



## CHEM 2325 | Organic Chemistry II

Section: \_\_\_\_\_ | Face-to-Face

Prerequisite(s): CHEM 2323 and CHEM 1312. May not apply toward degree until CHEM 2125 is successfully completed. Chemistry of the compounds of carbon with emphasis on energies and mechanism of reactions, synthesis, and the structure of organic molecules.

### General Course Information

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Course Meeting Time: Tuesday & Thursday 10:00 –11:30 AM or 1:00 – 2:30 PM

Course Meeting Location: Fleming 160

Disclaimer: Dr. Young can modify the terms and conditions of this syllabus at any time (updated 1/12/2025)

Class Lectures: The mode of instruction in this course is face-to-face only. No recordings of class lectures will be provided.

Class Materials: All class materials will be posted on Teams.

Students may not enroll concurrently in CHEM 2323, no exceptions.

### Instructor Information

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Crystal A Young

**Department:** Chemistry

**Email:** cayoung@uh.edu (Try Teams First cayoun2)

**Phone:** 713/743-3526 (Try Teams First)

## Office Hours

In Person (STL 318) Mon./Wed.: 1-3:00 PM, T/Th 2:30-3:30 PM, Virtual (on Teams)

[Book time with Young, Crystal A: Virtual Office Hours](#)

Lecture Assistants TBA

**Department:**

**Email:**

**Office Hours**

## Required Instructional Materials

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This textbook is available free through Openstax here: [https://openstax.org/details/books/organic-chemistry?](https://openstax.org/details/books/organic-chemistry?book%20details&utm_campaign&utm_source&utm_medium&utm_content&utm_term)

[Book%20details&utm\\_campaign&utm\\_source&utm\\_medium&utm\\_content&utm\\_term](https://openstax.org/details/books/organic-chemistry?book%20details&utm_campaign&utm_source&utm_medium&utm_content&utm_term)

Solutions Manual for McMurry - Available here: [https://assets.openstax.org/oscms-prodcms/media/documents/OrgChem\\_SSM\\_NoOx7Bq.zip?](https://assets.openstax.org/oscms-prodcms/media/documents/OrgChem_SSM_NoOx7Bq.zip?_gl=1*12rseiz*_ga*MjYwODc5MDUzLjE3MDkyMjg3NTQ.*_ga_T746F8B0QC*MTcwOTIyODc1NC4xLjEuMTcwOTIyOTU4Ni41LjAuMA.._;KioqKio!!LkSTlj0!C_tKgb1MSfUChJde8UE2FVvIRl3laZoKUcYQAWlbCO5FAq4Nz4WvWHXsSQ-IYI8Es0V0JdFONBQ2mliF$&corid=a89a7ae3-c9f4-f78f-dbd8-ed5b9d64668a)

[\\_gl=1\\*12rseiz\\*\\_ga\\*MjYwODc5MDUzLjE3MDkyMjg3NTQ.\\*\\_ga\\_T746F8B0QC\\*MTcwOTIyODc1NC4xLjEuMTcwOTIyOTU4Ni41LjAuMA..\\_;KioqKio!!LkSTlj0!C\\_tKgb1MSfUChJde8UE2FVvIRl3laZoKUcYQAWlbCO5FAq4Nz4WvWHXsSQ-IYI8Es0V0JdFONBQ2mliF\\$&corid=a89a7ae3-c9f4-f78f-dbd8-ed5b9d64668a](https://assets.openstax.org/oscms-prodcms/media/documents/OrgChem_SSM_NoOx7Bq.zip?_gl=1*12rseiz*_ga*MjYwODc5MDUzLjE3MDkyMjg3NTQ.*_ga_T746F8B0QC*MTcwOTIyODc1NC4xLjEuMTcwOTIyOTU4Ni41LjAuMA.._;KioqKio!!LkSTlj0!C_tKgb1MSfUChJde8UE2FVvIRl3laZoKUcYQAWlbCO5FAq4Nz4WvWHXsSQ-IYI8Es0V0JdFONBQ2mliF$&corid=a89a7ae3-c9f4-f78f-dbd8-ed5b9d64668a)

This will download as a Zipped folder where every chapter is a separate PDF file.

Strongly Suggested: Molecular model kits (will be able to use during exams)

The “ACS Organic Chemistry Study Guide” workbook is also highly recommended since half of your final exam comprise the ACS standardized test. Reading the assigned textbook chapters is mandatory.

This course will use the material(s) listed below:

*image  
not  
available*

**Organic Chemistry**

**ISBN:** 9781711471853

**Authors:** John McMurry

**Publication Date:** 2023-01-01

## **Course Schedule, Assignments, and Assessments**

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Spring 2026 Course Outline: We will adhere to this outline as best as possible. You are responsible for all the material covered in your reading even if it is not explicitly discussed during lecture. Attending lectures and reading the textbook are complementary modes of learning, not substitutes for one another.

Persons requiring assistance under ADA guidelines please contact me immediately.

Last day to drop without hours counting towards enrollment cap:

Last day to drop a course without receiving a grade:

Last day to drop a course or withdraw:

Lecture Date	Chapter	End of Chapter Problems
3 dates	1–13, 17: Structure and Bonding Introduction and Review	CHEM 2323 Practice Exam
1 date	13: Carbon-13 NMR	13.34-39; 42-47; 49; 50-55; 57-59

Lecture Date	Chapter	End of Chapter Problems
2 dates	18: Ethers and Epoxides; Thiols and Sulfides	All
4 dates	14: Conjugated Compounds and Ultraviolet Spectroscopy	All
3 dates	15: Benzene and Aromaticity	All
5th Friday	EXAM 1 (material covered through 2/17)	
4 dates	16: Chemistry of Benzene: Electrophilic Aromatic Substitution	All
5 dates	19: Aldehydes and Ketones: Nucleophilic Addition Reactions	All
2 dates	Spring Break, No Class	
3 dates	20: Carboxylic Acids and Nitriles	All
9th Friday	EXAM 2 (material covered through 3/24)	
3 dates	21: Carboxylic Acid Derivatives: Nucleophilic Acyl Substitution Reactions	All
2 dates	22: Carbonyl Alpha-Substitution Reactions	All
2 dates	23: Carbonyl Condensation Reactions	All
13th Friday	EXAM 3 (material covered through 4/21)	
4 dates	24: Amines and Heterocycles	All
See Final Schedule	Final Exam 8:00-10:00 AM (Cumulative)	

## Grading Rubrics and Weights

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Completing homework assignments is mandatory but will not be graded. Work practice problems every day and get help as often as needed!

**Quizzes** (up to 3% extra credit): Unannounced in-class quizzes will be given throughout the semester. Quizzes will be graded for completeness, not correctness. Excused absences must be accompanied by appropriate documents. You must submit at least half of all quizzes to receive extra credit points. If this condition is met, your final extra credit amount will be determined based on the percentage of quizzes you submitted multiplied by the maximum 3%.

**Midterm Exams** (combined 60% of total grade): lowest exam score dropped automatically. It is not necessary to be present at an exam for it to be dropped. It is not necessary to notify Dr. Young of your intention to drop.

#### EXAM SCHEDULE:

Friday, 5th from start of semester 5:30–7:00 pm

Friday, 9th from start of semester 5:30–7:00 pm

Friday, 13th from start of semester 5:30–7:00 pm

**Final Exam** (combined 40% of total grade): 20% UH + 20% ACS exam (multiple choice)

Determined by UH Final Exam Schedule 8:00–10:00 am

All exams must be taken in person at the specified dates and times. Students may not leave for any reason before 5:45 PM and no students will be permitted entry after 5:45 PM. See Course Policies for more information regarding missed exams or special accommodations.

Grading: The final grading scale will depend on the overall class performance but this a typical breakdown: A = 100–87%; B = 86–75%; C = 74–62%; D = 61–50%; F = <50%. Plus (+) and minus (-) signs will be assigned to grades within 2% of grade cutoffs. *If you did not receive an “A” or “B” grade in CHEM 2323 at UH, you might not have sufficient background knowledge for this course.*

## Course Policies and Procedures

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Please read and acknowledge your compliance with the following policies.

Some of these policies are already covered by UH’s Academic Regulations (<http://publications.uh.edu/content.php?catoid=31&navoid=11777>)

*\*Dr. Young reserves the right to modify these policies at any time\* Updated 01/2026*

Academic Honesty: We have a zero-tolerance policy for cheating, any students who violate the UH Academic Honesty Policy will be subjected to the maximum disciplinary actions allowable. Any incidents of cheating will result in an automatic “F” grade in the course. Those who aid or abet others in cheating will also receive an “F” grade.

**In-Person Exams:** All exams must be completed by the student in-person as this is a face-to-face course. You must show your university-issued or state identification card when submitting your exam to confirm your identity. Exams are closed-book (no notes or external resources) and collaboration with others is not allowed. Any attempts to gain testing advantages are considered cheating. Never have contact with anyone during an exam period for any reasons except your instructor or exam proctors.

**Missing Exams:** Exam exemption requests must be submitted to Dr. Young at least 14 days in advance unless extenuating circumstances prevent you from doing so.

Approved reasons for missing exams (must have official documentation):

1. Medical emergency or sickness
2. Official religious holiday explicitly forbidding exam taking
3. Death of immediate family member
4. Conflicts with official university assignments that absolutely could not be rescheduled
5. Natural disaster emergency

Unacceptable reasons for missing exams:

1. Oversleeping or forgetting the exam date/time
2. Bad traffic
3. Conflicts with personal social activities or commitments (e.g., attending a wedding)
4. Many other reasons not listed

Please see the UH Excused absence policy for more details

<https://publications.uh.edu/content.php?catoid=57&navoid=21988>

- All exam exemption requests must include official documentation of the extenuating circumstance to be considered.
- Once your exam exemption has been approved, Dr. Young will provide you with further instructions.

**Special Accommodations:** It is your responsibility to notify Dr. Young directly when special accommodations are needed at the beginning of the semester, this includes students who may be in need of additional help under the Americans with Disabilities Act.

Grade Disputes: Grade decisions made by Dr. Young are final and non-negotiable. Exam scores can only be changed if there are legitimate grading errors and requests for re-grade must be submitted to Dr. Young within 7 calendar days after the scores are released.

Regrades. If there is a math error on exam, I will correct it without regrading anything. If you want a question regraded, I will regrade the whole test and you may get points added or subtracted to your total score. Make sure that adding 1 point in Question 1 is not accompanied by subtraction of 10 points in Question 2. How to request a regrade: Send me a message in Teams with an explanation where you think is a grading error and directly say that you want a regrade. I will not accept pictures; everything must be in text. Any change in the exam you show me which has been introduced after it was graded constitutes cheating and you will get 0 for this test without possibility of dropping the test score and the class.

Makeup exams will never be identical to the version given to the class for test integrity reasons. Thus, there is no guarantee that the difficulty level of the makeup exam will be exactly the same as that given to the class, which is impossible to do. Grade change requests for reasons other than grading error are not allowed.

Examples of unacceptable reasons for grade change:

1. Need better grade to graduate
2. Need better grade to get or retain scholarship
3. Need better grade because you think you deserve it
4. Need better grade because you worked really hard and attended every lecture
5. Any variations of the above and many others not listed

Student Conduct: The majority of students I have taught are respectful and pleasant to work with. However, I have had a few bad experiences in the past. Improper student conduct will be reported to the university and/or other authorities for disciplinary action to be taken.

Examples of improper student conduct:

1. Physical or verbal threats of any kind directed at other students or instructor
2. Fabricating stories to retaliate against instructor decisions
3. Harassing the instructor by sending excessive emails or making excessive phone calls (emailing the instructor to ask legitimate class questions is ok but not to make threats)

#### 4. Making or spreading false accusations

Distribution of Course Material: All class materials created by Dr. Young (e.g., lecture notes, exams, worksheets, etc.) can only be used by the student. Distribution of course materials to others is forbidden, no exceptions. Please do not post, share, or sell materials online in any platform (e.g., Koofers, Course Hero, GradeBuddy, Clutch Prep, Chegg, etc.).

## How to Succeed in Organic Chemistry

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Study Recommendations:

There is no secret on how to do well in your classes. It takes hard work and persistence! Studying the night or even the week before an exam is not sufficient. Going to every lecture but not doing homework or self-study is not enough.

Learning = Understanding NOT Memorizing

1. Read the textbook before coming to lecture.
2. Attend Dr. Young's lectures on time, take notes, and ask questions.
3. Review your notes after each lecture that same day.
4. Work assigned problems and understand how to arrive at the correct solutions. Expect to study at least 10+ hours per week. Organic chemistry is only "hard" because it takes a lot of practice to learn it! Once you develop chemical intuition, it can actually be fun—like solving a puzzle.
5. Seek additional help as needed.

From CHEM 2123:

1. Come to class. If you miss class, copy BY HAND notes from someone in the class. Taking pictures of the notes will not help as it is you, and not your phone, who needs this information in memory.
2. (a) Watching organic chemistry videos on youtube does not substitute for coming to class, studying, and doing homework problems! It may be helpful, but watching videos without doing problems is insufficient. (b) Doing random problems found in internet tubes is not helpful as these are often full of errors. Need more problems – ask me or use [www.chem3331.com](http://www.chem3331.com).

3. Read textbook BEFORE coming to class. You will be able to specifically ask questions about material you have trouble understanding. Furthermore, seeing material for the second time will help you understand it much better.
4. Try to do all homework – doing only the assigned problems is minimum required. Do not look at homework answers before you have solved the problem – you will not be provided answers to peek into during tests!
5. Ask questions before, during and after the lectures. At other times, email me questions and I will usually answer those within few hours. HOWEVER – be specific in asking questions by email as I will not retype textbook in my answer. Example of a good question: does methyl iodide react by SN1 or SN2 and why. Example of a bad question: Please tell me about SN1 reaction as I was busy texting during lecture.
6. If you can, sign up for Recitation (Chem 2132). Check for the teaching style of TA who runs your section – talk to previous year students if they liked that TA.
7. Thinking about the grade and studying hard has to start at the beginning of semester. Very few students are able to succeed if they slack off at the beginning.

Learning chemistry takes time and focused effort. For the summer session, on average, a student should expect to devote 12-18 hours per week in preparation (beyond lecture time) to work towards mastery of the course topics. In addition, many students gain added efficiency and effectiveness by using available academic resources to support their learning. Several such resources are listed below for your consideration (Not all services are available during the Summer):

#### Tutoring

Free tutoring is available from the following:

- ACS tutors (UH American Chemical Society Chapter volunteers): <https://acsuh.org/#tutoring>
- LAUNCH tutors: <https://ussc.uh.edu/lss/tutoring.aspx>

- NSM-SEP tutoring: <https://uh.edu/nsm/scholar-enrichment/tutoring/>
- Knack online tutoring: <https://app.joinknack.com/school/university-of-houston>

Facilitated group problem-solving sessions

- CHEM GYM: free weekly, tutor-led sessions
- Success Guides: <https://uh.edu/ussc/launch/services/handouts/>
- Success Workshops: <https://uh.edu/ussc/launch/workshops/>
- Success Coaching: <https://uh.edu/ussc/launch/coaching/>

## Frequently Asked Questions (FAQs)

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1. Chemistry is not my strongest subject, will I be able to pass this course?

Just like any other upper division course, CHEM 2325 builds on prior knowledge. You need to have a solid foundation in general chemistry, such as an understanding of Lewis dot structures, hybridization, acid/base, molecular geometry, etc. If you did not receive an “A” or “B” grade in CHEM 2323, you might not have a strong enough background to do well in CHEM 2325. We have found that students who took Organic Chemistry 1 in community college tend to struggle more in this class than those who took it at UH.

To pass this course, you have to study consistently. This means attending all lectures in-person, reading the textbook, working homework problems every day, and asking Dr. Young for help! Many students procrastinate and must cram for exams but that always end badly. If you cannot devote at least 10+ hours per week to this course because of work or other obligations, you should consider taking this class when you have more time to study. With that said, many of my former students have gotten “A” and “B” grades in CHEM 2325 and were accepted into top graduate and professional schools. Of course, those students worked extremely hard so don’t think that success comes without sacrifice (an important life lesson!).

2. I really need this class to graduate, get a scholarship, go to graduate school, or [insert your reason here]. Can you please just give me a better grade?

Grades are supposed to reflect your mastery of the course subject. Although formal assessments like quizzes and exams are not perfect measures of your knowledge, it is the most objective

method we have. If grades were given based on anything other merit, it would have no meaning. A college degree only has value if we protect its integrity by giving students the grades they've earned. As much as I might sympathize with your situation, I cannot make exceptions to grading because that would be academic dishonesty.

3. I don't want to be a chemist, why do I need to take this class?

My goal is to educate students about the importance of chemistry in our daily lives and the world we live in. Your understanding of science will impact many of your future decisions, sometimes in unexpected ways. Even if you never use Organic Chemistry again after taking this class, you'll learn important lessons in time management, self-discipline, and critical thinking. Professional schools often use your performance in Organic Chemistry as an indicator of your perseverance and ability to excel in challenging situations.

4. Professors intimidate me, how do I overcome my fear of them so I can get help with class?

Professors are less scary once you get to know them. In most cases, professors are very willing to help students who they believe are genuinely interested in learning. I wish back when I were a student many years ago, someone had encouraged me to talk to my instructors because you can learn so much more from them that is not in the textbook. I always tell my students at the beginning of the semester that they are welcome to get help from me in person or via email but sadly, the ones who really need it don't usually seek me out. Some students wait until the end of the semester to ask for help but by that time, it is too late.

5. Can you write me a letter of recommendation?

I am usually willing to write letters of recommendation for students who receive an "A" or "B" grade in my class. However, please keep in mind that I cannot write a personalized letter if I have not interacted with you. A generic letter that just states your grade and class ranking is not very meaningful and will not help your application. The best way for me to get to know you is through our interactions in class, office hours, and problem sessions. Pro tip: if your professors actually encourage you to contact them for help, make sure to take advantage of their generosity!

To request a letter, please complete the following form:

<https://forms.office.com/r/C4pMmmASU4>

6. What is the proper way to email a professor?

If it is Dr. Young. Don't! Send a Teams message and include your course and section number. When drafting Teams messages or emails to OTHER professors, please keep it professional. That means the message should begin with “Dear Prof. [Last name]” and end with “Thank you, [Your name].” Please write in complete sentences, use proper grammar, and be succinct. A professionally drafted message is much more likely to get a thoughtful response.

## University Policies and Student Support Resources

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### Mental Health and Wellness Resources

The University of Houston has a number of resources to support students’ mental health and overall wellness, including [CoogsCARE](#) and the [UH Go App](#). [UH Counseling and Psychological Services \(CAPS\)](#) offers 24/7 mental health support for all students, addressing various concerns like stress, college adjustment and sadness. CAPS provides individual and couples counseling, group therapy, workshops and connections to other support services on and off- campus. For assistance visit [uh.edu/caps](http://uh.edu/caps), call 713-743-5454, or visit a [Let’s Talk](#) location in-person or virtually. Let’s Talk are daily, informal confidential consultations with CAPS therapists where no appointment or paperwork is needed.

**Need Support Now? If you or someone you know is struggling or in crisis, help is available. Call CAPS crisis support 24/7 at 713-743-5454, or the National Suicide and Crisis Lifeline: call or text 988, or chat [988lifeline.org](http://988lifeline.org).**

### Title IX/Sexual Misconduct

Per the UHS Sexual Misconduct Policy, your instructor is a “responsible employee” for reporting purposes under Title IX regulations and state law and must report incidents of sexual misconduct (sexual harassment, non-consensual sexual contact, sexual assault, sexual exploitation, sexual intimidation, intimate partner violence, or stalking) about which they become aware to the Title IX office (known at UH as the Equal Opportunity Services office or "EOS"). Please know there are places on campus where you can make a report in confidence. You can find more information about resources on the UH [Title IX/Sexual Misconduct Resources page](#). Please note that you may also report concerns of discrimination based on your protected class identity to EOS.

### Reasonable Academic Adjustments/Auxiliary Aids

The University of Houston is committed to providing an academic environment and educational programs that are accessible for its students. Any student with a disability who is experiencing barriers to learning, assessment or participation is encouraged to contact the Justin Dart, Jr. Student Accessibility Center (Dart Center) to learn more about academic accommodations and support that may be available to them. Students seeking academic accommodations will need to register with the Dart Center as soon as possible to ensure timely implementation of approved accommodations. Please contact the Dart Center by visiting the website: <https://uh.edu/accessibility/> calling (713) 743-5400, or emailing [jdcenter@Central.UH.EDU](mailto:jdcenter@Central.UH.EDU).

The [Student Health Center](#) offers a Psychiatry Clinic for enrolled UH students. Call 713-743-5149 during clinic hours, Monday through Friday 8 a.m. - 4:30 p.m. to schedule an appointment.

The [A.D. Bruce Religion Center](#) offers spiritual support and a variety of programs centered on well-being.

The [Center for Student Advocacy and Community \(CSAC\)](#) is where you can go if you need help but don't know where to start. CSAC is a "home away from home" and serves as a [resource hub](#) to help you get the resources needed to support academic and personal success. Through our [Cougar Cupboard](#), all students can get up to 30 lbs of FREE groceries a week. Additionally, we provide 1:1 appointments to get you connected to on- and off-campus resources related to essential needs, safety and advocacy, and more. The [Cougar Closet](#) is a registered student organization advised by our office and offers free clothes to students so that all Coogs can feel good in their fit. We also host a series of cultural and community-based events that fosters social connection and helps the cougar community come closer together. Visit the CSAC homepage or follow us on Instagram: @uh\_CSAC and @uhcupbrd. YOU belong here.

## **Women and Gender Resource Center**

The mission of the [WGRC](#) is to advance the University of Houston and promote the success of all students, faculty, and staff through educating, empowering, and supporting the UH community. The WGRC suite is open to you. Stop by the office for a study space, to take a break, grab a snack, or check out one of the WGRC programs or resources. Stop by Student Center South room B12 (Basement floor near Starbucks and down the hall from Creation Station) from 9 am to 5 pm Monday through Friday.

## **Academic Honesty Policy**

High ethical standards are critical to the integrity of any institution, and bear directly on the ultimate value of conferred degrees. All UH community members are expected to contribute to an atmosphere of the highest possible ethical standards. Maintaining such an atmosphere requires that any instances of academic dishonesty be recognized and addressed. The [UH Academic Honesty Policy](#) is designed to handle those instances with fairness to all parties involved: the students, the instructors, and the University itself. All students and faculty of the University of Houston are responsible for being familiar with this policy.

## **Excused Absence Policy**

Regular class attendance, participation, and engagement in coursework are important contributors to student success. Absences may be excused as provided in the University of Houston [Undergraduate Excused Absence Policy](#) and [Graduate Excused Absence Policy](#) for reasons including medical illness of student or close relative, death of a close family member, legal or government proceeding that a student is obligated to attend, recognized professional and educational activities where the student is presenting, and University-sponsored activity or athletic competition. Under these policies, students with excused absences will be provided with an opportunity to make up any quiz, exam or other work that contributes to the course grade or a satisfactory alternative. Please read the full policy for details regarding reasons for excused absences, the approval process, and extended absences. Additional policies address absences related to [military service](#), [religious holy days](#), [pregnancy and related conditions](#), and [disability](#).

## **Recording of Class**

Students may not record all or part of class, livestream all or part of class, or make/distribute screen captures, without advanced written consent of the instructor. If you have or think you may have a disability such that you need to record class-related activities, please contact the [Justin Dart, Jr. Student Accessibility Center](#). If you have an accommodation to record class-related activities, those recordings may not be shared with any other student, whether in this course or not, or with any other person or on any other platform. Classes may be recorded by the instructor. Students may use instructor's recordings for their own studying and notetaking. Instructor's recordings are not authorized to be shared with anyone without the prior written approval of the instructor. Failure to comply with requirements regarding recordings will result in a disciplinary referral to the Dean of Students Office and may result in disciplinary action.

## **Course Objectives and Student Learning Outcomes**

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Students will learn to recognize fundamental bond-forming reactions and functional groups in organic chemistry, and apply them to organic synthesis. In that context, students will acquire analytical techniques and bonding concepts and apply them to predicting and explaining the outcomes of organic reactions.

## **Discussion and Lecture Topics**

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Please see Course Schedule for the list of topics.