جامعة الإسراء
ISRA UNIVERSITY

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name: Organic Chemistry-2

Course Number: 11012212

D040_JNQF_Rev 2
Ref: Deans Council (05) Decision No. (06) **Date**: 18 / 10/ 2021
Ref: Quality Assurance Council Session (03) Decision No. (03) **Date**: 05 / 10/ 2021

General Course Information:

Course title	Organic chemistry-2
Course number	11012212
Credit hours	3 hours
Education type	Face-to-Face
Prerequisites/corequisites	11012111
Academic Program	BSc
Program code	01
Faculty	Sciences
Department	Chemistry
Level of course	Second year (Chemistry Students)
Academic year /semester	First semester / (2022/2023)
Awarded qualification	Bachelor (B.Sc.)
Other department(s) involved in teaching the course	none
Language of instruction	English
Date of production/revision	9/10/2022

Course Coordinator:

Coordinator's name	Samer Hasan Ahmad Hussein-Al-Ali
Office No	7322
Office Phone extension number	2749
Office Hours	Sun, Tue, Thru (9-10)
Email	samer.alali@iu.edu.jo

Other Instructors:

Instructor name	
Office No	
Office Phone extension number	
Office Hours	
Email	

Course Description *(English/Arabic)*:

English	Benzene and aromaticity; benzene chemistry; alcohols and phenols; ethers and epoxy compounds; thiols compounds; aldehydes and ketones; carboxylic acids and amides; carboxylic acid derivatives; substitution reactions; amines and heterocyclic compounds; determination of organic compounds structure by Mass spectroscopy and infrared spectroscopy; determination of organic compounds structure by nuclear magnetic resonance (NMR) and UV-visible spectroscopy
Arabic	البنزين و الاروماتية; كيمياء البنزين; الكحولات و الفينولات; الايثرات و مركبات الاكسجين; مركبات الكبريت; الالدهيدات و الكيتونات; الحموض الكربوكسيلية و مركبات النتروجين; مشتقات الحموض الكربوكسيلية; تفاعلات الاستبدال; الامينات و المركبات الحلقية غير المتجانسة; تحديد بنية المركبات العضوية عن طريق مطياف الكتلة و الاشعة تحت الحمراء; تحديد بنية المركبات عن طريق الرنين المغناطيسي النووي و طيف الاشعة فوق البنفسجية.

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Text Book: ***Author(s), Title, Publisher, Edition, Year, Book website.***

1.	Organic Chemistry, 7th Edition By John McMurry

References: ***Author(s), Title, Publisher, Edition, Year, Book website.***

1.	Organic Chemistry, Solomons
2.	Organic Chemistry, Morrison and Boyd

Course Educational Objectives (CEOs):

1.	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.
2.	To develop in students the ability to apply their chemical knowledge and skills to the solution of theoretical and practical problems in chemistry.
3.	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.
4.	To generate in students an appreciation of the importance of organic chemistry in an industrial, economic, environmental and social context.
5.	Understand the mechanisms of organic reactions and use them to predict outcomes of reactions.
6.	Explain the relative stability of aromatic compounds and demonstrate their reaction mechanisms.
7.	Determine the structure of organic molecules using spectroscopic techniques.

Intended Learning Outcomes (ILO's):

	Subject Intended learning outcomes (ILOs) describe what students are expected to know and be able to do at the end of the course. These outcomes are related to the knowledge, skill and competence that students acquire:	Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	Descriptors**
A	**Knowledge and Understanding:**				
A1	will be able recall major principles and concepts in organic chemistry	1, 2	1	Knowledge	Knowledge
A2	will be able name organic compounds either by common names or systematic (IUPAC) names	2, 3, 7	2	Knowledge	Knowledge
A3	will be able identify spectroscopic methods used for identification of selected organic compounds	2, 7	3	Knowledge	Competency.
B	**Intellectual skills:**				
B1	will be able use previous knowledge to identify products of chemical reactions important in organic chemistry	1, 4	2	Knowledge	Knowledge
B2	will be able correlate structure to reactivity and stability in organic chemistry	5, 7	1	Competency.	Knowledge
B3	will be able correlate reaction mechanism to reactants, reagents, and conditions used in a chemical reaction.	3	3	Competency.	Competency.
C	**Subject specific skills:**				
C2	will be able based on empirical evidence and the scientific approach to knowledge development	2,3	3	Analysis	Competency.
D	Transferable skills:				
D1	will be able to manage time effectively and to do online computer searches and internet communication.	1, 4	2	Application	Knowledge

***Bloom Taxonomy Levels**

Level #	1	2	3	4	5	6
Level Name	**Knowledge**	**Comprehension**	**Application**	**Analysis**	**Evaluation**	**Synthesis**

**** Descriptor (National Qualification Framework Descriptors): K : Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

	Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the (Chemistry) program will demonstrate	Descriptors**
1.	Describe the fundamental scientific principles and theories across the four subfields of chemistry (Organic, inorganic, analytical and physical).	Knowledge
2.	Identify and confirm chemical compounds structures as well as determine chemical composition.	Knowledge
3.	Establish and concludes mechanisms of physical and chemical processes in addition to the ability of mastering qualitative and quantitative determination.	competency
4.	Solve the scientific problems using different mechanisms and procedures based on critical thinking.	skill
5.	Conduct scientific experiments in chemistry.	competency
6.	Commitment and interest in lifelong learning, and collaborate effectively with other people in a team.	competency
7.	Prepare logical, organized and concise written reports, and oral and poster presentations that effectively communicate chemical content to other scientists.	skill
8.	Commitment to the ethical principles of chemical research.	competency
9.	Find information about chemistry through databases and information	skill
10.	Evaluation of calculations in chemistry experiments and information analysis using computer software.	competency
11.	Demonstrate safety laboratory techniques.	skill

**** Descriptors according to the national qualifications framework (knowledge, skill, adequacy)**

Weekly Schedule *(please choose the type of teaching)*

√ **Face to Face**

□ **Hybrid** *(**2 Lectures** Face – To - Face **+1 Lecture** Asynchronous)*

□ **Hybrid (***1 **Lectures** Face – To - Face **+1 Lecture** Asynchronous)*

□ **Online** *(**2 Lectures** Synchronous **+1 lecture Asynchronous**)*

Week	First Lecture (Face – To - Face)	Second Lecture (Face – To - Face)	Third Lecture (Face – To - Face)	Ach. ILOs	Ach. PLOs	Descriptors**
1	**Chapter 15:** Benzene and Aromaticity	**Chapter 15:** Benzene and Aromaticity	**Chapter 15:** Benzene and Aromaticity	A1,B1	1, 2	Knowledge
2	**Chapter 16:** Chemistry of Benzene: Electrophilic Aromatic Substitution	**Chapter 16:** Chemistry of Benzene: Electrophilic Aromatic Substitution	**Chapter 16:** Chemistry of Benzene: Electrophilic Aromatic Substitution	A1, A2, B1	1, 2	Knowledge
3	**Chapter 16:** Chemistry of Benzene: Electrophilic Aromatic Substitution	**Chapter 16:** Chemistry of Benzene: Electrophilic Aromatic Substitution	**Chapter 16:** Chemistry of Benzene: Electrophilic Aromatic Substitution			
4	**Chapter 17:** Alcohols and Phenols	**Chapter 17:** Alcohols and Phenols	**Chapter 17:** Alcohols and Phenols	B2, B3	4	skill
5	**Chapter 17:** Alcohols and Phenols	**Chapter 17:** Alcohols and Phenols	**Chapter 17:** Alcohols and Phenols			
6	**Chapter 18:** Ethers and Epoxides; Thiols and Sulfides	**Chapter 18:** Ethers and Epoxides; Thiols and Sulfides	**Chapter 18:** Ethers and Epoxides; Thiols and Sulfides	A1, A2, B2, B3	1,2, 4	Knowledge skill
7	**Chapter 19:** Aldehydes and Ketones: Nucleophilic Addition Reactions	**Chapter 19:** Aldehydes and Ketones: Nucleophilic Addition Reactions	**Chapter 19:** Aldehydes and Ketones: Nucleophilic Addition Reactions	A1, A3, B3	1, 3, 4	Knowledge skill competency
8	**Chapter 19:** Aldehydes and Ketones: Nucleophilic Addition Reactions	**Chapter 19:** Aldehydes and Ketones: Nucleophilic Addition Reactions	**Chapter 19:** Aldehydes and Ketones: Nucleophilic Addition Reactions			
9	**Chapter 20:** Carboxylic Acids and Nitriles	**Chapter 20:** Carboxylic Acids and Nitriles	**Chapter 20:** Carboxylic Acids and Nitriles	A1, A3, B3	1, 3, 4	Knowledge skill competency
10	**الاختبار النصفي**					
11	**Chapter 20:** Carboxylic Acids and Nitriles	**Chapter 20:** Carboxylic Acids and Nitriles	**Chapter 20:** Carboxylic Acids and Nitriles	A1, A3, B3	1, 3, 4	Knowledge skill competency
12	**Chapter 21:** Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	**Chapter 21:** Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	**Chapter 21:** Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	B2, B3	4	skill
13	**Chapter 21:** Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	**Chapter 21:** Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	**Chapter 21:** Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	A1, B3	1, 4	Knowledge skill
14	**Chapter 24:** Amines	**Chapter 24:** Amines	**Chapter 24:** Amines	A1, B3	1, 4	Knowledge skill
15	Structure Determination: Nuclear Magnetic Resonance Spectroscopy	Structure Determination: Nuclear Magnetic Resonance Spectroscopy	Structure Determination: Nuclear Magnetic Resonance Spectroscopy	C2, D1	5, 6	competency
16	**الاختبار النهائي**					
17						

* **K: Knowledge, S: Skills, C: Competency**

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Interactive videos
- Practice Labs
- Discussion Forums
- Quizzes
- Other Interactive online activities
- Reports

Course Policies:

A- Attendance policies:
The maximum allowed absences is 15% of the lectures.
B- Absences from exams and handing in assignments on time:
Midterm exam can be retaken based on approval of excuse by the instructor's discretion.
Not handing assignment on time will incur penalties.
C- Academic Health and safety procedures
D- Honesty policy regarding cheating, plagiarism, and misbehaviour:
Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.
E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) **20%**
- Midterm **30%**
- Final Exam **50%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

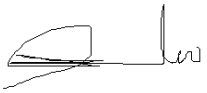
Required equipment:

- **PC / Laptop with webcam and mic**
- **Internet Connection**
- **Access to the IU E-Learning Platform at: https://elearn.iu.edu.jo/**
- **E-learning plan**
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools implemented in the course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Practice Labs
- Discussion Forums
- Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching
- Others:…….

Responsible Persons and their Signatures:

Course Coordinator	**Dr. Samer Al-Ali**	**Completed Date**	9/10/ 2022
		Signature	

Received by (Department Head)	**Dr. Manal khabbas**	**Received Date**	17/10/2022
		Signature