CHEM 211L: ORGANIC CHEMISTRY A LABORATORY

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Fall 2021
Credits:	1
Total Contact Hours:	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	0
Prerequisite:	CHEM 210 (or concurrent enrollment) and CHEM 112.
District General Education:	B2. Natural Sciences - Physical Sciences, B3. Natural Sciences - Laboratory
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter

Catalog Course Description

Introduction to organic laboratory techniques such as melting point, crystallization, distillation, thin layer chromatography, extraction. Synthesis of an ether and an alkene. 54 lab hours.

Course Objectives

- Know the concept of the techniques used in organic chemistry synthesis - such as melting point, boiling point, crystallization, TLC, and extraction.
- Balance a synthesis reaction such as preparation of an ether and an alkene.
- Set-up the required instrumentation for the synthesis such as distillation apparatus. Use melting point instrument, Vacuum filtration set-up, and use separatory funnel properly.
- Purify the product by distillation, crystallization, and extraction.
- Verify the purity of the product by running the sample through the IR spectrometer provided in the lab.

Major Course Content

1. Melting point determination
2. Recrystallization
3. Extraction
4. Acid-base reaction
5. Distillation
6. TLC
7. Synthesis of an ether and an aklene
8. Purification of cholesterol

Lab Content

1. Melting point of an unknown compound.
2. Crystallization of benzoic acid
3. Extraction of adipic acid
4. Simple and fractional distillation of toluene-cyclohexane mixture
5. Thin layer chromatography of analgesic drugs
6. Synthesis of an ether and an alkene
7. Purification of cholesterol
8. Infrared spectroscopy of the synthetic products

Suggested Reading Other Than Required Textbook

None

Examples of Required Writing Assignments

Pre-lab. Describing procedure for recrystallization, including clean up and diagram of the experimental set up. Lab report. Describing of the results of the experiment such as % recovery of the solute. How to improve the % recovery. Discuss the potential of errors in the technique used.

Examples of Outside Assignments

Reading the discussion for the assigned experiment such as recrystallization. Choice and quantity of solvent has to be learned. The interaction of solvent and solute must be known.

Instruction Type(s)

Lab, Online Education Lab