# CHEM 261, Organic Chemistry I

*3 credits, 3 hours lecture, 3 hours lab*

## Course Description

Organic Chemistry I introduce the correlation of structure and chemical bonding in carbon compounds with the physical properties and chemical reactivity of organic molecules. With discussion based on selected functional groups, the course will introduce stereochemistry, three-dimensional structure, and reaction mechanisms, especially the mechanisms of addition to double bonds, nucleophilic substitution and elimination reactions. Functional groups covered will emphasize hydrocarbons and derivatives that contain halogens, oxygen, sulphur, and the hydroxyl group.

## Pre and Co-requisites

*Prerequisite:* CHEM 101 or CHEM 103.
NOTE: Students who have credit for CHEM 161 cannot take CHEM 261 for credit. Engineering students who take this course will receive *4.5.

## Course Learning Outcomes (CLOs)

*Upon successful completion of the course, the student shall be able to:*

CLO1 Perform typical organic chemistry experiments, with an emphasis on laboratory safety.

CLO2 Explain the hybridization of carbon atoms in different hydrocarbons and correlate the hybridization with their chemical properties.

CLO3 Employ IUPAC nomenclature rules to name hydrocarbons and properly identify their stereoisomers and diastereoisomers.

CLO4 Use molecular model kits for understanding the conformations of alkanes and cycloalkanes, as well as the stereochemistry in some important organic reactions, such as the bromination of *cis* or *trans* stilbene.

CLO5 Understand important organic chemistry mechanisms, such as radical substitution for alkanes, electrophilic addition for alkenes, and nucleophilic substitution/elimination (SN1, SN2, E1, E2) for alkyl halides and alcohols.

## Evaluation

| Assessment Type | Percentage |
|---|---|
| Assignments | 15% |
| Laboratory | 25% |
| Midterm Exam | 25% |
| Final Exam | 35% |

## Course Completion Requirements

Minimum passing mark of D or 50% is required.

## Grading Scale

| 4.0 Grade Scale | Alpha Grade | Percentage Grade |
|---|---|---|
| 4.0 | A+ | 93-100 |
| 4.0 | A | 85-92.9 |
| 3.7 | A- | 80-84.9 |
| 3.3 | B+ | 77-79.9 |
| 3.0 | B | 74-76.9 |
| 2.7 | B- | 70-73.9 |
| 2.3 | C+ | 67-69.9 |
| 2.0 | C | 64-66.9 |
| 1.7 | C- | 60-63.9 |
| 1.3 | D+ | 55-59.9 |
| 1.0 | *D | 50-54.9 |
| 0.0 | F | 0-49.9 |

## Land Acknowledgement

We respectfully acknowledge that Keyano College is located on Treaty 8 territory, the traditional & contemporary meeting grounds and gathering places of the Denesuline, Cree and Métis Peoples of this region. Our name, Keyano (kiyânaw in nêhiyawêwin - Cree language), translates to “we, us, our” and speaks to the connection we have as a community and our commitment to being in right relationships with the First Peoples of these lands.

Every effort has been made to ensure that information in this course outline is accurate at the time of publication. Keyano College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.

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Review Date: December 2025