

*American University of Beirut*  
*Faculty of Arts and Sciences*  
*Department of Chemistry*  
**Spring 2017-2018**

**CHEM 212 Syllabus**

Instructor: K. Bouhadir

Office: Chemistry 412

Office hours: M,T,W,Th & F, 8-9 am

Text: Francis Carey & Robert Giuliano "Organic Chemistry", 10<sup>th</sup> Edition 2016

Lecture: Monday & Wednesday, 10-10:50 am

**Course description:** Chemistry 212 covers synthesis, properties, and reactions of organic functional groups, including alcohols and ethers, aldehydes and ketones, carboxylic acids and derivatives, amines, phenols and aryl halides in addition to organic structure determination by spectroscopic methods. Emphasis is placed on reaction mechanism and stereochemistry, as well as on the design of multi-step synthesis. This course is designed for chemistry majors and premedical students.

**Course learning outcomes:** The completion of this course should prepare students to:

1. Elucidate the structure of organic molecules using NMR, MS, IR and UV-VIS spectroscopy
2. Develop an appreciation to organic chemistry in everyday phenomena
3. Relate their knowledge in organic chemistry to biological processes in their respective fields of study
4. Analyze and differentiate between various synthetic organic mechanisms
5. Outline efficient synthetic pathways for small organic molecules
6. Differentiate between different organic functional groups and their chemistries
7. Recognize the central role of carbonyl chemistry and predict the outcome of related organic transformations

**Course philosophy:**

The goal of this course is to help you learn organic chemistry, a subject of fundamental importance to a wide range of fields. It is going to require much work on your part but the following hints may be helpful.

1. **Attend all lectures:** There is a vast amount of material to be covered and a limited time to do it in. Missing even one lecture may put you irretrievably behind.
2. **Read the text:** In my lectures I emphasize the things I think are important. Usually, the text will cover these points in greater detail and/or in a slightly different way.
3. **Work the problems:** There are no shortcuts here; working the problems is the only way to learn organic chemistry. The practice problems show you how to approach the material. Full answers and explanations for the problems are given in the Study Guide and Solutions Manual.
4. **Ask questions:** Instructors are here to help you, so take advantage of the recitation sessions and frequently visit your instructor during the designated office hours (listed above and posted next to the office).

## Course outline:

- Electrophilic and Nucleophilic Aromatic Substitution (CH 13)
- Spectroscopy (CH 14)
- Organometallic Compounds (CH 15)
- Alcohols, Diols, and Thiols (CH 16)
- Ethers, Epoxides, and Sulfides (CH 14/17)
- Aldehydes and Ketones (CH 18)
- Carboxylic Acids (CH 19)
- Carboxylic Acid Derivatives (CH 20)
- Enols, and Enolates (CH 21)
- Amines (CH 22)
- Phenols (CH 23)

## Tentative grading scheme:

There will be two exams during the semester and a cumulative final exam. Make-up exams are not available. All exams are closed-book and calculators are prohibited during the exam. Tentative exam dates are given below:

**Exam I:** (TBA)

**Exam II:** (TBA)

**Final Exam:** (TBA)

**Grading:** I consider the following grading scheme a binding contract and will not diverge from it under any circumstance.

<b>Class contribution</b>	<b>10%</b>
<b>Exam I</b>	<b>25%</b>
<b>Exam II</b>	<b>25%</b>
<b>Final Exam</b>	<b>40%</b>

## Problem solving:

Problem solving constitutes an essential part of this course, in order to fully understand the material; you are expected to solve all the problems included within the assigned chapters, as well as the problems at the end of each chapter. Additional problems will be assigned to the class.

## Make-ups:

**No make-up exams will be given.** If you miss one exam, you will receive a **zero** (for that exam) unless a valid medical excuse is presented (from the AUB infirmary) within **one week** of the exam date. In this case the % of the missed exam will be added to the final exam. In the case of absence from the final examination **for valid reasons**, the student will be entitled to a make-up final **with the approval of the Administrative Committee.**

## Attendance:

Attendance will not be checked during general lectures. No penalty will be assessed for absences, nor will credit be given for attendance. However, it has been my experience that students who are habitually absent from class perform poorly on quizzes and exams.

## **Recitation Sessions:**

Attending these sessions is mandatory. Attendance sheets will be distributed at the beginning of each session and class contribution will be evaluated and will count to 10% of the final grade in the course. These sessions are designed as problem solving sessions where students can ask questions and request specific problems to be solved in class. Typically, students are expected to volunteer to solve the requested problems, otherwise the instructor will pick names from the class list. In addition, drop quizzes might be given at the beginning of the recitation sessions. Specific problems of each chapter will be assigned as homework to be submitted in the recitation session following the completion of the chapter. The grades of quizzes and homework will count towards class contribution.

## **Studying:**

To be successful in this class, most students will need to devote a minimum of 12 hours per week to study for this course outside of our normal meeting time. There are many potentially effective strategies for success in this course. Read the sections of the text to be covered in class before coming to class. Work through the appropriate exercises and end-of-chapter problems before attending the recitation session. Recopy your notes after each lecture.

## **General rules:**

1. No tobacco in any form will be allowed in the classroom.
2. No food/drink will be allowed in the classroom.
3. Be forewarned that cheating on an exam or quiz will lead to a zero on that exam or quiz and could result in failing the course. In addition, any form of student misconduct will be reported the FAS Disciplinary Committee for further action.
4. Bring materials to class: you should bring your text and problem book to every recitation session.
5. Do your homework: the only way to succeed is to study on a daily basis and practice by solving the assigned problems before coming to recitation sessions.
6. If you are going to be/have been absent from lectures; you are responsible for all the material covered in class.
7. Please arrive on time and be seated immediately upon entering the class room. If you are late, quietly occupy a seat in the back rows.
8. Please do not leave the class room during the lecture unless it is absolutely necessary.
9. During the exam, you are expected to carefully read the instruction section on the front page. You are also expected to follow these instructions to the point.
10. You are allowed to check your exam within a week of the examination date (unless you have a valid medical excuse).

**‘AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, you are encouraged to contact the Accessible Education Office: [accessibility@aub.edu.lb](mailto:accessibility@aub.edu.lb); +961-1-350000, x3246; West Hall, 314’.**