

Chemistry 5a: Advanced Techniques of Synthesis and Analysis

Spring 2003

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Laboratory: (5 sessions per week) Mead Lab

March 31 – June 6, 2003

Mondays 8 am -12 noon and 1 pm-4 pm

Thursdays 1 pm-4 pm

Fridays 8 am -12 noon and 1 pm-4 pm

Lectures: (10 total) 151 Crellin

Tuesdays at 4 pm

March 31 – June 6, 2003

Optional Texts: (all suggested to students that are interested in pursuing synthetic chemistry)

1. March, J. "Advanced Organic Chemistry, Fourth Edition"
2. Corey, E. J.; Cheng, X.-M. "The Logic of Chemical Synthesis"
3. Nicolaou, K. C.; Sorensen, E. J. "Classics in Total Synthesis"
4. Hegedus, L. S. "Transition Metals in the Synthesis of Complex Organic Molecules"
5. Greene, T. W.; Wuts, P. G. M. "Protective Groups in Organic Synthesis"
6. Schlosser, M. "Organometallics in Synthesis: A Manual"
7. Warren, S. "Designing Organic Syntheses: A Programmed Introduction to the Synthon Approach"
8. Silverstein, Bassler, and Morrill "Spectrometric Identification of Organic Compounds, Sixth Edition"

Model Sets:

HGS molecular model sets are available in the Crellin stockroom from Joe Drew. The cost is \$25 per set. Students are *strongly* encouraged to purchase at least one set.

Other relevant texts and references:

1. Larock, R. C. "Comprehensive Organic Transformations"
2. The Merck Index
3. The Aldrich, Strem, and Lancaster Catalogs
4. Beilstein, Sci-Finder (Chemical Abstracts Service) and Web of Science online. (see the Caltech Library homepage at: <http://library.caltech.edu/>)
5. Paquette, L. A. "Encyclopedia of Reagents for Organic Synthesis, 8 Volume Set" (also available online through the Caltech Library)

Overall Course Grade:

Your grade in Chemistry 5a will be determined as follows:

Report 1, due **Friday, May 2**: 25%
Notebook Check 1: 5%
Report 2, due **Wednesday, June 4**: 45%
Notebook Check 2: 5%
Participation: 10%
Quizzes: 10%

Laboratory Reports:

Handouts describing the format and content of the reports will be provided.

Notebook Checks:

The teaching assistants will check your notebooks **once per week**, grading on a check minus/check/check plus system. Please refer to pages 4-5 in the Chemistry 5a Laboratory Manual for details on proper laboratory notebook format. Any questions may be answered by the teaching assistants. Twice during the semester (immediately following report hand-in) the notebooks will be collected and graded based on the check(s) received.

Participation:

This segment of your grade reflects how well you perform in the laboratory environment. Performance includes courtesy toward your fellow students and teaching assistants, safe laboratory practices, familiarity with the experimental procedures, and efficient work habits. This grade will also incorporate growth and development; that is, you may be rewarded for improvement in your performance over the course of the semester.

HOWEVER, you are **required** to attend **TWO** of the five possible laboratory sessions per week, regardless of your overall performance in the laboratory. You must work on laboratory chemistry when in the laboratory (i.e., not other homework!). Failure to meet this requirement will result in **the reduction of your final grade by one letter grade per missed week**. You may (of course) attend as many laboratory sessions as you see fit. Our experience over the past few years is that you will have to put in more than the required time to succeed in this course. You will receive a *single* one day pardon on this attendance requirement during the term.

Quizzes:

There will be a short quiz each week on material covered the week before in the lecture. The quiz may occur at the beginning, middle, or end of the lecture period. There are no make-ups. Please attend the lectures!

Late Policy:

Professor Stoltz is the only person who will grant extensions. All assignments are due **in the hands** of a TA or Professor Stoltz by 5:00 p.m. on the due date. It is not sufficient to leave assignments on desks, in mailboxes, or in any personal space of the TA's, because the TA must actually record the time and day the assignment was received.

A penalty of 25% will be assessed for each day the assignment is late.

Detailed Lecture Schedule

class	date	topic	Special/ Things Due	
<i>Week 1</i>				
1Mon	3/31	organizational meeting		
2Tue	4/1	lab practical	In the Mead Lab	
Special	4/4	First Lab Day		
<i>Week 2</i>				
3Tue	4/8	Step 1	Quiz	
<i>Week 3</i>				
4Tue	4/15	Step 2	Quiz	
<i>Week 4</i>				
No lectures				
<i>Week 5</i>				
5Tue	4/29	Step 3	Quiz	
Friday	5/2		Report	1/Notebook
Check				
<i>Week 6</i>				
6Tue	5/6	Step 4	Quiz	
<i>Week 7</i>				
7Tue	5/13	Step 5	Quiz	
<i>Week 8</i>				
8Tue	5/20	Step 6	Quiz	
<i>Week 9</i>				
9Tue	5/27	Step 7	Quiz	
<i>Week 10</i>				
10Tue	6/3	TBA	Quiz	
Wed	6/4		Report	2/Notebook
Check				