor Name	E-mail	Office No.	Office Ext.	Office Hours
Dr. Ahmad Daraosheh	adaraosheh@uop.edu.jo	7117	7117	Tue, Thurs: 12.00 – 13.30 Wed: 11.00 – 14.00

<b>Course Description</b>	This course cover the following topics: Spectroscopic techniques in organic chemistry (Mass spectrometry, UV-Visible, IR, and NMR), Basic chemistry of aromatic compounds and organic compounds of different functional groups (alcohols and phenols, ethers and epoxides, aldehydes and ketones, carboxylic acids) with considerable attention to nomenclature, stereochemistry, reaction mechanisms, and synthetic organic chemistry
---------------------------	--

### 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:

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
<b>Knowledge and Understanding (K)</b>			
1. Recall major principles and concepts in organic chemistry.	K1	Lectures using data show and Models	Quizzes and Exams
2. Name organic compounds either by common names or systematic (IUPAC) names	K2	Lectures using data show and Models	Quizzes and Exams
3. Identify spectroscopic methods used for identification of selected organic compounds	K3	Lectures using data show and Models	Quizzes and Exams

Intellectual Skills (I)			
1. Identify different functional groups in organic chemistry, their classification and their physical properties. Analyze the nature and behavior of functional groups in organic reactions (reactivity, mechanism)	I1	Lectures using data show	Quizzes and Exams
2. Interpret and analyse chemical information and data obtained from reactions mechanisms.	I2	Lectures using data show	Quizzes and Exams

### Course Schedule:

Week	Topic Details	Course ILO number	Reference
1,2	Mass Spectrometry; Interpreting Mass Spectra; Infrared Spectroscopy; Interpreting Infrared Spectra; UV-VIS spectroscopy; Interpreting UV-VIS Spectra	K1, I1, K3	Chapter 12
3,4	Nuclear Magnetic Resonance Spectroscopy; <sup>1</sup> H NMR; <sup>13</sup> C NMR; Uses of <sup>13</sup> C NMR; <sup>1</sup> H NMR; Uses of <sup>1</sup> H NMR.	K1, I1, K3	Chapter 13
5,6	Conjugated Dienes; Electrophilic Additions to Conjugated Dienes; Ultraviolet Spectroscopy.	K1, K2, I1, I2,	Chapter 14
7	Structure and Stability of Benzene; Aromaticity and the Huckel 4n+2 Rule; Nomenclature of Aromatic Compounds.	K1, K2, I1, I2,	Chapter 15
8,9	Electrophilic Aromatic Substitution; Substituent Effects in Substituted Aromatic Rings; Nucleophilic Aromatic Substitution; Oxidation and Reduction of Aromatic Compounds.	K1, K2, I1, I2,	Chapter 16
10,11	Nomenclature of Alcohols and Phenols; Properties of Alcohols and Phenols; Preparation of Alcohols; Reactions of Alcohols; Phenols and their Uses.	K1, K2, I1, I2,	Chapter 17
12	Nomenclature and Properties of Ethers; Synthesis of Ethers; Reactions of Ethers; Crown Ethers; Thiols and Sulfides.	K1, K2, I1, I2,	Chapter 18
13,14	Nomenclature of Aldehydes and Ketones; Preparation of Aldehydes and Ketones; Nucleophilic Addition Reactions of Aldehydes and Ketones.	K1, K2, I1, I2,	Chapter 19
15	Nomenclature of Carboxylic Acids; Structure and Properties of Carboxylic acids; Preparation of Carboxylic Acids; Reactions of Carboxylic Acids.	K1, K2, I1, I2	Chapter 20

### Learning References:

1- Textbook (s): Organic Chemistry, by John E. McMurry. 8<sup>th</sup>Ed, 2012, 2008. Brooks/Cole. Cengage Learning.

2- Other Resources: Any Organic Chemistry Book.

3- Other Resources: Power point slides supplied by the instructor.

### Assessment Methods:

Assessment method	Grade	Comments
First Exam	25	(Sun 26/3/2020) 10.00-11.00 (7109)
Second Exam	25	(Thurs 07/05/2020) 10.00-11.00 (7109)
Homework's and/ or Quizzes	10	Through out the Course
Final Exam	40	Set by Registrar
Total	100	

**Alignment of Teaching and Learning Methods, Assessment and Course ILOs:**

Teaching method	Contact Hours	Assessed through	ILOs numbers
Lectures	42	Exams	All ILOs

**Course Policies**

- **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 Altwaiq	14/10/2019	
Faculty Dean	Prof. Rami Abdulrahim	16/10/2019	