CHEM 3100 **Organic Chemistry I Lab** **Syllabus** **Fall 2009**

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Lab Text Microscale Organic Laboratory, Fourth Edition by Dana W. Mayo, Ronald M. Pike and Peter K. Trumper ISBN: 0-471-32185-0

Also Required Students must also purchase a grid-ruled bound notebook and goggles. A lab apron is optional.

Lab Meets Tuesday, Wednesday or Thursday at 1:00-5:00 PM in Wood 209

Description Considers the correlation of structures of principle classes of organic compounds with their properties, introduction to organic reaction mechanisms, chemistry of polyfunctional compounds including macromolecules of biological significance.

Addendum Additional information regarding disabilities, final exams, incomplete grades, inclement weather schedules, etc. can be found in the university-wide syllabus attachment at http://www.okbu.edu/academics/forms/Syllabus_Attachment_Fall09.pdf.

Academic Dishonesty is unacceptable in any environment, but particularly so in an environment of Christian higher education. Examples of academic dishonesty include, but are not limited to,

- Falsification of laboratory observations or measurements.
- Hiring another individual or company to perform your laboratory experiments or analysis.
- Copying data or writeup from another student.
- Copying information from any source without proper citation.

Students who engage these or other dishonest activities will receive a zero for the assignment, and may be subject to further disciplinary measures by the university.

Safety Safety rules must be obeyed at all times. Failure to follow safety rules can result in serious injury or even death. Safety rules include:

- No horseplay in the lab.
- No unauthorized experiments.
- No food or drink in the lab at any time.
- No open-toed shoes.
- Know where all the exits are located.
- Know what kinds of hazards the chemicals you are working with will present.
- Know the experimental procedure for the lab.
- Safety goggles must be worn at all times in the lab.

Other safety considerations may be found in your lab textbook in Chapter 2.

Cleanliness Maintaining a clean work area is both a safety issue and a fiscal issue. In addition to your personal work area, you will be assigned a common area of the lab for which you will be responsible. The instructor and T.A.s will be authorized to deduct up to 25 % from your lab score for the day if either your personal work area or the common area for which you are responsible is not clean at the end of the lab period.

Attendance Attendance is required for laboratory. Any lab for which you do not show up will count as a zero. Exceptions will be made for:

- University-sponsored activities. You must make alternative arrangements with me at least a week in advance.
- Documented medical absence.
- Death in the family.

If you do miss a lab, and need to make alternate arrangements, please talk to me as soon as possible.

Late Policy Lab notebooks that are turned in late will be subject to the following penalties:

1 day	10 %
2 days	30 %
3 days	60 %
4 days	100 %

Exceptions will be made as for attendance.

Preparation We will be performing several labs this semester that have the potential to be fun *if you know what you are doing when you come to lab*. Preparing for lab means that you will have, at the *minimum*, read and understood the lab protocol before coming to lab. You may, on occasion, also need to read up on supplemental techniques that are referenced in your lab book or lab handout. Handouts, where indicated in the schedule below, will be available online, at the class website (see my homepage). You will need to write in your lab notebook the title and objective for the day's experiment *before* you have access to the chemicals for the day.

Lab Notebook Format Your lab notebook should be patterned similarly to the example given in the lab textbook on pages 29–31. Your lab notebook should include a page with a table of contents listing each of the experiments performed to date, referencing the page numbering noted in point 10 in your book. Note as you read through the example:

Title Should be the title listed in the table of contents. Dating an experiment is also wise.

Objective Is stated succinctly, but specifically. Describe what will be done and how it will be done.

Procedure and Results are mixed together, as is appropriate when you are recording what you *did* you, not what you were supposed to do. Note also the use of past-tense, passive voice in the lab writeup. Any experimental technique not previously described in the notebook should be described in detail. It is frequently helpful to list quantitative measurements on separate lines, to make them easy to identify. These quantitative measurements should always have units associated with them. The equations for any calculations should be completely written out, with the answer written next to the calculation. Spectra or other printouts should be permanently attached to the pages of the notebook. This section constitutes the majority of your writeup, and should be completed *in lab*.

Signature and Witness are not really necessary in a classroom setting, as we will not be submitting our notebooks for patent applications. However, the unused space at the end of your lab should be crossed out, both to preclude adding data after the lab is completed, and to ensure that each experiment begins on a new page.

Lab notebooks must be initialed by the instructor or the T.A. before leaving the lab to check for complete procedures and observations. The completed notebook, with any additional analysis, will then be turned in at the beginning of the next class lecture. The lab notebook will be returned before the start of the next lab period (usually in class). Each lab will be worth a maximum of 15 points toward your final grade.

Lab Report Format The lab report you write for the sequential synthesis of 2'-bromostyrene must be submitted according to the format indicated by the Guidelines for Authors for the Journal of Organic Chemistry, located at http://pubs.acs.org/paragonplus/submission/joceah/joceah_authguide.pdf. Also take a look at articles from current issues of the journal http://pubs.acs.org/journals/joceah/index.html to get an example of the style used in the journal. The website located at http://www.physics.pomona.edu/sixideas/labs/LRM/LR08.pdf may also give you an idea of the content to include in your lab report.

A rough draft of the lab report will be due on *Friday, October 23 at 8:00 AM*, and will be worth 10 points. The final draft of the lab report will be due on *Friday, November 6 at 8:00 AM*, and will be worth 40 points.

Tentative Lab Schedule Lab will proceed according to the following schedule (barring unforseen circumstances).

Week	Lab	Reading
9/1–9/3	Check-in & Safety Orientation	Mayo Chap. 2, 3
9/8–9/10	Measuring Physical Properties	Exp. 1
9/15–9/17	Extraction (Mixture)	Exp. 4C
9/22–9/24	Recrystallization	Tech. 5
9/29–10/1	Bromination of trans-Cinnamic Acid	Exp. D2
10/6–10/8	Synthesis of 2'-Bromostyrene	Exp. D3
10/13–10/15	Fall Free Days	No Lab
10/20–10/22	Bromination of Acetanilide	Exp. 28
10/27–10/29	Sublimation (Benzoic Acid)	Tech. 9, Handout
11/3–11/5	Isolation of Caffeine	Exp. 11B
11/10–11/12	Synthesis of Propyl p-Tolyl Ether	Exp. 22A
11/17–11/19	Oxidation of Cyclohexanol	Experiment B1
11/24–11/26	Thanksgiving Holiday	No Reading
12/1–12/3	Nylon Synthesis	Experiment B2, B3
12/8–12/10	Presentations	No Reading