

CHEM 500
ADVANCED ORGANIC CHEMISTRY

SUNY Cortland
Spring 2010

Instructor: Dr. Frank Rossi

Office: Bowers 135

Office Hours: Mon 3:00-5:00; Thu 11:00-1:00; Fri 2:30-4:00.

If my office door is open, feel free to stop in.

Email: rossif@cortland.edu

Classroom: Bowers 136

Meeting Time: MWF 12:40-1:30

Required Texts: "Organic Chemistry," Clayden, Greeves, Warren, and Wothers.

Prerequisite: CHE 302

Catalog Description: (O) Reaction mechanisms, physical organic chemistry and theoretical concepts in organic chemistry; recent developments. Prerequisites: CHE 302. (3 cr. hr.)

Detailed Description: A survey of advanced topics in organic chemistry. Examples will be drawn from the primary literature (journal articles). The course will begin with an overview of carbonyl chemistry. It will continue with discussions of retrosynthetic analysis and experimental approaches for the determination of organic reaction mechanisms. The synthetic topics of stereocontrol and pericyclic reactions will then be explored in detail. There will be an additional discussion of the funding of scientific research and students will write an original research proposal.

Learning Objectives: Students successfully completing CHE 500 are expected to be able to:

- Write curved arrow mechanisms to explain how an organic reaction occurs.
- Propose a multi-step synthesis for a complex organic molecule.
- Apply concepts encountered in the text and lecture to explain related, but previously unencountered organic chemistry.
- Read, understand and analyze primary source material (journal articles) on topics closely related to those encountered in the text and in lecture.

Drop Policy: University Policy will be followed.

Attendance: Your attendance at lecture is expected. Excessive absences will effect your grade. See Class Participation section.

Posted Materials: Keys to exams will be posted in the hallway outside my office, Bowers 135, until the next test date. Be sure to record any correct answers you wish during that period, since these keys may not be available later.

Disabilities: SUNY Cortland is committed to upholding and maintaining all aspects of the Federal Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973. If you have a disability and wish to request accommodations for this class (e.g., note-taking, testing environments, etc.), please contact me or the Office of Disability Services located in B-40 Van Hoesen Hall at (607) 753-2066. Any information regarding your disability will remain confidential.

Privacy Issues: Graded work is usually returned in class ASAP -- spread out alphabetically on the front desk. If you do not wish to have your work distributed in this fashion, you may request to have it returned in a sealed envelope or during office hours.

Academic Integrity: Your commitment to learning, as evidenced by your enrollment at SUNY Cortland requires you to be honest in all of your academic course work. Incidents of academic dishonesty may be referred to university officials, and will be dealt with in accordance with chapter 340 of the SUNY Cortland College Handbook.

Grading

Your grade will consist of points earned from class participation, problem sets, hour exams, and the final exam. Your grades in each of these areas will be weighted according to the distribution below:

Hour Exams	50%
Research Proposal	25%
Class Participation	5%
Final	20%

You will be given letter grades on all assignments. These will be averaged to give your course grade.

Hour Exams and the Final Exam will initially be graded numerically. The numerical grade converted to a letter grade using the table below:

	A	B	C	D	E
+	96-100	84-87	72-75	60-63	
	92-95	80-83	68-73	56-59	< 52
-	88-91	76-79	64-67	52-55	

Class Participation: Your grade will be based on both attendance and your participation in classroom discussions and group activities. It is anticipated that the typical student will receive a grade of B. Highly engaged students will receive a grade of A and students who consistently fail to participate will receive a grade less than B. More than three unexcused absences will reduce your participation grade by *at least* one letter.

Research Proposal: Each student will write a research proposal exploring a problem in either organic synthesis or physical organic chemistry. Details of the assignment will be given in class.

Hour Exams: The focus of the hour exams will be the most recently covered material, but concepts from prior exam(s) may be needed to answer some questions. Content from problem sets may appear on the hour exams. Occasionally you may be asked to further analyze information that was initially encountered in a problem set.

Makeup exams will only be given for excused absences and must be arranged for at least 48 hours before the scheduled exam.

Final Exam: The final exam will focus on content covered after the second hour exam.

CHE 500
Advanced Organic Chemistry
Spring 2010 Schedule

Date	Lect.	Topics	Reading
1/26	1	Introduction. Nucleophilic Addition to the Carbonyl Group	Chap 6
1/28	2		
2/2	3	Conjugate Addition	Chap 10
2/4	4		
2/9	5	Nucleophilic Substitution at the Carbonyl Group	Chap 12
2/11	6		
2/16	7	Equilibria, Rates, and Mechanism: Summary of Mechanistic Principles	Chap 13
2/18	8		
2/23		Exam I	
2/25	9	Elements of a Grant Proposal	
3/2	10	Retrosynthetic Analysis	Chap 30
3/4	11		
3/9	12	Determining Reaction Mechanisms	Chap 41
3/11	13		
		Spring Break	
3/23	14	Chemoselectivity	Chap 24
3/25	15		
3/30	16	Alkylation of Enolates	Chap 26
4/1	17		
4/6	18	Aldol Reaction	Chap 27
4/8	19		
4/13		Exam II	
4/15	20	Stereoselective Reaction of Cyclic Compounds	Chap 33
4/20	21	Diastereoselectivity	Chap 34
4/22	22	Quality Circle Review of Research Proposal	
4/27	23	Asymmetric Synthesis	Chap 45
4/29	24		
5/4	25	Pericyclic Reactions	Chap 35/36
5/6	26		
5/10	27		
		Final Exam: Tuesday 5/18 4:00-6:00	

Students majoring in Adolescence Education: Chemistry 7-12 will focus on acquiring knowledge and developing skills aligned with learning outcomes from the College's Conceptual Framework for Teacher Education and those established by the National Science Teachers Association. In particular, this course addresses Conceptual Framework Learning Outcome 2: Possess in-depth knowledge of the subject area to be taught; Conceptual Framework Learning Outcome 13: Demonstrate sufficient technology skills and the ability to integrate technology into classroom teaching/learning; NSTA Standard I: Content; NSTA; Standard 2: Nature of Science; NSTA Standard 3: Inquiry; NSTA Standard 4: Issues; and NSTA Standard 7: Science in the Community.