CH 242 : ORGANIC CHEMISTRY II

Transcript title

Organic Chemistry II

Credits

5

Grading mode

Standard letter grades

Total contact hours

70

Lecture hours

40

Lab hours

30

Prerequisites

CH 241.

Course Description

Introduces additional principles of organic chemistry for science and chemical engineering majors. Includes substitution reactions, elimination reactions, radical reactions, conjugation and molecular orbital theory, aromaticity, infrared spectroscopy, mass spectroscopy, nuclear magnetic resonance spectroscopy, and synthesis. The laboratory introduces derivatization reactions, the effect of solvents, and instrumental techniques while using record keeping techniques acceptable in the discipline of chemistry.

Course learning outcomes

1. Predict the products of reactions from starting materials.
2. Propose possible synthetic pathways to make a target molecule, complete with appropriate stereochemistry.
3. Apply and interpret energy diagrams, Lewis structures, transition state, and curved-arrow electron notation in substitution, elimination, and radical reaction mechanisms.
4. Propose reasonable structures for organic compounds from physical and spectroscopic data for small molecules.
5. Predict ranked retention times for gas chromatographic output of small molecules.
6. Safely synthesize, purify and characterize compounds in the laboratory.
7. Report experimental work in the format of standard scientific publications.
8. Collect, represent, and analyze data drawing valid conclusions based upon quantitative measurements and qualitative observations.

Content outline

1. Substitution
2. Infrared spectroscopy
3. Elimination
4. Mass spectroscopy
5. Radical reactions
6. Nmr spectroscopy
7. Synthesis workshop
8. Conjugation and Molecular Orbital theory
9. Aromaticity

Required materials

Required workbooks, textbooks, laboratory safety glasses or goggles and a scientific calculator.