

CHM 250 - ORGANIC CHEMISTRY I

Course Description

The first semester of a two-semester course covering the chemistry of carbon compounds. Designed to meet the requirements for majors in chemistry, chemical engineering, biological science, pre-medicine, etc. Topics include nomenclature, structure, aliphatic compounds, free-radical, nucleophilic substitution and elimination reactions, electrophilic addition reaction and mechanisms, alkyl halides, alkenes, alkynes and alcohols. The laboratory portion will cover fundamental organic laboratory techniques of synthesis, separation and analysis. Group 1 lab course.

Credit Hours

5

Contact Hours

9

Lecture Hours

5

Required Prerequisites

CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better.

Corequisites

CHM 250L

Recommended Prerequisites or Skills Competencies

ENG 111 with a grade of 2.0 or better.

General Education Outcomes supported by this course

Quantitative Reasoning

Course Learning Outcomes

Knowledge:

- Be able to articulate a broad set of chemical knowledge concerning the fundamentals in organic chemistry.
- Summarize the concepts and results of their laboratory experiments through effective writing and oral communication skills.
- Explain electron delocalization and its effect on stability and reactivity.

Application:

- Interpret patterns of reactivity on the basis of mechanistic reasoning.
- Design syntheses of organic molecules of moderate complexity.
- Demonstrate the fundamentals acid/base and electrophile/nucleophile reactions in organic chemistry.
- Use standard laboratory equipment, modern instrumentation, and classical techniques to carry out experiments.
- Perform the experiments, and appropriately record and analyze the results.

Integration:

- Critique the synthesis, labeling, and production of organic chemicals.
- Connect to real world examples of organic chemistry in action.
- Evaluate the consequences (reactivity, properties) of the three-dimensionality of molecules.

Human Dimension:

- Develop interpersonal skills by working in groups: through joint assignments, study groups, and most importantly in collaboration during laboratory experiments.

Caring - Civic Learning:

- Recognize the connections between organic chemistry and real life applications.
- Better appreciate the concepts of this course and how they related to the real world.

Learning How to Learn:

- Think intuitively about organic chemistry reactions.
- Organize, summarize, and synthesize complicated conceptual ideas.
- Initiate new problem solving skills and strategies.