Chemistry 255: Organic Chemistry

Fall 2015

MWF 9 AM SCCT G042

Instructor
Ian J. Rosenstein, Science Center 1074

Contacts
irosenst@hamilton.edu; 859-4730 (office); 859-1037 (home)

Office Hours
Tuesday 10-11:30 AM, Wednesday 3-5 PM, Friday 1:30-3 PM and by appointment

Required Texts

Freeman Laboratory Notebook

Suggested Items

Grading
Exams: 45% (three exams worth 15% each)
Final Exam: 20%
Homework: 10%
Lab: 25%

Class attendance is expected. In borderline cases I will take into account attendance/participation to determine a final letter grade.

Exams

Dates for the exams are:
Thursday, September 24, 7:00 PM in SCCT 2048
Wednesday, October 21, 7:00 PM in SCCT G042
Thursday, November 19, 7:00 PM in SCCT 2048

Exams will last for approximately two and a half hours. If you have a conflict with any of these dates and times, please arrange with me at least three days in advance to take the exam at some other time.

Final Exam

The final exam is scheduled for Wednesday December 16 from 7-10 PM. The final exam will be cumulative but it will emphasize the material covered in lecture after the third exam.
Homework will be assigned in four different forms: practice problems, drill problems, homework sets and problem sets.

- **Practice problems** are problems that I will suggest from the textbook that I think are especially relevant. A list of practice problems from the textbook is included with this syllabus. I urge you to do these problems to help you learn the basic material but they will not be collected.

- **Drill problems** will be assigned for each lecture for which another assignment is not due. These will be short assignments with simple problems that are intended to reinforce the concepts covered in the previous lecture. These will not be handed out in class; it will be your responsibility to download the assignments from Blackboard. The drill problem assignments will be collected and full answer keys will be posted on Blackboard but they will not be graded for accuracy so it will be up to you to check the key to see if you have done the problems correctly. Drill problems will count for 20% of the homework grade.

- **Homework sets** will also count for 20% of your homework grade and will be due on Fridays in weeks where there is not a problem set due or an exam. Homework set problems will be a little bit more difficult than drill problems and are designed to help you start to see the material in a broader context. The homework sets will be corrected but will be graded on a plus/minus/zero scale based on effort not accuracy.

- **Problem sets** will make up 60% of your homework grade. A problem set will be distributed approximately ten days before each exam (including the final) to be turned in one week later. The difficulty of the problem sets approximates the difficulty of the exams and the problems are designed to give you practice in connecting different course concepts. The problem sets will be graded on a 15 point scale.

Homework and problem set assignments will be handed out in class and will also be available on Blackboard. You may work together on any of these assignments. However, the more independent you are in working problems, the better prepared you will be for the exams.

**Lab**

All students should come to lab with a Freeman Laboratory Notebook a lab coat and a pair of safety glasses. You should also wear appropriate clothing, *i.e.* no shorts and no open-toed shoes. Laboratory is an essential part of the course. If you have a failing grade in the laboratory, you will fail the course. *Failure to turn in two or more lab reports will constitute an automatic failure of the course!*

**Help Sessions**

I will hold weekly help sessions on Wednesday nights at 7:30 PM in SCCT G042. These will give you a chance to ask questions and to work extra problems in small groups. Attendance is not required but is strongly recommended. Additional help sessions will be offered by Prof. Majireck on Thursdays at 6:00 PM in SCCT G041 and by John Bennett ’16 on Sundays at 5:00 PM in SCCT G042.
**Blackboard Resources**

Many course resources will be posted on Blackboard. The Blackboard sites for both lecture sections have been combined so that all students have access to the materials provided by each professor. Within the folder for the Rosenstein section, the “Course Documents” folder contains a folder with all of the handouts that will be distributed in class, a folder with the complete course lecture notes and a folder with partial lecture notes that contain the text from the notes but not the figures. Within the main folder for the Rosenstein section, there is also a folder with all of the assigned work for the semester which will include both assignments and detailed answer keys. In addition to the formally assigned work, this folder has a folder for practice problems which will include problems used at some of the help sessions (usually assignments from previous years) and extra sets of problems posted about a week before each of the exams. Also available are copies of the exams and answer keys from last year that can be used as practice before each exam. Answer keys from this year’s exams will also be posted once all students have completed the exam. If you would like additional practice problems beyond what is available in the folder for the Rosenstein section, you are also encouraged to use assignments from the Majireck section.

The Blackboard page also has a folder for “Lab Materials”. As the name implies, this folder will have all of the documents needed for the lab portion of the course including general information (the lab syllabus, lab report checklist, etc.), the weekly lab handouts and any lab data that is posted for class use. Please note that the weekly lab handouts will not be distributed in class; you will need to download them from Blackboard.

**Honor Code**

As with all courses at Hamilton, you are expected to abide by the honor code. You may collaborate on practice problems, drill problems, homework sets and problem sets; all exams are to be done individually. In lab, when students work together, only the data is shared; all reports must be done individually. Any prior discussion must be acknowledged in the report and work based on existing written material (the textbook, journal sources, online sources) must be properly cited.

**Disability Policy**

In compliance with Hamilton College policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for students with disabilities. Requests for academic accommodations are best made during the first two weeks of the semester, except for unusual circumstances, so arrangements can be implemented. Students should contact Allen Harrison in the Office of the Dean of Students (Elihu Root House; ext. 4021) to verify their eligibility for appropriate accommodations.
**Study Hints**

This semester you will be faced with what may feel like a never-ending succession of new reactions. While you may feel buried by this at some times, if you take a step back and look carefully at all of these reactions, you will see that almost all of them are just variations of the basic ideas that we learned last spring. For those who did well last semester, you are well prepared to succeed again this semester. For those who struggled a bit in the spring, here is your chance to master the basic concepts and, with a little extra effort, there is no reason why you cannot excel this fall.

The basic rules for succeeding in Organic Chemistry have not changed.

1) keep up with the reading (maybe even get ahead)
2) work lots of problems (and work some problems every day)

If you did well in the spring, maintain (and even increase) your level of effort. Keep in mind that this semester's emphasis on reactions is a bit different than last semester's focus on concepts so you may need to alter your approach just a bit. If you did not do as well as you would have liked last spring, here is your chance to get a fresh start. Use the "quiet" time at the beginning of the term to review some of the basic concepts from the spring. Enlist the aid of a tutor from day one, do not be shy about coming to me for help if you need it and absolutely do not fall behind. The other suggestion that I would make is that you hide away the Study Guide. It is too easy to spend two minutes thinking about a problem without answering it properly then open the Study Guide, look at the answer and say to yourself "Oh yeah, I knew that". The main point of doing practice problems is to learn how to think through the problems, not to learn what the answer is. If you look at the answer without really thinking about the problem, you defeat the purpose. Struggle with the problem for a while and if you really cannot figure it out have a classmate or tutor or me help you think through it. This is certainly a more time consuming process but it will be worthwhile.
# Approximate Lecture Schedule

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<td>9/4, 7, 9, 11</td>
<td>Conjugated Systems</td>
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<td>Aromaticity</td>
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<td>Reactions of Aromatic Compounds</td>
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<td><strong>9/24</strong></td>
<td><strong>EXAM 1</strong> covering Chapters 14-16, 17.1-17.4</td>
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<td><strong>EXAM 2</strong> covering Chapters 17.5-17.15, T M-Cat. Rxns, 18</td>
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<td>Carboxylic Acid Derivatives</td>
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<td><strong>EXAM 3</strong> covering Chapters 22.1-22.11, 19, 20, 21</td>
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<td>11/16, 18, 20</td>
<td>Enolate Chemistry Part 2</td>
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<td>11/30, 12/2, 4</td>
<td>Carbohydrates</td>
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<td>12/7, 9, 11</td>
<td>Amino Acids, Peptides and Proteins</td>
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<tr>
<td><strong>12/16</strong></td>
<td><strong>Cumulative FINAL EXAM</strong> with emphasis on Chapters 22.12-22.19, 23 and 24</td>
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Chemistry 255: Organic Chemistry

List of Suggested Practice Problems from Wade’s Organic Chemistry

*Seventh Edition*, except as noted

Chapter 14:  5, 8-10, 12, 14-16, 19, 21, 23, 25-28, 33, 37-42, 44-49

Chapter 15:  1, 2, 4-18, 20, 25-27, 29-31, 33-36, 38

Chapter 16:  5, 7, 8, 12, 13, 15-19, 30-35, 37, 38, 40-43, 45-48

Chapter 17:  1, 2, 4-8, 11-27, 30, 32, 34-38, 40, 44-52, 56, 57, 59-61, 63, 65, 66, 68 and Ch.19 Problems 25, 31, 42 (not b or f)

Loudon text, Chapter 18:  7-12, 15-23, 41, 42, 44d-k, 64j,k,m,n,o, 65e,f,h,i,q, 71

Chapter 18:  6-12, 14-25, 28-37, 40, 43, 46, 48-52, 54-57, 59-64, 66, 68-72

Chapter 22.1:  1-8, 10, 12-30, 32, 33, 61-64, 68 a-c, 69, 73 a, 74, 75 a,b, 76 a,b, 79, 80

Chapter 19:  6, 8, 9, 11-14, 16-18, 20-23, 26, 27, 29, 30, 32-34, 37, 39-41, 42 b,f, 44, 45, 47-49, 51, 52, 54, 56, 60, 62

Chapter 20:  3, 5-8, 11-16, 18-21, 23, 24, 29, 30, 32-36, 38-44, 46-49

Chapter 21:  4-16, 18-20, 22, 23, 25-32, 34-41, 45-51, 53-59, 63, 66, 67

Chapter 22.2:  34-52, 54-58, 65, 67, 68 d-g, 70-72, 73 b,c,d, 75 c, 76 c, 77, 78, 81

Chapter 23:  2, 3, 5, 6, 8-30, 33-36, 39-41, 44-47, 53-57, 59, 60, 63-68

Chapter 24:  2, 4, 6-14, 16, 23-31, 35-39, 41-46, 48, 51, 52
Chemistry 255: Organic Chemistry

List of Suggested Practice Problems from Wade’s Organic Chemistry

Eighth Edition, except as noted

Chapter 14: 5, 8-10, 12, 14-16, 20, 22, 25-29, 33, 37-42, 44-49, 51

Chapter 15: 1, 2, 4-18, 20, 25-27, 29-31, 33-36, 38

Chapter 16: 5, 7, 8, 12, 13, 15-19, 30-35, 37, 38, 40-43, 45-48

Chapter 17: 1-8, 10-25, 34, 35, 37-40, 42, 44-48, 50-52, 56, 57, 59-61, 63, 66, 69 and Ch. 19 Problems 25, 31, 42 (not b or f)

Loudon text, Chapter 18: 7-12, 15-23, 41, 42, 44d-k, 64j,k,m,n,o, 65e,f,h,i,q, 71

Chapter 18: 6-11, 13-24, 27-36, 39-41, 43, 47-57, 59-64, 66, 68

Chapter 22.1: 1-8, 11-30, 32, 33, 60-62, 64, 68 a-c, 69, 73 a, 74, 75 a,b, 76 a,b, 79, 80

Chapter 19: 6, 8, 9, 11-14, 16-18, 20-23, 26, 27, 29, 30, 33, 35, 37b,f, 39, 40, 42-44, 46, 47, 49, 51, 55, 57

Chapter 20: 3, 5-8, 11-16, 18-21, 23, 24, 29, 30, 32-42, 44, 46-47


Chapter 22.2: 34-52, 54-58, 63, 66, 67, 68 d-g, 70-72, 73 b,c,d, 75 c, 76 c, 78, 81

Chapter 23: 2, 3, 5, 6, 8-30, 33-36, 39-41, 44-47, 52-60, 63-68

Chapter 24: 2, 4, 6-14, 16, 23-32, 35-39, 41-46, 48, 51, 52