

CHEMISTRY 235
ORGANIC CHEMISTRY LABORATORY

Corequisite: Chemistry 233

Fall 2004

General Instructions:

1. Before any laboratory work is permitted **you must read the WVU "Safety and Laboratory Rules for Organic Chemistry" and then sign a statement that you will abide by these rules.**

NOTE: SAFETY GOGGLES AND LABORATORY APRONS ARE REQUIRED FOR ORGANIC LABORATORIES. They can be purchased at the University Bookstore.

2. Use a hard back, bound 8" x 10" notebook for prelab plans, observations, conclusions, and answers to prelab and postlab questions found in the laboratory manual. Follow the guidelines in the manual on how to keep a good laboratory notebook (In Chapter 2). Your notebook will be graded by your Teaching Assistant.
3. Every student enrolled in Chem 235 must pay the laboratory fee assessed by WVU. A charge for excessive breakage will also be levied.
4. Attendance is required. If you are forced to miss a laboratory period due to illness or an emergency, see your Instructor and TA.
5. If you withdraw from Chemistry 233 you must simultaneously withdraw from Chemistry 235 unless special permission is granted by the Instructor.
6. A quiz will be given each week at the beginning of the laboratory period, so be on time. The quiz will be based on the experiment of the previous week and the experiment to be performed following the quiz. Study the experiments before you come to the laboratory! You are expected to understand the principles of the experiment and to know what you are going to do when you are in the laboratory.
7. Your Teaching Assistant is in charge of your laboratory section. Follow instructions made by your TA concerning lab safety, keeping the lab clean, experimental procedures, handing in assignments, etc. Don't be hesitant about asking your TA questions - he/she is there to help you.
8. Grading: The following guidelines will be used to determine the grade you receive in this course.

Experimental results (yield, physical properties, etc.)	25%
Notebook (including preliminary writeup questions, calculation, etc.) . . .	25%
Quizzes.	25%
Final exam	15%
Laboratory Technique (including housekeeping, neatness, attitude, etc.) . .	10%

CHEMISTRY 235: ORGANIC CHEMISTRY LABORATORY Fall 2004

Text: Laboratory Manual for Organic Chemistry. A Microscale Approach, by W. R. Moore and A. Winston, McGraw-Hill, 1996.

	Expt.	Subject
Aug. 24,25,26		Check-in, General Instructions, Safety, and the Lab Notebook
Aug. 31 Sept.1,2	3	Melting Points. Also study Ch.1 and Ch. 2.
Sept. 7,8,9	4	Crystallization. Do both Macroscale (p. 22) and Microscale (p. 25)
14,15,16	5	Distillation. Students work in pairs and share data. One does a simple distillation and the other does a fractional distillation.
21,22,23	6	Gas Chromatography and also
	7	Thin-Layer Chromatography (do both GC and TLC)
28,29,30	8	Extraction. Each student will receive an unknown mixture which is to be separated by Procedure C, part 2 (extraction from methylene chloride, p. 66-).
Oct. 5,6,7	9	Stereochemistry: Molecular Models. Each student should bring a set of molecular models to class. You are advised to start this exercise <u>before</u> coming to the lab.
12,13,14	18	Reduction of Ketones to Alcohols with Sodium Borohydride
19,20,21	17	Hydroboration - Oxidation of Alkenes
26,27,28	19	Stereospecific Bromination of <i>trans</i> -Stilbene. Do B.1 only.
	20	Diphenylacetylene. Do B.1 only. We will be doing a two-step synthesis of diphenylacetylene starting with stilbene.
Nov. 3,4	14	S _N 1 and S _N 2 Reactions
9,10,11	15	E2 Elimination Reactions and E1 Elimination Reactions. Students
	16	will work in pairs. One student will do expt. 15 and the other student will do expt. 16. They will share data and compare results. Come prepared to do both experiments.
Nov. 16,17,18	10	Infrared Spectroscopy. Nuclear Magnetic Resonance Spectroscopy
and	11	and Assignment of Structure by IR and ¹ H-NMR Spectroscopy
30, Dec. 1,2	12	Study all three chapters. We will work on assigning structures (Ch.12) over the course of two periods.
Dec. 7,8,9		Lab Final Examination and Check-out