

Department:

Chemistry

Course Description:

This course is the first in a two-sequence semester. The course will focus on hybridization, bond and molecular orbitals, stereochemistry, acids and bases, chemical radicals, kinetics, thermodynamics, conformational analysis, and molecular structure. These topics will be applied to alkanes, haloalkanes, alkenes, and alcohols. The course will also include spectroscopic techniques such as NMR, IR, and mass spec, applied to structure determination of organic molecules.

Course Competencies:

Upon completion of the course, the student should be able to:

1. Perform functional group analysis and explain properties in principle and in lab applications.
2. Apply the principles of relevant nomenclature, including chiral and stereo designations.
3. Explain organic reactions and reaction mechanisms.
4. Describe basic approaches to chemical synthesis.
5. Conduct lab work consisting of general organic chemistry techniques, in both macro and micro scale.

Course Content:

- A. Structure and bonding
- B. Alkanes
- C. Alkenes and alkynes
- D. Stereochemistry
- E. Rings
- F. Substituted alkanes: alkyl halides, alcohols, amines, ethers, thiols, and thioesters
- G. Substitution reactions: the S_N2 and S_N1 reactions
- H. Elimination reactions: the E1 and E2 reactions
- I. Analytical chemistry: mass spectroscopy, infrared spectroscopy, and nuclear magnetic resonance
- J. Additions to alkenes
- K. Radical reactions

Learning Assessments:

Course competencies will be assessed by use of homework assignments, laboratory reports, quizzes, regular exams, and a final exam.

Instructional Materials:

Textbook: Smith, J. (2020). *Organic Chemistry* (6th ed.). New York, NY: McGraw Hill.
ISBN-13: 978-1260119107

Lab manual: Isac-Garcia, J., Dobado, J. A., Calvo-Flores, F. G., and Martinez-Garcia, H. (2016). *Experimental Organic Chemistry: Laboratory Manual* (1st ed). San Diego, CA: Academic Press. ISBN-13: 978-0128038932

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.

Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the "Disabilities Self-Identification Form" on our [Disability Services website](#).

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.

A Note on Harassment, Discrimination and Sexual Misconduct

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an [online report](#) about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our [Equity Grievance Policy](#).