

## Course Syllabus

1	<b>Course title</b>	Practical Organic Chemistry	
2	<b>Course number</b>	0303236	
3	<b>Credit hours</b>	2	
	<b>Contact hours (theory, practical)</b>	(1 h theory, 4 practical )/ week	
4	<b>Prerequisites/corequisites</b>	Pre-requisite 0303231	
		Co-requisite 0303232	
5	<b>Program title</b>	B.Sc.	
6	<b>Program code</b>	NA	
7	<b>Awarding institution</b>	The University of Jordan	
8	<b>School</b>	Science	
9	<b>Department</b>	Chemistry	
10	<b>Course level</b>	2 <sup>rd</sup> Level	
11	<b>Year of study and semester (s)</b>	2022 -2023, 2 <sup>nd</sup> Semester	
12	<b>Other department (s) involved in teaching the course</b>	B.Sc.	
13	<b>Main teaching language</b>	English	
14	<b>Delivery method</b>	<input checked="" type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input type="checkbox"/> Fully online	
15	<b>Online platforms(s)</b>	<input type="checkbox"/> Moodle <input type="checkbox"/> Microsoft <input checked="" type="checkbox"/> Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom	
		<input type="checkbox"/> Others.....	
16	<b>Issuing/Revision Date</b>	20/06/2023	

### 17 Course Coordinator:

Name: <b>Prof. Dr. Musa Abu Zarga</b>	Contact hours: 13- 14 Theory; 14-18 practical Mo
Office number: 101a	Phone number:22131
Email: musaaz@ju.edu.jo	

**18 Other instructors:**

: Prof. Dr. Amal Alaboudi

Phone number: 22132

Email: alaboudi@ju.edu.jo

Office number: 108

Contact hours: Contact hours: 12:30- 13:30 Theory; 13:30 – 17:30 practical Tu

**19 Course Description:**

This is an introductory course to basic techniques used in chemistry labs, and their applications in preparing of simple organic compounds. The course also includes simple chemical tests of functional groups.

**20 Course aims and learnings outcomes (CLOs):**

A- Course Learning Outcomes: 0303236 Practical Organic Chemistry

Upon successful completion of this course, students will be able to:

**CLO-1.** acquire practical skills used in chemistry labs.

**CLO-2.** apply their knowledge in organic chemistry to prepare simple compounds.

**CLO-3.** report and communicate experimental results.

**CLO-4.** work in a team.

**CLO-5.** appreciate and apply safety rules

### B- Students Learning Outcomes (SLOs):

- SO-1. Problem Solving: Graduates will be able to apply mathematical and scientific knowledge to identify, formulate, and solve technical or scientific problems relevant to the discipline of chemistry.
- SO-2. Design: Graduates will be able to use their understanding of chemistry concepts and principles to formulate and design systems, processes, procedures, or programs to meet desired goals and outcomes.
- SO-3. Experimental Skills: Graduates will be able to design, conduct, and analyze experiments or test hypotheses, utilizing appropriate chemical techniques and scientific judgment to draw meaningful conclusions.
- SO-4. Communication: Graduates will be able to communicate scientific information effectively and accurately to a range of audiences, including both technical and non-technical audiences.
- SO-5. Ethics and Global Context: Graduates will understand and apply ethical and professional responsibilities in the context of the impact of technical and scientific solutions on global, economic, environmental, and societal issues.
- SO-6. Teamwork: Graduates will be able to work effectively as part of a team, establishing goals, planning tasks, meeting deadlines, and analyzing risk and uncertainty in the context of chemistry-related projects and initiatives.
- SO-7. Handling Chemicals: An ability to apply the proper procedures for safe handling of chemicals.

### 0333336 Identification of Organic Compounds

		Student Outcomes (SO)						
		SO-1	SO-2	SO-3	SO-4	SO-5	SO-6	SO-7
Course Learning Outcomes (CLO)	CLO-1		✓					✓
	CLO-2		✓	✓	✓	✓	✓	✓
	CLO-3	✓			✓	✓		
	CLO-4				✓	✓	✓	✓
	CLO-5		✓			✓		✓

## 21. Topic Outline and Schedule:

Lecture/ Exp.	Topic	SLO	Learning Methods (Face to Face/Blende d/ Fully Online)	Platform	Evaluation Methods	Resources
1	General Information: safety precautions, lab rules, lab equipment, writing reports and presenting results	SO-4, SO-5, SO7	Face to Face	Lab.	Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
2	Melting Points: Determination of melting points of pure substances, mixed melting points, identification of an unknown	SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
3	Boiling Points and Distillation: Determination of the boiling point of a pure liquid, separation of a mixture by means of simple and fractional distillation.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-6, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
4	Recrystallization: Selection of solvent, solubility behavior. Purification of impure known solid by recrystallization, recrystallization of an unknown compound	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
5	Extraction: Isolation of a natural product by extraction. Acid-base extraction.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
6	Steam Distillation: Steam distillation of Bromobenzene, isolation of essential oils.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
7	Chromatography: TLC examination of isomeric compounds PC examination of dyes. Analysis of analgesic drugs by TLC.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Med term Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.
8	Alkenes: Preparation of cyclohexene from cyclohexanol. Tests for unsaturation. Geometric isomerism in alkenes.	SO-1, SO-2, SO-3, SO-4, SO-5,	Face to Face	Lab.	Report, quiz Practical evaluation Final exam	Selected experiments in Organic Chemistry, 2 <sup>nd</sup> edition.

		SO-7				
9	Nucleophilic Substitution (alkyl halides): Preparation of n-butyl bromide. Relative reactivities of alkyl halides.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Final exam	Selected experiments in Organic Chemistry, 2nd edition.
10	Electrophilic Aromatic Substitution: Nitration of bromobenzene. Relative bromination rates of different benzene derivatives.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Final exam	Selected experiments in Organic Chemistry, 2nd edition.
11	Chemistry of Alcohols and Phenols: Test tube reaction of alcohols and phenols. Oxidation of alcohols. Adipic acid from cyclohexanol.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Final exam	Selected experiments in Organic Chemistry, 2nd edition.
12	Aldehydes and Ketones: Test tube reactions. Derivatives of aldehydes and ketones. Identification of an unknown.	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Final exam	Selected experiments in Organic Chemistry, 2nd edition.
13	Carboxylic Acids and Aspirin: Preparation of benzoic acid by hydrolysis of benzonitrile	SO-1, SO-2, SO-3, SO-4, SO-5, SO-7	Face to Face	Lab.	Report, quiz Practical evaluation Final exam	Selected experiments in Organic Chemistry, 2nd edition.

## 22 Evaluation Methods:

Opportunities to demonstrate achievement of the SLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	SLOs	Period (Week)	Platform
Mid exam	20%	Exp. 1-6	SO-1, SO-2, SO-3, SO-4, SO-5, SO-6, SO-7	8 weeks	In the department
Practical evaluation; Reports and quizzes	40%	Exp. 1-12	SO-1, SO-2, SO-3, SO-4, SO-5, SO-6, SO-7		In the department
Final exam	40%	Exp. 1-12	SO-1, SO-2, SO-3, SO-4, SO-5, SO-6, SO-7		In the department



### 23 Course Requirements

White or smart board, Selected experiments in Organic Chemistry, 2nd edition. Chemicals and equipped laboratory.

### 24 Course Policies:

A- Attendance policies: A- Attendance policies:

Maximum 15% absence is allowed.

B- Absences from exams and submitting assignments on time:

Incomplete Exams are conducted later after arrangement a new date.

C- Health and safety procedures:

This is a theoretical course.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

The general Jordan University's laws are applied in any case of cheating.

E- Grading policy:

Letters scale is applied.

F- Available university services that support achievement in the course:

Free Internet-access and E-learning.

### 25 References:

Selected experiments in Organic Chemistry, 2nd edition.

### 26 Additional information:

Name of Course Coordinator: -----Signature: ----- Date: ----- -----
Head of Curriculum Committee/Department: ----- Signature: ----- ----
Head of Department: ----- Signature: ----- -
Head of Curriculum Committee/Faculty: ----- Signature: ----- -
Dean: ----- Signature: -----