

**CHEM 2411L**  
**ORGANIC CHEMISTRY I**  
**LAB, Th: 2pm-5pm**  
**Spring 2008**

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**Office Hours:**

M,W : 9-11.45 am and  
12.45-2pm, R: 12 noon  
-2 pm

**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.
- **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 (10 points for the 1<sup>st</sup> time, 20 points for the 2<sup>nd</sup> one...).

**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 teaching assistant will collect these lab reports as you enter the room. Please make sure the teaching assistant wrote you down as having turned your report in. 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 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 are supposed to write one report per person, copying lab reports (any part) shall be considered academic misconduct and as a result, will be penalized to the fullest extent possible: the grade obtained for such reports (both of them) will be zero. Any type of cheating during a quiz will result in a zero for the quiz. Any type of cheating for the final exam will result in a grade F for the entire course.

### 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 (a certificate can be printed from each link once the program has been completed) 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

<b>Day</b>	<b>Lab #</b>	<b>Experiment</b>	<b>Report</b>
Jan 17	1	Chapter 3 and Handout Check-in, Safety, and Melting Points of an Unknown Solid	Data Sheet + Questions
Jan 24	2	Chapter 4 and Handout, Crystallization of an Unknown Solid	Data Sheet + Questions
Jan 31	3	Chapter 5 and Handout, Fractional Distillation: Separation of a Mixture of Two Liquids	Datasheet + Questions
Feb 7	4	Molecular Modeling	Datasheet
Feb 14	5-6	Chapter 7, Extraction: #1 Separation of a mixture of 3 unknown solids	Questions
Feb 21	5-6	Chapter 7, Continued	Formal Report
Feb 28	7	Handout, Tests for Alkane/Alkene	Data sheet and Conclusion + Questions
Mar 6	8	Chapter 8, Thin Layer Chromatography (TLC): #1 Analysis of Analgesics	Data Sheet and Questions
Mar 13	9	Chapter 9, Column Chromatography: Separation of a mixture	Report Sheet + Questions
Mar 27	10	Chapter 60, Handout, Bromination of stilbene	Formal report + Questions
Apr 3	11	Chapter 17, Nucleophilic Substitution Reactions of Alkyl Halides: #1, #2	Data Sheet + Questions
Apr 10	12	Check out and final exam.	

**Note:** There are no bonus points to be earned in this class.

**Contact:** Only UWGemails will be read and dealt with. Also there is a webCT site linked with this class where you can check for emails/announcements, access the syllabus and your grades at any time. Every information displayed on webCT is supposed to be known by the student.

### **More on policies:**

If you do not wear your safety glasses (even for a couple of minutes, even if you are not handling chemicals but others are) in order to protect your eyes, you will be expelled from the lab without any appeal and you will receive a grade of zero for the experiment. I will strictly enforce this policy all year long.

Read all laboratory material before coming to lab and complete the prelab: on your notebook, write the title of the experiment, the goal, the techniques used and the major points of the experiment. The labs will require preparation and careful work to complete in the allotted time. Laboratory reports are to be turned in at the beginning of the next session. The format of these reports will vary and will be discussed in lab. Late reports will incur a 10% penalty for each day the report is late. The use of cell phones is strictly forbidden at any time during the session. You are supposed to work at the station that has been assigned to you at the beginning of the semester and nowhere else. You are supposed to perform your own experiment, unless otherwise stated at the beginning of the lab. The time required to perform the experiment is usually 3 hours, if you leave before the end of the lab, you must have all the data proving that you have actually performed the experiment and you must ask me if it is OK for you to leave. I will check from time to time if you have really done everything you are supposed to do during the session (and nothing else), if you are unable to show me the products you are working with, this will be considered as a failure of respecting this policy.

Any failure of respecting this policy will result in you being expelled of the lab for the day, as well as a grade of zero for the experiment.

### **Instructor points**

This list is not exhaustive, but it will help you get a good idea of what instructor points means. Some points are more important than the other ones and in some cases missing one of them can actually reduce your instructor points to zero.

It includes:

- \* Did you complete the prelab?
- \* Do you respect the safety rules?
- \* Completion of the reaction
- \* Perform your own experiment (unless otherwise stated)
- \* Work within the time assigned
- \* Behavior during the lab itself and during the pre-lab (disruptive behavior...)
- \* Independent student
- \* On time or late for lab?
- \* Turn in your lab report late?
- \* Is your lab report ready when you step in the lab?
- \* Are the lab reports seriously completed?
- \* Do I have to tell you to wear your goggles repeatedly?
- \* Are you doing what you are supposed to do and only what you are supposed to?

\* Do you behave respectfully with the instructor, the teaching assistant and the other students?

### **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.