

Chem 25a: Organic Chemistry I

Contact Details

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I will make every attempt to answer emails in a timely manner (24-48 hours). My working hours during summer school are Tuesday, Wednesday, Thursday 8:30 am – 5:30 pm and Fridays 8:30 am – 12:00 pm. Emails received outside my working hours may not be responded to until the following working day. Emails about assignments received on the due date may not receive a response. Please allow a minimum of 24 hours in advance with questions about any assignments. Please use your official Brandeis University email account for all communication in this course.

Meeting Times

Lectures

Tuesday, Wednesday, Thursday and Friday 9:00 AM – 11:30 AM EST, Abelson 131

Instructor's Office Hours

Tuesday, Wednesday, Thursday 11:30 AM – 12:30 PM EST, SSC 00-08b

Appointments at other times may be available. Email Prof. Murray if you need to schedule an appointment.

Lecture TA Office Hours

The table below lists the TAs for this course. Their office hour times and locations or Zoom room links will be available on LATTE after the first class.

TA	Email Address
Michael Zhang	michaelzhang@brandeis.edu
Gustavo Sigelmann	gsigelmann@brandeis.edu

Course Description

Learning Goals:

Organic chemistry focuses on the properties and reactivity of carbon-based molecules. In this course, we will learn how to identify, synthesize, and explain reactivity of organic molecules. We will also explore applications of organic chemistry outside of the classroom in fields such as medicine, food and nutrition, art, the environment, technology, and many others. The emphasis of this course is on understanding and applying the fundamental concepts rather than memorizing. We will learn and practice critical thinking



and problem-solving skills. By the end of the semester, you will have developed not only an understanding of these fundamental chemical processes, but also the skills to apply this understanding to solve new problems and be able to explain the role of organic chemistry in important real-world applications.

Teaching/learning strategies

This course will utilize a variety of teaching and learning strategies including but not limited to: lectures, small-group problem solving sessions, quizzes, exams, and recommended textbook problems. This class will be offered in-person and remote enrollment is not possible. Adjustments to class policies may be made if needed due to university operations.

Learning organic chemistry requires consistent out of class review and practice to solidify understanding and problem-solving skills. There are many different learning approaches, so it is best that you develop an approach to this out of class work that is most productive for you. Some approaches that can be useful in this course include reading the textbook, completing practice problems, creating summaries of class notes, and attending office hours. **It is very important to include problem solving (without relying on answer keys while working through the problem) into your independent study. Only reading the book/notes, rewatching lectures, or memorizing will not be enough for you to do well in this course.**

In this course we will learn how to think and reason like a scientist and that takes practice. Taking organic chemistry in summer school introduces additional challenges due to the accelerated nature of the course. It is important that you stay on top of the material, review notes and practice problems on a regular basis. Waiting until the day before the exam to study will not be a successful strategy for doing well in this course.

Prerequisites

A satisfactory grade (C- or better) in Chem 11b or the equivalent.

Credit Hours:

During the academic year, success in this four-credit course is based on the expectation that students will spend a minimum of nine hours of study time per week in preparation for class (readings, problem solving, preparation for exams, etc.). More time will be needed during the accelerated summer school term where one week of class is comparable to about 2.5 weeks during a normal semester. This equates to approximately 22 hours of outside work per week.

Course Requirements

Academic Integrity

Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University or other

sanctions (see section 20 of R&R). Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to TurnItIn.com software to verify originality. A student who is in doubt regarding standards of academic honesty as they apply to a specific course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. Allegations of alleged academic dishonesty will be forwarded to the Department of Student Rights and Community Standards. Citation and research assistance can be found at [Brandeis Library Guides - Citing Sources](https://guides.library.brandeis.edu/c.php?g=301723) (<https://guides.library.brandeis.edu/c.php?g=301723>). What is allowed and is not allowed in terms of resources and group work will be clearly stated in this syllabus for each assignment type in this course and will vary amongst assignments. Be sure to thoroughly read this syllabus and all instructions and complete the assignment as intended by the instructor.

Required Assignments

Lecture & Lecture Problems – Attendance and participation in lecture is a required component of this course. All lectures will be held in person and in person attendance is required. If you cannot attend a class session due to illness or other situation out of your control, you must contact the course instructor as soon as possible (preferably before the missed class but no later than 24 hours after the missed class except for extreme circumstances). These situations will be dealt with on a case-by-case basis. Each lecture will involve small group problem solving. The instructor and lecture TAs will help facilitate problem solving during class. You will upload your work from each day's problems to Gradescope at the end of each class (except classes with exams or quizzes). This work will be graded for completion, not correctness. However, if your work is entirely wrong or completely off base you will not receive credit. Problems are due by 8:55 am on Gradescope the following morning. **It is highly recommended that you take a minute to upload your work before leaving class to make sure it is submitted on time. The deadline is 8:55 am the following morning. The answer keys will be posted to LATTE automatically at 8:55 am so late work is not accepted.** You must be present in lecture to submit work. Submitting work for the daily problems when you did not attend class and have not been given special permission to do so is considered a violation of the course's academic honesty policy and will be reported. TAs will take attendance during every class session. Your lowest 2 scores will be dropped at the end of the semester.

Quizzes

Quizzes will be held in person during the first 30 minutes of the classes listed below and repeated in the course calendar (end of this document). If you are late to class, you will not be given additional time.

There will be no makeup quizzes. Missed quizzes due to illness, death in the family, or religious reasons will be dealt with on a case-by-case basis if the situation is communicated to the instructor prior to the start of the quiz or within 24 hours of the missed quiz if prior communication is not possible.

Documentation of the absence may be requested. Incomplete quizzes that are not properly communicated to the instructor will earn a score of 0.

Quiz 1 – Friday, June 9 (Material from June 6 – June 8)

Quiz 2 – Friday, June 23 (Material from June 16 – June 22)

Exams

Exams will be held in person on the dates listed below and repeated in the course calendar (end of document). You will have one and a half hours to complete the exam. If you are late to class, you will not be given additional time.

There will be no makeup exams. Missed exams due to illness, death in the family, or religious reasons will be dealt with on a case-by-case basis if the situation is communicated to the instructor prior to the start of the exam or within 24 hours of the missed exam if prior communication is not possible. Documentation of the absence may be requested. Incomplete exams that are not properly communicated to the instructor will earn a score of 0.

Exam 1 – Friday, June 16 (Material from June 6 – June 15)

Exam 2 – Friday, June 30 (Material from June 16 – June 27)

Final Exam

A cumulative final exam will be administered at 9 am on Thursday, July 6. You will have three hours to complete this exam. As stated on the Brandeis summer school website: “Absence from the final examination and the right to take a makeup examination are only permissible for documented medical reasons. If a student is unable to take the final examination because of illness, the student must notify the Summer School office of the illness as early as possible before the exam and provide appropriate documentation in order to be eligible for a make-up examination.”

If you score a higher percentage on the final than you do on the average of your exams, your score on the final will replace your exam average. This will only be done if it is in your favor to do so.

Evaluation

Final grades will reflect your weighted average on the course assignments listed below. Conversions from weighted average to letter grade are also listed below. Percentages will be rounded to the nearest tenth decimal place.

Class Element	Grade Percentage
Daily Problem Sets	10%
Quizzes (2)	20%
Exams (2)	40%
Cumulative Final	30%

Letter Grade	Percentage	Letter Grade	Percentage
A	93.0 – 100.0	C	73.0 – 76.9
A-	90.0 – 92.9	C-	70.0 – 72.9
B+	87.0 – 89.9	D+	67.0 – 69.9
B	83.0 – 86.9	D	63.0 – 66.9
B-	80.0 – 82.9	D-	60.0 – 62.9
C+	77.0 – 79.9	E	0 – 59.9

Regrades

If you suspect there was an error in grading, you may request a regrade of an exam or quiz within **3 days** of the document being returned. Requests made more than 3 days after the document is returned will not be honored. To request a regrade, please use the regrade request feature on Gradescope. You must include an explanation of why you believe the grading is not correct making sure to directly reference both your work and the correct answer from the answer key. Requests without explanations will not be considered. When a regrade is requested, the entire document may be regraded and the grade on the assignment may go up, down, or remain the same. The exception to this is if there was an error made in adding up the total score, not in assigning points. In this case, the total points will simply be added up again and corrected.

Essential Resources

Accommodations

Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, I want to support you. In order to provide test accommodations, I need the letter more than 48 hours in advance. I want to provide your accommodations, but cannot do so retroactively. If you have questions about documenting a disability or requesting accommodations, please contact Student Accessibility Support (SAS) (<https://www.brandeis.edu/accessibility/>) at 781.736.3470 or access@brandeis.edu.

Course Materials

Organic Chemistry Principles and Mechanisms, 2nd ed. By Joel Karty, W.W. Norton & Company, 2018. ISBN: 9780393630756. The accompanying *Study guide and Solutions Manual* (9780393655551) is also recommended as answers to the suggested textbook problems will not be posted on LATTE. The textbook and solutions manual are also on course reserve for use in the library.

Molecular Model Kit: Darling organic and inorganic molecular models ISBN 978-09648837-1-0 (or any other model kit). You can also make your own using things like toothpicks, modeling clay, playdough, duct tape, pipe cleaners, etc. if you cannot buy one. Reach out to your instructor if you want help with this.

If you are having difficulty purchasing course materials, please make an appointment with your Student Financial Services or Academic Services advisor to discuss possible funding options and/or textbook alternatives.

Required Readings

Textbook sections that match the lecture content are indicated for each day's lecture in the course calendar. Sometimes the textbook goes over things that we do not cover in class. Unless explicitly stated otherwise, if a topic is not covered in the lecture or other assigned class work and is only covered within the suggested textbook reading, it will not be on an exam or quiz.

Apps or Tools/Equipment

In order to complete work for this course you must have access to the following:

- The internet.
- A laptop or tablet capable of accessing and completing tasks in LATTE, Echo360, Zoom, G-Suite, and Gradescope.
- A method of uploading images of handwritten work to LATTE and Gradescope. There are many options for this including a scanner, a digital camera that can connect to your computer/tablet, a scanner app on your phone/tablet, the "Notes" app on an iPhone, etc.
- ChemDraw is not required but is recommended (and is required for those in Chem 29a). Please see LATTE for instructions for downloading the program (free to students enrolled in Chem 25/29).

LATTE

LATTE is the Brandeis learning management system: <http://latte.brandeis.edu>. Login using your UNET ID and password.

Library

The Brandeis Library collections and staff offer resources and services to support Brandeis students, faculty and staff. These include workshops, consultations, collaboration, materials and instruction on emerging trends in technologies such as machine learning, emerging trends in research such as data visualization, and emerging trends in scholarship such as open access. Librarians at the Circulation Desk, Research Help Desk, Archives & Special Collections, Sound & Image Media Studios, MakerLab, AutomationLab, and Digital Scholarship Lab are available to help you.

<https://www.brandeis.edu/library/about/index.html>

Privacy

This class requires the use of tools that may disclose your coursework and identity to parties outside the class. To protect your privacy, you may choose to use a pseudonym/alias rather than your name in submitting such work. You must share the pseudonym/ alias with me and any teaching assistants as needed. Alternatively, with prior consultation, you may submit such work directly to me.

Student Support

Brandeis University is committed to supporting all our students so they can thrive. The following resources are available to help with the many academic and non-academic factors that contribute to student success (finances, health, food supply, housing, mental health counseling, academic advising, physical and social activities, etc.). Please explore the many links on this [Support at Brandeis](https://www.brandeis.edu/support/undergraduatestudents/browse.html) page (<https://www.brandeis.edu/support/undergraduatestudents/browse.html>) to find out more about the resources that Brandeis provides to help you and your classmates to achieve success

Teaching Continuity

The goal for this course is to provide clear and consistent expectations to students. Things may change over the course of the semester that may require us to adapt assignments, due dates, expectations, content delivery, policies, and potentially other aspects of this course. My goal is to be as transparent and honest with you as possible throughout the semester when these changes are necessary. That means I might not always have all the answers all the time, plans might need to change multiple times, and there may be times of uncertainty as we await guidance from the university. I promise to communicate openly and honestly with you throughout this semester. In return, I ask for your patience during times of uncertainty and your willingness to adapt with me. If you ever feel confused or overwhelmed by the expectations of this course, please do not hesitate to contact the instructor.

Course Calendar

The course calendar is designed to give you a general idea of what topics will be covered and when. Some topics may take longer while others may take less time, therefore the course calendar is subject to change in terms of topics. The dates of quizzes and exams will not change (except due to university closure or other entirely unforeseeable circumstances). Changes will be announced in class and on LATTE as needed. Lecture may or may not occur for the hour remaining after exams depending on how far we are in the course material.

Week-Lecture	Date	Topics
1-1	6/6	Atomic Orbitals, MO Theory, Hybridization, Lewis Structures, formal charge
1-2	6/7	Molecular geometry, dipole moments, drawing organic molecules, alkanes, alkenes, alkynes, oxygen, sulfur, nitrogen & halogen functional groups, degrees of unsaturation
1-3	6/8	Resonance structures
1-4	6/9	Quiz 1 (Lectures 1-3) Intermolecular interactions, conjugation, hyperconjugation & aromaticity
2-5	6/13	Isomers, Viewing molecules in 3D, Newman projections
2-6	6/14	Cycloalkanes and chair conformations
2-7	6/15	Stereochemistry
2-8	6/16	Exam 1 (Lectures 1 – 7)
3-9	6/20	Intro to arrow pushing, reaction coordinate diagrams, acid base reactions
3-10	6/21	Acids & Bases
3-11	6/22	Intro to Reactions, Substitution & Elimination
3-12	6/23	Quiz 2 (Lectures 8 – 11) Substitution & Elimination
4-13	6/27	Substitution & Elimination
4-14	6/28	Addition Reactions
4-15	6/29	Addition Reactions
4-16	6/30	Exam 2 (Lectures 8 – 13)
5-17	7/5	Addition Reactions
	7/6	Final Exam (All Lectures)