

**Organic Chemistry II**  
**Chemistry 3521**  
**Fall 2020**

**Instructor:** Prof. Ryan Murelli

**Email (preferred contact method):** [rpmurelli@brooklyn.cuny.edu](mailto:rpmurelli@brooklyn.cuny.edu)

**Phone (only in case of emergency):** (617)-943-3900

**Website:** <http://userhome.brooklyn.cuny.edu/rpmurelli/course.html>

**Lecture:** Videos will be provided for you to watch prior to the dates noted. We will also meet Wednesdays from 9:30-11:00 via Zoom. This scheduled time will be meant to come together as a class so that I can answer any questions you have on the material and do possible problem solving. It will also be a common time for Exams and Quizzes.

**Office Hours, Recitation Style:** Monday from 9-11, Wednesday 12-1 (Zoom link will be provided via group message through blackboard in advance)

**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
- Explain concepts such as stereoselectivity or regioselectivity for complex chemical reactions

**Required Texts and Materials**

Brown, Foote, Iverson, and Anslyl, *Organic Chemistry*. 8<sup>th</sup> ed. Belmont, CA: Brooks/Cole Cengage Learning, 2017. (Other additions are fine as are other books that are meant for undergraduate Organic Chemistry I and II. Just pay attention to

the material we cover in class and make sure that it matches what you are reading, and if needed, supplement with online searches).

### **Recommended Texts and Materials.**

Molecular Model Set for Organic Chemistry, Prentice Hall

### **Course Evaluation:**

Homework Assignments: 10%+

Quiz Grade: 15% (Average of top 3/4 quizzes)\*

Lecture Exams: 40% (Average of top 2/3 exams)\*\*

Final Exam: 35%\*\*\*

**+Homework Assignments.** Homework assignments will be due by midnight on due date (mostly Sundays). These will be available *via* Blackboard and you will have unlimited attempts. It is strongly encouraged that you try them a week prior to the due date so that you can familiarize yourself with the questions, spend some time studying the material, and then try it again until you get a perfect score. Due dates are midnight on the following Sunday **Sept. 6, Sept 13, Sept 27, and Oct 25**, and Friday **Nov 13 and Nov 27**.

**\*Missed Quizzes:** There will be no makeup quizzes. There will be 4 quizzes though-out the semester, and your grade will be based on the top 3 scores. If for some reason you miss 2, please let me know with a reason.

**\*\* Missed MidTerm Exams:** No makeups will be given for the midterms. If you miss a mid-term, that will represent your dropped exam. If for some reason you miss 2, please let me know with a reason.

**\*\*\* Missed Final Exams:** In the event of an excused absence from the final exam, you will need to take a makeup exam during an assigned time set by the chemistry department the following semester. Please talk with Prof. Murelli for details if you miss the final.

**Assigning Letter Grades for Exams and for the Course:** I do not have a formal curve for the course. I will provide an approximate letter grade breakdown after each quiz and exam.

**Policy for Regrades:** All examinations will be done online, and thus there should be no student-specific regrade requests. If a mistake is identified with the quiz, homework, or exam, students will be notified via blackboard and grades will be updated for all students accordingly.

**University Policy of 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.

### Schedule (Dates at Which Videos Should Be Watched By)

Topic	Tentative Dates	Reading and Some Practice Problems (8 <sup>th</sup> Edition)
Course intro and Organic I Refresher	8/26 (W, Zoom)	You need to know the reactions in chapters 4-9 and 15, which were covered in Organic Chemistry I. Also, Chair Confirmations and Newman Projections should also be reviewed. Mastery of all the concepts of Organic I, with exception of spectroscopy, will be fundamentally important for this course.  <i>Refer to worksheets on the Organic I website for help.</i>  <b>*Blackboard homework due Midnight Sept. 6<sup>th</sup></b>
Reactions of Alcohols and some ether/epoxide chemistry	8/31 (M) 9/2 (W) 9/9 (W)	<b>Reading:</b> Chapter 10 and 11.  <b>Practice Problems.</b> Q. 10.25-10.28, 10.31, 10.32, 10.35, 10.36, 10.39, 10.43-10.45, 10.51, 10.52-10.56  <b>*Blackboard homework due Midnight Sept. 13<sup>th</sup></b>
Reactions of Carbonyls (Aldehydes, ketones, carboxylic acids, and their derivatives)	9/14 (M) 9/21 (M) 9/23 (W)	<b>Reading: Chapter 10 and 16</b>  <b>Practice Problems. Q.</b> 10.25-10.28, 10.31, 10.32, 10.35, 10.36, 10.39, 10.43-10.45, 10.51, 10.52-10.56, 16.23-16.25, 16.27, 16.30-16.32, 16.39, 16.42, 16.45-16.47, 16.52, 16.55, 16.57, 16.60, 16.64, 16.74-16.77  <b>*Blackboard homework due Midnight, Sunday Sept. 27<sup>th</sup> will cover this material as well as alcohol and refresher.</b>
<b>Quiz 1 (Classtime)</b>	9/16 (W)	<b>Topics:</b> Organic I refresher and Alcohols/ethers/epoxides. Most questions will be provided in format similar to homework assignments 1 and 2.
<b>EXAM 1 (Classtime)</b>	9/29 (M, Prep) 9/30 (W, Exam)	<b>Exam prep will carried out via Zoom at normal time. Link will be sent via blackboard about a half hour before class.</b>  <b>Exam will begin at 9:30 promptly. I will be available in blackboard collaborate for any questions.</b>
Enolates and Enamines	10/5 (M)	<b>Chapter 19.</b>  <b>Practice Problems. Q.</b> 19.18-19.21, 19.24, 19.26, 19.35, 19.37, 19.39, 19.41, 19.43, 19.47, 19.50, 19.55, 19.57, 19.64, 19.74-19.79.

		<b>*Some of online Homework 4 due midnight, Sunday Oct. 25<sup>th</sup> will cover this topic</b>
Conjugation, Aromaticity, and Reactions thereof	10/7 (W) 10/19 (M)	<b>Chapters 21 and 22</b>  <b>Q.</b> 21.11, 21.14-21.16, 21.18, 21.33-21.36, 21.45, 21.47, 21.50, 21.55, 21.65, 2.7, 22.20-22.24, 22.28, 22.43, 22.44, 22.48, 22.53, 22.61-22.63  <b>*Some of online Homework 4 due midnight, Sunday Oct. 25<sup>th</sup> will cover this topic</b>
<b>Quiz 2 (Classtime)</b>	Oct 21 (W, Quiz)	<b>Quiz Topics:</b> Enolates, Enamines and Aromaticity (reactions of benzene will not be covered)
<b>EXAM 2 (Classtime)</b>	10/26 (M, Prep) 10/28 (W, Exam)	<b>Exam prep will carried out via Zoom at normal class time. Link will be sent via blackboard about a half hour before class.</b>  <b>Exam will begin at 9:30 promptly. I will be available in blackboard collaborate for any questions.</b>
Pericyclic Reactions	11/2 (M) 11/4 (W) 11/9 (M)	<b>Chapter 20</b>  <b>Practice Q.</b> 20.14-20.17, 20.27-20.31, 20.34, 20.37-20.39, 20.44-20.50  <b>*Online homework 5 will focus on this material and is due by midnight, Friday Nov. 13<sup>th</sup>.</b>
Amines	11/11 (W)	<b>Chapter 23</b>  <b>Practice Q.</b> 23.18, 23.25, 23.35-23.42, 23.44, 23.49, 23.50, 23.52, 23.53, 23.59, 23.65  <b>*Online homework 5 due by midnight, Friday Nov. 13<sup>th</sup>, will have a few questions on this topic to help prepare for quiz.</b>
<b>Quiz 3 (Classtime)</b>	11/18 (W)	<b>Topic: Pericyclic Reactions and Amines</b>
Transition Metal-Catalyzed C-C Bond Forming	11/16 (M) 11/23 (W)	<b>Chapter 24</b>  <b>Q.</b> 24.8-24.13, 24.16, 24.19, 24.20, 24.23-24.26, 24.32-24.34, 24.35, 24.39  <b>*Online homework 5, due by midnight Fri. Nov. 27 will cover this material.</b>
<b>EXAM 3 (Classtime)</b>	11/30 (M, Prep via Zoom)	<b>Exam will begin at 9:30 promptly. I will be available in blackboard collaborate for any questions.</b>

	12/2 (W, Exam)	
Lipids	12/7 (M)	<b>Chapter 26</b> Q. 26.2, 26.3, 26.19, 26.24, 26.25,
Polymers	12/7 (M)	<b>Chapter 29</b> Q. 29.7-29.10, 29.14, 29.17, 29.25-29.28, 29.38
<b>Quiz 4 and Final Review</b>	12/9 (W)	<b>This class will begin with a practice final quiz, which will be a mini-version of the final exam. I will stick around afterward for a few hours to go over quiz and have an exam-prep type class/office hour via Zoom. For those who can't make it to the after-quiz Zoom, I will record and post.</b>
<b><u>FINAL EXAM</u></b>	12/14 (8 am)	<b>Final Exam (I will also schedule a Prep Session a few days Beforehand)</b>

**KEY dates for Class:**

**Homework Due Dates:** Sunday Sept. 6, Sept 13, Sept 27, and Oct 25, and Friday Nov 13 and Nov 27.

**Quiz Dates (During Class-Time):** 9/16, 10/21, 11/18, 12/9

**Mid-Term Exam Dates (During Class-Time):** 9/30, 10/28, 12/2

**Final Exam:** 12/14 at 8 am