CHEM 2411L

ORGANIC CHEMISTRY I LAB

Fall 2006

Section 05: Thursday 9am-12pm

Dr. Megumi Fujita

TLC 2-122

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Office Hours: M10-11, 4-5, T10-11, 1-4, W10-11, Th1-4

Course Material:

- Textbook: ***Macroscale and Microscale Organic Experiments*, Williamson, Fifth Edition**.
- **Safety glasses** are required to be worn at all times and can be purchased ($5) the first day of lab or from Mr. Billy Harper (TLC 2129).
- **A notebook** to take notes during the pre-lab lecture and record laboratory data.

Objectives: To apply the knowledge obtained in Chem 2411 lecture to problem solving in the laboratory. To develop good laboratory techniques; work safely; take data carefully; record relevant observation; use time effectively; assess the efficiency of your experimental method; plan for the isolation and purification of substances you prepare; and characterize substances you prepare by physical and spectroscopic means and synthesize organic substances.

Tardiness / Missed Lab: Lab attendance is mandatory. Unexcused absences will result in a grade of zero. No make-up labs will be permitted. At the beginning of each laboratory we will discuss the laboratory. You must be present. Lateness will be penalized by deduction from the grade for that lab.

Preparation for Each Lab: The labs will require preparation and careful work to complete in the allotted time. Read all laboratory material before coming to lab. It is important that you understand the theory and procedure of the experiment. See the Schedule for the next lab material.

During the lab: Most labs are to be performed individually. In some labs you may be instructed to work in a pair. Record all data and observations in your notebook. Use non-erasable ink, and never use white out. After completion of the experiment, fill the lab data-sheets (where appropriate) in a legible, tidy manner.

After the lab: Clean up the lab space, clean the apparatus and put back to the drawer. Analyze the results and write a conclusion. Answer the assigned post-lab questions.

Reports: Laboratory reports and answers to the post-lab questions are to be turned in one week after the lab is completed. The format of these reports will vary: while the completed data-sheet will be required for the majority of the labs, two formal reports will be required for two labs. The answers to the post-lab questions must be *typed on a separate sheet* and submitted with the report/data sheets. Late reports will incur a 10% penalty for each day the report is late.

Academic Misconduct: Honesty in reporting results is one of the essential characteristics of your laboratory work. Little of your grade depends on getting "good" quantitative results. You will be more severely penalized for misrepresenting results than for honestly reporting "poor" results. You may discuss the lab results with other students, but you must complete all lab reports individually (even if you worked with a partner). Copying lab reports (any part) shall be considered academic misconduct, and as a result, will be penalized to the fullest extent possible.

Grades

Instructor points: 5%, Online Environmental Health & Safety test: 5%, Experiments: 70%,

Lab Final Exam: 20%

Instructor points: your instructor will assign points based upon your efficiency, pre-lab preparation, cooperation, attitude, performance, and cleanliness.

Online Environmental Health & Safety test: Please provide the instructor with documented evidence that you have completed the following three programs under http://www.usg.edu/ehs/training by the second lab period.

1. Basic Awareness Training Program
2. Chemical Specific Training Program
3. Hazardous Waste Awareness Training Program

Grading Scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, <59 F

Please Note: CHEM 2411 (lecture class) is a co-requisite for this lab class. This means that if you drop the lecture class (CHEM 2411), you will automatically be dropped from the lab (CHEM 2411L).

Learning Outcomes

1. To communicate organic chemistry with clarity. Attainment of this learning outcome will be reflected by the students' abilities to:
   - Follow oral and written instructions to successfully complete laboratory assignments.
   - Work with other student in assigned group projects.
   - Write formal laboratory report as chemists write.

2. Demonstration of a working knowledge of organic synthesis and characterization by

successfully completing laboratory assignments.

LABORATORY SCHEDULE

Section	01	02	03	04	05
Class period	**Mon 2:30-5:30pm**	**Tue 2-5pm**	**Wed 2:30-5:30pm**	**Thu 2-5pm**	**Thu 9am-12pm**
Instructor	Tim Ayer	Partha Ray	David Boatright	David Boatright	Megumi Fujita

Week of	Lab #	Experiment	Report
Aug 21-24	1	Chapter 3 Check-in, Safety, and Melting Points of Urea and Cinnamic Acid #2, #3 and Handout	Data Sheet + Questions
Aug 28 - 31	2	Chapter 4 and Handout, Crystallization of Acetanilide	Data Sheet + Questions
Sept 4 - 7		No Lab (Labor Day)	
Sept 11-14	3	Chapter 5, Distillation: #2 Fractional Distillation of Cyclohexane and Toluene	Datasheet + Questions
Sept 18 - 21	4	Molecular Modeling	Datasheet
Sept 25 - 28	5-6	Chapter 7, Extraction: #1 Separation of a Carboxylic Acid, a Phenol, and a Neutral Mixture	Questions
Oct 2 - 5	5-6	Chapter 7, Continued	Formal Report
Oct 9-12		No Lab (Fall Break)	
Oct 16 - 19	7	Handout, Tests for Alkane/Alkene	Data sheet and Conclusion + Questions
Oct 23 - 26	8	Chapter 8, Thin Layer Chromatography (TLC): #1 Analysis of Analgesics	Data Sheet and Questions
Oct 31- Nov 2	9	Chapter 9, Column Chromatography: #2 Chromium(VI) Oxidation of Fluorene and Fluorenone	Report Sheet + Questions
Nov 6 - 9	10	Handout, Bromination of Trans-cinnamic acid	Formal report + Questions
Nov 13 - 16	11	Chapter 17, Nucleophilic Substitution Reactions of Alkyl Halides: #1, #2	Data Sheet + Questions
Nov 20-23		No Lab (Thanksgiving)	
Nov 27 - 30	12	Check out and final exam.	

Check-in Procedure

1) Pick your bench space
    - 3 persons per bench (up to 18 students per each side of the lab)
2) Check-in slip will be given from the instructor or a TA.
    - WRITE DOWN YOUR DRAWER NUMBER AND COMBINATION for your record. You will need this information for the entire semester.
3) Check that all items of equipment listed on the check-in form (see pp. 15-16 for the names of the items) are included in your drawer. Please note that you do not need the syringe (Fig. 1.15-l), magnetic stirrer bars and vial (Fig. 1.15-e), and the polyethylene tubing (Fig. 1.15-u).
4) Pick up missing equipment from the instructor or a TA.
5) Sign and give the check-in slip to the instructor, along with your safety contract.