

MISSISSIPPI COLLEGE

CHE313 Organic Chemistry Laboratory I (2 credit hours)

Fall Semester, 2008

Tentative Course Outline

Text: K. Williamson, "*Microscale and Macroscale Organic Experiments*", Fifth edition.

Companion: An Organic Laboratory Notebook which permits production of an original and a copy of laboratory work.

Schedule: Monday Joint Laboratory Section: Prelaboratory discussion: 1:15-2:00 p.m.

Tuesday, Wednesday & Thursday Laboratory Sections: 1:15-5:15 p.m.

(Plan to be here the entire period; DO NOT SCHEDULE WORK, PRACTICE, ETC. to conflict with these hours.)

ALWAYS Wear Safety Goggles/Eye Protection in Laboratory

You may not work in lab without a supervisor/lab assistant present.

Last day to drop this class: Friday, October 31, 2008.

Wk#	Dates(inclusive) Experiment/Exercise	Reference*
1	Introduction, Check-in, Lab. Safety, Laboratory Practice Techniques and Practices.	Ch. 1-2
2	Separations by Extraction: Liquid/liquid	Ch. 7
3	Separations by Extraction: Acid/base	Ch. 7
4	Boiling Point & Separation by Simple Distillation	Ch. 5
5	Separation by Fractional Distillation	Ch. 5
6	Separation by Recrystallization	Ch. 4
7	Recrystallization & Melting Point Determination	Ch. 3
8	Fall Recess (No Prep on Monday, melting points: Wed. Thurs, Tues finds a time)	
9	Separation by Chromatography; Thin-layer chromatography	Ch. 10
10	Laboratory Midterm Examination (Monday, 1:15-2:00)	
	Structure Determination	
10	Infrared Spectroscopy	Ch. 11
10	Proton Nuclear Magnetic Resonance Spectroscopy	Ch. 12
	Synthesis and Analysis	
11	Dehydration of 2-methyl-2-butanol (analysis by GC, IR; see week 12)	Ch. 10,11
12	Analysis of Products (see week 11)	
13	Bromobutane from 1-butanol (analysis by NMR; see week 14)	Ch. 16,12
14	Analysis of Products (see week 13)	
15	Thanksgiving Holiday (Makeup analysis on Tues.)	
16	Oleyl Alcohol Hydrogenation (analysis by NMR; see week 17)	Ch. 25,12
17	Analysis of products (Tues, Wed; Thurs finds a time)	
18	Laboratory Final Examination; (Saturday, Dec. 13, 1:00 - 3:00pm)	

Most laboratory exercises will be discussed in advance on the Monday (1:15pm) class preceding the Tuesday, Wednesday and Thursday afternoon sessions. Read the relevant sections in the lab text for preparation.

Laboratory reports, using the appropriate form, are due not later than the close of the day following the completion of the laboratory exercise. Place these in the box outside Dr. Valente's office, Hederman 402.

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), and Lab section (Tues, Wed., or Thurs.) 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.

Components of the Laboratory Writeup for each Experience (roughly, each week).

Section A. Introduction. (Composed before laboratory begins.) Use the **headings** recommended.

A1. **Title** of the Laboratory (also, your name, your lab partners name, day of week for your lab)

A2. **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.)

A3. Brief prose statement of the **goals or objectives** of the experience. (100 words or less)

A4. **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.

A5. **Brief outline of activities** (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.

Section B. **Observations, Discussions** (Composed during the laboratory experience.)

B1. Full outline of activities and observations (chronologic or by lab activity)

B2. Relevant discussion or arguments about the observations, results, theories, practices, and/or objectives. Refer to the references as needed.

Section C. **Conclusions.** (Compose this after the laboratory has been concluded. Refer to your goals (A3) for closure.)

C1. Brief and concise prose statement of important findings and its evidence (100 words or less).

Grading: Laboratory Reports (30 points each, graded on completeness and accomplishment of goals/objectives, adherence to prescribed style, and on-time; and where products are submitted, materials are graded on amount, purity and adequate characterizations.)

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

General Laboratory Department, Adherence to Safety rules, Cleanliness, and Attitude (30points). (A class or section earns and may lose these points generally if irresponsible individuals leave the laboratory in a dirty, disorganized or unsafe condition.)

Grades: (as percentages of all points) 89.5-100 (A); 79.5-89.4 (B); 69.5-79.4 (C); 59.5-69.4 (D); below 59.4 (F).