

WELCOME TO CHEMISTRY 3

Course Philosophy: From a pragmatic point of view, it is important that you attend lectures 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 are many topics covered in lectures that are not in the text and you will be responsible for knowing this material.

The official title of this course is “Chemical Structure and Reactivity”. An alternative title could be “Applications of Organic Chemistry”. An important goal of this course is for you to leave lecture with knowledge of organic chemistry that is relevant to everyday objects, moments, and life. I am not asking that you ruin the aesthetic value of a stand of redwoods, a flock of geese or a herd of bison by imagining that they are made up of a "bunch" of organic molecules. However, organic chemistry does surround us from product labels to the nightly news. After studying this subject for a year you should be able to look at a food label or read a newspaper and develop informed conclusions about what you have just encountered. Use this information to decide whether or not to sign a petition about an environmental issue. Use it to decide which packaged foods to buy. In other words:

LEARN IT TO USE IT!

Office Hours:

Dr. Pedersen: To Be Announced
Teaching Assistants: To Be Announced

Voluntary Review Session:

Thursday's from 7-9 PM in 159 Mulford

These will be held by the courses Head TA, Mark Levin. Mark is an experienced teacher and will be presenting weekly reviews of the lecture material in addition to problem solving.

Course Website: bcourses.berkeley.edu

e-mail: pedersen@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 about an administrative matter. Do not expect detailed answers to chemical questions since organic chemistry is a very visual science and generally requires structures to explain concepts.

Required Texts and Molecular Models:

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

Required Exam Book/Answer Keys: 3rd edition

These two books contain midterm and final exams from most of the 3A courses I have taught. One of the books is a set of blank exams and the other contains handwritten answer keys to these exams. These answer keys provide no explanations as to how to approach solving a problem. For that type of information you should attend one or more of the many available office hours. These two manuals are sold as a packaged set and are available at the Cal Student Store Bookstore.

Exams:

- Midterm #1: Monday, October 5 from 7:00-9:00 PM.
 - Midterm #2: Monday, November 9 from 7:00-9:00 PM.
 - Final exam: Monday, December 14 from 3-6 PM.
- THERE WILL BE NO MAKE-UP EXAMS. ALL EXAMS ARE ONLY OFFERED AT THE SCHEDULED TIME.

Grading: The course will be graded on the basis of 525 points, distributed as follows:

- Each midterm is worth 150 points.
- Final exam is 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%)

What this means is that 15 to 20% of the students will receive some type of A, 35% of the students will receive some type of B, and so on.

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.

| Topic | Relevant Chapter |
|--|------------------|
| 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, Part 1: Physical Properties and Bimolecular Substitution Reactions. | 6 |
| Haloalkanes, Part 2: 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 |