



Course Syllabus
According to JORDAN National Qualification
Framework (JNQF)

Course Name: Organic Chemistry-1

Course Number: 11012111

General Course Information:

| | |
|---|------------------------------|
| Course title | Organic chemistry-1 |
| Course number | 11012111 |
| Credit hours | 1 |
| Education type | (Face-to-Face) |
| Prerequisites/corequisites | Department approval |
| Academic Program | Bachelor |
| Program code | 01 |
| Faculty | Science |
| Department | Chemistry |
| Level of course | second year |
| Academic year /semester | 2021/2022- second semester |
| Awarded qualification | Bachelor degree in chemistry |
| Other department(s) involved in teaching the course | N/A |
| Language of instruction | English |
| Date of production/revision | March 6, 2021 |

Course Coordinator:

| | |
|-------------------------------|---------------------------------------|
| Coordinator's name | Dr. Samer Al-Awaideh |
| Office No | Engineering Building |
| Office Phone extension number | 307 |
| Office Hours | 11:00-1:00 Sunday, Tuesday, Thursday. |
| Email | samerawaideh@yahoo.com |

Other Instructors:

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|-------------------------------|--|
| Instructor name | |
| Office No | |
| Office Phone extension number | |
| Office Hours | |
| Email | |

Course Description (English/Arabic):

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|---------|--|
| English | This course is an introduction to the fundamental chemistry of carbon-containing compounds, including three-dimensional structures, chemical properties, reactions, and syntheses. The course explores some of the major classes of organic compounds: alkanes, alkenes, alkynes, and alkyl halides. |
| Arabic | |

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

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| 1. Organic Chemistry, 7 th Edition By John McMurry |
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References: Author(s), Title, Publisher, Edition, Year, Book website.

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

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

➤ Book website:

1. <https://www.ispatula.com/file/organic-chemistry-7th-edition-2007-by-john-mcmurry-pdf>

Course Educational Objectives (CEOs):

| | |
|----|--|
| 1. | Demonstrates knowledge of the properties, importance, and reactivity of some common functional groups: alkanes, alkenes, alkynes, alkyl halides. |
| 2. | Identify and name organic compounds, using the proper nomenclature. |
| 3. | Draw structures (condensed and structural) of compounds. |
| 4. | Understanding of organic chemical reactions and their mechanisms |
| 5. | Demonstrate an understanding of chirality and stereochemistry. |
| 6. | Demonstrate a knowledge nucleophilic elimination and substitution reactions |

Intended Learning Outcomes (ILO's):

| 1. | 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** |
|-------|--|----------------------|----------------------|------------------------|---------------|
| 2. A | Knowledge and Understanding: | | | | |
| 3. A1 | Naming of simple organic compounds. | 4 | 1, 3 | 1,2 | K |
| 4. B | Intellectual skills: | | | | |
| 5. B1 | Explain atomic structure, bonding in organic chemistry, chemical reactions and synthesis of organic compounds. | 2, 3, 5 | 1,4 | 3 | C |
| 6. B2 | Determine properties of aliphatic hydrocarbons and their reactions. In addition to, some physical organic behaviour of organic compounds. | 1, 4 | 3 | 1, 2 | S |
| 7. C | Subject specific skills: | | | | |
| 8. C1 | | | | | |
| 9. D | Transferable skills: | | | | |

| | | | | | |
|--------|--|--|--|--|--|
| 10. D1 | | | | | |
| 11. | | | | | |

***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 () program will demonstrate: | | Descriptors** | | |
|--|--|---------------|---|---|
| | | K | S | C |
| 1. | Describe the fundamental scientific principles and theories across the four subfields of chemistry (Organic, inorganic, analytical and physical). | K | | |
| 2. | Identify and confirm chemical compounds structures as well as determine chemical composition. | K | | |
| 3. | Establish and concludes mechanisms of physical and chemical processes in addition to the ability of mastering qualitative and quantitative determination. | | | C |
| 4. | Solve the scientific problems using different mechanisms and procedures based on critical thinking. | | S | |
| 5. | Conduct scientific experiments in chemistry. | | | C |
| 6. | Commitment and interest in lifelong learning, and collaborate effectively with other people in a team. | | | C |
| 7. | Prepare logical, organized and concise written reports, and oral and poster presentations that effectively communicate chemical content to other scientists. | | S | |
| 8. | Commitment to the ethical principles of chemical research. | | | C |
| 9. | Find information about chemistry through databases and information | | S | |
| 10. | Evaluation of calculations in chemistry experiments and information analysis using computer software. | | | C |
| 11. | Demonstrate safety laboratory techniques. | | S | |

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**
Weekly Schedule (please choose the type of teaching)

✓ Face to Face

| Week | First Lecture (Face to Face) | Second Lecture (Face to Face) | Third Lecture (Face to Face) | Ach. ILOs | Ach. PLOs | Descriptors** |
|------|--|--|--|--------------|--------------|---------------|
| 1-2 | Chapter 1: Structure and Bonding | Chapter 1: Structure and Bonding | Chapter 1: Structure and Bonding | A1, B1 | 1,3,4 | K, S, C |
| 2-3 | Chapter 2: Polar Covalent Bonds; Acids and Bases | Chapter 2: Polar Covalent Bonds; Acids and Bases | Chapter 2: Polar Covalent Bonds; Acids and Bases | A1, B1 | 1,3,4 | K, S, C |

| | | | | | | |
|------|---|---|---|--------|-------|---------|
| 4-5 | Chapter 3: Organic Compounds: Alkanes and Their Stereochemistry | Chapter 3: Organic Compounds: Alkanes and Their Stereochemistry | Chapter 3: Organic Compounds: Alkanes and Their Stereochemistry | B1 | 1,3,4 | K, S, C |
| 6 | Chapter 4: Organic Compounds: Cycloalkanes and Their Stereochemistry | Chapter 4: Organic Compounds: Cycloalkanes and Their Stereochemistry | Chapter 4: Organic Compounds: Cycloalkanes and Their Stereochemistry | B2 | 1,3,4 | K, S, C |
| 7-8 | Chapter 6: Alkenes: Structure and Reactivity | Chapter 6: Alkenes: Structure and Reactivity | Chapter 6: Alkenes: Structure and Reactivity | B2 | 1,3,4 | K, S, C |
| 9-10 | Chapter 7: Alkenes: Reactions and Synthesis | Chapter 7: Alkenes: Reactions and Synthesis | Chapter 7: Alkenes: Reactions and Synthesis | A1, B2 | 1,3,4 | K, S, C |
| 11 | Chapter 8: Alkynes: An Introduction to Organic Synthesis | Chapter 8: Alkynes: An Introduction to Organic Synthesis | Chapter 8: Alkynes: An Introduction to Organic Synthesis | A1, B1 | 1,3,4 | K, S, C |
| 12 | Chapter 9: Stereochemistry | Chapter 9: Stereochemistry | Chapter 9: Stereochemistry | B2 | 1,3,4 | K, S, C |
| 13 | Chapter 10: Organohalides | Chapter 10: Organohalides | Chapter 10: Organohalides | B2 | 1,3,4 | K, S, C |
| 14 | Chapter 11: Reactions of Alkyl Halides: Nucleophilic Substitutions and Eliminations | Chapter 11: Reactions of Alkyl Halides: Nucleophilic Substitutions and Eliminations | Chapter 11: Reactions of Alkyl Halides: Nucleophilic Substitutions and Eliminations | A1, B1 | 1,3,4 | K, S, C |
| 15 | Final Exam | | | | | |

* 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) ____%
- Midterm ____%
- Final Exam ____%

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:.....
- Integrative Projects
- Writing Reports
- Illustrative presentations

Responsible Persons and their Signatures:

| | | | |
|---|-----------------------------|-----------------------|---|
| Course Coordinator | Dr. Samer Al-Awaideh | Completed Date | 15/3/2022 |
| | | Signature | Samer Al-Awaideh |
| Received by (Department Head) | Dr. Manal khabbas | Received Date | 16 / 3 /2022 |
| | | Signature |  |