CHEM 221L: ORGANIC CHEMISTRY B LABORATORY

Citrus College Course Outline of Record

Heading	Value
Effective Term:	Spring 2021
Credits:	1
Total Contact Hours:	54
Lab Hours:	54
Hours Arranged:	0
Outside of Class Hours:	0
Prerequisite:	CHEM 210 and CHEM 211L; CHEM 220 (or concurrent enrollment).
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

Synthesis of selected organic compounds, including multi-step processes, techniques of column chromatography, IR spectroscopy. 54 lab hours.

Course Objectives

- Write the reaction synthesis.
- Figure out the quantities of reactants and products.
- Select appropriate technique for the synthesis.
- Perform the synthesis and purify the product with proper technique.
- Use IR analysis to identify the product and verify purity.
- balance synthesis reactions and calculate the quantity of the product using mole concept. Calculate % yield.

Lab Content

1. Synthesis of Ferrocene.
2. Synthesis of Acetylferrocene.
3. Nitration of Methyl Benzoate.
4. Synthesis of 2-Iodobenzoic Acid.
5. Aldehydes and Ketones.
6. Reduction of 2-Methylcyclohexanone.
7. Synthesis of Benzyl Acetate.
8. Synthesis of Aspirin.
9. Synthesis of Dibenzalacetone.
10. Diels-Alder Reaction.

Suggested Reading Other Than Required Textbook

NMR handbooks.

Examples of Required Writing Assignments

Pre-Lab write up of the experiment which includes the reagents used, stoichiometry, detailed procedure of the experiment. Diagram of experimental set-ups. Waste disposal. Lab report: Data (quantities of reagents used, products obtained, and their physical properties). Calculation (% yield). Discussion must mention techniques used (i.e. distillation, M.P. TLC, extraction), purity of the product (using IR spectroscopy). Sources of error.

Examples of Outside Assignments

Critique of the results of the experiment by figuring out the structure of the product. A multi-step procedure of compound X is assigned. The identity of compound X and the mechanism of its formation must be explained.

Instruction Type(s)

Lab, Online Education Lab