

ORGANIC CHEMISTRY I LAB (CHEM 2411L), Fall 2016

T: 2pm-5pm

Instructor: Dr. Vickie Geisler
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Student Assistants: Megan Whitaker
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Office Hours: T, R 11-12, M, W 1:30-3:30, R 2-4

Course Material:

- Course Pack – Organic Chemistry I Laboratory Manual
- Molecular Model set – HGS –introductory organic set \$11.50 - (search introductory) <http://www.maruzen.info/hgs/catalog/> Can also be purchased from bookstore.
- **Safety glasses** are to be worn at all times and can be purchased (\$5) the first day of lab.

Please Note: This course should be taken with CHM 2411, which is a co- or pre-requisite. This means that if you drop the lecture class you should also drop the lab.

Objectives: To apply the knowledge obtained in CHEM 2411 lecture to problem solving in the laboratory. To develop good laboratory techniques, including: isolate and purify organic substances, characterize substances you prepare by physical and spectroscopic means, correlate the physical properties of organic substances with their molecular structure, work safely, take data carefully, record relevant observation, use time effectively, and assess the efficiency of your experimental method.

Learning Outcomes

1. Demonstration of a working knowledge of organic laboratory techniques for synthesis and characterization by successfully completing laboratory assignments.
2. 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.
 - Record and analyze data, and discuss the outcomes of each experiment with clarity.
 - Write formal laboratory report as chemists write.

Tardiness / Missed Lab: Lab attendance is mandatory. Unexcused absences will result in a grade of zero. Make-up labs will be permitted only with a valid excuse and subject to availability. You must email me if you need to miss lab. 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.

Safety: The hazards encountered in CHEM 2411L are significantly higher than those encountered in CHM 1211 and 1212. You should be aware of safety hazards associated with each experiment before you begin work. Read the experiment and review MSDS safety information on hazardous chemicals before starting each experiment. The safety contract handed out on the first day of lab must be completed, signed, and turned in before you will be allowed to begin experimental work. Students with known conditions (i.e. respiratory problems, allergies, pregnancy, etc.) should consult with the instructor for special precautions.

CourseDen: You can check for announcements, access the syllabus, take pre-lab quizzes and check your grades at any time. Information displayed on CourseDen is supposed to be known by the student.

Preparation for Each Lab: You need to come prepared for each lab class. You are required to do the following as pre-lab preparation: (1) Read the experiment. (2) Watch any videos posted on CourseDen. (3) Take the online pre-lab quizzes. The deadline of the online prelab quizzes will be before class (12:00 pm, noon of the lab day). You do not need to complete the prelab from the manual.

During the lab: Most labs are to be performed individually at your designated work place.

After the lab: Clean up your lab bench, clean apparatus and put everything back in your drawer (thermometer, clamps, etc.). Complete the data-sheets (where appropriate) in a legible, tidy manner and answer the assigned post-lab questions.

Reports: Laboratory reports and answers to the post-lab questions are to be turned in at the **beginning** of your next scheduled lab class after the lab is completed. The majority of the labs will require a completed data-sheet and post-lab questions. **Scientific report writing is a critical skill.** You will write formal reports for at least one experiment. Specific information on writing reports will be provided to you. Be sure to refer to this information before you start writing. If you have any questions regarding reports, talk to your instructor. Late reports will incur a penalty for each day the report is late (5 points for each day it is late 1st time, 10 points each day for the 2nd time, etc....).

Academic Misconduct: Honesty in reporting results is one of the essential characteristics of your laboratory work. Any form of academic dishonesty or misconduct will be penalized to the fullest extent possible, including a grade of zero for the assignment or grade of F for the entire course, or in a serious case, expulsion from the university. **Falsifying data** includes (but is not limited to) fabrication of data for lab work you did not do, and changing poor data to better-looking data. 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. For lab reports (including formal reports), **you must write your own report as an individual work, and copying ANY part of other people's work is considered a serious academic misconduct.** This includes (but not limited to) experimental procedure, data, tables, reaction equation and mechanisms, discussion and conclusions, and answers to prelab/postlab questions. The grade obtained for such reports will be zero for both the one who copied and the one who let the other copy. 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 Training 5%, On-line prelab quizzes: 10%, Experiments: 60%, Lab Final Exam: 20%

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

Online Environmental Health & Safety test: Completed the following two programs @ <http://www.usg.edu/facilities/resources/training/> by the second lab period.

1. [Right-To-Know Basic Awareness with the Global Harmonized System](#)
2. [Hazardous Waste Awareness](#)

*At the end of each online training, a Certificate will be displayed. Instead of printing them, please save the screen image as “Basic_Your-last-name” or “Hazardous_Your-last-name” (with your own last name), and deposit the pictures to the dropbox in CourseDen. This way we will reduce paper consumption. The record of completion will also be sent to UWG Risk Management office, and the completion will be confirmed. If you have completed these RTK training earlier this academic year (August 2014) and can present the evidence, you may do so.

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 read the lab before class?
- * Do you respect the safety rules?
- * Work within the time assigned
- * Independent student
- * Is your lab report ready when you step in the lab?
- * Are you doing what you are supposed to do and only what you are supposed to?
- * Do you behave respectfully with the instructor, teaching assistant and other students?

More policies:

- Follow all the safety rules described in the Safety Contract. Especially be mindful of the following:
 - You must wear safety glasses all the time. If you were found not wearing safety glasses, you could be expelled from the lab. I will strictly enforce this policy all year long.
 - Make sure to wear closed-toe shoes all the time during the lab. If you wear any open-toed shoes, you are not allowed to do a lab and you will receive a grade of zero.
- **The use of cell phones and any electronic devices is forbidden at any time during the lab period.** Exception is when a use of a stopwatch or timer function for specified experiments only.
- **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.** 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.

LABORATORY SCHEDULE

<i>Week of</i>	<i>Lab #</i>	<i>Experiment</i>	<i>Report</i>
Aug 16		Check in, Safety	
Aug 23	1	Melting Points	Prelab quiz + Post-lab
Aug 30	3	Molecular Modeling	Prelab quiz + worksheet
Sept 6	2	Recrystallization of an Unknown Solid	Prelab quiz + Post-lab
Sept 13	4	Thin Layer Chromatography (TLC)	Prelab quiz + Post-lab
Sept 20	5	Column Chromatography: Separation of Plant Pigments	Prelab quiz + Post-lab
Sept 27	6	Acid-Base, Liquid-Liquid Extraction: Separation of a mixture of carboxylic acid, phenol and a neutral compound	Prelab quiz
Oct 4		No Lab – Fall break	
Oct 11	7	Continuation of Extraction Lab	Prelab quiz + Post-lab
Oct 18	8	Reactions of Alkane/Alkene	Prelab quiz + Post-lab
Oct 25	9	Bromination of Stilbene	Prelab quiz, Formal report , Post-lab Qs
Nov 1	10	Nucleophilic Substitution Reactions of Alkyl Halides	Prelab quiz + Post-lab
Nov 8	10	IR Spectroscopy and Mass Spectrometry	Prelab quiz + worksheet
Nov 15		No lab	
Nov 29		Check out and final exam.	

Note: Prelab quiz due by 12 on the day of lab. Data sheet, post-lab, formal report, or combination of these are due at the beginning of the next lab.