

CHEM 2463 Organic Chemistry Laboratory Syllabus for Fall Quarter 2013

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Text: Organic Chemistry Lab, CHEM 2461, 2462, 2463 by Joseph Hornback

Objectives. You will perform a series of well-planned experiments to reinforce your understanding of some concepts from CHEM 2453 and to gain an appreciation for the rewards and challenges associated with hands-on experimental work.

General. Lab is scheduled 2:00 – 5:30 PM or 6:00 – 9:30 PM. Attendance will be taken. Each lab session begins with an introduction to the experiment to be done that day so plan to arrive on time or a few minutes early.

The schedule of experiments is on page 3. For each experiment, read the assigned pages, complete the BYB (Before You Begin) assignment, and prepare your lab notebook before coming to the lab. Your TA must confirm that you are prepared before you can start lab work. With this preparation completed and good time management, you will be able to complete the lab work in the allotted time. As part of good time management, clean your glassware before leaving the lab.

Lab Notebook. You are required to have a bound, 10 1/8 x 7 7/8, quadrille-ruled lab notebook. This is available in the bookstore (item # 000193799) for \$3.99. **The instructions for setting up and maintaining the notebook are available on Blackboard.**

Reports. Read **Appendix III, pp. 383 – 387** in the lab text.

NEW: Reaction mechanisms should be hand-drawn (pencil OK) in the notebook on the page following the BYB assignment. The reaction mechanism is not included in your lab report.

We will use a slightly modified version of the description in the lab text. The report for each experiment must be typewritten and all structures must be drawn using a structure drawing program such as ChemSketch. The report should include: Title of the Experiment, Your Name and Date, Introduction (statement of the problem and any applicable chemical equations), Observations, Data, Calculations, Results, Discussion, Conclusions, and Exercises (the answers to Exercises assigned in the syllabus). Excluding the data, calculations, and graphs, the report should be a maximum of two pages. The Discussion section can be considerably briefer than the sample one in the lab text.

Lab reports are due at the beginning of the next lab after completion of the experiment. Report due dates are provided in the schedule on page 3 of this syllabus. Submit 1) a paper copy to your TA at the start of the lab and 2) an electronic copy on Blackboard SafeAssign by 10 PM the same day. Even if you turn in the paper copy to your TA on time, your report is considered not submitted if the SafeAssign copy is not on Blackboard the same day.

Late reports are penalized 30%.

Reports more than two periods late will not be accepted.

Reports which have been plagiarized will receive a grade of zero.

Products. The product should be turned in for the experiments specified in the schedule on page 3. Your TA will specify the product check procedure.

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Grading. Your grade is based on a total of 1000 points, distributed as follows:

Task	Point Value	Points
Before You Begin assignments	10 per exp	70
Mechanisms	10 per exp	50
Lab reports	80 per exp	720
Products	10 per exp	60
Lab notebook	100	100

Graded Document Retention. All graded materials will be returned. Graded materials that are still in the TA's possession on the last day off classes of Winter Quarter 2014 will be recycled.

Housekeeping. The labs are routinely inspected. Points (10) will be deducted from all students in the section for each instance where the lab housekeeping is unacceptable or (NEW) bottles are left uncapped.

Safety. Read pp. 11-20 in the lab text.

Accidents can happen in any laboratory, even in laboratories staffed with highly experienced scientists. The potential for an accident in our laboratory is minimized by 1) advance planning, 2) careful attention to the details of your own work, and 3) an awareness of what other students are doing around you. If you have any questions, ask. That is what we are here for!

Lab Safety Rules (in effect at all times):

1. No students are allowed in the lab unless the TA is present.
2. Only students assigned to that lab section are allowed in the lab.
3. After the TA prelab lecture, safety glasses must be worn at all times.
4. Protect your skin with proper attire. Wear 1) the gloves provided, 2) a sleeved shirt to protect your arms, and 3) long pants and closed-toed shoes.
You will not be allowed in the lab wearing shorts or open-toed shoes.
5. Coats should be stored on coat hooks or in packs. Packs should be stored where they will not be a trip hazard.
6. Absolutely no food or drink is permitted. Store water bottles out of sight in your pack.
7. No open flames
8. Read and reread the label on a chemical container before using a chemical.
9. Never put chemicals back in the stock bottle.
10. Close all chemical containers immediately after use.
11. Clean up all chemical spills (bench, balance table, hoods) immediately.
12. Avoid contact of chemicals with your clothing.
13. Avoid breathing chemical fumes by working in the hoods provided.
14. Use the chemical disposal procedures specified by your TA.
15. No chemicals, glassware, or equipment are to be removed from the lab.
16. No unauthorized experiments.
17. NEW: When you are finished in the lab for the day, thoroughly wash hands with soap and warm water in the Olin washroom before leaving the building.

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Schedule of Experiments

Exp	Week	Manual pp.	Special Instructions	Exercise included in report	Product turned in	Report due week
1	9/9		Check in. Experiment 1 on Blackboard BYB 1, 2 and Mechanism	1, 2, 3	yes	9/23
2	9/16		Complete Experiment 1 during the 1 h reaction time of Experiment 2. Experiment 2 on Blackboard BYB 1 – 3	1, 2	yes	9/23
3	9/23	123-131	BYB and Mechanism TA must review procedure before you can start.	1,3	yes	9/30
4	9/30	169-176	BYB 1, 2 and Mechanism Do part B only.	3, 5	yes	10/7
5	10/7	177-186	BYB 1,2 and Mechanism Analyze the product by IR spectroscopy and gas chromatography (GC).	2, 6	yes	10/21
6	10/14	187-196	BYB 1, 2 and Mechanism Complete Experiment 5 during the two 1 h reflux periods of Experiment 6. NMR spectrum of dimedone provided by TA.	2, 5, 6	no	10/28
7	10/21	207-257	Experiment 7 on Blackboard BYB Bring your laptop to lab!		no	10/28
8	10/28 and 11/4	207-257	Experiment 8 on Blackboard		yes	11/11
	11/11		Clean equipment, confirm the drawer combination with TA, and check out. Turn in your notebook for grading by noon on Friday 11/15.			11/15