Chemistry 209: Organic Chemistry II *for Concentrators*

Fall 2014 Syllabus; MWF 12:00-12:50, Washington 201

Instructor: Robert J. Hinkle, Integrated Science Center (ISC), Room 2049, x-11501; rjhink@wm.edu

Special Considerations: There will be ***class and lab*** on Labor Day

Office Hours: Mon. 1:00-2:30 **WEEKLY Problem Sessions, Thursday evenings at 6:00 in Washington 201**
Tuesdays — Visit me in the downstairs labs and from 1:30-ish to 4:30
By Appt.: *email me to set up an appointment!*

Text Book: *Organic Chemistry, 7th Edition*, Brown, Iverson, Anslyn and Foote.
Student Study Guide and Solutions Manual for Organic Chemistry, 6th Edition, Iverson & Iverson.

Homework: *Problems will be gleaned from the textbook and Sapling Learning (required). For instructions on creating an account on Sapling's site, see the Blackboard site for this course.*

Model Kits: Model kits can be used on the exams, but are optional for this course.

Website: Course Information and Documents will be posted on Blackboard (blackboard.wm.edu)

Overview of Course: Material learned in Chem. 206 will form a foundation for this course. We will cover Chapters 10-11 and 15-24 from the same text as Chem. 206. This course will, however, focus on reactions and "interconversions" of various functional groups; reactions mechanisms will also be emphasized since these mechanisms explain *why* the reactions occur the way they do.

Grading: There will be **three quizzes, seven *Sapling Learning* problem sets (*six count*),** and **two problem sets** that will be *hand-written and graded (not just checked for handing it in)*. Three mid-semester exams and a final exam will also count toward your overall grade. The course will be graded on a curve and the overall point system is shown below:

Graded Item	Points Each	Total Points	Dates
3 Quizzes	30	90	9/12, 10/17, 11/14
6 (of 7) Sapling Sets	20	120	9/11, 9/18, 10/16, 10/30, 11/6, 11/12, 12/4
2 HW sets	30	60	9/5, 10/09
3 Exams	200	600	09/26, 10/24, 11/21
1 Final Exam	400	400	Monday 12/15 @ 09:00

Bad Exam Policy: As with Chem. 206, I recognize that you may have other commitments and/or an illness and that you might have an exam that just isn't on par with your other performances. Therefore, your lowest mean-relative exam performance (200 points) will be dropped. This dropped exam grade may be one of your mid-terms or ½ of your final exam grade, but if it's the final, it will hurt you more than a midterm would. Neither quizzes nor hand-written problem set grades will be part of this "Bad Exam Policy". Quizzes and problem sets are designed to help you keep up so that you are not overwhelmed for the exams.

**** Syllabus as of 08/25/2014 and is subject to change because of weather and other circumstances.**

General Schedule.

Dates	Book Material	Due Dates
8/27 8/29	Review of Chem. 206—Structure, resonance, and reactions—Begin Chapter 10: Alcohols.	**WEEKLY Problem Sessions, Thursday evenings at 6:00 in Washington 201**
9/1 9/3 9/5	Chapter 10: Alcohols Begin Chapter 11: Ethers, Sulfides and Epoxides	**Hand-written Problem Set #1, Friday 9/5—BEGINNING of class.**
9/8 9/10 9/12	Chapter 11: Chapter 15: Organometallics	Sapling PS #1, Thurs. night *by midnight (M-N)*. **Quiz #1, Friday 9/12**
9/15 9/17 9/19	Chapter 16: Aldehydes and Ketones	Sapling PS #2, Thurs. by M-N **Family Weekend—Special Lecture.**
9/22 9/24 9/26	Chapter 16, continued Chapter 17: Carboxylic Acids **EXAM 1**	**Exam #1, Friday 09/26 **(Review Session Millington 150, Thursday 09/25 @ 5 p.m.)**
09/29 10/1 10/3	Chapter 18: Derivatives of Acids	
10/6 10/8 10/10	Chapter 18, continued	**Hand-written Problem Set #2, Friday 10/10 — BEGINNING of class.**
10/10-BREAK 10/15 10/17	Chapter 19: Enolates and Enamines	**Sapling PS #3, Thurs. by M-N** **Quiz 2, Friday 10/17**
10/20 10/22 10/24	Chapter 19, continued **EXAM 2**	***Oct. 24—LAST DAY TO WITHDRAW w/o penalty*** **Exam #2, Friday 10/24 **(Review Session, Millington 150, Thursday 10/23 @ 6 p.m.)**
10/27 10/29 10/31	Chapter 21: Benzene and Aromaticity	Sapling PS #4, Thurs. by M-N
11/3 11/5 11/7	Chapters 21/22: Aromaticity and Reactions of Benzene and its Derivatives	Sapling PS #5, Thurs. by M-N
11/10 11/12 11/14	Chapter 22, continued Chapter 23: Amines	Sapling PS #6, Wed. by M-N **Quiz 3, Friday 11/14**
11/17 11/19 11/21	Chapter 20: Conjugated Systems **Exam 3**	**Exam #3, Friday 11/21 **(Review Session, Millington 150, Thursday 11/20 at 6 p.m.)**
11/24 11/26-11/30	Chapters 20, cont. **Thanksgiving**	
12/1 12/3 12/5	Chapter 24: Carbon-Carbon Bond Formation Last day of classes—Final exam info., etc.	Sapling PS #7, Thurs. by M-N
12/15	***FINAL EXAM; 09:00-12:00 in Washington 201 & ?**	**Monday Exam **Review for Final Exam – waiting for room reservation for time/place.**

***Only the Dean of Students or the Dean of Undergraduate Studies can approve changes in your the final exam date!**

****We'll discuss a date/time for the final exam review before scheduling it.**

Quizzes: These graded quizzes are also a tool to help you prepare for the exams and will be given on Fridays during the semester. The grades earned on these quizzes do not count toward any "Bad Exam Day" policy.

Problem Sessions and Sets: Two *hand-written* problem sets will be distributed and graded. The first will be comprised partly of problems to help you review concepts and reactions from Chem. 206. Seven problem sets will also be assigned using Sapling Learning software and *six of the seven will count toward your grade*. These problem sets are a way to help you keep up with the material. As with the quizzes, the hand-written and graded problem sets are not part of the "Bad Exam Day" policy.

Suggested Problems: As a general rule, you should do ALL problems that *are shown within the text of each chapter*. In addition, a number of suggested problems from the end of each chapter are listed below to help you master the material presented in class (these may change, so look for updates!). I know this represents a lot of problems; just do as many as you can since repetition is a key to learning Organic chemistry -- *anywhere you take it*.

Chapter 10: 15(a-c, f, i), 16a-f, 23, 27, 30, 31, 34, 35, 37, 40, 43, 45

Chapter 11: 10(a,b,e,f), 11(a-c, g), 12, 15-17, 21, 25, 30, 31 and 33

Chapter 15: 7, 10, 18, 19

Chapter 16: 14-18, 20, 21, 23-25, 29-31, 36-38, 41, 42, 51, 52, 54, 59, 67, 68

Chapter 17: 17a-b, 18-20, 23, 26, 28, 32-35, 39, 42-44

Chapter 18: 12, 14-16, 18a-c, 19-20, 22, 24-25, 27, 28, 30, 32, 35, 41, 43, 55, 56,

Chapter 19: 18, 20, 22, 23, 25, 28, 29, 32-34, 43-44, 46, 52

Chapter 21: 8(a-c, e, g), 12, 14-16, 23, 26, 27, 32, 34, 47, 51(a-f, j, l, n), 53, 56

Chapter 22: 7, 8, 11, 14-17, 19, 20, 24, 25, 28, 30, 32, 34, 35, 45-47

Chapter 23: 16, 18, 21, 24, 25, 29, 30a-d, 34, 40, 45, 49, 56 67

Chapter 20: 15-19, 30-40

Chapter 24: 9, 10-12, 17, 23-25, 26, 29, 31, 32, 35

General strategies to help with this course:

1) Orgo II (Chem. 209 or 307) focuses far more on reactions and mechanisms than Orgo I (Chem. 206) did, so your studying habits may end up being a bit different this semester. If you are having trouble understanding the material, get help early rather than waiting.

2) In general, look over and carefully review any class notes. Then, use the book to clarify the concepts from class. As a general rule, reading the text as you would a history book, newspaper, or work of prose won't work in science. You have to "actively" read each paragraph and repeatedly refer to the pictures that are described in those paragraphs. *Continually* reviewing class and book material is crucial to learning the material in Orgo II. Several study/reading sessions are generally much better than one night of cramming for a test. *Please don't wait until a day or two before any exam to study.*

3) Don't just look at the answers until after you've attempted the problems. When you do look at the answers, make sure that you go back later to do the problem again. Your goal should be to understand the problem enough to repeat it later and get the correct answer without having to refer to the answer book.

4) Repetition is the key to mastering organic chemistry.

a) Take the time to re-write your notes while you think about what you're writing. If you don't understand something, try to figure it out right away. If you can't figure it out, come see me.

b) There are reaction summaries at the ends of each chapter; these are great review tools and you should take the time to re-write the reactions. Just be careful not to turn your brains off when you do so. You should be able to repeat these general reactions and know the types of materials that will give what type of product with the reagents shown.

c) Make lots of lists to help you remember the reactions. No matter where you go, Orgo is always considered a hard subject, but it's mostly because there aren't any "plug and chug" mathematical problems. Furthermore, there's a lot of memorization you need to do and reactions are not always clear-cut. If you use flash cards, I'd suggest putting the starting molecule and reagents on one side, and reagents and product(s) on the other side.