

Montgomery County Community College
CHE 262
Organic Chemistry II
4-3-3

COURSE DESCRIPTION:

This course is a continuation of CHE 261 and covers the nomenclature, structure, properties and reactions of many important classes of organic compounds including arenes, alcohols, ethers, epoxides, thiols, sulfides, aldehydes, ketones, carboxylic acids, nitriles, carboxylic acid derivatives, amines, carbohydrates, amino acids and

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
8. Discuss Keto-Enol tautomerism, various alpha substitution reactions (halogenation and Hell-Volhard-Zelinski) and enolate ion formation (Haloform reaction).	Lectures Class Discussions Emphasis on Reaction Mechanisms	

- A. Electrophilic Aromatic Substitution
 - B. Halogenation
 - C. Friedel-Crafts Alkylation Reaction
 - D. Acylation Reaction
 - E. Substituted Effects on Substituted Aromatic Rings
 - F. Trisubstituted Benzene and their Synthesis
 - G.5 6>BDC q0.000009122
 - H. Benzyne
 - I. Oxidation and Reduction of Aromatic Rings
- III. Alcohols and Phenols
- A. Nomenclature
 - B. Properties: H-bonding and Acidity and Basicity
 - C. Synthesis of Alcohols: Reduction of Carbonyl and Use of Grignard Reagent
 - D. Reactions of Alcohols: Oxidation and Protection
 - E. Synthesis of Phenols
 - F. Reactions of Phenols
 - G.5 6>SDC q0.000009122
- IV. Spectroscopy of Alcohols and Phenols

A. Nomenclature

B. Structure and Properties

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- 2. D, L Sugars
- B. Amino Acids
 - 1. Peptides and Proteins
- C. Lipids
 - 1. Fats and Oils
 - 2. Soap

SEQUENCE OF EXPERIMENTS:

1. Analysis of MS, IR, NMR Spectra
2. Macroscale Nitration of Methyl Benzoate
3. Diels Alder Reaction: Microscale Cracking of Dicyclopentadiene; cis-Norbornene-5,6-endo-dicarboxylic Anhydride
4. Friedel-Crafts Acylation of Ferrocene Microscale Acetylferrocene
5. Borohydride Reduction of 2-Methylcyclohexanone
6. Grignard Synthesis: Microscale: Phenylmagnesium Bromide and Triphenylmethanol
7. Transfer Hydrogenation of Olive Oil and Br₂ Test for Alkenes. Macroscale
8. Ester Hydrolysis (Saponification): The Synthesis of Soap Macroscale
9. Dibenzalacetone by Aldol Condensation – Macroscale

LEARNING MATERIALS:

McMurry, J. (2012). *Organic Chemistry* (8th ed.). Thomson and Brooks/Cole.

McMurry, S. (2012). *Study Guide and Student Solutions Manual* (7th ed.). Brooks/Cole/Cengage.

Williamson, K., Masters, K. (2011). *Macroscale and Microscale Organic Experiments* (6th ed.). Houghton-Mifflin Co.

Molecular models

Other learning materials may be required and made available directly to the student and/or via the College's Libraries and/or course management system.

COURSE APPROVAL:

Prepared by: Dr. E. Martins, Assistant Professor of Chemistry Date: 10/14/2004

Revised by: Dr. L. McAtee, Assistant Professor of Chemistry Date: 2/5/2009

VPAA/Provost Compliance Verification: Dr. John C. Flynn, Jr. Date: 9/11/2009

Revised by: Dr. L. McAtee, Assistant Professor of Chemistry Date: 12/22/2012

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