

Inver Hills Community College

CHEM 2062: Organic Chemistry II

A. COURSE DESCRIPTION

Credits: 5

Lecture Hours/Week: 4

Lab Hours/Week: 4

OJT Hours/Week: *.*

Prerequisites:

This course requires the following prerequisite

CHEM 2061 - Organic Chemistry I

Corequisites: None

MnTC Goals: None

Is a continuation of CHEM 2061 that includes the study of IR and NMR spectroscopy, the chemistry of alkenes, alkynes, aromatic compounds, aldehydes, ketones, carboxylic acids and their derivatives, conjugate addition reactions, enolates and carbanions, amines and an introduction to some biochemical organic compounds. The lab component of the course provides the student experience with obtaining and interpreting IR spectra for reactants and products in organic reactions, synthesis and isolation of products from reaction mixtures, identification methods for selected families of organic compounds and analytic techniques used in the identification of organic compounds. Prereq: CHEM 2061.

B. COURSE EFFECTIVE DATES: 01/01/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Aromaticity, reactions of benzene and benzene derivatives: 10%
2. Chemistry of conjugated pi bonds and its use in cyclization through the Diels-Alder reaction: 9%
3. Enolates and carbanions in alkylation of malonic ester, aldol condensation reactions and claisen condensation reactions: 9%
4. IR, proton NMR and C-13 NMR spectroscopy: 14%
5. Nomenclature, synthesis and reactions of aldehydes and ketones: 10%
6. Nomenclature, synthesis and reactions of amines: 10%
7. Nomenclature, synthesis and reactions of carboxylic acids and derivatives of carboxylic acid: 14%
8. Some common monosaccharides and their reactions, disaccharides and polysaccharides: 5%
9. Synthesis and reactions of alkenes and alkynes: 12%
10. Synthesis using substituted benzene compounds: 7%

D. LEARNING OUTCOMES (General)

1. Interpret simple IR, proton NMR and C-13 NMR spectra to obtain the structure of an organic compound
2. Recognize the chemistry associated with particular types of molecular structures in organic compounds
3. Use enolates and carbonions in organic synthesis
4. Recognize and illustrate the common mono, di and polysaccharides and the typical chemistry of each
5. Students will recognize characteristics of hazardous wastes and describe safe handling, storage, and disposal appropriate for this course
6. Use syntheses and reactions of alkenes, alkynes, benzene and substituted benzene, aldehydes, ketones carboxylic acids and carboxylic acid derivatives, amines and conjugated pi-bond systems in synthetic processes to produce other organic compounds

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted