Queens College of the City University of New York  
Department of Chemistry and Biochemistry  
Organic Chemistry I  
Fall 2020

Chem 251.4  
Lecture Schedule

This course will be completely on-line. All lectures will be given live during the scheduled class time and will be recorded and be available for you to view later. CUNY policy is as follows:

Students who participate in this class with their camera on or use a profile image are agreeing to have their video or image recorded solely for the purpose of creating a record for students enrolled in the class to refer to, including those enrolled students who are unable to attend live. If you are unwilling to consent to have your voice or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live.

Course Requirements:
Prerequisites for Chem 251.4: C or better in Chem 114.4 and 114.1
Pre or corequisite: Chem 251.1 (C or better if prerequisite)

Note: a C- in any pre or corequisite will not permit you to take 251.4/251.1!
You must earn a C or better in Chem 251.4 and 251.1 to go on to Chem 252.

You will need access to Blackboard for exams and handouts, including this syllabus. It is your responsibility to provide a valid e-mail address that you monitor. Announcements will be made via Blackboard and e-mail.

Lecture: Tu, Thurs 2:15 - 4:05 PM, on-line (Blackboard Collaborate Ultra – see CUNY policy above; there will not be any student video or profile images but you will be able to ask questions during class)

Professor William H. Hersh, 109 Remsen Hall if we are on campus this year
Office Hour: Thursday, 1:00 PM - 1:55 PM and by appointment (Blackboard Collaborate Ultra)
Please use video for Office Hour so I can get to know who you are! Office hour will not be recorded.
Telephone: 718-997-4144 (to leave messages, since I will not often be there)
e-mail: william.hersh@qc.cuny.edu - best way to contact me


The text contains many problems - you should do those that appear in the body of the text and at the end of each chapter. These problems will not be graded. They should be done together with the required on-line problems (see below); the on-line problems are not enough by themselves to prepare you to do well in this course.

If you want to understand the lecture material, you must read the textbook chapter before class. For the vast majority of students, it is not possible to understand lecture material if you are seeing it for the first time in class! When you read the textbook and do problems in the text with the reading, plan for a pace of about 4 pages/hour. Do not read it like a novel if you hope to learn the material.

Final piece of advice for how to succeed in organic: ATTEND EVERY CLASS! Attendance has been highly correlated with passing the course with a grade of C or higher. If you have read this, email me at william.hersh@qc.cuny.edu to tell me you have read this (I want to know who has read the syllabus!); please read the rest, especially the section on Course Preparation and Advice.

Classes will always be recorded and will be available for the semester, but occasionally something goes wrong and recordings fail. You can also ask questions if you come to class. I strongly recommend you attend the class live.
REQUIRED ON-LINE PROBLEMS: You are required to purchase access to the Sapling Learning on-line problem web site for this course. The cost is about $42.

Go to www.saplinglearning.com to log in or create an account after around August 17. Under Enroll in a new course, you should see Courses at Queens College. Look for CHEM 251.4 – Fall20 – HERSH. If you need help contact Sapling (now Macmillan) support by opening a service request by filling out the webform at https://macmillan.force.com/macmillanlearning/s/

For each problem there are hints and answers, and for most there is explanatory reading material that you can access at the right hand side of the page in the Resources box under “Help with this topic” linking you to the textbook (labeled “Loudon – Organic Chemistry”), so if you are having trouble with the problems, there is a wealth of information available to help you. There is a training module (with extra credit) that you can complete before you start on the chapter problems.

While studying organic with other students is recommended, you will get the maximum benefit from these problems by doing them on your own, and not doing them at the last minute. On-line problem due dates will be announced in class, and will always be by 2:00 PM on the day recitation problems for that chapter are done in class.

Recommended: Molecular model kit (available on-line, about $20-60; the ~$30 kits on Amazon look good)

OR

Grading:  

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Midterm Exams</td>
<td>60%</td>
</tr>
<tr>
<td>On-line Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

The final exam will be similar to the midterm exams.

Exams will stress lecture material and recitation problems.

Midterm Exams are 75 min, multiple choice, no going back to questions, and will start at 2:15 PM. There will be a 10 minute break and then a 25 minute class after the first two exams. Exam 3 on the last day of class will be the same length but there will be no class after. You are required to scan/photograph your Queens College ID and submit it with each exam. All exams are open book, open notes, molecular models permitted, but no Internet, no collaborating with anyone.

Cheating of any kind will not be tolerated. Your entire exam grade will be zero, and you will be brought up on charges of academic dishonesty to the College.

See next page for lecture and exam schedule, and CUNY calendar schedule changes.
<table>
<thead>
<tr>
<th>Date</th>
<th>Chp</th>
<th>Topic</th>
<th>Suggested Chapter-End Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 27</td>
<td>1</td>
<td>Bonding and Structure</td>
<td>21-25, 27-28, 30, 32, 36, 39-41, 44, 48</td>
</tr>
<tr>
<td>Sept. 3</td>
<td>2</td>
<td>Alkanes</td>
<td>26-31, 33, 35-36, 38-40, 45-46</td>
</tr>
<tr>
<td>Sept. 10</td>
<td>3</td>
<td>Acids and Bases, Curved Arrows</td>
<td>2-34, 37-42, 44, 47, 54, 58</td>
</tr>
<tr>
<td>Sept. 17</td>
<td>4</td>
<td>Alkenes: Structure and Reactivity</td>
<td>40-55, 57, 58, 60-68</td>
</tr>
<tr>
<td>Sept. 24</td>
<td>5</td>
<td>Alkene Addition Reactions</td>
<td>27-42, 47-48</td>
</tr>
<tr>
<td><strong>Oct. 1 Exam 1 Chapters 1 - 4</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oct. 8</td>
<td>6</td>
<td>Stereochemistry</td>
<td>26-36, 39-40, 42, 47-49, 51</td>
</tr>
<tr>
<td>Oct. 15</td>
<td>7</td>
<td>Cyclic Compounds, Stereochemistry of Reactions</td>
<td>34-37b, 38, 40-43, 46-49, 51-55, 57, 60, 66, 68, 70</td>
</tr>
<tr>
<td>Oct. 29</td>
<td>9</td>
<td>Alkyl Halides</td>
<td>44-64, 66-70, 79</td>
</tr>
<tr>
<td><strong>Nov. 5 Exam 2 Chapters 5 - 8</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nov. 10</td>
<td>10*</td>
<td>Alcohols and Thiols</td>
<td>39-50, 56-59, 64, 65, 68</td>
</tr>
<tr>
<td>Nov. 17</td>
<td>12*</td>
<td>Infrared Spectroscopy (IR) and Mass Spectrometry (MS)</td>
<td>23-29a, 34, 36, 38, 42, 44</td>
</tr>
<tr>
<td>Nov. 24</td>
<td>13</td>
<td>Nuclear Magnetic Resonance Spectroscopy (NMR)</td>
<td>36-45, 48a</td>
</tr>
<tr>
<td><strong>Dec 8 Exam 3 Chapters 9 - 13</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Chapter 11 will be covered next semester.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dec 15 or 17 (tentative), Final Exam: Chapters 1 – 10, 12, 13</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No classes Friday Sept 18, Monday Sept 28, Monday Oct 12, Tuesday Sept 29 is a Monday schedule
Wednesday Oct 14 is a Monday schedule
Tuesday Nov 3 is Election Day. Vote!! Early, Absentee, or if that day, before or after class.
Wednesday Nov 25 is a Friday schedule

**Course Preparation and Advice:** Understanding the basic concepts from General Chemistry is critical to understanding reactions and mechanisms in organic chemistry. While these concepts are reviewed in Organic Chemistry, it will be assumed that this is the second time you are seeing this and that you understand the concepts. A brief list from the most recent Queens College textbooks for Chem 113 and 114 is given below; if you are transferring in, try match the topics with those in your textbook. Once you start Chem 251, read the book before lecture (yes, I did say this already up above!); take seriously the fact that you really do need to know and understand every reaction we cover in class (no exceptions). Understanding mechanisms will help you remember the reactions. In most cases hiring a tutor will not help and most likely will be a hindrance because you will rely on the tutor rather than yourself.

**Review Chapters from Zumdahl & Zumdahl Chemistry:**
Chem 113
Chapter 4: Types of Chemical Reactions and Solution Stoichiometry
Chapter 8: Bonding: General Concepts
Chapter 9: Covalent Bonding: Orbitals
Chem 114
Chapter 10: Liquids and Solids (Liquids only)
Chapter 14: Acids and Bases
Chapter 17: Spontaneity, Entropy, and Free Energy

**or Silberberg Chemistry:**
Chem 113
Chapter 3: Stoichiometry
Chapter 4: Major Classes of Chemical Reactions
Chapter 6: Thermochemistry
Chapter 9: Models of Chemical Bonding
Chapter 10: Shapes of Molecules
Chapter 11: Theories of Covalent Bonding
Chem 114
Chapter 12: Liquids and Solids (Liquids only)
Chapter 18: Acid – Base Equilibria
Chapter 20: Thermodynamics: Entropy and Free Energy
**Course Objectives:** Students will learn structural organic chemistry, including bonding, functional groups, stereochemistry, and conformational analysis, as well as the nomenclature for labeling these compounds and structures. In the first semester of organic chemistry a limited number of functional groups, including alkanes, alkenes, alkyl halides, and alcohols, will be introduced along with their reactions. The mechanisms of those reactions and their common mechanistic features will be stressed. Understanding these mechanisms, rather than their rote memorization, is a principal objective, as only understanding of mechanisms will allow new reactions to be understood. Applications of reactions to multistep synthesis will be introduced. Determination of structures of compounds by spectroscopy including IR, MS, and NMR will be introduced. At the conclusion of this semester students will be prepared to start doing organic research if they so choose.

**Assessment:** Problem-solving ability will be tested using exams and on-line graded problems; while memorization of naming and drawing conventions as well as reactions will be required, the emphasis will be on understanding structures of organic compounds and their mechanisms of reaction. While the on-line homework problems will be graded, the intent is to help student learning, rather than provide significant assessment. These and additional sample problems and answers both in the book and on the course web site will be representative of the material that will be found on exams.

**GRADE KEY.** This course is not graded on a curve. Everyone in the class can get an A, or everyone can get an F. There is no predetermined percentage of the class that will get any particular grade. The key for all exams is shown below, except for + and – cutoffs. For instance, while “A” is shown as 80-100, an average of 80 will be an A-, and while “B” is shown as 65-79, the cutoffs are approximately 1/3 in each range, i.e. around 65-69 B-, 70-74 B, 75-79 B+. The exact ranges will not be given out except for the C cutoff, since you need a C to go on to further chemistry courses.

The ranges given will never be raised, but they have on occasion been lowered if a test was too hard.

80-100 A  
65-79 B  
55-64 C  
50-54 C-  
40-49 D  
0-39 F