CHEM 210: ORGANIC CHEMISTRY A

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2021
Credits:	3
Total Contact Hours:	54
Lecture Hours :	54
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	108
Prerequisite:	CHEM 112.
District General Education:	B2. Natural Sciences - Physical Sciences, B3. Natural Sciences - Laboratory
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter

Catalog Course Description

A course in organic chemistry including the properties and reactions of alkanes, alkenes, alkynes, alcohols, ethers, thiols, emphasizing fundamental principles and reaction mechanism, stereochemistry and IR spectroscopy. First semester of a one-year course, required for students enrolled in pre-professional programs in medicine, denistry, pharmacy, veterinary science, biology, and chemistry. CHEM 211L required concurrently for most stated majors. 54 lecture hours.

Course Objectives

- Name organic compounds.
- The student must be able to tell the site of a chemical reaction in a multifunctional group compound.
- Demonstrate a knowledge of reaction mechanisms of aliphatic and aromatic compounds.
- Convert aliphatic and aromatic given starting materials into a number of different products.
- Demonstrate a knowledge of Stereochemistry.
- Identify the variety of classes of compounds and functional groups.
- Synthesis of alkanes, alkenes, alkynes, alcohols, ether, thiols.
- Demonstrate a knowledge of IR spectroscopy analysis.
- Solve problems such as substitution and elimination reactions. Write a reasonable mechanism based on kinetic and spectroscopic information.
- The student must distinguish between an acid and an electrophile - a base and a nucleophile.

Major Course Content

1. Ionic & Covalent Bonding. Formal Charge. Resonance.
2. Constitutional Isomers. Functional Groups.
3. Hybridization.
4. Acid-Base Equilibrium. H-bonding.
5. Nomenclature.
6. Geometric and Conformational Isomers.
7. Configurational Isomers.
8. Nucleophilic Substitution Reactions.
9. Elimination Reactions
10. Preparation of Alcohols, Esters, Amines, and Alkynes.
11. Reactions of Alkenes and Alkynes.
12. Infrared Spectroscopy.
13. Radical Reactions.

Suggested Reading Other Than Required Textbook

None

Examples of Required Writing Assignments

Homework assignments: Completing reactions. Writing a detailed mechanism for the reactions. Propose a synthetic route from reactant to product. IR spectroscopy problems to determine the identity of the functional group.

Examples of Outside Assignments

Extra credit problems. Work with molecular models.

Instruction Type(s)

Lecture, Online Education Lecture

IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

No

IGETC Area 5: Physical and Biological Sciences

5A. Physical Science

IGETC Area 6: Languages other than English

No