

CUMBERLAND COUNTY COLLEGE

Course: CH 201 Organic Chemistry I

Credits: 4

Prerequisites: CH 102 or its equivalent

Description: Offers fundamental principles of Organic chemistry. Including the reactions, structure, properties, nomenclature, and stereochemistry of the alkanes, alkyl halides, alkenes, alkynes, alcohols and ethers. The laboratory offers practice in the synthesis, analysis, separation and purification of organic compounds as well as the use of the college's NMR and IR spectrometers.

Learning Outcomes:

At the completion of this course, students will be able to:

- With respect to the classroom topical outline below, name organic compounds, work with structural formulas, use reaction mechanisms, plan the synthesis of organic target molecules, use the theory and practice of IR and NMR spectroscopies.
- With respect to the laboratory topical outline below, plan and execute laboratory experiments in a safe, efficient and productive manner.
- Prepare samples for NMR and IR analysis.
- Interpret IR and NMR spectra.

Topical Outline:

Classroom

- Classification of Organic compounds by functional group
- The alkanes and free radical substitution
- Stereochemistry part I – Chirality and Stereoisomers
- The alkylhalides and Nucleophilic Aliphatic substitution
- The alcohols and ethers
- The alkenes – structure, preparation and reactions
- Stereochemistry part II – Stereoselective and Stereospecific reactions

Laboratory

- Thermometer calibration
- Unknown identification by melting points
- Boiling points – knowns and unknowns
- Organic qualitative analysis
- IR spectroscopy
- NMR spectroscopy
- Preparation of styrene
- Preparation of tert-amyl or tert-butyl chloride
- Preparation of n-butyl bromide

Text:

Morrison, R. T., Boyd, R. N., & Morrison, R. T. (2014). *Organic Chemistry*, 9th ed. Englewood Cliffs, NJ: Prentice Hall.

Morrison, R. T., Boyd, R. N., & Morrison, R. T. (2014). *Organic Chemistry: Student Solution Manual*, 9th ed. Englewood Cliffs, NJ: Prentice Hall.

CCC Custom Chemistry 201 Lab Manual available at college bookstore

Student Assessment:

By means of written exams, lab reports and class/lab participation.

Academic Integrity:

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation.

Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense. As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

Tutoring & Project Assist:

If you are having difficulty with work in this class tutoring is available through the Center for Academic & Student Success. If you think that you might have a learning disability, contact Project Assist at 856.691.8600 x 1282 for information on assistance that can be provided to eligible students.

Before Withdrawing From This Course:

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) BEFORE withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA which can limit or eliminate future financial aid in addition to causing academic suspension.