



The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	Organic chemistry
2	Course number	5501231
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	3
4	Prerequisites/corequisites	General chemistry (1) and General chemistry (2)
5	Program title	Bachelor Program in Biological sciences
6	Program code	
7	Awarding institution	Jordan university
8	Faculty	Faculty of Marine Sciences
9	Department	Coastal Environment
10	Level of course	Second year
11	Year of study and semester (s)	First semester 2017-2018
12	Final Qualification	Bachelor
13	Other department (s) involved in teaching the course	Marine Biology
14	Language of Instruction	English
15	Date of production/revision	

16. Course Coordinator:

Office numbers, office hours, phone numbers, and email addresses should be listed.

345, 10-11 (Sun,Tue,Thu), 032090450-25076, E-Mail: r_almomani@ju.edu.jo

17. Other instructors:

Office numbers, office hours, phone numbers, and email addresses should be listed.

18. Course Description:

As stated in the approved study plan.

Structure and bonding, Bonding and molecular properties, the nature of organic compounds: Alkanes and cycloalkanes, Stereochemistry of alkanes and cycloalkanes, An overview of organic reactions, alkanes: Structure and reactivity, alkenes: Reactions and synthesis, Alkynes, Stereochemistry, Alkyl halides. Reactions of alkyl halides: Nucleophilic substitution and eliminations reactions

19. Course aims and outcomes:

A- Aims:

Learning objectives during Organic Chemistry include student understanding of: 1. The geometries and structures of carbon-based compounds, the tetravalence of carbon atoms, and the local geometries that result from sp, sp², and sp³ hybridization. 2. The common and important functional groups in organic compounds. 3. The composition and structures of hydrocarbon compounds and geometric isomerism. 4. Stereoisomerism; chirality of tetra-substituted carbon atoms; R and S enantiomers; and diastereoisomerism. 5. The standard organic chemistry reaction mechanisms: substitution, elimination, and addition reactions. 6. The preparation, structures, and reactions of alkyl halide compounds. The reactivity of electron deficient carbons. Nucleophilicity and structures of nucleophiles. 7. The preparation, structures, and reactions of alkene and alkyne compounds.

B- Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to

...

1- remembering General chemistry: the structure of an atom, electronic configuration, ionic and covalent bonds Lewis structures, formal charge, atomic orbital and hybridization.

2- distinguishing between the acids and the bases, understanding the factors that determine acid strength.

3- Naming by the IUPAC system any saturated hydrocarbon whose parent chain contains 10 or fewer carbon atoms and no more than two simple rings (or sketch the hydrocarbon given its IUPAC).

Describing (graphically and verbally) the relation between conformation and potential energy for ethane, propane and butane and closely related compounds (Newman projections) and drawing the chair conformer of cyclohexane.

4- Determining the configuration (R or S) of any chiral center .drawing, distinguishing between the isomers (cis- trans isomers and isomers that contain asymmetric centers) .

5- Naming any alkene whose parent chain is 10 carbons or less by the IUPAC system , writing the mechanism for electrophilic addition reaction and describing the energy changes that take place during reaction

6- Predicting the product(s) obtained from the addition reactions of alkenes and alkynes and predicting the stereoisomers obtained from the addition reactions of alkenes .

7- Explain the experimental basis for the concept of resonance or aromaticity, i.e. the differences in properties between aromatic and similar non-aromatic compounds and Explain the unusual stability of conjugated double bond systems

8- Define and use correctly the terms SN₂, SN₁, E₂, E₁.

9-writing the mechanism and product(s) for Reactions of Elcohols, Ethers, Epoxides, Amines, and Thiols

10- writing the mechanism and product(s) for Reactions of Carboxylic acids and carboxylic acid derivatives

20. Topic Outline and Schedule:

	1.	2.	3.	4.	5.
6.					
Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Chapter 1, Remembering General Chemistry: Electronic Structure and Bonding	1	7. Rana Al-momani	1	Questions in the class room and Quizes	Essential Organic Chemistry, Paula Yurkanis Bruice ,Third Edition
Chapter 2:acids and Bases Central to Understanding Organic Chemistry	2		2	Questions in the class room and Quizes	
Chapter 3: An Introduction to Organic Compounds	3		3	Questions in the class room and Quizes	
Chapter 4: Isomers: The Arrangement of Atoms in Space	4		4	Questions in the class room and Quizes	
Chapter 5: Alkenes	5		5	Questions in the class room and Quizes	
Chapter 6: the reaction of alkenes and alkynes	6		6	Questions in the class room and Quizes	
Chapter 7: Delocalized Electrons and their effect on stability, pK_a , and the products of a reaction Aromaticity and the Reactions of Benzene	7		7	Questions in class room and Quizes	
Chapter 8: Substitution	8		8	Questions in class room and Quizes	

and elimination of alkyl halides					
Chapter 9: Reactions of Alcohols, Ethers, Epoxides, Amines, and Thiols	9,10		9		
Chapter 11: Reactions of Carboxylic acids and carboxylic acid derivatives	11,12		10		

21. Teaching Methods and Assignments:

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

22. Evaluation Methods and Course Requirements:

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

Quizzes, homework and Exams

23. Course Policies:

A- Attendance policies:

Attendance at lecture is very important; attendance may be taken at the beginning of class sessions. For absences beyond six (6) a student will automatically be withdrawn from the class. It is not academically sound to allow a student to continue after this many absences

B- Absences from exams and handing in assignments on time:

Absences will be excused only if they are due to a religious holiday, serious illness, and death in the student's immediate family, if an exam has been missed then I will use my discretion in how a grade will be derived including the possibility of a make-up exam. Absences due to any other reasons than those listed above will be considered unexcused.

C- Honesty policy regarding cheating, plagiarism, misbehavior:

Academic dishonesty including, but not limited to cheating, plagiarism,

And misbehavior shall be treated appropriately.

Please read at <http://ju.edu.jo/ar/arabic/Pages/regulations.aspx>

D- Grading policy:

Grading system:

General work; Quizzes, homework, attendance	20%
Midterm	30%
Final Exam	50%

Total	100%

24. Required equipment:

Pen and papers

25. References:

A- Required book (s), assigned reading and audio-visuals:

Organic Chemistry, Paula Yurkanis Bruice ,Third Edition

B- Recommended books, materials, and media:

Organic Chemistry, 5th by McMurry, John

Name of Course Coordinator: -----Signature: ----- Date: ----- Head

of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: -----Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File