MISSISSIPPI COLLEGE
A CHRISTIAN UNIVERSITY

Organic Chemistry I Laboratory

CHE 313-A | Fall 2025
Total Credit Hours: 2 hrs
Classroom: MCC 402

Instructor

Dr. Trent Selby
Associate Professor
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Office Location: Hederman Science Building 407 (Phone: (601) 925-7665)
Office Hours: MWF 10:00-11:00; TR 9:30-11:00; or by appointment

Course Description

A study of laboratory techniques in synthesis, purification, and chemical and instrumental analysis.

Rationale for Course

This lab will provide a fundamental understanding of organic chemical compounds and principles and how they are involved in everyday life as well as in advanced chemical studies, biochemistry, and medicine on a molecular level.

Learning Objectives

The objectives of this course are to provide the student with the necessary knowledge and experience to be able to:

1. understand structural theory as it relates to organic compounds.
2. relate structure and nomenclature of compounds.
3. carry out basic organic synthetic experiments.
4. characterize organic compounds.
5. predict the type of mechanism involved from the nature of the reactants and reaction conditions.
6. understand the mechanism and stereochemistry of organic reactions.
7. relate the study of organic chemistry to biochemistry, medicine, and environmental studies.

Corequisite

CHE 303 or instructor's consent

Instructional Materials

Textbook: none (*Lab procedures are posted on Canvas*)
Notebook: (required) An Organic Laboratory Notebook which permits production of an original and a copy of laboratory work.

Methods of Instruction
Classes will consist primarily of laboratory, lecture and problem solving.

Methods of Evaluation
Laboratory Reports (25 points each, graded on completeness and accomplishment of goals/objectives, adherence to prescribed style, and on-time **(-3 points per day late**); and where products are submitted, materials are graded on amount, purity and adequate characterizations). Lowest lab report grade will be dropped. If you miss a lab, this will count as your drop grade and you are still responsible for knowing the material for the exams.

Laboratory Midterm Examination (100 points); *Laboratory Final Examination* (100 points)

General Laboratory Deportment, (25 points) Adherence to Safety rules, Cleanliness, and Attitude (An individual, group, or class earns and may lose these points generally if irresponsible individuals leave the laboratory in a dirty, disorganized or unsafe condition.)

MC Syllabus Statement
The MC Syllabus contains all policies and procedures that are applicable to every course offered by Mississippi College, both on campus and online. The policies in the MC Syllabus describe the official policies of the University as they relate to instruction and will take precedence over those found elsewhere. It is the student's responsibility to read and be familiar with every policy. The MC Syllabus may be accessed at any time on the MC website at the following: https://www.mc.edu/provost/mcsyllabus.

Grading Policy
Final letter grades are determined on a 10-point scale as a percentage of all points (reports, exams, and deportment). Please refer to the *Mississippi College Undergraduate Bulletin* for a discussion of the university's grading system and how quality points are assigned. My goals are to (1) meet the course objectives and (2) ensure fairness. Accordingly, please do not contact the instructor at the end of the course to request an extra assignment, bonus opportunity, or grade change for any reason except an error in the calculation of the final grade. Grade appeals should follow the process outlined in MC Policy 4.20.]

Academic Integrity: Mississippi College students are expected to be completely honest in all aspects of the course. Dishonesty, such as cheating or plagiarism, will not be tolerated and will be dealt with according to the stated policies of the university. For details, see the current *Mississippi College Undergraduate Catalog*, the *Tomahawk*, and Policy 2.19.

Best Practices
Attend the pre-lab lecture on Monday and read the procedure before coming to lab.

Additional Course Policies

Components of the Laboratory Report for each Experiment

Title of the Laboratory (also, your name, your lab partner's name, day of week for your lab)

Purpose Brief statement of the **goals or objectives** of the experience. (100 words or less)

References (Numbered list of explicit sources: books, handouts, notes; give title, chapter, etc.; be specific.) (Ephemeral/web-based resources: the web address [url], and what you searched for.) ****** **Wikipedia is not an acceptable reference** ******

Mechanism Use curved arrows to show the mechanism of the chemical reaction(s) that you are performing.

Materials, Safety and Disposal. Table of materials used, CAS #, relevant properties, hazards (especially "contacts to be avoided", other hazards like flammability, corrosiveness, carcinogenicity, etc.), and disposal route.

Procedure (write this section after the [Monday] pre-laboratory introduction.)
Give enough detail so that another could follow your procedure and reproduce the lab.
If a reaction is performed, give the balanced chemical reaction with formulas, formula weights, masses, moles, etc. for the materials involved; compute the theoretical (100%) yield.

*****The Above Sections Must Be Completed Before Coming to Lab*****

Observations (Composed during the laboratory experience.)

- Full outline of activities and observations (chronologic or by lab activity)
- Bullets can be used here
- You do not have to rewrite the procedure from the pre-lab in this section. You can refer to the steps from the procedure by number.

Discussions / Conclusions. (Compose this after the laboratory has been concluded. Refer to your goals for closure.)

- Discuss what your experimental findings mean. Refer to the purpose of the experiment and the theory behind the experiment. Interpret the data from the experiment (melting point, IR, NMR, etc.) using the numbers (quantitative data) from your records.
- Brief and concise prose statement of important findings and its evidence (100 words or less).

Laboratory notebook. At the conclusion of each laboratory exercise (each week), students will submit the copy (yellow) pages of their laboratory notebook. The student's name (and laboratory partner) should be placed in the appropriate blocks on the first page. ***The report should be stapled in the upper left corner***. Students retain the white, original copy. Attach any other relevant documents, like spectra, etc. needed.

Laboratory reports are due according to the following schedule:
Place reports in the box located on Dr. Selby's office door (Hederman 407).
(*note*** -3 points per day late)**
Tuesday Lab Section--reports due Thursday by 5:00 p.m.

Course Outline / Schedule

Lab	**Experiment/Exercise**
(Aug.19-20)	Introduction, Check-in, Lab Safety
Techniques and Practices	
(Aug.25-Aug.27)	Separations by Extraction: Liquid/liquid
(Sept.2-3)	Separations by Extraction: Acid/base
(Sept.8-10)	Boiling Point & Separation by Simple Distillation
(Sept.15-17)	Separation by Fractional Distillation
(Sept.22-24)	Recrystallization & Melting Point Determination (two-week lab)
(Sept.29-Oct.1)	Sublimation and finish M.P. lab
(Oct.6)	**Laboratory Midterm Exam (Monday 1:00-1:50 p.m.; Self 210)**
(Oct.7-8)	IR Spectroscopy Lecture (no pre-lab to write)
(Oct.13-15)	Column Chromatography & Thin-layer chromatography
Synthesis and Analysis	
(Oct. 20-22)	Nucleophilic Substitution reactions of alkyl halides
(Oct. 27-29)	Dehydration of an alcohol
(Nov.3-5)	Bromobutane from 1-butanol
(Nov.10-12)	Radical polymerization of styrene
(Nov. 17)	**Laboratory Final Exam (Monday 1:00-1:50 p.m.; Self 210)**
(Nov. 18-19)	Searching Chemical Databases (no pre-lab to write)

Most laboratory exercises will be discussed in advance during the pre-lab lecture. Read the procedures for preparation.

The last day to drop a class without receiving a grade is Friday, October 24, 2025.

Disclaimer

The instructor reserves the right to modify the schedule proposed in the syllabus as necessary. Modifications will be provided in writing.