J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: CHM 246
Credits: 2

Course Title: Organic Chemistry Laboratory II

Course Description: Introduces fundamental chemistry of carbon compounds, including structures, physical properties, syntheses, and typical reactions. Emphasizes reaction mechanisms and synthesis. Includes qualitative organic analysis. Part II of II. Prerequisite: CHM 245. Prerequisite or Co-requisite: CHM 242. Laboratory 6 hours per week.

General Course Purpose: Designed for students transferring to a four-year college or university in a science curriculum.

Course Prerequisites and Co-requisites:
Prerequisite: CHM 245
Prerequisite or Co-requisite: CHM 242

Student Learning Outcomes:
Upon completing the course, the student will be able to
a. Describe the mechanism for reactions of the functional group(s) using equations with the appropriate (condensed or expanded) structural formulas;
b. Recognize the influence of both kinetic and thermodynamic control of a reaction mechanism;
c. Show the synthesis of a given compound with appropriate chemical equations; and
d. Identify a compound using spectroscopic data gained from the following instruments:
   • Ultraviolet/visible Spectroscopy (UV/Vis)
   • Infrared Spectroscopy (IR, FTIR)
   • Nuclear Magnetic Resonance Spectroscopy (NMR)
   • Mass Spectrometry (MS)

Major Topics to Be Included:
   a. Organometallic compounds
   b. Alcohols, ethers, and epoxides
   c. Aldehydes, ketones, and nucleophilic addition to the carbonyl group
   d. Enols, enolates, and enamines
   f. Carboxylic acids
   g. Acyl transfer reactions
   h. Ester enolates, alkylamines, arylamines
   k. Aryl halides, phenols, carbohydrates

Date Created/Updated (Month, Day, Year): March 1, 2019