

General Syllabus for Chemistry Laboratory 2125

Instructor of Record:	This depends on the laboratory section.
Laboratory location:	CCSB 1.0506 or CCSB 1.0508.
Teaching Assistant:	This differs with each laboratory section.
TA Contact:.	Depending on which TA is assigned.
Office Hour and Location:	depending on TA.
Text:	Experimental Organic Chemistry, (A Small -Scale Approach) By Charles F. Wilcox and Mary F. Wilcox (tip: this book is often available used)

Course Objectives

- To perform a multiple step synthesis applying several fundamentally important organic reactions
- To learn how to comply with laboratory safety polices
- To maintain a proper laboratory notebook
- To learn how to follow proper chemical waste disposal procedures

Rules

Students who miss a lab for an unexcused reason will lose 100% of the credit for that week. No makeup labs or makeup quizzes are provided for an unexcused absence, and you will not receive credit for a group report submitted for a week that you miss.

An excused absence would include, for instance, a sanctioned university activity that you must attend. For example if you participate in UTEP sports, or if you are presenting research results at a conference. Other excused absences are the discretion of the TA, and may have to be approved by the Instructor of Record. For an excused absence, your TA has several options to implement, at his/her discretion:

- 1) Offer the makeup lab (or QUIZ) within your section at another time during the semester. You may have to work on two labs at once
- 2) Offer the makeup lab(or QUIZ) in another section of the course which you can attend. Your TA and you will need to arrange for the grading to be transferred to your TA by the other TA.
- 3) Excuse the lab (and/or QUIZ) completely and give you full credit. This option may rarely be offered.

All students are expected to have read the information about each lab in the Wilcox/Wilcox text book in advance, so that they are fully prepared for the weekly quiz during the pre-lab, and for the laboratory activity of that day, see detailed curriculum below. Students should also know the structures of the chemicals they are working with. The structures may be found in the students' organic chemistry text book, in chemical catalogs, or on the internet (Google, Wikipedia, etc.)

Students will form groups of two to conduct the lab experiments. Each group will maintain a laboratory notebook in which each lab will be described. Moreover, a weekly laboratory report of Friday's lab must be submitted to the TA **in print** on the following Wednesday. The TA will grade each group lab report and return it by the next scheduled lab. An easy 25% of the total grade can be obtained with the lab reports when the following format is strictly followed:

1. Date
2. Title (e.g. Determination of the melting point of.....)
3. Reference (e.g. Wilcox/Wilcox text book, Chapter X, page Y)
4. In case of a reaction, the reaction scheme and mechanism should be shown.
5. Amounts used in table format (g or mL as well as moles)
6. Brief description of the experiment (e.g. Compound A was placed into a 50 mL round bottom flask and cooled down in an ice bath. Then compound B was quickly added under stirring.....)
7. Observations (e.g. color change, precipitation, reaction is exothermic, gas evolution, etc.)
8. Work-up procedure, if applicable
9. Purification procedure, if applicable. Appearance of the product (e.g. white powder, yellow crystals, colorless oil, foul smelling liquid)
10. Characterization (Provide analytical data, e.g. melting point, Rf-value based on thin layer chromatogram, etc. If available: What characteristic IR absorptions or NMR peaks are present?)
11. Reaction yield reported in g (or mL) and % of the theoretical yield, if applicable.

Note that hoods and benches are labeled, and your group of two will always work in the same hood/bench. ALL chemical activities are done in the hood. The bench is for maintaining your notebook and supplies for your activity. Please make sure that labeled equipment remains in the hood or on the bench that matches that labeling.

If your class needs to keep chemical intermediates from one week to the next, each section has been provided with a locker for storage:

If you have a morning lab, the locker will be labeled with your day (e.g.: "Monday") and "AM". If you have the early afternoon lab, you will be in the "PM1" locker, and if you have the later afternoon lab, you will be in the "PM2" locker.

Your **semester grade** will be calculated as follows:

- a) Adherence to laboratory safety, good laboratory technique, and laboratory hygiene (25%)
- b) Weekly quiz (50%)
- c) Weekly laboratory group report (25%)

Some important safety rules:

- Always know the danger of the chemicals you are working with, e.g. sulfuric acid. You should research the safety and chemical reactivity of all reagents before coming to class and ask your TA if you have any further questions.
- Always wear goggles. This is a State law. You do not have the choice to not comply.
- Always wear lab coats
- Know where the eye wash, safety shower, and fire extinguisher are located
- Wear closed shoes (no rubber slippers or open sandals)
- Long hair must be tied back
- Wear long pants (no skirts or shorts)
- No hats
- No food/drink items are allowed in a chemistry laboratory
- Keep your work space clean!!!!

- If there is a chemical spill, inform the TA immediately.
- If you are injured (a cut, inhalation of toxic gases, acid burn on skin, etc.) inform your TA immediately. We are required to file reports of all injuries, no matter how minor, and also to offer you the option to seek medical aid.

Some important waste information:

- None of the waste can go down the drain.
- Organic solvent waste, aqueous waste, solid waste, and glass waste is collected separately and placed into designated waste containers.
- You are not permitted to leave the lab for the day without properly disposing of chemical waste.

The quizzes will focus only on the chemistry of the experiments. Each quiz is designed to motivate you to understand the chemistry you are doing. Neatly typed lab reports are due the following week at the beginning of the lab. No credit will be given for reports on days you miss the lab. Late lab reports will not be accepted. Attendance to the pre-laboratory lecture is mandatory. We shall work on multi-step organic synthesis.

	<u>Experiment / Exercise</u>	<u>Chapter</u>	<u>Quiz</u>
Lab 1	Safety Lecture & Check In	1	
Lab 2	Benzaldehyde(purification)	6	1
Lab 3	(E)-Stilbene	28	2
Lab 4	(E)-Stilbene continued	28	
Lab 5	Stilbene dibromide	28	3
Lab 6	Benzoin	48	4
Lab 7	Diphenylacetylene /Benzoin	28, 48	5
Lab 8	Benzil	48	6
Lab9	1,3-Diphenylacetone	Article	7
Lab 10	Tetraphenylcyclopentadienone	15	8
Lab 11	Hexaphenylbenzene	34	9
Lab 12	NMR Spectroscopy	41	10
Lab 13	Catch Up & Check out		11