Chemistry UN2045: Organic Chemistry I, Spring 2023

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Office hours: Fridays 1-2 pm (Zoom), or H717 when noted in class.

Learning Assistant: Luke Lackovic (ltl2126@columbia.edu)
Office hours: Thursdays 4:30 pm, H711

Class Meets: T/R 1:10—2:25 pm, Havemeyer 209

Recitation: You must be enrolled in one recitation. (TPS Worksheets administered during recitation)

Textbook: Required - *Organic Chemistry*, 8th Edition. Paula Y. Bruice
OR
Organic Chemistry, A Tenth Edition, J. McMurry [This book became available as *open source* in 2023. I have used earlier editions of this book and I believe it will be as useful as the Buice textbook. https://openstax.org/details/books/organic-chemistry]

Add-on – Molecular model set, *ex.* HGS Polyhedron, Molymod *or* Prentice Hall.

Objectives: To learn the fundamentals of organic chemistry by working individually and in teams, solving problems in an ethical manner, fully abiding by the honor system and Columbia University's Rules of Conduct.

The course addresses *Bloom's Taxonomy* as follows:
Remembering concepts from General Chemistry to ***Understand*** how structure impacts reactivity of organic molecules.
Applying the fundamentals of electronic structure to describe and predict chemical reactivity.
Analyzing structure-reactivity relationships of organic molecules.
Evaluating various learning techniques to assess reaction mechanisms leading to reasonable pathways that are representative of chemical transformations.
Creating an inclusive and collaborative environment, working in teams throughout the semester.

Reading: Although Bruice's textbook is assigned for the course, much of the information on essential material that is covered in class may be found through other resources. Students are expected to learn the basics of organic chemistry from the lectures, recitation, and assigned readings from the textbook. See *Courseworks* for additional resources and https://chem.libretexts.org/Bookshelves/Organic_Chemistry

Topics: Structure and bonding. Polar covalent bonds, acids and bases. Alkanes and their stereochemistry. Cycloalkanes and their stereochemistry. Structure determination: nuclear magnetic resonance spectroscopy. Overview of organic reactions. Alkenes & Alkynes: structure, reactivity, reactions, and synthesis. Organohalides. Nucleophilic substitution and elimination reactions. Radical halogenation. Aromaticity and Electrophilic Aromatic Substitution. Special Topic (*e.g.* Polymer Chemistry)

Evaluation: 5 out of 7 units will count toward your grade. The units are divided as shown below.
Think-Pair-Share (TPS) Worksheets = 1 unit.
Group Worksheets (GW) = 1 unit.
Between *Group Worksheets* and In-Recitation *TPS Worksheet*, the lowest unit will be dropped.

GW and TPS Worksheet Dates: **The lowest unit will be dropped**.

Issued Date	*Due Date*		*Date*	*In Recitation*
Feb 1, 2:30pm	GW 1 (due Feb 2 @ 1pm)		Week of Feb 6	TPS 1
Mar 7, 2:30pm	GW 2 (due Mar 8 @ 1pm)		Week of Feb 20	TPS 2
Apr 4, 2:30pm	GW 3 (due Apr 5 @ 1pm)		Week of Mar 5	TPS 3
Apr 25, 2:30pm	GW 4 (due Apr 26 @ 1pm)		Week of Apr 2	TPS 4
			Week of Apr 23	TPS 5
	4 GWs = 1 unit.		*Best 4 out 5*	*= 1 unit*

Exam Dates: There are 5 units of evaluation. **The lowest unit will be dropped**.

Date	*In Class*
February 13	Exam 1 (1 unit)
March 19	Exam 2 (1 unit)
April 16	Exam 3 (1 unit)
May 7*	Final Exam (2 units)
	The best 4 out 5 units

*Projected date (subject to change)

There are a total of 7 units of examination (term exams, cumulative final, TPS Worksheets, and group worksheets). Your final grade will be based on the best 4 units of in-class Exams and 1 unit of the best outcome from TPS Worksheets or Group Worksheets. Each unit consists of 20% of your grade.

*There will be NO MAKE-UP exams, TPS worksheets, or GWs!! **EVER**!!*

Re-grade requests must be submitted in writing to the Chemistry Department's Undergraduate Office (340 Havemeyer) *no later than one week* after the exam. Please contact Daisy Melendez (dm55@columbia.edu) for the forms to fill out and procedures.

Group Worksheets (GWs, or g-dubs)**:** These are designed so that students have the opportunity to work in teams. RULES: Each team consists of 3 or 4 people (not more, not less). You can pick your own teammates, and they can vary for all 4 GWs. The key challenge is learning how to assemble a team and work together.

You are allowed to use class notes, textbooks, and discuss answers with the members of *your team only*. The only form of Internet you can use is to video chat, text chat, or email your teammates.

You are NOT allowed to use the Internet to aid you in any shape or form (no web browsing, and no posting on "chegg.com" or any other platforms, no AI resources), or to communicate results, answers, or anything related to the GWs with other teams, tutors, Chemistry Help Room, and other people outside of your team.
The GWs will be issued through *COURSEWORKS* on the dates noted. These **are due at 1pm on the next day**: **submit a hard copy in Professor Campos' mailbox, located outside of the Chemistry Office (Havemeyer Hall, 3rd Floor).** Again, no web browsing! *You are expected to abide by the honor system*. One submission per team, signed and dated by all members.

Homework/Practice Problems: It is recommended to work on the problems provided in the book, but they will not be graded. It is your responsibility to practice organic chemistry outside of class and recitation. Additional practice problems (also not graded) will be issued by the Learning Assistant.

Think-Pair-Share (TPS) Worksheets: You must register for one recitation section. All TPS worksheets will be given in recitation. The TPS worksheets will cover topics discussed in both class and recitation. They will last for 10-20 minutes. *There are no make-up TPS worksheets, but the lowest one will be dropped*.
Just like the GWs, TPS Worksheets are designed so that students have the opportunity to work in teams, within the recitation setting. RULES: Each team consists of 2 people (not more, not less). The key challenge is learning how to work together in a different setting than the GWs. Your teammate will be assigned by your Learning Assistant.

Online Postings (Honor Code): Please be advised that uploading exam questions (or *any content* from this class) to chegg.com or similar sites is a violation of the Columbia Honor Code and will result in a thorough investigation followed by a referral to the Office of Student Conduct and Community Standards. (i.e. You are not allowed to post any of the class material on any social media platform or other networking platforms.)

Course Evaluations: Your evaluation of the course is extremely important to improve the delivery and reception of the material covered in class. Please submit the evaluations when requested toward the end of the course.

Office of Disability Services: To receive disability accommodations, students must first be registered with Disability Services (DS). More information on the DS registration process is available online at www.health.columbia.edu/ods. Registered students must contact DS to arrange accommodations for this course, including exam accommodations. Students do not need to provide an accommodation letter to the professor or the Chemistry department for this course.