

Chemistry 3A
CHEMICAL STRUCTURE AND REACTIVITY
UC Berkeley – Spring 2014
Dr. Pete Marsden – 323 Latimer – petermarsden@berkeley.edu

Location and time: 1 Pimentel: Tu and Th 8:00 - 9:30 AM and repeat 2:00 – 3:30 PM

General Information:

Chemistry 3A is the first semester of a two-semester survey of organic chemistry.

Course Website: <http://bspace.berkeley.edu>

The course website will be used for announcements throughout the semester, as well as for periodically posting selected resources. You are responsible for checking the site on a regular basis. All Homework will be posted under the resources tab. Exam and quiz grades will be posted under the Gradebook.

Email: petermarsden@berkeley.edu

All e-mail concerning Chemistry 3A should have "Chem3A" in the title. Use e-mail for asking simple questions about the course or if you would like to make an appointment to see me. Do not expect detailed answers to chemical questions since organic chemistry is a very visual science and generally requires structures to explain concepts. These questions are more appropriate for office hours.

Exams:

- Midterm Exam #1 will be held on Thursday, February 27 from 7:00 – 9:30 PM.
- Midterm Exam #2 will be held on Monday, April 7 from 7:00 – 9:30 PM.
- The Final Exam will be held on Wednesday, May 14 from 8:00 – 11:00 AM.

THERE WILL BE NO MAKE-UP EXAMS. ALL EXAMS ARE ONLY OFFERED AT THE SCHEDULED TIME.

Recommended Materials:

- K. P. C. Vollhardt, N. E. Schore; "Organic Chemistry, 7th Edition," Freeman, New York.
- N. E. Schore, Study Guide, Freeman, New York.
- HGS Maruzen Molecular Structure Models

Grading: The course will be graded on the basis of 625 points, distributed as follows:

- 10 best of 13 quizzes (10 points each for 100 total points)
- Each midterm exam is worth 150 points (total of 300 points).
- The final exam will be worth 225 points.

Course Grade

Final letter grades in this course will be based on the total points in the course.

Distribution of letter grades will be approximately:

A (15-20%); B (35%); C (40%); D, F (5-10%)

Homework:

Homework sets will be posted regularly on the course website. The homework will not be graded, but is extremely important for understanding the material. Each set will contain suggested book problems from the 7th edition of the Vollhardt text as well as problems that I have written. Due to the fast pace of this course, it will be easy to get behind. To ensure that this does not happen, I suggest you use the text problems as a “warm-up”. If you feel comfortable with the material, skip them entirely. If you are struggling, be sure to go through them so that you will have a set of problem solving skills to apply to the more difficult problems on my homework sets.

Quizzes:

Every Tuesday, starting January 28th, there will be a 10 minute, 10 point quiz administered during the lecture. The morning lecture will have a different quiz than the afternoon lecture. The quizzes will be pulled directly from the homework assignments for the first half of the course, and will be closely related to the homework problems for the second half of the course. The best 10 quizzes of the total 13 will be included in your final score for the course. Because of this, there will be no make-up quizzes.

Lecture attendance:

Organic chemistry is a concentrated and fast-moving subject. It is not inherently more difficult than other science courses, but you will probably find it different from anything you have studied previously because there is a great deal of new conceptual material to assimilate. An important aspect of the subject is that it is very **cumulative**, with each new topic building upon and using concepts developed in the previous one. Because of this close interrelationship of topics, this is not a course in which it is possible to learn some topics but ignore others, especially in the first semester. It is also very difficult to wait until a few days before the midterm and final examinations to begin learning the course material. Therefore, the single factor that gives students the most trouble is **falling behind**. To avoid this problem, I strongly recommend that you come to lecture regularly, and above all **work problems as soon as they are assigned**.

Lecture attendance is particularly important, since all exams in this course will be based on the material covered in lecture. The textbook should be used as a supplement to the lectures. There may be many topics covered in lectures that are not in the text and you will be responsible for knowing this material.

Office Hours:

Dr. Pete Marsden:

- Tuesdays from 9:45-11:45 am in chemistry library room D (Hildebrand Hall)
- Thursdays from 4:00-6:00 pm in chemistry library room D (Hildebrand Hall)
- Open door policy – Feel free to stop by my office in 323 Latimer and ask your questions. If the door is closed, I am not in the office.
- Email – You can set up meetings with me via email. Be sure to have “Chem 3A” in the subject of the email (petermarsden@berkeley.edu).

Head GSI: Omer Ad (omerad@berkeley.edu)

- Omer will hold a weekly review session in 100 Lewis from 5:00-6:30 PM
- His office hours can be found with the other GSI office hours on the google schedule posted on bSpace

Graduate Student Instructors: 106 Latimer Hall (schedule will be posted on bSpace)

The GSI office hours are spread out throughout the week, and are available on a walk-in basis to all enrolled students in both Chem 3A and Chem 3AL (lab). You may visit any GSI during scheduled office hours. This is a very valuable resource and you are highly encouraged to bring questions here on a regular basis. Access to the room can be found on the northwest face of Latimer Hall.

Course Outline: The following topics will be discussed in the order shown below (subject to change). The number of lectures per topic will vary. Topics not found in the text will be inserted when appropriate.

<i>Topic</i>	<i>Chapter</i>
Bonding and Structure	1
Kinetics, Thermodynamics, Acids and Bases	2
Alkanes, Part 1: Physical Properties, Conformations	2
Cycloalkanes	4
Alkanes, Part 2: Reactions	3
Stereochemistry	5
Haloalkanes: Physical Properties and Bimolecular Substitution Reactions	6
Haloalkanes: Unimolecular Substitution and Elimination Reactions	7
Alcohols and Ethers	8 and 9
Alkenes, Part 1: Physical Properties and Relative Stability.	11
Alkenes, Part 2: Reactions	12
Alkynes	13