

Chemistry 36

Organic Chemistry Laboratory I

Syllabus, Autumn 2006

Instructor: Dr. Christopher R. Moylan
283 Mudd (Office hours: MF 10:00-11:30 a.m.)
3-9518 cmoylan@stanford.edu
www.stanford.edu/dept/chemistry/moylan.html

Head teaching assistant: Bridgett Payne
Stauffer I room 208 (Office hours: WTh 3:00-4:00)
5-2474 bridgett@stanford.edu

Individual TAs will have office hours from 7:00-9:00, Mondays through Thursdays, at a location to be named later.

Lectures: Tuesdays, 11:00-11:50 a.m., Hewlett 200 (printed time schedule is wrong)

Labs: Mondays, Tuesdays, Wednesdays, Thursdays, or Fridays, 1:00-5:00. Sign up for lab section preference at <https://cgi.stanford.edu/~dept-ctl/Chemlab36> before the first lecture on September 26. The first lab day will be Wednesday, September 27. **Come to the Braun Auditorium in the Mudd building by 1:00 p.m. of your first lab day.** All other weeks, you will report directly to your lab on the second floor of Mudd by 1:00 p.m. **You must always come to lab on your assigned day, unless you have a required University function that requires you to be elsewhere, in which case you must submit a lab day change request form. Visiting relatives or friends, or having bought an airplane ticket, is not a justification for a lab day change. Requests for lab day changes will be handled by the Head TA.**

Textbooks (use either #1 and #2 or #4, but not both):

1. J.R. Mohrig, C.N. Hammond, P.F. Schatz, and T.C. Morrill, *Modern Projects and Experiments in Organic Chemistry: Miniscale and Standard Taper Microscale*, second edition, Freeman (2003). This book will also be used for Chem 130.
2. J. R. Mohrig, C.N. Hammond, and P.F. Schatz, *Techniques in Organic Chemistry*, second edition, Freeman (2006). This book will also be used for Chem 130.
3. Chemical Education Resources, *Organic Chemistry Laboratory Notebook* (1998).
4. D.L. Pavia, G.M. Lampman, G.S. Kriz, and R.G. Engel, special custom edition including portions of *Introduction to Organic Laboratory Techniques: A Microscale Approach*, third edition, Thomson Learning (1999), and *Introduction to Organic Laboratory Techniques: A Small Scale Approach*, Thomson Learning (2005), optional (on reserve in Swain Library).
5. J.W. Zubrick, *The Organic Chem Lab Survival Manual*, sixth edition, Wiley (2004), optional (on reserve in Swain Library).

The course schedule includes reading to be done before each lecture. Additional reading is assigned for each experiment. The individual experiment handouts can be downloaded from CourseWork and brought to lab with you (we recommend that you not bring your textbooks into lab).

Course Schedule

Week	Lecture topic, Reading (<i>Techniques in Organic Chemistry</i>)	Experiment(s)
1 9/26	Introduction, filtration, melting points Chapters 1-7	Aspirin, part 1: filtration
2 10/3	Recrystallization Chapter 9	Acetanilide, part 1: recrystallization Aspirin, part 2: melting point
3 10/10	Extraction, melting points Chapters 8 and 10	Luminol: filtration Acetanilide, part 2: melting point
4 10/17	Infrared spectroscopy Chapter 18	Fluorenone: extraction
5 10/24	Hour test	Isoamyl acetate: extraction, infrared spectroscopy
6 10/31	Thin-layer chromatography Chapter 15	Drug testing by TLC Get unknowns for separation
7 11/7	Column chromatography Chapter 17, sections 1-8	Carotene and chlorophyll from spinach: column chromatography
8 11/14	Distillation, boiling points Chapter 11	2-methylcyclohexanol, part 1: distillation, extraction
9 11/28	Gas chromatography, HPLC Chapter 16 and section 17.9	Separation of unknowns: extraction, IR 2-methylcyclohexanol, part 2: GC
10 12/5	Hour test	None

There is no final exam in this course.

Grading

At the beginning of each lab, you will be given a quiz on the relevant material. There will often be a prelab exercise to complete in your notebook before coming to lab, which will help you study for the quiz. The quiz score will constitute 25% of your grade for that lab. The other 75% will be based on the carbon copies of your lab notebook that you hand in by 4:00 p.m. **one week** after the last lab period for that experiment. Therefore, since Experiment 1 takes two periods, your first report will be due the day of your third lab period. The report portion of the lab grade is subject to a late penalty multiplying factor of $(0.9)^N$ where N is the number of days after the due date that the report is turned in. Lab reports are handed in by putting them in the wooden box labeled "Chem 36" near room 235 Mudd. The format for these reports is given in a document on the CourseWork site. Percent yield will NOT be a component of the lab report grade. For the final experiment, a separate written report is to be prepared, as preparation for Chemistry 130 when all lab reports are to be written up separately. Each experiment is therefore worth 100 points. There are nine experiments. Together, these will comprise 60% of your grade.

Throughout the quarter, your TA will observe your behavior and technique in lab, and at the end of the course will report a lab performance grade for you. It will be a number between 0 and 200, with a median of 100. Those grades will be corrected for variations between TAs. Bonus points are earned by helping other students, operating in a safe manner, performing procedures skillfully, using the minimal amount of chemicals, and operating efficiently. Demerit points can be earned by unsafe actions, failing to clean up completely after each experiment, hindering other students, staying late, and performing procedures badly. The lab performance grade will comprise 20% of your course grade. It is a purely relative score, so it reflects how your TA evaluated your performance in lab **relative to other students**, including students in sections other than your own. Halfway through the course, you may ask your TA where your lab performance to date ranks among all of the TA's students.

There will be two 50-minute "hour" tests, given in the lecture time for Weeks 5 and 10. The hour tests will be based completely on the lectures. Lecture notes will be uploaded to CourseWork after each lecture, and those notes should be used as the study material for the hour tests. The two hour tests together comprise the remaining 20% of your grade.

The biggest factor in your letter grade will be the lab grades (reports plus quizzes). The second biggest factor will be the lab performance score you get from your TA. The least important factor in your letter grade will be the written test scores.

While letter grades in Chem 36, like most college courses, are based on your overall performance with respect to the class median, there is no predetermined "curve." The number of As, Bs, etc. is not set up ahead of time, but is based on where the gaps are in the distribution of overall scores. Thus, there is no way to know ahead of time what anyone's final grade is likely to be.

This course may be taken credit/no credit rather than letter graded, and I shall be happy to sign approvals for anyone to switch to CR/NC at any point during the course.