

## Organic Chemistry I

Chemistry 281

Section: D100

Term: 2001 Fall

Instructor: Lecture Instructor: Dr. K. Slessor. Office: C-8080.

Laboratory Instructor: Dr. U. Kreis. Office: SSB-8144.

Discussion Topics: Structure, bonding, physical and chemical properties of simple organic compounds.

Introduction to spectroscopy. Kinetics and mechanisms of organic reactions.

This course includes a laboratory component.

3 lecture hours/week; 1 tutorial hour/week; 2 lab hours/week

Lecture Topics:

The chemical bonding and structure of carbon based (organic) molecules.

The nomenclature, chemical, physical and spectroscopic properties of organic molecules. (discussed in terms of the functional group) including alkanes, cycloalkanes, alkenes, haloalkanes, alcohols, and ethers (epoxides).

Acidity/basicity, stereochemistry, and reactivity concepts.

Chemical reactions (transformations) including addition, elimination, nucleophilic substitution, oxidation, reduction and dehydration processes unified in terms of reaction mechanism.

An introduction to spectroscopy (infrared, ultraviolet-visible and <sup>1</sup>H nuclear magnetic resonance).

An introduction to the chemistry of the carbonyl group (aldehydes, ketones, carboxylic acids, esters, and amides) and aromatic compounds.

Laboratory Topics:

1. Hydrolysis of Methyl Salicylate

2. Aspirin

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3. Nucleophilic Substitution Reactions

4. Preparation of Isopentyl Acetate

5. Functional Group Tests

Grading: Lecture course 75% and laboratory course 25%.

Required Texts: Lecture: John McMurry, "Organic Chemistry" 5th Ed. 2000. Brooks/Cole.

Lab: Pavia, Lampman, Kriz & Engel, "Introduction to Organic Laboratory Techniques

- a Microscale Approach". 3rd Ed. 1999. Harcourt Brace.

Recommended Texts: Any undergraduate organic chemistry text.

Materials/Supplies: None

Prerequisite/Corequisite: Prerequisite: CHEM 121. Corequisite: CHEM 122(or 103).

Notes: None

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