Global Learning Semesters
Course Syllabus
Course: CHEM-260 Organic Chemistry II
Department: Biomedical Sciences
Host Institution: University of Nicosia, Nicosia, Cyprus

Course Summary		
Course Code	**Course Title**	**Recommended Credit Hours**
CHEM-260	Organic Chemistry II	5
Semester Offered	**Contact Hours**	**Prerequisites**
Please contact us	42-45	CHEM-250
Department	**Level of Course**	**Language of Instruction**
Biomedical Sciences	Lower Division	English

Course Description

A principal objective of Chemistry 260 is the detailed survey of chemical reactivity in selected families of organic compounds. Topics include elimination and nucleophilic substitution reactions of alkyl halides, alcohols and phenols, aldehydes and ketones, carboxylic acids and amines. A parallel objective is the study of several spectroscopic techniques used by organic chemists for elucidating chemical structure, including mass spectrometry, and IR, NMR and UV-absorption spectroscopic methods. A weekly intensive laboratory program includes reactions covered in class, as well as the extraction of organic products from natural materials. The format of the course is 3h/week lectures, 3h/week laboratory session and 1h/week tutorial session.

Prerequisites

CHEM-250

Topic Areas

1. Alkyl Halides: Structure and Reactivity
2. Nucleophilic Substitutions: S_N1 and S_N2
3. Elimination Reactions: E1 and E2
4. Mass Spectrometry
5. Infrared Absorption Spectroscopy and Functional Group Identification
6. Nuclear Magnetic Resonance (NMR) Spectroscopy: ^{1}H, ^{13}C, DEPT-^{13}C
7. Conjugated Dienes and Ultraviolet Spectroscopy
8. Aromaticity, Hückel Rule and Benzene
9. Chemistry of Benzene: electrophilic aromatic substitution
10. Alcohols and Phenols
11. Aldehydes and Ketones: Nucleophilic Addition Reactions
12. Carboxylic Acids
13. Amines

Laboratory

1. Saponification: The Synthesis of Soap
2. Nucleophilic Substitution Reactions of Alkyl Halides
3. Interpretation of Infrared Spectra
4. Interpretation of NMR Spectra

5. Extraction of Limonene from Citrus Fruit
6. Cyclohexanone from Cyclohexanol
7. Adipic Acid from Cyclohexanone
8. Fischer Esterification: Synthesis of Methyl Benzoate
9. Nitration of Methyl Benzoate

Readings and Resources

Required Textbooks

1. Organic Chemistry, 5th Edition, by McMurry, Brooks/Cole Publishing Company, 2000. (ISBN: 0-534-37366-6)
2. Organic Experiments, 8th Edition by L.F. Fieser and K.L. Williamson, Houghton Mifflin Company, 1998. (ISBN: 0-395-86519-0)