Common Course Outline
CHEM 201
Organic Chemistry I Lab
1 Credit

Community College of Baltimore County

Description

CHEM201 - Organic Chemistry I Laboratory serves as a laboratory course to accompany CHEM 200; emphasis on the techniques associated with the synthesis, isolation, purification, & identification of organic compounds by physical properties, IR and NMR spectral analyses.

1 Credit - 3 hours of laboratory per week

Prerequisite: Minimum grade of C or concurrent enrollment in CHEM 200.

Overall Course Objectives

Upon completion of this course, the student will be able to:

1. purify an impure solid by the technique of recrystallization;
2. determine the physical properties of organic substances such as boiling point, melting point, refractive index, infrared, and uv-visible spectra;
3. interpret IR and NMR spectra to identify the structures of unknown compounds;
4. purify a liquid by the process of fractional or simple distillation;
5. analyze and determine the composition of a volatile mixture of liquids using gas chromatography;
6. purify and identify mixtures of unknowns via thin layer and/or column chromatography;
7. separate an unknown acidic or basic compound from a neutral one via an extraction procedure;
8. use spectroscopic means to identify the structure of a pure compound;
9. keep a laboratory notebook of experiments; and
10. write formal reports of experiments from notebook data entry.

Major Topics

I. Separation and Purification Techniques
   a. Crystallization
   b. TLC and Gas Chromatography
   c. Simple and Fractional Distillation
   d. Extraction

II. Identification Methods
   a. Melting Point
   b. Boiling Points
   c. Refractive Index
   d. Optical Activity
   e. IR and ^{1}H-NMR

f. Functional Group Analysis

III. Organic Synthesis (Synthesis of Selected Compound)

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include at least 10 experiments plus a final written and/or lab practical exam.

Writing: Students will be required to write each experiment in their lab notebook as required by the instructor. In addition, students will be required to write at least two formal lab reports.

Other Course Information

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

Date Revised: 6/18/19