CHEMISTRY 24-2

Organic Chemistry Fall 2014
MWF 10:00 – 10:50 SQU 456

Instructor Dr. John D. Spence

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Office Hours Mon 1:30-3:00, Wed 1:30-3:00 *or by appointment*

Text Lecture text for this course is optional. The following texts/resources may be useful for you in this course:

1. *Organic Chemistry*, Solomons, 10th Edition
2. *Organic Chemistry I as a Second Language*, Kline
3. Virtual Text in Organic Chemistry: http://www.cem.msu.edu/~reusch/VirtualText/intro1.htm

Grading Your grade for the course will be based on your top three exam scores (total of four exams administered) and the course final. Each of the four mid-term exams are worth 125 points. The final exam is a cumulative exam (covering all topics in chem 24) and is worth 200 points. Exam dates are listed in the tentative course schedule. Students caught cheating on any assignment will receive a score of zero for that assignment. If a student is caught cheating a second time they will fail the course. No late or make-up exams will be given. If you miss an exam it will automatically become the exam score you drop. A second missed exam will receive a zero.

Point Distribution		**Grade Scale**	
Exams:	375 points	A to A^-	100-88%
Final Exam:	200 points	B^+ to B^-	87-76 %
		C^+ to C^-	75-63%
Total:	575 points	$D^+$to D^-	62-52%
		F	below 52%

Homework For each lecture topic, a set of homework problems are available to all enrolled students through SacCT to test your understanding of the material presented. These homework problems have been designed to challenge you and help you prepare for midterm exams. No homework will be collected or graded, however, I am willing to check/discuss your answers in office hours. Correct answers to problem sets will be posted one to two weeks before exam dates.

Course Description
Introduction to the basic principles of organic chemistry including nomenclature, properties, and reactions of organic compounds. The ability to recognize classes of organic molecules, predict reaction products, suggest syntheses and propose reaction mechanisms will be emphasized. This is the first semester of a two semester sequence of organic chemistry. Familiarity with concepts covered in introductory chemistry course such as electronegativity, Lewis structures, resonance and acid/base chemistry will be beneficial. Successful completion of Chem 1B (with a grade of C- or higher) is a prerequisite for this course.

Tentative Course Schedule

Week	*Topics*	*LecTopic /HW*
9-1	***Labor Day Holiday***	
	Intro, Atomic Structure	1 Structure & Bonding
	Bonding Theories, Hybridization	
9-8	Drawing Structures, Polar Covalent Bonds	2 Resonance, Acids & Bases
	Lewis Structures, Resonance	
	Resonance, Acid-Base Chemistry	
9-15	Acids and Bases	
	Functional Groups, Alkanes	3 FG's and Alkanes
	Alkanes and IR Spectroscopy	4 IR Spectroscopy
9-22	IR Spectroscopy	
	Conformations of Alkanes and Cycloalkanes	5 Conformational Analysis
	EXAM 1. Friday September 26	
9-29	Conformations of Cycloalkanes	
	Conformations of Substituted Cycloalkanes	
	Polar and Radical Reactions, Curved Arrows	6 Describing Organic Reactions
10-6	Describing Reactions	
	Stereochemistry: Nomenclature, Drawing, Chirality, R & S	7 Stereochemistry
	Stereochemistry: Enantiomers and Diastereomers, Prochirality	
10-13	Alkenes: Structure, Nomenclature, Stability	8 Alkenes
	Alkenes: Reactivity, Electrophile Addition & Carbocations	
	Alkenes: Practice Problems, Reactions	9 Alkene Reactions
10-20	**EXAM 2. Monday October 20**	
	Alkenes: Reactions	
	Alkenes: Reactions and Practice Problems	
10-27	Alkenes: Reactions	
	Alkenes: Reactions, Preparation, Practice Problems	
	Alkynes: Nomenclature, Preparation and Reactions	10 Alkynes
11-3	Alkynes: Practice Problems/Reactions	
	Alkynes: Practice Problems/Reactions, Organic Synthesis	
	Alkene and Alkyne Catch-Up/Problem Solving	
11-10	Nucleophilic Substitution, S_N2 Reactions	11 Sub & Eliminations
	Elimination Reactions, E2	
	EXAM 3. Friday November 14	
11-17	Nucleophilic Substitution, S_N1 Reactions	
	Elimination Reactions, E1	
	Sub vs Elim Practice Problmes	
11-24	Alcohols: Special Sub/Elim Reactions	
	Ethers: Special Sub/Elim Reactions	
	Thanksgiving Holiday	
12-1	Special Sub/Elim of Alcohols and Ethers Practice Problems	
	Alkyl Halide Prep: Free Radical Halogenation	12 Radicals & Halides
	Alkyl Halide Prep: Radical Allylic and Alkene Halogenation	
12-8	Alkyl Halides: Reactions and Grignard Prep	
	EXAM 4. Wednesday December 10	
	Course Review	
***	**FINAL EXAM Friday December 19th 8:00 – 10:00 a.m.**	

Tips for Success in Organic Chemistry

I. Dispel any rumors regarding how difficult this course is. As you will find, organic chemistry is a very logical subject and once you understand principles and trends the material will make "sense" and become predictable. If you enter the course already dreading how hard the class is it will be more difficult for you to succeed.

II. Do not fall behind. Organic chemistry continually builds on principles introduced in earlier chapters. If you do not understand these early chapters subsequent topics will be much more difficult. If you encounter trouble, get help early! To help with this I highly recommend studying your notes before the next lecture so our class discussion can reinforce topics that were covered. Also come ask for help as soon as you encounter difficulties. Five minutes of help during office hours can save you a lot of headaches while studying. Cramming for exams will not work in this course.

III. Work as many homework problems as possible. Homework problem sets will be assigned and distributed to the class online. Although homework will not be collected and graded it is to your benefit to work the homework problems. As with most things, the best way to learn organic chemistry is to practice on a regular basis so work through problems daily! When doing homework problems do not rely too heavily on the answer key to obtain the correct answer - you will learn much more if you struggle through a problem and come to office hours for help. When presented with the answer most students can understand the answer and are lured into a false sense of security believing that they have learned the material. Reading and understanding the answer is very different from deducing the answer on your own. Just as you learned how to ride a bike from practice (as opposed to reading a manual) it will take practice to learn organic chemistry.

IV. Do homework problems again. When you encounter homework problems that you are not able to solve on your own and use the solution manual or come to office hours for help try these problems on your own the following day. If you really understood the answer you will be able to solve the problem without relying on assistance. Remember, you did not learn how to ride a bike on your first try.

V. Do not study by memorization. There will be some material you will simply need to remember, however, the best way to learn the majority of topics in the class is to understand the principles associated with the correct answers. This will allow you to solve similar problems on quizzes and exams.

VI. Do not miss class. While attendance will not be taken, if you are not present in class then I cannot help you learn organic chemistry. Also, ask questions in class if there is material you do not understand and be sure to take good notes.

VII. A very useful workbook to help you get through organic chemistry is the following:
David R. Klein, *Organic Chemistry as a Second Language*, Wiley and Sons (ISBN 0-471-27235-3)