

CHE 452: ADVANCED ORGANIC CHEMISTRY II
(Structure and Mechanisms)
Winter Quarter, 2001

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Office Hours: Mondays 3:00-5:00, Tuesdays 9:00-11:00, or by appointment.

Course Description and Objectives: This course will cover structural and mechanistic principles of modern organic chemistry. We will begin with a detailed look at several types of chemical species (carbanions, free radicals, carbenes and nitrenes), and continue with an investigation of several types of reactions (reactions of carbonyl compounds, concerted reactions, and oxidation and reduction reactions).

Text: *Advanced Organic Chemistry (Part A)*, Carey and Sundberg.
Excerpts will be taken from March's *Advanced Organic Chemistry*.

In-Class Problems, Discussion: A big part of being a successful chemist is the ability to solve problems and effectively communicate. A portion of your grade in this course will be based on the development of your problem-solving and communication skills, as assessed through weekly in-class problem sets, which you will work on in small groups and discuss with the class at large.

Oral Presentation: Another big part of being a successful chemist is keeping up with recent scientific advances by reading the primary literature. In order to encourage this, a portion of your grade in this course will be based on a presentation of a recent (post January 1, 2001) paper from the primary chemical literature. Your presentation should thoroughly address the goals of the research, experimental methods, observed data and general impact of the work. Presentations should be about 20 minutes in length, with a 5 – 10 minute Q/A period to follow. I'd like to have the presentations scheduled throughout the quarter, possibly one per week, but will leave the last lecture period (March 15th) open to finish up. Please be sure to distribute a copy of the paper you will

be presenting to everyone in the class *one week before your presentation*. Papers from the following journals are acceptable:

Accounts of Chemical Research, Journal of the American Chemical Society, The Journal of Organic Chemistry, Organic Letters, Tetrahedron Letters, Synthesis

Final Exam: The final exam will be on Thursday, March 22, 2001 (5:45 – 9:00 p.m.). It will be cumulative and include questions from student presentations.

Grades: Final grades will be based on the following distribution, and curved so that the overall class average is a “B”:

Exam 1 (in class)	20 %
Exam 2 (in class)	20 %
In-Class Problems, Discussion	10 %
Oral Presentation	25 %
Final Exam	25 %

Course Outline and Schedule:

Date	Chapter	Topics
Jan. 11	7	Carbanions, Free Radicals, Carbenes and Nitrenes
	5 (<i>March</i>)	
Jan. 18	8.1 – 8.4	Carbonyl Chemistry I
Jan. 25	8.5 – 8.9	Carbonyl Chemistry II
Feb. 1	Exam 1	
Feb. 8	11.1 – 11.2	Concerted Reactions I: Electrocyclic and Sigmatropic Reactions
Feb. 15	11.3	Concerted Reactions II: Cycloaddition Reactions
Feb. 22	Exam 2	
Mar. 1	19 (<i>March</i>)	Oxidations and Reductions I
Mar. 8	19 (<i>March</i>)	Oxidations and Reductions II
Mar. 15	Student Presentations	
Mar. 22	Final Exam	