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 profile 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: C or higher in Chem 114.4 and 114.1

Note: a C- in any pre or corequisite will not permit you to take 251.4/251.1!
You must earn a C or higher in Chem 251 to go on to Chem 252.

You will need access to Blackboard for 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 & Recitation: M, W 1:40 - 3:30 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 Jun Yong Choi, Science Bldg. B-304
Office Hour: Thursday (12 – 1 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.
e-mail: Junyong.Choi@qc.cuny.edu - best way to contact Prof. Choi


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.

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.
Accommodations: If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet Dr. Choi immediately.

General Guidelines:
1. You must be able to use Blackboard for accessing the course materials. It is strongly suggested that you use Queens College email account for effective communication. Any other specific information regarding the course will be provided by the instructor in the first lecture, scheduled on Feb. 1, 2021, and during the class.
2. Molecular model kit is highly recommended (available on-line, about $20-60; the ~$30 kits on Amazon look good)
3. Employ a subject as “Chem 2514_Spring 2021_your name” when sending your email to Prof. Choi.
4. NEVER send any attachment files.
5. Homework will be assigned every week after every lecture, and the due date is the following Monday at 1:40pm.

Examinations: three mid-term and one final exams (All mid-term and final exams are cumulative exams.)

Guidelines for examination:
1. Exams will stress lecture material and recitation problems.
2. Midterm exams are mixed with multiple choice, short answer, and drawing & file uploading questions with no going back to previous question option.
3. The date of the final exam, 120 minutes in length, will be announced.
4. Mid-term exams are 60 min and will start at 1:40 pm. After the mid-term exam, there will be lectures.
5. All exams are open book, open notes, molecular models permitted.
6. Using computers, internet, cameras, cell phones, or calculators and collaborating with anyone are not permitted during the exams.
7. Write legibly. Use English. If I can’t read or understand it, it will be a wrong answer.
8. All re-grade requests must be made in writing and submitted to Prof. Choi by email.
9. You can take the exam in pen or pencil.
10. There is no make-up exam. If a student is ill on a scheduled exam day and cannot take the exam, he/she should provide a medical doctor’s note to Prof. Choi immediately after he/she recovers. Students will get INC grade.
11. If you are unable to provide a valid proof of absence within reasonable time periods, a zero grade will be assigned for the examination.
12. You are required to scan/photograph your Queens College ID with your exam and submit them as a combined file.
13. 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.

Grading:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance/Quiz</td>
<td>25%</td>
</tr>
<tr>
<td>textbook HW</td>
<td>10%</td>
</tr>
<tr>
<td>3 Midterm Exams</td>
<td>30%</td>
</tr>
<tr>
<td>On-line HW</td>
<td>10%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Grading Scale: ≥ 97 (A+); 90-97 (A); 86-89 (A-); 82-85 (B+); 78-81 (B); 74-77 (B-); 70-73 (C+); 65-69 (C); 60-64 (C-)

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 ranges given will never be raised, but they have on occasion been lowered if a test was too hard.
# LECTURE AND EXAMINATION SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Chapter</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>2/1, 2/3</td>
<td>1</td>
<td>Bonding and Structure</td>
</tr>
<tr>
<td>2/8, 2/10</td>
<td>2</td>
<td>Alkanes</td>
</tr>
<tr>
<td>2/17, 2/22</td>
<td>3</td>
<td>Acids and Bases, Curved Arrows</td>
</tr>
<tr>
<td>2/24, 3/1</td>
<td>4</td>
<td>Alkenes: Structure and Reactivity</td>
</tr>
<tr>
<td>3/3</td>
<td>5</td>
<td>Alkenes: Addition Reaction</td>
</tr>
<tr>
<td>3/8</td>
<td>1st mid-term (ch1~4)</td>
<td>Alkenes: Addition Reaction</td>
</tr>
<tr>
<td>3/10, 3/15</td>
<td>5</td>
<td>Alkenes: Addition Reaction</td>
</tr>
<tr>
<td>3/17, 3/22</td>
<td>6</td>
<td>Stereochemistry</td>
</tr>
<tr>
<td>3/24, 4/5</td>
<td>7</td>
<td>Cyclic Compounds, Stereochemistry of Reactions</td>
</tr>
<tr>
<td>4/7, 4/12</td>
<td>8</td>
<td>Noncovalent Intermolecular Interactions</td>
</tr>
<tr>
<td>4/14, 4/19</td>
<td>9</td>
<td>Alkyl Halides</td>
</tr>
<tr>
<td>4/21</td>
<td>2nd mid-term (ch 5~ 8)</td>
<td>Alkyl Halides</td>
</tr>
<tr>
<td>4/26, 4/28</td>
<td>10</td>
<td>Alcohols and Thiols</td>
</tr>
<tr>
<td>5/3, 5/5, 5/10</td>
<td>13</td>
<td>NMR</td>
</tr>
<tr>
<td>5/12</td>
<td>12</td>
<td>Introduction to Spectroscopy &amp; Review</td>
</tr>
<tr>
<td>5/17</td>
<td>3rd mid-term exam (ch 9, 10, 12, 13)</td>
<td></td>
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<tr>
<td>TBD</td>
<td></td>
<td>Final exam (1:45 ~ 3:45pm)</td>
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</tbody>
</table>

Spring recess: 3/27 ~ 4/4  
College closed: 2/15 (president’s day)  
A thirty-minute recitation will be held in class after the lecture of each chapter.  
One-hour recitation (optional) will be held during the office hour and mainly discuss textbook homework (Thursday, 12:00 ~ 1:00)  
Homework will be announced after every lecture and discussed during the thirty-minute recitation and office hour.

**Required On-line homework:** From Sapling Learning - Organic Chemistry Question Sets: Sapling’s chemistry questions are delivered in a web browser to provide real-time grading, response-specific coaching, improvement of problem-solving skills, and detailed answer explanations. Dynamic answer modules enable one to interact with 3D models and figures, utilize drag-and-drop synthetic routes, and draw chemical structures - including stereochemistry and curved arrows. Altogether, Sapling is cheaper than a tutor, provides more value than a solutions manual, and goes beyond a mere assessment exercise to give a learning experience. Sapling Learning will be used for graded homework. You are required to purchase access to the Sapling Learning on-line problem web site for this course. The cost is $42.

To get started:

1. Go to [www.saplinglearning.com/login](http://www.saplinglearning.com/login) to log in or create an account. The following link includes detailed instructions on how to register for your course: [https://community.macmillan.com/docs/DOC-5972-sapling-learning-registering-for-courses](https://community.macmillan.com/docs/DOC-5972-sapling-learning-registering-for-courses).

2. If you have any issues during sign up or throughout the term, the technical support team will help. They can be reached by phone or by webform via the Student Support Community. Please go to the following link for detailed hours and information. [https://community.macmillan.com/docs/DOC-6915-students-still-need-help](https://community.macmillan.com/docs/DOC-6915-students-still-need-help).

3. Work on the Sapling Learning training materials. The activities, videos, and information pages will familiarize you with the Sapling Learning user environment and serve as tutorials for efficiently drawing molecules, stereochemistry, etc. within the Sapling Learning answer modules. These training materials are already accessible in your Sapling Learning course.

4.  
   a) Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments.  
   b) During sign up or throughout the term, if you have any technical problems or grading issues, go to [http://www.macmillanlearning.com/Catalog/techsupport](http://www.macmillanlearning.com/Catalog/techsupport) and fill out the support form. The Sapling support team is almost always more able (and faster) to resolve issues than your instructor and TAs.
c) To optimize your Sapling Learning experience, please keep your internet browser and Flash player up to date and minimize the use of RAM-intensive programs/websites while using Sapling Learning.
d) The course is listed under "City University of New York, Queens College (CUNY Queens)" and then look for “CUNY Queens College - CHEM 2514 – Spring21 - CHOI.”
e) 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 another organic textbook (labeled “Loudon – Organic Chemistry”), so if you are having trouble with the problems, there is a wealth of information available to help you.
f) There is a training module (with extra credit) that you should complete before you start on the chapter problems.

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, 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.

Bonus 10 points on your first mid-term exam: email to the teaching assistant, Ryan Seerattan, at ryan.seerattan@macaulay.cuny.edu by Feb. 7th (5pm, EST), and mention that “you read and understand the course syllabus and you will follow the guidelines and policy”. Use the subject line: Chem 2514_Spring 2021_your name.