

CHEMISTRY 261, SECTION 1**FALL 2013: 8:00 - 9:15 T - TH, MURRAY G202****INSTRUCTOR: DR. M.T. CRIMMINS, C640 KENAN LAB****CO-INSTRUCTOR: DR. J. KRUMPER****crimmins@email.unc.edu******PREREQUISITE: CHEMISTRY 102 OR EQUIVALENT****

Office Hours: Tuesday, Thursday 3:30 - 4:45 p.m. or by appointment

Group help sessions: held regularly, TBA.

TEXT: *Organic Chemistry*, Paula Bruice; 6th Edition, Custom Edition for UNC-CH
Organic Chemistry Student Study Guide and Solutions Manual, Paula Bruice**OTHER MATERIALS:** Turning Point clicker (e.g. RF-LCD), HGS Molecular Models**LECTURES AND EXAM DATES**

DATE	BRUCE
August 20, 22, 27, 29	Chapter 1 <i>Electronic Structure, Bonding; Acids and Bases</i>
September 3, 5	Chapter 2 <i>Nomenclature, Alkanes and Cycloalkanes</i>
September 10	Chapter 3 <i>Alkenes: Structure 3.1 – 3.5</i>
September 12, 17	Chapter 5 <i>Stereochemistry 5.1 – 5.13, 5.20 – 5.21</i>
September 19 (Th)	Exam I Chapter 1, 2, 3, 5 Bruice
September 24,	Chapter 3 <i>Reaction Dynamics 3.6 – 3.9</i>
September 26, October 1, 3	Chapter 4 <i>Alkenes: Reactions</i>
October 8	Chapter 6 <i>Alkynes</i>
October 10, 15, 22	Chapter 8 <i>Substitution Reactions of Alkyl Halides</i>
October 17	<i>Holiday, Fall Break</i>
October 24 (Th)	Exam II Chapter 3, 4, 6, 8 Bruice
October 29, 31	Chapter 9 <i>Elimination Reactions of Alkyl Halides</i>
November 5	Chapter 13 <i>Mass Spectrometry</i>
November 7, 12	Chapter 14 <i>Nuclear Magnetic Resonance</i>
November 14, 19	Chapter 10 <i>Alcohols, Ethers, Sulfides and Epoxides</i>
November 21 (Th)	Exam III Chapter 8, 9, 13, 14, 10 Bruice
November 26, December 3	Chapter 12 <i>Radical Reactions</i>
November 28	<i>Holiday, Thanksgiving</i>
December 12 (Th)	FINAL EXAM: 8:00 a.m. Murray G202

STUDY TIPS FOR THE COURSE

Organic chemistry is a two-semester sequence, which throughout builds sequentially on material presented earlier in the course. *It is essential that you do not fall behind. It becomes extremely difficult to catch up.* The best approach to mastering the material in this course is to keep up daily, therefore you should spend some time every day working on the course. It is significantly better to spend 30 minutes every day for seven days than to sit down and spend 3.5 hours one day a week on this course. Repetition is extremely important. It takes time to master some of the difficult concepts and going back over certain ideas will make them much easier to comprehend. In addition, new ideas that you learn later in a chapter will often make earlier concepts more understandable. This is why repetitive studying and working every day is so important. If you are having difficulty with the course, get help as soon as possible. Waiting until half way through the semester is too late.

As soon as possible (within the first month) you should **MASTER** the following:

- a. bonding (Bruice Chapter 1)
- b. formula writing (Bruice Chapter 1)
- c. structures and names of functional groups (Bruice Chapter 2)
- d. basic nomenclature rules (Chapters 2, Bruice pgs 71-87)
- e. stereochemistry (Bruice Chapter 5)

MOLECULAR MODELS

Molecular models are useful for much of the course, particularly the sections on bonding and stereochemistry. Since stereochemistry becomes an integral part of the course after its introduction, models will also be useful later. Models cannot be used during the exams, however.

HONOR CODE

Since all graded work (including homework to be collected, quizzes, papers, mid-term examinations, research proposals, laboratory results and reports, etc.) may be used in the determination of academic progress, no collaboration on this work is permitted unless the instructor explicitly indicates that some specific degree of collaboration is allowed. This statement is not intended to discourage students from studying together or working together on practice problems, which are not to be collected.

ATTENDANCE AND DAILY WORK

We will do what we can to make class an active learning environment. To facilitate this, you often will be asked to master some content *before* class by watching video lectures and/or reading. A daily quiz will help you assess your understanding of this pre-class material and/or the previous class. In this context, you should be prepared to think about and answer questions that are posed. During “flipped” class periods, you will apply your knowledge also by solving problems in groups.

Excellent attendance is required. You will receive an overall “Daily Work” score (50 points: approximately 11-12% of your grade, see grade breakdown below) based on a mixture of quizzes, class participation, and online self-tests. More than 200 Daily Work Points will be available in the semester, your final total will be divided by 4 to obtain your Daily Work grade that is calculated into the final grade. A maximum of 50 points can be contributed toward your final grade.

If you know you will **need** to miss an exam (e.g. for a medical procedure or University sponsored field trip), you may arrange to take the exam early. Arrangements must be made **at least two weeks** in advance. Exams missed for other reasons will be replaced by your final exam grade.

DAILY WORK: QUIZZES (5 PT EACH: AT LEAST 120 PTS POSSIBLE)

You will be given a short and simple quiz at the start of each class that will either test your understanding of the preceding class information or your understanding of the preceding Mastery Learning Assignment. No makeups will be given.

DAILY WORK: CLASS PARTICIPATION (2 PT EACH: AT LEAST 50 PTS POSSIBLE)

During some class periods, you will work on a set of problems together in groups. The problems will teach you *how to apply* the concepts you learned in the preceding Mastery Learning Assignment. You may use your book and other notes to work the problems. Your group's answers will be scored as a series of clicker questions, and your lowest three scores will be dropped.

DAILY WORK: MASTERING CHEMISTRY SELF TESTS (5 PTS EACH: AT LEAST 50 PTS POSSIBLE)

Online **Self-Tests** will be assigned in MasteringChemistry at the end of each chapter. These will always be due at **11:59 pm on Sunday** of the appropriate week. Self-Test problems are much like end-of-chapter problems from the textbook. You will receive five chances to get the right answer for each question. Correct answers are available after the due date. **Please note:** in order to earn credit for your work, you must click the "give up" button on multi-part problems where you do not achieve the correct answer.

No late self-tests will be accepted for any reason. The MasteringChemistry clock will be used to determine the submission date/time. This clock may differ from yours, so submit your work well in advance. All graded self-tests are to be worked independently (by you alone) with no outside discussion. **Any collaboration will be treated as a violation of the UNC Honor Code.**

PRACTICE PROBLEMS

Recommended practice problems from your textbook will also be assigned for you to work at your own pace. These assignments will not be graded, but questions from the practice problems may appear on exams.

Typically, the more problem solving you do, the better you will comprehend the concepts of the course. All the problems within the text of the chapter and at the end of the chapter are useful and will help if you work them. However, if time limitations prevent you from working all the problems, work only part of each problem such as the **a** and **b** part rather than **a, b, c, and d**. Problems that are representative of the material are listed below. Keep this list of problems in a handy location (e.g. cover of your three-ring binder).

END OF CHAPTER PROBLEMS

CHAPTER 1: 71 – 94, 96 – 98, 100, 101; ALSO CHAPTER 7: 41, 42, 44, 46, 48, 55 – 58, 61, 69

CHAPTER 2: 48 – 54, 55a,b,f,g,h, 56, 57, 60 – 71, 73, 77, 78

CHAPTER 3 (PART 1): 36 – 41, 48 – 50, 51, 53, 54

CHAPTER 5: 62 – 67, 69, 70 – 72, 76, 78, 81, 83 – 85, 87, 88

CHAPTER 3 (PART 2): 42, 52, 55, 56, 57

CHAPTER 4: 38 – 40, 42 – 54, 56 – 61, 63, 64

CHAPTER 6: 25 – 29, 31 – 34, 37, 38, 39A – F, 40, 42 – 46

CHAPTER 8: 36 – 48, 51 – 55, 57, 58, 60

CHAPTER 9: 32 – 48, 52, 56

CHAPTER 13: 40, 46, 49, 51, 52, 55, 67

CHAPTER 14: 44 – 49, 51 – 55, 59, 67

CHAPTER 10: 33 – 39, 44, 45A, 47, 49, 51, 52B, 54, 56, 57

CHAPTER 12: 22 – 32, 34, 35, 38, 39

GRADING**Hour exams (300 pts); Final exam (100 pts); Daily Work (50 pts).**

We want to grade your best effort. In the event that you must miss a single hour exam, you will be graded on Option B below. An absence from a second hour exam will result in a score of 0 for that exam. *No makeup exams will be given; there will be no exceptions to this policy.*

Final letter grades will be assigned in accord with the 2000 Educational Policy Committee Report, which describes the meaning of grades as follows:

"A": Outstanding mastery of course material

"B": Superior mastery of course material

"C": Adequate mastery of course material

"D": Mastery of course material that is unsatisfactory or poor

"F": Unsatisfactory mastery of course material

We will calculate your grade based on whichever option below gives you the HIGHEST overall score.				
If you miss an exam, you will automatically be graded with Option B.				
Item	OPTION A Points Possible	OPTION A % Breakdown	OPTION B Points Possible	OPTION B % Breakdown
Daily Work	Max = 50 (total/4) (>220 pts available)	11.2%	Max = 40 (total/5) (>220 pts available)	11.8%
Midterms	300	66.6% (3 scores: 22.2% each)	200	58.8% (2 scores: 29.4% each)
Final Exam	100	22.2%	100	29.4%
Total	450	100%	340	100%

TENTATIVE CLASS SCHEDULE				
Lecture	Class Date	Day	Topics	Reading Assignment Bruice, Section:
1	8/20	Tu	Chapter 1: electronic structure, bonding	1.1 – 1.5
2	8/22	Th	Chapter 1: covalent bonds, MO theory	1.6 – 1.10
3	8/27	Tu	Chapter 1: hybridization, bonding Chapter 7: resonance	1.11 – 1.15 7.3 – 7.7
4	8/29	Th	Chapter 1: acids and bases	1.16 – 1.24, 1.27, 7.9
5	9/3	Tu	Chapter 2: nomenclature, acyclic conformations	2.1 – 2.10
6	9/5	Th	Chapter 2: cyclohexane conformations	2.11- 2.15
7	9/10	Tu	Chapter 3: alkenes– structure	3.1 – 3.6
8	9/12	Th	Chapter 5: chirality, enantiomers	5.1 – 5.7
9	9/17	Tu	Chapter 5: multiple stereocenters, optical activity, enzymes	5.8 – 5.13, 5.20 – 5.21
10	9/19	Th	Exam 1	Chapters 1,2,3,5
11	9/24	Tu	Chapter 3: kinetics, thermodynamics	3.7 – 3.9
12	9/26	Th	Chapter 4: electrophilic addition	4.1 – 4.6
13	10/1	T	Chapter 4: cation rearrangement Other additions to alkenes	4.7 – 4.8, 4.11
14	10/3	Th	Chapter 5: stereochemistry Chapter 7: additions to dienes	5.14 – 5.16, 5.18, 5.19 7.10, 7.11
15	10/8	Tu	Chapter 6: alkynes	6.1 – 6.12
16	10/10	Th	Chapter 8: S _N 2 substitution reactions	8.1 – 8.3
17	10/15	Tu	Chapter 8: S _N 1 substitution reactions	8.4 – 8.6
	10/17	Th	Fall Break	
18	10/22	Tu	Chapter 8: S _N 1 – S _N 2 substitution reactions	8.7 – 8.11
19	10/24	Th	Exam 2	Chapters 3,4,6, 8
20	10/29	Tu	Chapter 9: elimination reactions	9.1 – 9.6
21	10/31	Th	Chapter 9: competing eliminations	9.8 – 9.10
22	11/5	Tu	Chapter 13: mass spectrometry	13.1 – 13.3
23	11/7	Th	Chapter 14: NMR spectroscopy	14.1 – 14.8
24	11/12	Tu	Chapter 14: NMR spectroscopy	14.9 – 14.14
25	11/14	Th	Chapter 10: alcohols	10.1 – 10.5
26	11/19	Tu	Chapter 10: ethers, epoxides	10.6, 10.7, 10.10, 10.11
27	11/21	Th	Exam 3	Chapters 8, 9, 10, 13, 14
28	11/26	Tu	Chapter 12: radical halogenation	12.1 – 12.4
	11/28	Th	Thanksgiving	
29	12/3	Tu	Chapter 12: radical selectivity	12.5 – 12.9
	12/12	Th	Final Exam	