

**Organic Chemistry  
Chemistry 3521  
Spring 2014**

Monday and Wednesday 9:30-10:45 AM, Room 2310 Ingersoll

**Instructor:** Prof. Ryan Murelli

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**Office Hours:** Mondays and Wednesdays 11-1 in 437 Ingersoll Extension.

**Course Description:**

Organic chemistry is a required class for so many related fields of study because it requires a student to: 1) think about structures in 3-dimensions, and 2) analyze data using his/her understanding of basic principles to solve a problem. Think about it: the skills you use to propose a structure for an unknown compound from a set of  $^1\text{H}$  NMR peaks are the same skills you will use to diagnose a patient with an unknown illness from a set of symptoms.

This course, in conjunction with Chemistry 3511, will provide students with an introduction to organic chemistry concepts. Specifically, this course will cover organic reactions, mechanisms and principles that are relevant to many other sciences and that provide us with a greater understanding of how the natural world works. The prerequisite for this course is Chemistry 51 or Chemistry 3510 or Chemistry 3511 and 3512; Chemistry 3522 is a prerequisite or corequisite.

**Course Objectives:**

Upon completion of the course, students should be able to:

- Explain and/or apply selected fundamental principles of organic chemistry
- Provide reactants, reaction conditions or reaction products for certain key reactions
- Illustrate the mechanism of certain key reactions

**Required Texts and Materials:**

1. Brown, William H., Christopher S. Foote, Brent L. Iverson, and Eric V. Anslyn. *Organic Chemistry*. 7<sup>th</sup> ed. Belmont, CA: Brooks/Cole Cengage Learning, 2009. (Other editions are also fine, although the page numbers and problem numbers may vary. Just pay attention to the content and you should be fine.)

**Recommended Texts and Materials:**

1. Molecular Model Set for Organic Chemistry, Prentice Hall

**Course Evaluation:**

Your grade for the course will be determined as follows:

Recitation Attendance: 5%

Quiz Grades: 20% (Average of top 4/5 quizzes)\*

Lecture Exams: 40% (20% each)\*\*

Final Exam: 35%\*\*\*

**\*Missed Quizzes:** *The reason that I drop a quiz is because I recognize that most students will miss at least one quiz and scheduling makeups is not feasible in such a large course. Thus, there will be NO MAKEUP QUIZZES with one exception: If you know that you will be missing a quiz in advance for a religious holiday, family commitment, or pretty much any valid reason aside from "I want more time to study", you can schedule to take the quiz in a different recitation section. In this instance, you must identify the instructor of the recitation you plan on taking the quiz in, email them asking if it is all right,*

and CC your recitation instructor and me. This must be done 48 hours prior to the first quiz of that week, although it is highly recommended that you schedule it ASAP since there is a possibility you may have to ask multiple instructors if they have space for you.

**\*\*Missed MidTerm Exams:** No makeups will be given for the midterms. If you happen to miss one of the two midterms with a valid excuse, your grade will be weighted based upon your completed assignments. If you do not have a valid excuse, you will get a 0. Hopefully no one will miss both midterms.

**\*\*Missed Final Exams:** In the event of an excused absence from the final exam, you will need to apply at the Academic Advisement Center (3207 Boylan) for permission to take the make-up final exam given the following semester.

**Assigning Letter Grades for Exams and for the Course:** I do not have a formal curve, but based upon my experiences anticipate a course average of approximately a C+. I will provide breakdowns of "approximate" letter grades for each exam.

**Policy for Re-grades:** Re-grades will be allowed only for lecture exams completed entirely in pen. Re-grade requests must be submitted within 1 week of the date on which exams are handed back in class. Please be advised that I will re-grade the *entire exam*, and a higher or lower score may result. Scores will be changed only if they differ from the original score by 3 or more percentage points.

**University Policy on Academic Integrity:** The faculty and administration of Brooklyn College support an environment free from cheating and plagiarism. Each student is responsible for being aware of what constitutes cheating and plagiarism and for avoiding both. The complete text of the CUNY Academic Integrity Policy and the Brooklyn College procedure for implementing that policy can be found at this site: <http://www.brooklyn.cuny.edu/bc/policies>. If a faculty member suspects a violation of academic integrity and, upon investigation, confirms that violation, or if the student admits the violation, the faculty member MUST report the violation.

### Suggestions for Studying and Success

*Figures >>> Text. I cannot communicate research that well with my organic chemistry colleagues without a paper and pencil in hand. The reason is that organic chemistry is best understood with figures, structures, etc. When reading the textbook, I would suggest that you make the understanding of the textbook figures your primary objective, and simply use the text to help you in that pursuit. It is my opinion that reading the textbook from cover to cover the way you normally would read a book is not an efficient use of your time.*

Along those lines, what is THE MOST valuable use of your time will be problem solving:

- Spend the majority of your study time doing problems, not reading.
- Do all of the textbook problems plus problems posted on the Murelli and Horowitz websites.
- Practice each topic until you have mastered it. Don't stop just because you have completed the assigned problems.
- **Study with a partner or in a group.** Organic Chemistry cannot be mastered alone.
- Don't be afraid to ask for help. Get help immediately if you get stuck.

### Tentative Schedule of Course Topics, Quizzes. Exams and Reading Assignments:

<u>Date</u>	<u>Topic</u>	<u>Reading</u>
Wed. Sept. 3	Carboxylic Acids	Chap. 17
Mon. Sept. 8	Carboxylic Acids	Chap. 17
Wed. Sept. 10	Derivatives of Carboxylic Acids	Chap 18
Mon. Sept. 15	Derivatives of Carboxylic Acids	Chap 18
<b>Sept 15 – 19</b>	<b>Quiz #1 – held during recitation section</b>	

Wed. Sept. 17	Enolate Anions and Enamines	Chap 19
Mon. Sept. 22	Enolate Anions and Enamines	Chap 19
Mon. Sept. 29	Enolate Anions and Enamines	Chap 19
Wed. Oct 1	Conjugated Systems	Chap 20
<b>Mon. Oct 6</b>	<b>EXAM #1</b>	
Wed. Oct. 8	Benzene and Aromaticity	Chap 21
Wed. Oct. 15	Benzene and Aromaticity	Chap 21
<b>Oct. 17-22</b>	<b>Quiz #2 – held during recitation section</b>	
Mon. Oct. 20	Reactions of Aromatic Compounds	Chap 21
Wed. Oct. 22	Reactions of Aromatic Compounds	Chap 22
Mon. Oct. 27	Amines	Chap 23
Wed. Oct. 29	Amines	Chap 23
Mon. Nov. 3	C-C Bond Formation and Synthesis	Chap 24
<b>Nov. 3-7</b>	<b>Quiz # 3 - held during recitation section</b>	
Wed. Nov. 5	C-C Bond Formation and Synthesis	Chap 24
<b>Mon. Nov. 10</b>	<b>EXAM #2</b>	
Wed. Nov. 12	Carbohydrates	Chap 25^
Mon. Nov. 17	Carbohydrates	Chap 25^
Wed. Nov. 19	Lipids	Chap 26^
<b>Nov 21 – 26</b>	<b>Quiz # 4 - held during recitation section</b>	
Mon. Nov. 24	Lipids	Chap 26^
Wed. Nov. 26	Amino Acids and Proteins	Chap 27^
Mon. Dec. 1	Amino Acids and Proteins	Chap 27^
Wed. Dec. 3	Nucleic Acids	Chap 28^
Mon. Dec. 8	Nucleic Acids	Chap 28^
Wed. Dec. 10	Polymer Chemistry	Chap 29^
<b>Dec. 8 – Dec. 12</b>	<b>Quiz # 5 - held during recitation section</b>	
Mon. Dec. 15	Polymer Chemistry	Chap 29^
<b>Wed. Dec 17*</b>	<b>FINAL EXAM (8 – 10am, room TBA)</b>	

^ Keep an eye out on my website for updated material for these chapters and guidelines on what to focus on. There are several topics covered in these chapters that I find obsolete, and other topics that will be covered substantially in your biochemistry course that are in my mind better left to that course. I would prefer to focus a bit on medicinal chemistry (for example, nucleic acid-based drugs) and chemical biology (for example, chemical ligation methods for peptide and protein synthesis), which are highly relevant to organic chemistry but that you might not get a chance to learn in any other course.

*\*This is anticipated date based upon what was posted as of August 3<sup>rd</sup> for M9 at the following website:*

<http://www.brooklyn.cuny.edu/web/about/administration/enrollment/registrar/bulletins/fall14/exams.php>

*From my understanding, it is subject to change, but we will be having the final exam whenever Brooklyn College wants us to, which as of Aug. 3<sup>rd</sup> is Dec. 17<sup>th</sup> from 8-10.*

### Assigned Problems:

I have decided I am not going to assign problems in the book because the best students I have had I notice do all of the problems in the book and are usually looking for even more problems. If you have to focus on specific problems, focus on those heavy on mechanisms and synthesis.

I have also put together my own practice sheets that can be used for recitation, and these can be found on my website as well as any other handouts I decide might be useful. This is probably the first thing I would do after you go through the chapter.