

Advanced Organic Chemistry II - Course Syllabus

Course Number: ChemS340

Course Title: Advanced Organic Chemistry II

Academic Semester: Spring **Academic Year:** 2015/ 2016
Semester Start Date: Jan 24, 2016 **Semester End Date:** May 19, 2016

Class Schedule: Mon. and Thurs. 10:30-12:00 pm

Classroom Number:

Instructor(s) Name(s): Niveen M. Khashab
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Office Location: Bldg. 2 office 4232
Office Hours: Mon. and Thurs 2:00- 4:00 pm

COURSE DESCRIPTION FROM PROGRAM GUIDE

This course will focus on a deeper understanding of the structure and reactivity of organic molecules with an emphasis on reaction mechanisms. It is a review of aspects of physical organic chemistry, covering structure and bonding, stereochemistry, and kinetics and thermodynamics, as well as molecular orbital theory with an introduction to the use of computational tools, such as Gaussian 09.

COMPREHENSIVE COURSE DESCRIPTION

This course covers reactivities of main organic moieties including enolates, carbenes, radicals, and carbonyl compounds. It also covers mechanisms of named reactions with emphasis on condensation, elimination, rearrangement, and cross coupling reactions. Retrosynthetic analysis will be discussed and practiced with training on proposal writing.

GOALS AND OBJECTIVES

Upon completing this course, students are expected to know:

- Functional groups interconversions
- Mechanisms of the major chemical reactions
- Use of reagents/ catalysts needed for organic transformation

- Retrosynthetic analysis techniques for complex organic molecules synthesis such as natural products

REQUIRED KNOWLEDGE

- 1- Undergraduate Organic Chemistry
- 2- Advanced Organic Chemistry I

REFERENCE TEXTS

Advanced Organic Chemistry: Structure and Mechanisms (Part B) by Francis A. Carey and Richard J. Sundberg, 5th Edition, Springer

METHOD OF EVALUATION

Graded content
Grading Scheme Points
1. Midterm Exams 400 pts (40%)
2. Presentation & Homework 300 pts (30%)
3. Final Project 300 pts (30%)
Total 1000 pts (100%)

COURSE REQUIREMENTS

Assignments

1. Two midterm exams covering the materials on organic synthesis will be conducted.
2. Class presentation and weekly homework
3. A natural product molecule will be provided to the students in the second week for them to develop a synthetic proposal.

Course Policies

Attendance

Lecture attendance is mandatory and students are responsible for all information, material, and announcements made in class.

Academic Honesty

In accordance with university policy and professional standards, the highest levels of academic integrity are expected in this class. The code of student conduct will be strictly enforced. Academic dishonesty will result in reductions in grades and/or expulsion from this class and/or the university.

NOTE

The instructor reserves the right to make changes to this syllabus as necessary.