

Chemistry 33: Structure and Reactivity of Organic Molecules (Summer 2023)

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Course Description

An introduction to organic chemistry, the molecular foundation to understanding the life sciences, medicine, diagnostics, energy, environmental and material science. Students will learn structural and bonding models of organic molecules that provide insights into chemical, physical, and reactivity properties, in addition to their biological activities, which collectively contribute to the molecularization and advancement of science disciplines from anthropology to zoology. Combining these models with kinetic and thermodynamic analyses allows molecular transformations to be rationalized and even predicted. Translation of this knowledge to more complex systems enables the synthesis of novel molecules or materials that can positively impact our science, society, and environment. A two-hour lab section accompanies the course to introduce the techniques of separation and identification of organic compounds.

Course Structure

Lecture

Lectures meet in-person on Monday, Tuesday, Wednesday, and Thursday from 9:30AM–11:20AM in STLC 114. Problem solving will be emphasized during lecture. Lectures will not be recorded.

Lab Section

Lab sections will meet on Monday and Wednesday in person. Sections will be focused on experiments and problem solving. Students will get hands on experience using lab equipment and will have the opportunity to work with peers on problems. Please attend the section you are enrolled in. Attendance is required to pass the course.

Office Hours

Regular office hours will be held. Refer to the “Office Hours” document posted on the Chem 33 Canvas site to see where and when office hours are held.

Course Material

Textbook

We will be using *Organic Chemistry, 4th Edition* by David R. Klein. The book is available at the campus bookstore. You may also purchase the textbook or an electronic version from other vendors. Required readings can be found in the course schedule. The online homework package that accompanies the textbook will not be used for this course.

Although it is not a required text, *Organic Chemistry as a Second Language, First Semester Topics* by David R. Klein is suggested as a supplemental resource for this course.

Lab Notebook

A lab notebook will be required for the lab section. The lab notebook should have removable duplicate pages. A lab notebook is available at the campus bookstore; however, any lab notebook with removable duplicate pages will work.

Molecular Model Kit

A molecular model kit will be used during lectures and will be a valuable tool for visualizing the structure of molecules. Any organic chemistry molecular model kit will work.

Personal Protective Equipment (PPE)

Students will be required to wear PPE at all times in the lab. Proper PPE includes an approved lab coat and approved safety glasses/goggles. PPE will be distributed to students after the first lecture.

Course Assessments

Quizzes

A short quiz will be given during the first 10 minutes of lectures on Tuesday, Wednesday, and Thursday (with the exception July 12, a midterm day). The quizzes will cover the material that was covered during the previous lecture. There are no make-up quizzes.

Problem Sets

Regular problem sets will be assigned. Problem sets will be posted on Canvas after lecture and will be due at the beginning of class the following day. Problem set keys will be posted after the problem set is due.

Section

Section will be held on Monday and Wednesday. Students must complete a prelab assignment to participate in lab for the day. The prelab assignment will involve reading a lab handout and preparing their lab notebook. Students who do not complete the prelab assignment will not be allowed in lab.

A prelab quiz will be given at the beginning of lab. Students will turn in their lab notebook copies to their TA at the end of each lab period. The lab notebook pages will be graded.

Midterm Exams

Two one-hour in-person midterm exams will be given at the beginning of class on July 3 and July 12. Midterm exams are necessarily cumulative due to the nature of organic chemistry. Material from lecture and lab will be included on midterm exams. There are no make-up exams.

Final Exam

A two-hour final exam will be given during lecture on July 20. The final exam will cover all course material.

Grade Breakdown and Grade Normalization

Each pool of points will be weighted to the percentage given.

Problem Sets:	5%
Quizzes:	10%
Lab Section:	10%
Midterm 1:	20%
Midterm 2:	20%
Final Exam:	35%

There are no set grade cut-offs for this course. At the end of the course, course grades will be normalized.

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. (Phone: 650-723-1066, URL: <http://oae.stanford.edu>). Please send OAE letters to the head TA in a timely manner so that accommodations can be arranged.

Gradescope and Regrades

Some graded work can be accessed on Gradescope. Please contact the teaching team if you are having trouble accessing Gradescope. Regrade requests can be submitted on Gradescope up to two days after scores have been released.

Honor Code

1. The Honor Code is an undertaking of the students, individually and collectively:
 - a. that they will not give or receive aid in examinations; that they will not give or receive unpermitted aid in class work, in the preparation of reports, or in any other work that is to be used by the instructor as the basis of grading;
 - b. that they will do their share and take an active part in seeing to it that others as well as themselves uphold the spirit and letter of the Honor Code.
2. The faculty on its part manifests its confidence in the honor of its students by refraining from proctoring examinations and from taking unusual and unreasonable precautions to prevent the forms of dishonesty mentioned above. The faculty will also avoid, as far as practicable, academic procedures that create temptations to violate the Honor Code.
3. While the faculty alone has the right and obligation to set academic requirements, the students and faculty will work together to establish optimal conditions for honorable academic work.