USD
ORGANIC CHEMISTRY
CHEMISTRY 302
SPRING 2012
MWF 11:15a – 12:10p
ST130

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OFFICE HOURS **MWF** 12:15-1:15p; **F** 9:30-11a; and by appointment

TEXT AND TOOLS

1. Organic Chemistry, Solomons and Fryhle, 10th Ed
2. Study Guide and Solutions Manual for Organic Chemistry (optional)
3. Molecular model set (Chem Club)

COURSE GOALS

Upon completion of this course, you should be able to (1) apply concepts of reactivity, stereochemistry, nucleophilicity/electrophilicity from Chem 301 to new reactions; (2) interpret IR, ^{1}H NMR, ^{13}C NMR spectra, using combined spectral data to identify an unknown compound; (3) draw curved arrow mechanisms, construct energy diagrams, and predict major products for common organic reactions involving alkyl halides, alcohols, alkenes, aromatics, carbonyl compounds, and amines.

COURSE REQUIREMENTS Chem 302 and 302L are co-requisites.

Quizzes 1-3	60 pts	
Exam 1.	100 pts	Friday, February 24
Exam 2.	100 pts	Friday, March 30
Exam 3.	100 pts	Friday, May 4
Final Exam	200 pts	Friday, May 18, 11a – 1p

Quizzes 1 through 3 are 15 minutes quizzes given at the beginning of the lecture period, worth 20 points each. Exams 1 through 3 are 55 minute exams, worth 100 points each. The final exam is a cumulative 2 hour exam, worth 200 points. The grading scale is based on the percentage of total points earned. Although the grade cut-offs will not be raised, they may be lowered depending on class performance. Plus and minus grades will be awarded.

A	85-100
B	75-84
C	65-74
D	55-64
F	<55

POLICIES AND PROCEDURES

suggested problems Practice problems will be assigned from the corresponding chapter. Additional problems will often be provided to you during lecture. These problems will not be collected or graded; however, you must spend an appropriate amount of time solving problems outside of class to be able to successfully solve new problems that you will encounter on quizzes or exams.

missed quizzes/exams No make-up or early quizzes/exams will be given. If you miss one of the quizzes/exams, you must have a legitimate and verifiable excuse presented to me no later than 24 hours after the exam has been given.

grading Look over your quiz/exam carefully. If you have any questions concerning the grading, see me within 7 days after you received the graded quiz/exam.

disabilities You must notify me as soon as possible if you have any disabilities that require special accommodations. I will gladly work with you and Disability Services to make the necessary arrangements.

mutual respect Academic dishonesty will not be tolerated. Any student found cheating on a quiz or exam will receive a zero, and the student's actions will be reported to the Dean. Further penalties may be applied in accord with USD's Academic Integrity Policy.

communication At times I may need to communicate with individual students or with the class as a whole. It is assumed that you will check your USD email regularly and that this will be a suitable way to provide you with necessary information.

302 TENTATIVE COURSE CALENDAR / SPRING 2012

				1/27	Aromatic Compounds Ch 14
1/30	Aromatic Compounds Ch 14	**2/1**	Aromatic Compounds Ch 14	**2/3**	Aromatic Substitution Ch 15
2/6	Aromatic Substitution Ch 15	**2/8**	Aromatic Substitution Ch 15	**2/10**	**Quiz 1** Aromatic Substitution Ch 15
2/13	NMR Ch 9	**2/15**	NMR Ch 9	**2/17**	NMR Ch 9
2/20	NMR/MS Ch 9	**2/22**	MS Ch 9	**2/24**	**EXAM 1**
2/27	Alcohols and Ethers Ch 11	**2/29**	Alcohols and Ethers Ch 11	**3/2**	Alcohols from Carbonyl Compounds Ch 12
3/5	Spring Break	**3/7**	Spring Break	**3/9**	Spring Break
3/12	Alcohols from Carbonyl Compounds Ch 12	**3/14**	Aldehydes and Ketones I Ch 16	**3/16**	**Quiz 2** Aldehydes and Ketones I Ch 16
3/19	Aldehydes and Ketones I Ch 16	**3/21**	Aldehydes and Ketones I Ch 16	**3/23**	Carboxylic Acids and Derivatives Ch 17
3/26	Carboxylic Acids and Derivatives Ch 17	**3/28**	Carboxylic Acids and Derivatives Ch 17	**3/30**	**EXAM 2**
4/2	Aldehydes and Ketones II Ch 18	**4/4**	Aldehydes and Ketones II Ch 18	**4/6**	Easter Break No Class
4/9	Easter Break No Class	**4/11**	Aldehydes and Ketones II Ch 18	**4/13**	β-Dicarbonyl Compounds Ch 19
4/16	β-Dicarbonyl Compounds Ch 19	**4/18**	β-Dicarbonyl Compounds Ch 19	**4/20**	**Quiz 3** Amines Ch 20
4/23	Amines Ch 20	**4/25**	Amines Ch 20	**4/27**	Phenols and Aryl Halides Ch 21
4/30	Phenols and Aryl Halides Ch 21	**5/2**	Phenols and Aryl Halides Ch 21	**5/4**	**EXAM 3**
5/7	Conjugated Unsaturated Systems Ch 13	**5/9**	Selected Topics Carbohydrates Ch 22	**5/11**	Selected Topics Carbohydrates Ch 22
5/14	**POETRY DAY**	**5/16**		**5/18**	**FINAL EXAM / 11a-1p**

STRATEGIES FOR SUCCESS These are strategies collected from personal experience and from two of the absolute best organic professors I know, Prof. Dean J. Tantillo, UCD, and Prof. Ron M. Magid, UTK.

work lots of problems You cannot work too many problems. Be sure to practice all types of problems (synthetic, mechanistic, explain, spectroscopic, and problems that combine them). Make sure you work the problems with the solution's manual CLOSED; otherwise, you'll trick yourself into thinking you know all the answers.

build models Organic chemistry is 3D. That's one reason why it's so cool.

patterns Organic chemistry is NOT about memorization. It IS about pattern recognition. Everything fits into a pattern (or is extremely interesting because it is an exception). Your goal should be to discover the patterns (it's my job to help you spot them) and practice recognizing them. With this skill, you will be able to answer almost any problem thrown at you. Here's a little secret: exam questions often seem more challenging because extra "spinach" has been added to molecules, distracting you from seeing the relevant patterns. So, another goal is for you to become adept at cutting through the spinach so you can focus on the pattern.

don't wait Organic chemistry is a totally cumulative course, so last minute cramming doesn't work in an organic class. This class requires a day-by-day regimen of rereading your notes after every lecture, solving problems, reading your textbook.

get the most out of lecture (1) Read the textbook before we get to the material in lecture - this will aid enormously in note-taking; (2) get to class on time and try to stay alert for the full period; (3) make it a point to ask questions during lecture or at the end of lecture or in my office.

ask questions Ask questions. Ask questions. Ask questions. Ask questions.

stay organized The number of reactions you are expected to know grows at a phenomenal rate. The bad news is that you need to retain a working knowledge of reactions from earlier chapters so that you can solve problems in the synthesis of molecules in later chapters. The good news is that if you begin early you can organize this material in a manner that will be useful later on. One method that works well for organizing reactions is to create a set of pages that list "Reactions of …" and another set of pages that list "Preparations of …" Have a separate sheet for every functional group studied, "Reactions of Alkanes"; "Reactions of Alkenes"; "Preparations of Alkanes"; "Preparation of Alkenes"; etc. Then, as you learn a new reaction, put it (in its most general terms) on the appropriate sheet(s). Most new reactions will appear on two (or even more) sheets. The process of simultaneously cataloging and thinking and writing fosters retention of knowledge, and it provides a useful set of study notes that you can consult throughout the semester especially just before an exam. As new functional groups are encountered, new lists will, of course, need to be started.

There are plenty of other ways to stay organized. Just be sure to follow through with whatever method works for you.

teach it Form small study groups with people with whom you are compatible; use these groups to get questions answered and to answer your friends' questions; frequently, the act of explaining something to another student results in your understanding the material far better than you would have otherwise.

master resonance structures One tool you will learn early in first semester is how to draw and analyze resonance structures. Resonance structures NEVER go away; you will be using them continually throughout first and second semester o-chem. Your life will be much easier if you master this skill. One hint – always take the time to draw all bonds and all lone pairs as you are drawing various resonance structures.

don't neglect your curved arrows They are your friends.