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**Faculty of Science**

**Department of chemistry**

**1st semester 2016/2017**

**Course syllabus**

**Course information:**

|  |  |
| --- | --- |
| **Course code & number: CHEM 230** | **Course title: Organic Chemistry** |
| **Pre requisite: CHEM132 or 133** | **Co requisite: -----none-----------** |

**Instructor information:**

Instructor Leader: Dr. Imad A. Qamhiyeh

**Lectures:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [Section](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33074) 1 | Imad A. Qamhiyeh | S, M, W | 08:00 - 08:50 | SCI214 |
| [Section](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33074) 2 | Adel J. K. Al Hidmi | S, M, W | 11:00 - 11:50 | SCI216 |
| [Section](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33074) 3 | Adel J. K. Al Hidmi | S, M, W | 09:00 - 09:50 | SCI212 |

Instructor names: Dr. Imad Qamhiyeh

Office phone: 2253

Office Location: SCI324

Office hours:

|  |  |  |
| --- | --- | --- |
| [Office Hour](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33074) | S | 10:00 - 11:30 |
| [Office Hour](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33070) | M | 10:00 - 11:30 |
| [Office Hour](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33072) | W | 10:00 - 11:30 |
| [Office Hour](https://ritaj.birzeit.edu/instructor/edit-office-hr?id=33072) | R | 10:00 - 11:30 |

Email: [qamhiyeh@birzeit.edu](mailto:qamhiyeh@birzeit.edu)

**Please check with** Dr**.** Adel J.K. Al Hidmi *for Office and Instructor information*

* **Course description (3:3:0):**

This is a one semester course designed for Biology, Nutrition, and Nursing students. It will cover the basic principles of Organic chemistry as applied to various classes of organic compounds. The application of organic chemistry to various fields will also be emphasized where appropriate in an effort to demonstrate the importance of the field in everyday life.

* **Course goals:**

The major goals of this course are to:

1. Predict the detailed three dimensional structure of a molecule given the structural formula.
2. Understand the way in which bonds are made or broken in various reactions.
3. Write the reaction products arising from treatment of a certain compound with a variety of reagents.
4. Predict roughly, the physical and where appropriate any physiological properties of an organic compound from its structural formula.
5. Understand the various notations of organic chemistry to communicate this knowledge and locate answers to certain problem.
6. Demonstrate some knowledge of the sources and uses of organic compounds in the practical world.
7. To develop an appreciation of the application of organic chemistry in the field of Biology.

* **Course outcomes:**
* *Knowledge:*

At the end of the course the students will:

1. Know and recall the fundamental principles of organic chemistry that include chemical bonding, nomenclature, structural isomerism, stereochemistry, chemical reactions and mechanism.
2. Name the functional groups and different class of organic compounds.
3. Recognize the basic practical skills for the synthesis and analysis of organic compounds.

* *Cognitive Skills*
* Predict the reactivity of an organic compound from its structure.
* Justify a reasonable mechanism for a chemical reaction
* **Text book:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Author | Title | ISBN -13 | Edition | Publisher |
| Paula Y. Bruice | Essential Organic Chemistry | 978-1-292-08903-4 | Third | Pearson, 2016 |

* **Course topics and contents:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Weak of** | **Chapter** | **Topic** | **Quiz** |
| 1 | Feb 7th | 1 | Electronic Structure and Covalent Bonding. | Quiz 1 |
| 2 | Feb 14th | 2 | Acids and Bases. | Quiz 2 |
| 3 | Feb 21st | 3 | An Introduction to Organic Compounds. | Quiz 3 |
| **First hour exam.** | | | | |
| 4 | Feb 28st | 4 | Isomers: The Arrangement of Atoms in Space. | Quiz 4 |
| 5 | March 7th | 5 | Alkenes. | Quiz 5 |
| 6 | March 14th | 6 | The Reactions of Alkenes and Alkynes. | Quiz 6 |
| **Second Hour Exam.** | | | | |
| 7 | March 21st | 7 | Delocalized Electrons and Their Effect on Stability, Reactivity, pKa, and the Products of a reaction. Aromaticity and the Reactions of Benzene. | Quiz 7 |
| 8 | March 28th | 8 | Substitution and Elimination Reactions of Alkyl Halides. | Quiz 8 |
| 9 | April 4th | 9 | Reactions of Alcohols, Ethers, Epoxides, Amines, and Thiols. | Quiz 9 |
| **Third Hour Exam.** | | | | |
| 10 | April 11th | 11 | Reactions of Carboxylic Acids and Carboxylic Acids derivatives. | Quiz 10 |
| 11 | April 18th | 12 | Reactions of Aldehydes and Ketones. More Reactions of Carboxylic Acid Derivatives. | Quiz 11 |
| 12 | April 25th | 13 | Reactions of α-Carbon of Carbonyl Compounds. | Quiz 12 |
| **Final Exam** | | | | |

* **References**

1-T. Solomon, Organic Chemistry, 10th ed., Wiley, New York, 2011.

2- P. Bruice, Organic Chemistry, 6th ed., prentice Hall, New Jersey, 2010.

3-Morrison, R. T. and Boyd, R. N., Organic chemistry, 6th ed., Prentice Hall, New Jersey, 1992.

* **Teaching and learning methodologies:**

There are three lecture meetings per week; in the lecture power point slides will be used. At the end of each chapter a discussion session will be held, during which some of the assigned problems will be solved with students and any questions related to the material covered will be discussed, explained and answered. By the end of the discussion session there will be a quiz and/or homework in the discussed chapter.

* **Course assessment details:**

The grade distribution for the course is as follows:

|  |  |
| --- | --- |
| Methods of assessment | Relative weight % |
| First hour exam | 15% |
| Second hour exam | 20% |
| Third hour exam | 15% |
| Quizzes and Homework | 10% |
| Final exam | 40% |

* **Students with Disabilities:**

I encourage students with disabilities, including “invisible” disabilities such as chronic diseases, learning and psychological disabilities, to explain their needs and appropriate accommodations to me during my office hour. Please bring a verification of your disability for accommodating your needs.

* ***Cellphones Policy:***

The use of cellphones is NOT allowed during class, therefore, students are required to switch off their phones once they enter the classroom. You will be asked to leave the classroom if you violate this policy.

* **University honor code**

**Academic Honesty:**

You are expected to comply with the university honor code. Please read it on Ritaj

[https://ritaj.birzeit.edu/university-laws/#](https://ritaj.birzeit.edu/university-laws/)