

CHEMUN2045_001_2024_1 - INTENSVE ORGANIC CHEMISTRY

[Jump to Today](#)

Instructor: Professor Luis M. Campos (he/him)

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


Class Time: T/R 1:10—2:25 pm

Classroom Location: H209

Syllabus (<https://courseworks2.columbia.edu/courses/189820/files/19873383?wrap=1>)

Schedule of Topics (<https://courseworks2.columbia.edu/courses/189820/files/19695656?wrap=1>)

Extra Credit (<https://courseworks2.columbia.edu/courses/189820/files/19695668?wrap=1>)

Free Textbook	Organic Chemistry: A Tenth Edition  , J. McMurry (https://openstax.org/details/books/organic-chemistry), J. McMurry This book became available as an open source in 2023. I have used earlier editions of this book and I believe that it will be as useful as the Bruice textbook.
Hard Cover for Purchase	<i>Organic Chemistry</i> , 8 th Edition. Paula Y. Bruice

Learning Assistant: Luke Lackovic

Email: ltl2126@columbia.edu

Office Hours: Thursdays 4:30 pm, H711

Organic Chemistry Recitations: Tue at 3:10pm and 6:10pm; Thu at 5:10pm

Think-Pair-Share (TPS) Worksheets: In recitation

Peer Led Learning Center (aka Chemistry Help Room): The Peer Leaders will be available on the 7th Floor of Havemeyer according to the schedule. Any updates to the schedule will be posted on the website throughout the semester <https://chem.columbia.edu/content/peer-led-learning-center>

Chemistry Grad Student Private Tutors: <https://chem.columbia.edu/content/private-tutors>

Academic Integrity:

Cheating of any form will not be condoned in this course. Students are expected to work in accordance with the Honor Code. Please refer to the Columbia College website section on [Academic Integrity \(http://www.cc-seas.columbia.edu/integrity\)](http://www.cc-seas.columbia.edu/integrity) for more details.

The use of any **AI resources are not allowed** for use in any graded assignments. You may use it to assist your learning.

Resources to help students maintain academic integrity are:

[Columbia College & SEAS \(https://www.cc-seas.columbia.edu/integrity\)](https://www.cc-seas.columbia.edu/integrity)

[Barnard \(https://barnard.edu/dos/honorcode%C2%A0\)](https://barnard.edu/dos/honorcode%C2%A0)

[General Studies \(http://bulletin.columbia.edu/general-studies/academic-policies/academic-integrity-community-standards/\)](http://bulletin.columbia.edu/general-studies/academic-policies/academic-integrity-community-standards/)

Columbia Honor Code:

All Columbia College students make the following pledge:

We, the undergraduate students of Columbia University, hereby pledge to value the integrity of our ideas and the ideas of others by honestly presenting our work, respecting authorship, and striving not simply for answers but for understanding in the pursuit of our common scholastic goals. In this way, we seek to build an academic community governed by our collective efforts, diligence, and Code of Honor.

All Columbia College students are committed to the following honor code:

I affirm that I will not plagiarize, use unauthorized materials, or give or receive illegitimate help on assignments, papers, or examinations. I will also uphold equity and honesty in the evaluation of my work and the work of others. I do so to sustain a community built around this Code of Honor.

Disability Services:

In order to receive disability-related academic accommodations for this course, students must first be registered with their school Disability Services (DS) office. Detailed information is available online for both the [Columbia \(https://health.columbia.edu/\)](https://health.columbia.edu/) and [Barnard ↗ \(https://barnard.edu/disabilityservices/students/register\)](https://barnard.edu/disabilityservices/students/register) registration processes.

Refer to the appropriate website for information regarding deadlines, disability documentation requirements, and [drop-in hours \(https://health.columbia.edu/content/same-day-servicedrop-support\)](https://health.columbia.edu/content/same-day-servicedrop-support) (Columbia)/[intake session ↗ \(https://barnard.edu/disabilityservices/students/register\)](https://barnard.edu/disabilityservices/students/register) (Barnard).

Students do not need to provide an accommodation letter to the professor or the Chemistry Department for this course. Students do not need to have the professor or the Chemistry Department sign DS Testing forms for this course.

Recordings and Slides: Class recordings are intended for students registered in the courses and not for public viewing. Students are not permitted to allow anyone to view or listen to class sessions, recordings, or any course materials, and students will not copy, forward, or share said recordings/materials.

<https://vptli.columbia.edu/policies/online-policies/> ↗ [\(https://vptli.columbia.edu/policies/online-policies/\)](https://vptli.columbia.edu/policies/online-policies/)

[Organic Chemistry Study Tips and Other Resources](https://courseworks2.columbia.edu/courses/189820/files/19797828?wrap=1)

[\(https://courseworks2.columbia.edu/courses/189820/files/19797828?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19797828?wrap=1)

Lecture Notes:

[Lecture 1: Syllabus \(https://courseworks2.columbia.edu/courses/189820/files/19695700?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19695700?wrap=1)

[Lecture 2: Orbitals and Bonding \(https://courseworks2.columbia.edu/courses/189820/files/19722732?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19722732?wrap=1), [WoW \(https://courseworks2.columbia.edu/courses/189820/files/19726354?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19726354?wrap=1), [WoW Key \(https://courseworks2.columbia.edu/courses/189820/files/19726358?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19726358?wrap=1)

[Lecture 3: Conformations of Alkanes](https://courseworks2.columbia.edu/courses/189820/files/19806184?wrap=1)

[\(https://courseworks2.columbia.edu/courses/189820/files/19806184?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19806184?wrap=1), [Functional Groups \(https://courseworks2.columbia.edu/courses/189820/files/19763235?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19763235?wrap=1), [WoW1-3 \(https://courseworks2.columbia.edu/courses/189820/files/19767343?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19767343?wrap=1) and [Key \(https://courseworks2.columbia.edu/courses/189820/files/19767345?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19767345?wrap=1)

[Lecture 4: Cycloalkanes \(https://courseworks2.columbia.edu/courses/189820/files/19787741?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19787741?wrap=1), [WoW \(https://courseworks2.columbia.edu/courses/189820/files/19792698?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19792698?wrap=1), [WoW Key \(https://courseworks2.columbia.edu/courses/189820/files/19792701?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19792701?wrap=1), [Chairs Practice \(https://courseworks2.columbia.edu/courses/189820/files/19792689?wrap=1\)](https://courseworks2.columbia.edu/courses/189820/files/19792689?wrap=1); [WoW to GO](#)

(<https://courseworks2.columbia.edu/courses/189820/files/19868411?wrap=1>); [WoW to Go Key](#)
(<https://courseworks2.columbia.edu/courses/189820/files/19868420?wrap=1>)

Lecture 5: Polar bonds, resonance,

(<https://courseworks2.columbia.edu/courses/189820/files/19836511?wrap=1>) [acidity/basicity](#)
(<https://courseworks2.columbia.edu/courses/189820/files/19836511?wrap=1>), [Rules for drawing resonance structures](#) (<https://courseworks2.columbia.edu/courses/189820/files/19836525?wrap=1>),
[WoW](#) (<https://courseworks2.columbia.edu/courses/189820/files/19868438?wrap=1>); [WoW Key](#)
(<https://courseworks2.columbia.edu/courses/189820/files/19868443?wrap=1>)

Lecture 6: Stereochemistry I (<https://courseworks2.columbia.edu/courses/189820/files/19852271?wrap=1>), [WoW](#) (<https://courseworks2.columbia.edu/courses/189820/files/19868447?wrap=1>); [WoW Key](#) (<https://courseworks2.columbia.edu/courses/189820/files/19883970?wrap=1>)

Lecture 7: Stereochemistry II (<https://courseworks2.columbia.edu/courses/189820/files/19883979?wrap=1>), [WoW](#) (<https://courseworks2.columbia.edu/courses/189820/files/19918091?wrap=1>); [WoW Key](#) (<https://courseworks2.columbia.edu/courses/189820/files/19918102?wrap=1>)

Lecture 8: Reactions of Alkanes (<https://courseworks2.columbia.edu/courses/189820/files/19942804?wrap=1>),

Lecture 9: Reactions of Alkenes I

(<https://courseworks2.columbia.edu/courses/189820/files/20010079?wrap=1>); [WoW 1-3 and Key](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20034579?wrap=1>)

Lecture 10: Reactions of Alkenes II

(<https://courseworks2.columbia.edu/courses/189820/files/20060657?wrap=1>)

Lecture 11: Reactions of Alkenes III

(<https://courseworks2.columbia.edu/courses/189820/files/20097945?wrap=1>)

Lecture 12: Radical Reactions of Alkenes

(<https://courseworks2.columbia.edu/courses/189820/files/20150110?wrap=1>)

Lecture 13: Reactions of Alkynes I

(<https://courseworks2.columbia.edu/courses/189820/files/20175010?wrap=1>), [WoW1-3](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20191439?wrap=1>), [Key](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20191444?wrap=1>)

Lecture 14: Reactions of Alkynes II

(<https://courseworks2.columbia.edu/courses/189820/files/20221918?wrap=1>), [WoW](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20251419?wrap=1>)

Lecture 15: Substitution Reactions

(<https://courseworks2.columbia.edu/courses/189820/files/20251417?wrap=1>), [WoW](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20260807?wrap=1>)

Lecture 16: Elimination Reactions

(<https://courseworks2.columbia.edu/courses/189820/files/20332922?wrap=1>), [WoW](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20341672?wrap=1>), [Handout](#)
(<https://courseworks2.columbia.edu/courses/189820/files/20384722?wrap=1>)

Lecture 17: Reactions of Alcohols

(<https://courseworks2.columbia.edu/courses/189820/files/20370177?wrap=1>)

Lecture 18: Organometallics (<https://courseworks2.columbia.edu/courses/189820/files/20411537?wrap=1>)**Lecture 19: Aromaticity, including WoW Keys**

(<https://courseworks2.columbia.edu/courses/189820/files/20476274?wrap=1>)

Lecture 20: EAS (<https://courseworks2.columbia.edu/courses/189820/files/20486409?wrap=1>); [WoW Keys](#) (<https://courseworks2.columbia.edu/courses/189820/files/20507435?wrap=1>)**Lecture 21: NMR** (<https://courseworks2.columbia.edu/courses/189820/files/20535748?wrap=1>); [WoW1](#) (<https://courseworks2.columbia.edu/courses/189820/files/20780595?wrap=1>); [Key](#) (<https://courseworks2.columbia.edu/courses/189820/files/20780596?wrap=1>); [WoW2](#) (<https://courseworks2.columbia.edu/courses/189820/files/20780597?wrap=1>); [Key](#) (<https://courseworks2.columbia.edu/courses/189820/files/20780598?wrap=1>)**Lecture 22: Intro to Polymers** (<https://courseworks2.columbia.edu/courses/189820/files/20630507?wrap=1>)**Practice Exams:****TPS Worksheets:****Group Worksheets (GWs):**


PDF Converter: If you print quizzes, exams, or GWs, here's an app that you can use with a smart phone to convert pictures to PDF.

➦ (<https://apps.apple.com/us/app/turboscan-document-scanner/id1017559099>) [TurboScan for iOS Devices](#) ➦ (<https://apps.apple.com/us/app/turboscan-document-scanner/id1017559099>)

TurboScan on Google Play  https://play.google.com/store/apps/details?id=com.piksoft.turboscan.free&hl=en_US&gl=US

Cheat Sheet: [List of reactions for the class](#)

<https://courseworks2.columbia.edu/courses/189820/files/19797836?wrap=1>

Additional Homework Problems: There are several links listed on the handout that is posted in the Syllabus section. [This is another good link to practice problems from MSU.](#) 

<http://www2.chemistry.msu.edu/faculty/reusch/VirtTxtJml/Questions/problems.htm>

Chemistry Model Kit (*highly highly recommended but not mandatory*):

1) [HGS polyhedron molecular model](http://www.maruzen.info/hgs/catalog/product_info.php?cPath=4&products_id=4&osCsid=mdrv8463bve3barsl684msmf54)  http://www.maruzen.info/hgs/catalog/product_info.php?cPath=4&products_id=4&osCsid=mdrv8463bve3barsl684msmf54

2) Prentice Hall.

3) Molymod

Please do not email Professor Campos for other recommendations. This is it! "Which one is better?" I prefer 1, but all work well.

Resonance Structures Guidelines: These are a few links with some guidelines to draw resonance structures:

<http://www.chem.ucalgary.ca/courses/351/Carey5th/Ch01/ch1-7.html> 

<http://www.chem.ucalgary.ca/courses/351/Carey5th/Ch01/ch1-7.html>

<http://academics.keene.edu/rblatchly/OrgoCommon/hand/bond/ResonanceRules.html> 

<http://academics.keene.edu/rblatchly/OrgoCommon/hand/bond/ResonanceRules.html>

Stereochemistry:

Center of inversion and plane of symmetry:

<http://www.chemeddl.org/resources/stereochem/definitions10.htm> 





<http://www.chemeddl.org/resources/stereochem/definitions10.htm>

help with absolute configurations:

<http://www.AbsoluteConfiguration.com/>  <http://www.absoluteconfiguration.com/>

Useful link(?): Tool for the creation, display, and manipulation of models of chemical compounds. the models are fully editable

<https://chemagic.org/molecules/amini.html>  <https://chemagic.org/molecules/amini.html>

- BioChem Resources:
 - List of Amino Acids:
 - Review of Thermo and kinetics for Biochem
 - Let me know if you ever need help with a biochemical pathway (drawing mechanisms or a quick guide to remembering the citric acid cycle! :)
- Inorganic Resources:
 - Symmetry at Otterbein: <https://symotter.org/>  (<https://symotter.org/>)
- P Chem Resources:
 - <https://www.youtube.com/@TMPChem/playlists>  (<https://www.youtube.com/@TMPChem/playlists>)
 - Check out this guy's playlists for Quantum and P Chem. Saved me from collapsing in that class like a molozonide.
- Spectroscopy Database: https://sdb.sdb.aist.go.jp/sdb/cgi-bin/direct_frame_top.cgi  (https://sdb.sdb.aist.go.jp/sdb/cgi-bin/direct_frame_top.cgi)
- Laboratory Techniques in Organic Chemistry
 - Solvent Residual Peaks [NMR Chemical Shifts of Common Lab Solvents.pdf](#) (<https://courseworks2.columbia.edu/courses/167231/files/17565707?wrap=1>)  (https://courseworks2.columbia.edu/courses/167231/files/17565707/download?download_frd=1)
 - Columbia NMR Resources
 - Columbia Analytical Equipment Facilities
 - NotVoodoo - lab tips and tricks:
- Career and Professional Development Tips:
 - Resume writing guides:
 - CV Guides:
 - Speaker/Presentation Tips:
 - On the Design of Slides
 - Grad School Application Sample Resume/CV:

Regrade Policy: [Regrade_Request_Form.docx](#)

(<https://courseworks2.columbia.edu/courses/132773/files/11544122?wrap=1>) 

(https://courseworks2.columbia.edu/courses/132773/files/11544122/download?download_frd=1)

Course Summary:

Date	Details	Due
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