Revised 08/2022

NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
CHM 245 – ORGANIC CHEMISTRY I LABORATORY (2 CR.)

Course Description

Introduces various methods and procedures used in present day organic laboratories. Covers the general techniques, organic synthesis, and the use of common spectroscopic instrumentation; synthesizing a variety of compounds; and analyzing the products through physical properties and spectroscopy. Part I of II. Lecture 1 contact hour. Lab 3 contact hours. Total 4 contact hours.

General Course Purpose

Explores the physical properties and reactivity of organic compounds including common methods of separation, purification, and instrumental analysis.

Course Prerequisites/Corequisites

Prerequisite: CHM 112 with a grade of C or better; Corequisite: CHM 241

Course Objectives

Upon completing the course, the student will be able to:

Safety in the Organic Laboratory
- Use proper procedures and regulations for safe handling and use of chemicals in the organic chemistry laboratory

Lab notebook
- Maintain a lab notebook and demonstrate proper recording, organization, and interpretation of scientific data

Laboratory techniques
- Perform physical property analyses, such as melting point and boiling point determinations, density, recrystallization, etc.
- Perform various separation techniques, such as extraction, distillation, chromatography (TLC, column chromatography, GC), sublimation, etc.
- Use and/or interpret spectra from laboratory instruments, such as a gas chromatograph, refractometer, IR, and UV-Vis spectrometer, mass spectrometer, polarimeter.

Synthesis/Characterization
- Prepare and analyze organic compounds, with potential syntheses that could include SN1, SN2, E2, E1 reactions, green chemistry, alcohol dehydration, electrophilic addition reactions, and/or bromination.

Theoretical understanding
- Explain the theoretical basis of all techniques and state reasons for use of specific reagents.

Major Topics to be Included

Safety in the Organic Laboratory
Lab notebook
Laboratory techniques
Synthesis/Characterization
Theoretical understanding