مركز الاعتماد وضمان الجودة
ACCREDITATION & QUALITY ASSURANCE CENTER

Course Syllabus

1	**Course title**	Organic Chemistry 1
2	**Course number**	0303231
3	**Credit hours**	3 theory
	Contact hours (theory, practical)	3 hours theory/week
4	**Prerequisites/corequisites**	0303102 (for chemistry students) or 0303101 (for pharmacy students
5	**Program title**	B.Sc.
6	**Program code**	NA
7	**Awarding institution**	The University of Jordan
8	**School**	Science
9	**Department**	Chemistry
10	**Course level**	2rd Level
11	**Year of study and semester (s)**	2022/2023, 2nd semester
12	**Other department (s) involved in teaching the course**	None
13	**Main teaching language**	English
14	**Delivery method**	✓Face to face learning ☐Blended ☐Fully online
15	**Online platforms(s)**	☐Moodle ☐Microsoft ✓Teams ☐Skype ☐Zoom ☐Others……
16	**Issuing/Revision Date**	19/6/2023

17 Course Coordinator:

Name: **Prof. Dr. Amal Al-Aboudi**	Contact hours: 9:30 – 10:10; 11:30- 12:30 S, Tu, Th
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18 Other instructors:

Name: Prof D. Musa Abu Zarga

Office number:101

Phone number:22131

Email: musaaz@ju.edu.jo

Contact hours: 10:30 – 11:30; 12:30 – 13:30 Su, Tu, Th. 10:00 -12:30 M, W

Name: Prof D. Mohammad Mubarak

Office number: 307

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Contact hours: 8:30 – 9:30, 9:30- 10:30

Name: Dr. Haytham Saadeh

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Contact hours:

19 Course Description:

This course provides the basic knowledge in hydrocarbons including: alkanes, cycloalkanes, alkenes, dienes and alkynes ((IUPAC names, stereochemistry and reactions). In addition to substitution and elimination reactions of alkyl halides.

20 Course aims and learnings outcomes (CLOs):

A- Course Learning Outcomes: 0303231 Organic Chemistry 1

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

CLO-1. relate the structure of organic compounds with their reactivity and properties.

CLO-2. apply their chemical knowledge and skills to the solution of problems in organic chemistry.

CLO-3. view organic molecules in three dimensions and understand their stereochemistry.

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.

		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	✓	✓					

21. Topic Outline and Schedule:

•	Lecture	Topic	Student Learning Outcome	Learning Methods (Face to Face/Blended / Fully Online)	Platform	Synchronous / Asynchronous Lecturing	Evaluation Methods	Resources
1	1.1	Introduction & sp3 Hybridization	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	1.2	sp2 & sp hybridization	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	1.3	Drawing chemical Structures	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
2	2.1	Polar bonds	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	2.2	Formal charge, resonance structures	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	2.3	Alkyl groups	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
3	3.1	Isomerism	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	3.2	Nomenclature of alkanes	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	3.3	Physical properties of alkanes	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
4	4.1	Conformations of alkanes	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	4.2	Nomenclature of cycloalkanes	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	4.3	Ring strain	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition

5	5.1	Conformation of cycloalkanes	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	5.2	Conformation of substituted cyclohexane	SO-1 & SO-2	Face to Face	Classroom		First exam, Final exam	Organic Chemistry, McMurry,8th Edition
	5.3	Optical activity	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
6	6.1	Chiral and achiral objects	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	6.2	R & S convention	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	6.3	Enantiomers	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
7	7.1	Diastereomers	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	7.2	Degree of unsaturation	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	7.3	Nomenclature of alkenes & Cis-trans isomers	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
8	8.1	E-Z convention and Stability of alkenes	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	8.2	Addition reactions & Mechanism of electrophilic addition	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	8.3	Hammond postulate & carbocation rearrangement	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition

9	9.1	Synthesis of alkenes & addition of hydrogen	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	9.2	Addition of halogens and water	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	9.3	Oxymercuration & hydroboration	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
10	10.1	Hydroxylation and ozonolysis	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	10.2	KMnO4 oxidation & stereochemistry of addition reactions	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
	10.3	Alkenes: Revision	SO-1 & SO-2	Face to Face	Classroom		Mid exam, Final exam	Organic Chemistry, McMurry,8th Edition
11	11.1	Alkynes: Nomenclature and synthesis	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	11.2	Addition reactions	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	11.3	Reduction of alkynes	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
12	12.1	Acidity of alkynes	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	12.2	Halogenation of alkanes	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	12.3	Reactivity of hydrogens & allylic bromination	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition

13	13.1	Organometallic compounds	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	13.2	SN2 reactions	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	13.3	SN1 reactions	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
14	14.1	Nucleophiles and leaving groups	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	14.2	SN1 & SN2 in comparison	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	14.3	E1 & E2 reactions	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
15	15.1	Substitution and elimination in competition	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	15.2	Structure and Reactions of Dienes	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th Edition
	15.3	UV spectroscopy	SO-1 & SO-2	Face to Face	Classroom		Final exam	Organic Chemistry, McMurry,8th 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
First exam	20%	Chapters: 1-4	SO-1 & SO-2	6 weeks	In the department
Mid exam	30%	Chapters 5-8	SO-1 & SO-2	11 weeks	In the department
Final exam	50%	Chapters 1-11 & 14	SO-1 & SO-2	16 weeks	In the department

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23 Course Requirements

A white or mart board.

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 if needed.

25 References:

Organic Chemistry, McMurry,8th Edition

26 Additional information:

Name of Course Coordinator: Amal Alaboudi Signature: ---------- Date: 19/6/2023
Head of Curriculum Committee/Department: ---------- Signature: ----------
Head of Department: ---------- Signature: ----------
Head of Curriculum Committee/Faculty: ---------- Signature: ----------
Dean: ---------- Signature: ----------