

# Chemistry 226 Fall 2007

## Organic Chemistry Laboratory

Coordinator: Dr. Susan Geldart, Pastore 232, 874-2282, sgeldart@chm.uri.edu  
Manual Packet: Chemical Education Resources (Bookstore)

### Before Starting Lab:

1. You need to have goggles or safety glasses, a lab coat, gloves, a lab notebook with carbon paper and the lab manual for the course. **You also need to bring a lock the first week of lab.**
  - a. Safety glasses are available through the graduate students in Pastore, Room 215 or through the stockroom after labs have begun.
  - b. Lab coats, gloves and locks can be purchased through the stockroom
  - c. **You need to have money on a RAM account in order to purchase items through the stockroom.**
  - d. Lab notebooks and the lab manual can be purchased through the University Bookstore.
2. You must have completed the safety training by the second session, or you will be dropped from the lab.

### Additional Material

Supplementary material and changes to some of the procedures may be downloaded from the chemistry department website at [www.chm.uri.edu](http://www.chm.uri.edu). Follow the instructions on the website to download the lab procedures. Download this material early in case the server goes down.

### Make-Up Labs

1. Your lab grade is based on completing all scheduled labs. If you miss a lab, you will need to do a makeup lab to get credit for the experiment. See the syllabus for makeup dates.
2. If you miss a lab, see the stockroom to sign up for a makeup lab as soon as possible. You need to be listed for the makeup to be allowed to attend since the stockroom will only stock enough chemicals for students previously signed up. You will not be allowed to sign up for a makeup lab after the last lab is completed.

### Grading

The TA is responsible for all grading. They will grade according to the breakdown given below. Please see them first if you have any questions on your grades. If the problem is not resolved, then contact me.

Unknowns	20%
Lab Report	40%
Quizzes	20%
Final	20%

### Lab Report

See attached sheet for instructions to write a lab report. Not all experiments will need to have a formal report written.

### Quizzes

Quizzes will be given periodically in the lab and will count as 20% of your grade. They will primarily be based on the experiment you are about to perform that week and are designed to test your knowledge of the background material behind the experiment. The prelab questions are a good place to review.

### Final

The final is comprehensive and is based primarily on your lab experience. You should understand the reason for doing the steps in each procedure, not just performing a "cookbook" operation. The questions are often thought provoking, not material that is explicitly stated in the laboratory manual. The lab manual is a good place to review, but the final is designed to test whether you are able to apply the different techniques learned in the lab to specific problems that could occur if you were to use these techniques in the workplace.

# Order of Experiments Chemistry 226

## Syllabus

Dates	Day	Experiment	Experiment #	Format
9/3-9/7	Session 1 Session 2	check in check in	None	None
9/10-9/14	Session 1 Session 2	Melting Point Microscale	Tech 701 Tech 702	Questions and data Questions and data
9/17-9/21	Session 1 Session 2	IR ( even sections) NMR (odd sections) IR ( odd sections) NMR (even sections)	Tech 710/Tech 709 Tech 710/Tech 709	Interpretation and questions Interpretation and questions
9/24-9/28	Session 1 Session 2	Recrystallization Extraction	Tech 703 Tech 705	Lab report Lab report
10/1-10/5	Session 1 Session 2	TLC Column Chromatography	Tech 707 Tech 708	Lab report Lab report
10/8-10/12	Session 1 Session 2	<b>No labs (Monday class schedule)</b> Distillation/GC	Tech 704	Lab report
10/15-10/19	Session 1 Session 2	Midterm Test Samples: liquid Midterm Test Samples: solid	handout handout	handout handout
10/22-10/26	Session 1 Session 2	Synthesis: Reduction Analysis: Reduction	Reac 715	Lab report
10/29-11/2	Session 1 Session 2	Synthesis: Bromination Analysis: Bromination	Synt 719	Lab report
11/5-11/9	Session 1 Session 2	Synthesis: Diels Alder Analysis: Diels Alder	Synt 717	Lab report
11/12-11/16	Session 1 Session 2	Synthesis: Wittig Analysis: Wittig	Synt 721	Lab report
11/19-11/23	Session 1 Session 2	Chemdraw <b>No labs (Thanksgiving)</b>	handout	handout
11/26-11/29	Session 1 Session 2	Synthesis: Aldol Condensation Analysis: Aldol Condensation/checkout	Synt 720	Lab report
12/3-12/7	Session 1 <b>Session 2</b>	Makeups <b>Final and bills issued</b>		

## Guidelines for Writing a Lab Report

### Introduction (5 points)

Purpose: Summarizes purpose of lab  
Format: Paragraph  
Includes: Reasons for doing the lab, ex: uses in industry, etc.  
Length: 3-5 sentences  
Tips: Summarize introduction given in the lab in your own words

### Experimental Procedure (10 points)

Purpose: States how you will be accomplishing the goals of the introduction  
Format: Paragraph  
Includes: Chronological description of procedures used in the lab  
Length: Depends on the length of the procedures  
Tips: Summarize procedure in lab manual in paragraph form

### Data and Results (20 points)

Purpose: Show data or observations collected the data in the lab and if appropriate, a table of lab results.  
Format: Data tables; Neatly organized with and comments on observations  
Copies of instrumental analyses and carbon-copies of data from labbook  
Includes: Carbon-copies of all data recorded in class, if not neatly written, include both CC data and a neatly typed data table.  
Length: Depends on lab  
Tips: Write your data neatly in your lab book and it will not need to be retyped

### Post Lab Questions (40 points)

Purpose: Solidify concepts learned in lab  
Format: Numbered in paragraph form  
Includes: Answers to all questions  
Length: Depends on the lab

### Conclusions (20 points)

Purpose: Restates your introduction and describes if experiment was successful  
Format: Paragraph  
Includes: 1. Sources of error in experiment, do not use "human error"  
2. Explanation of whether you feel your experiment was successful or not  
3. Implications of method and procedures on industry, etc.  
Length: 5-8 sentences  
Tips: Look back at the introduction and decide if you met the goals of the experiment, state mistakes that were made, give a few sentences on commercial uses for the procedures. Make sure to include specific sources of error that resulted in decreases in yield, experiment not working, etc.

### Lab Technique (5pts)

Five points of each grade on a lab report will be based on your lab technique for that experiment. The points will be awarded on cleanliness of your lab bench area and hood, how careful you are when performing your experiment, maintenance of communal chemical areas and coming to lab prepared and on time.