


University of Petra		 جامعة البترا - خمسة وعشرون عاما University of Petra Anniversary
College of Arts and Sciences		كلية الآداب والعلوم
Department of Chemistry		قسم الكيمياء

Course Syllabus

Year: 2019/2020

Second Semester

Course No.	Course Title	Prerequisite	Co-requisite	Credit hours Lectures / Lab.	ECTS
101211	Organic Chemistry (1)	101101/101102	-	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

Course Description	Description
	Description: Hybrid orbitals; Structures and properties; Nomenclature of hydrocarbons; Stereochemistry; Chemistry of Alkanes, Cycloalkanes, Alkenes and Alkynes; Multiple bond reactions; Chemistry of Alkyl halides: Nucleophilic Substitutions and Eliminations.

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)			
1. Identify major principles and concepts in organic chemistry.	K1	White board, powerpoint lecture slides using Data show, discussions.	Exams & Quizzes
2. Name organic compounds either by common names or systematic (IUPAC) names.	K2	White board, powerpoint lecture	Exams

		slides using Data show, discussions.	&Quizzes
Intellectual Skills (I)			
3. Identify different functional groups in organic chemistry, their classification and their physical properties.	I1	White board, powerpoint lecture slides using Data show, discussions.	Exams &Quizzes
4. Analyze the nature and behavior of functional groups in organic reactions (reactivity, mechanism).	I1	White board, powerpoint lecture slides using Data show, discussions.	Exams &Quizzes
5. Interpret and analyse chemical information and data obtained from reactions mechanisms.	I2	White board, powerpoint lecture slides using Data show, discussions.	Exams &Quizzes
Practical skills (P)			
The course is a theoretical course			
Transferable Skills (T)			
This skill is already achieved through ILOs (K, I)			

Course Schedule:

Week	Topic Details	Course ILO number	Reference
1	Structure and Bonding: Atomic Structure; Hybrid Orbitals; Describing Chemicals Bonds and Drawing Chemical Structures	K1, I1	Chapter 1
2	Polar Covalent Bonds; Acids and bases: Electronegativity; Formal Charges; Resonance; Organic Acids and Bases.	K1, I1	Chapter 2
3	Alkenes and Their stereochemistry: Alkanes and Alkanes Isomers; Naming Alkanes; Conformation of alkanes.	K1, K2, I1	Chapter 3
4	Cycloalkanes and Their Stereochemistry: Naming of Cycloalkanes; Conformation of Cycloalkanes; Cis-trans Isomers of Cycloalkanes	K1, K2, I1	Chapter 4
5,6	Stereochemistry: Enantiomers and Tetrahedral Carbon; Optical Activity; Other Stereoisomers Prochirality.	K1, I1	Chapter 5
7	An Overview of Organic Reactions: Kind of Organic Reactions; Polar and NonPolar Reactions; Describing a Reaction Mechanism.	K1, I1	Chapter 6
8	Alkenes: Structure and Reactivity: Naming	K1, K2, I1, I2	Chapter 7

	Alkenes; Degree of Unsaturation; Cis-Trans Isomers of Alkenes; Electrophilic Addition Reaction of Alkenes; Markovnikov's Rule; The Hammond Postulate		
9,10	Alkenes: Reactions and Synthesis: Preparation of Alkenes; Elimination Reactions of Alkyl Halides; Reaction of Alkenes; Illustration of Alkene Structure	K1, I1, I2	Chapter 8
11,12	Alkynes: An Introduction to Organic Synthesis: Naming of Alkynes; Preparation of Alkynes; Elimination Reactions of Alkyl Dihalides; Reaction of Alkynes; Terminal Alkynes Acidity.	K1, K2, I1, I2	Chapter 9
13	Organohalides: Names and Structure of Alkyl Halides; Preparing Alkyl Halides from Alkanes and Alkenes; Grignard Reagents.	K1, K2, I1, I2	Chapter 10
14,15	Reactions of Alkyl Halides: Nucleophilic Substitutions and Elimination: SN2 and Zaitsev's and SN1 Reactions; Elimination Reactions Rule; E2 Reactions: E1 and E1cB Reactions	K1, I1, I2	Chapter 11

Assessment Methods:

Assessment method	Grade	Comments
First Exam	25	
Second Exam	25	
Quizzes	10	Throughout 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 and Quizzes	All ILOs

Learning References:

1-Textbook (s): Organic Chemistry, by John E. McMurry. 8 th Ed, 2012.
2- References: Any Organic Chemistry Book.
3- Other Resources: Power point slides supplied by the instructor.

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	



**Controlled
Copy**