

**Chemistry 223-001 – Fall 2022 – Syllabus**

The purpose of this syllabus is to describe the course, resources, and policies. It is meant help all students understand the expectations and requirements for the course, and it should be used as a reference for questions about policies. When updates to the syllabus are made during the term, a new version will be posted electronically, and all students will be notified.

**Course Information**

**Course:** Chemistry 223 – Organic Chemistry A (3 credits: Lecture & Discussion)

**Prerequisites:** Completion of Chemistry 102/106 & Math 118 with a grade of C- or better. A student missing a prerequisite may be withdrawn at any time.

**Time Zone:** This syllabus lists dates/times using Chicago local time (U.S. Central Time Zone)

**In-Person Learning:** All graded assignments scheduled during class time are available in class only.

**Lectures:** Section 001, MWF, 11:30am-12:20pm, Cuneo Hall 002

**Discussions:** You must attend the section for which you registered:

- Section 002, Thursdays, 8:30am, Flanner Hall 007
- Section 002, Thursdays, 10:00am, Flanner Hall 007

**Course Coordinator:** Dr. James Devery (Ph.D.) [jdevery@luc.edu](mailto:jdevery@luc.edu)

Chemistry 223 is a multi-section lecture & discussion course with common content and common outcomes across all sections. This course includes a Final Exam during the Common Final Exam Period as scheduled by the University. The Course Coordinator is responsible for consultation and coordination with instructors regarding policies, exam writing, and grading. Your Section Instructor is responsible for communicating with you regarding all course content and policies and is the first and primary person you should contact with questions about all aspects of the course. As needed, all Section Instructors will consult with the Course Coordinator throughout the semester.

**Section Instructor:** Dr. Sandra Helquist (Ph.D.)

**Dr. Helquist's Contact Information**

**Office:** Flanner Hall 200-B (shared office suite)

**Email:** if you are emailing me about this course, you may either: (1) reply directly to one of my messages, which are sent via Sakai and therefore automatically labeled with our course number or (2) type "Chem 223" in the subject line of your email (and nothing else) and send to [shelquist@luc.edu](mailto:shelquist@luc.edu). Doing either of these will ensure that I read your message and reply within 24 hours Monday-Friday or 48 hours on weekends during this term. You are welcome to email me in the evenings/nighttime – I never have email notifications activated – and the same response times will apply.

**Office Hours Policy:** *You are welcome to stop by at any time* to see if my door is open and check my posted schedule. Occasional extra hours may be announced in class. For [regular OH](#), just show up!! Bring your questions anytime during the times listed. Bring a classmate with you or meet your classmates there to work together & get feedback & help.

**Office Hours Schedule:** In the [STEM Center](#) St. Joseph Hall, Cafeteria: Mondays 1:30-3:00pm

In the Flanner 200 office suite: Thursdays 3-4pm; Fridays 9-10am

A limited number of short, individual appointments will be available weekly, by advance sign-up, via [Sakai Sign-up page](#)

Occasional Sunday afternoon hours will be held in Ireland's, see [Sakai Resources for Help](#) for weekly updates

**SI information**

There are Supplemental Instruction (SI) study sessions available for this course. SI sessions are led by an SI leader, Cole Gebert, who is a student that has recently excelled in the course. Session attendance is open to all, and while it is voluntary, it is extremely beneficial for those who attend weekly. Times and locations for the SI session can be found here: [www.luc.edu/tutoring](http://www.luc.edu/tutoring). Students who attend these interactive sessions find themselves working with peers as they compare notes, demonstrate and discuss pertinent problems and concepts, and share study and test-taking strategies. Research shows students whom regularly attend sessions have higher grades at the end-of-the-semester and more deeply understand course concepts than those who do not. Students are asked to arrive with their Loyola ID number, lecture notes, and textbook.

**Required Course Materials**

- Textbook: eText via [WileyPlus](#) and/or hard copy: Organic Chemistry, Klein, David, 4th edition.
- Loyola Sakai course management site: [sakai.luc.edu/portal/](http://sakai.luc.edu/portal/) and tools integrated into the site.
- Loyola email: messages are sent to the entire class via Sakai, linked to your Loyola email account
- Additional electronic resources will be used for uploading your work and facilitating feedback and evaluation. Registration will be free but required. These may include [Gradescope](#) and other sites.
- Calculators are not used in this course.

**Recommended Course Materials:** Molecular Model Kit

**Copyright/Intellectual Property reminder:** Course materials provided by your instructors at Loyola, including my materials, may not be shared outside any course without the instructor's **written permission**. Content posted without permission will be in violation of Copyright/Intellectual Property laws.

### Course Content & Learning Outcomes

Topics will include: nomenclature, structures, properties, reactions, mechanisms and synthesis of alkanes, alkyl halides, alkenes, alkynes, alcohols and ethers; study of molecular structure, geometry, and properties; functional groups; reactive organic species; stereochemistry; spectroscopy; spectrometry. If successful, the student will be able to:

1. identify the various classes of organic compounds, their methods of preparation, and typical reactions.
2. name and draw specific organic compounds.
3. visualize and interpret multiple representations of organic molecules depicting connectivity, configuration, and conformations.
4. postulate logical reaction mechanisms for organic reactions.
5. discriminate among relative stabilities of reactive intermediates.
6. plan and write out single and multi-step syntheses using known reagents and conditions.
7. identify and compare general physical properties of organic compounds.
8. analyze, interpret, and predict spectral data (MS, IR, NMR) used in identifying organic compounds.
9. describe and analyze how organic chemistry affects the way we live and die.

### Classroom & Group Work Guidelines

The classroom is a space designed for learning. My expectations are that all voices will be heard and appreciated in the classroom, and that we will invite each other to engage while recognizing that contributions can take multiple forms. Please contact me as needed to discuss any issues.

### Expectations

I expect you to show up on time for each class and to come prepared, having kept up with the material by working homework, reading in the textbook and accessing resources for help. I expect you to use class and office hours to learn the material by engaging with classmates and asking questions. You will need to contact a classmate for notes, topics, sections, covered if you miss a class. Make-up assignments are not available in this course; refer to the Universal Absence Accommodation Policy for missed assignments. Be courteous: save electronic messaging for after class. Plan your schedule so you have at least 10 hours per week outside of class for reading, working problems, asking questions, i.e. studying (learning) the material on a Daily Basis. You may require additional hours spent per week depending on prior preparation for this course. Make time (1-2 hours) for this course every day: do not count on cramming on weekends or just the days or week before testing as you will be much less likely to master the course objectives.

### Student Accommodations

Loyola University provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with Student Accessibility Center (SAC), located in Sullivan Center, Suite 117. Professors receive the accommodation notification from SAC via Accommodate. Students are encouraged to meet with their professor individually in order to discuss their accommodations. All information will remain confidential. Please note that in this class, software may be used to record class lectures in order to provide equal access to students with disabilities. Students approved for this accommodation use recordings for their personal study only and recordings may not be shared with other people or used in any way against the faculty member, other lecturers, or students whose classroom comments are recorded as part of the class activity. Recordings are deleted at the end of the semester. For more information about registering with SAC or questions about accommodations, please contact SAC at 773-508-3700 or [SAC@luc.edu](mailto:SAC@luc.edu). *If you use the Testing Center, please schedule all of the tests for this class at the beginning of the semester. If a scheduled test date changes, you will still be accommodated if you had scheduled your test in advance.*

### Course Repeat Rule

Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). The Department advises that it is preferable to complete a course with a grade of C or C-, and to demonstrate growth in future coursework, than to withdraw from a course.

After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <https://www.luc.edu/chemistry/forms/> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

## Academic Integrity

All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, which can be viewed at:

<https://www.luc.edu/cas/advising/academicintegritystatement/>

A basic mission of a university is to search for and to communicate the truth as it is honestly perceived. A genuine learning community cannot exist unless this demanding standard is a fundamental tenet of the intellectual life of the community.

Students of Loyola University Chicago are expected to know, to respect, and to practice this standard of personal honesty.

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, and submitting false documents.

Any instance of dishonesty (including those detailed on the website provided above or in this syllabus) will be reported to The Chair of The Department of Chemistry & Biochemistry who will decide what the next steps may be. Evidence of cheating in this course will result in, at a minimum, a score of zero (which cannot be dropped from grade calculations) and penalty up to failure of the course. College policies include that instructors will report incidents of academic misconduct to their chairperson as well as to the Assistant Dean for Student Academic Affairs in the CAS Dean's Office. I will report incidents to the Chemistry & Biochemistry Department for further action(s).

## Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC):

Students missing classes while representing Loyola University Chicago in an official capacity (e.g., intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation i.e., "[Athletic Competition & Travel Letter](#)" describing the reason for and date of the absence.

This documentation must be signed by an appropriate faculty or staff member and it must be provided to the professor in the first week of a semester. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to allow the student to take the examination at another time.

<https://www.luc.edu/athletheadvising/attendance.shtml>

Students who will miss class for an academic competition or conference must provide proper documentation to their instructor as early in the semester as possible.

## Accommodations for Religious Reasons

If you have observances of religious holidays that will cause you to miss class or otherwise effect your performance in the class you must alert the instructor **within 10 calendar days of the first class meeting of the semester** to request special accommodations, which will be handled on a case by case basis.

## Universal Absence Accommodation Policy

The purpose of a universal absence accommodation policy is to account for emergency circumstances (e.g., serious illness, caring for a family member, car accident) that require you to be absent from class, while maintaining fairness in grading for students who attend and complete all in-class graded assignments. We believe that class attendance and participation are essential for your success in this class, and that your health is important to us and our shared community. Please use good judgement and stay home if necessary/prudent for your circumstances.

This is the universal accommodation policy for in-class graded assignments:

- Group Assignments: two assignments are dropped from the total scoring at the end of the term
- FOs: multiple attempts at Mastery are automatically provided during the term
- SSMs: you are eligible to submit for Proficiency after the first attempt at an SSM whether you complete the problems or not; reattempts at Mastery are available during the term

You may provide documentation for an absence, but it is not required. These accommodations are automatically available to all students.

## Health, Safety, and Well-Being On-Campus

Please be familiar with and adhere to all policies and protocols posted on the *Campus Info & Resources* site:

<https://www.luc.edu/healthsafetyandwellbeing/campusinforesources/>

## Fall 2022 Classroom Masking Policy

We will follow all University guidance and requirements for masking, including any updates made during the semester. It will remain a principle of this class-section that, out of respect for the health of housemates and others in regular contact with members of our community, we will be respectful of anyone who wears a mask in the classroom.

## Pass/Fail Conversion Deadlines and Audit Policy

A student may request to convert a course into or out of the “Pass/No-Pass” or “Audit” status only within the first two weeks of the semester. For the Fall 2022 semester, students are able to convert a class to “Pass/No-Pass” or “Audit” through Monday, September 12th. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

## Class Recording & Content Information

In general lecture, meetings may be recorded. The following is a mandatory statement for all courses in the College of Arts & Sciences (CAS). We will discuss class norms and standards during the first week and continue the discussion as needed throughout the semester.

### Privacy Statement

Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.

### Additional Content, Copyright & Intellectual Property Statement

By default, students may not share any course content outside the class without the informed written consent of the owner of that content. This includes any additional recordings posted by students, materials provided by the instructor, and publisher-provided materials. For example, lectures, quiz/exam questions, book figures/slides, and videos may not be shared online outside the class. In some cases, copyright/IP violations may overlap with breaches of academic integrity. Remember that obtaining consent to share materials is an active process.

## Final Exam

The University sets the schedule for all final exams. The final will be held on: **Thursday December 15<sup>th</sup>, 7:00pm**

Location will be updated on LOCUS when available.

You will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you start late. There will be no make-up final exams given under any circumstance, and the exam will not be given early, either.

Instructors may not reschedule final exams for a class for another day and/or time during the final exam period. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. If a student reports having four final examinations scheduled for the same date, students should be directed to e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean’s Office (apatricoski@luc.edu).

## Best Practices & Suggestions for Success: Preparation, Practice, Self-Assessment

Students often ask me, “How do I get a/an (fill in grade of choice here) in this class?” The answer is simple (see the grading policy for the course), but the process of learning is challenging and can even be uncomfortable as you are pushed to expand the boundaries of your knowledge and abilities. Grades are earned based on how well you demonstrate mastery of the Course Content and Learning Outcomes listed on Page 1 of this syllabus. Please read carefully and completely – and ask questions if you are not sure how/when we are working toward these and the more specific objectives in class. Required preparation includes pre-lecture reading assignments to correlate with required practice which includes the WileyPlus assignments online and the Group Assignments. Very Highly Recommended: active participation during classes (problem-solving, asking/answering questions, taking notes for follow-up), using additional resources for critical self-assessment – working extra problems – in WileyPlus and from your textbook, and during SI sessions. The required homework assignments include the minimum amount of preparation you will need pre-lecture; almost all students will need additional pre- and post-lecture practice with the material in order to achieve a satisfactory level of learning (in order to earn a passing course grade). Reading the textbook is not sufficient, reading solutions to problems is not sufficient: watching other people solve problems is not sufficient: you must solve problems and answer questions individually, without the aid of notes, textbook, google, tutors, solution manuals. What does this mean? You should study (learn) every day by answering questions: practicing until you can rapidly recognize problem types, state the concept(s) being addressed in any question (say it out loud to yourself when practicing), identify subtle differences between problems and correct your own mistakes. This amount of practice usually starts with the aid of your book and other resources, but must conclude with you correctly solving problems without any help – and knowing immediately why your answer is correct. When you cannot differentiate problem types, ask for help. When you cannot find and correct your mistakes, and when you do not understand the difference between your answers and posted solutions, ask for help. Study on your own and with classmates who will quiz you on

mixed problems types so that you learn to expect the unexpected and do not learn to rely on brute force memorization or on your notes/book/other every time you encounter an unfamiliar problem type. The purpose of homework problems is to help you learn the material but this requires critical self-assessment as you work: you must know how completely you are learning the material so you may properly evaluate your competency prior to testing. You have many [Resources for Help](#) available, in and out of the classroom, at Loyola, and the grading system for this course is designed to guide your learning.

## Other Items

- A link to the official Loyola calendar can be found here: <https://www.luc.edu/academics/schedules/>
- The Withdraw deadline for the semester is on Friday November 4<sup>th</sup>.
- Loyola is using SmartEvals to provide instructor & course feedback. [OIE](#) will send emails near the end of the term.
- A tentative class schedule is available on Sakai. We will cover most of Chapters 1-14 this semester, and pre-lecture readings will be continually updated on Sakai. Please be prepared to help your classmates get caught up if they miss a class for any reason. Establish a communication plan to share notes/topics/outlines as needed.
- Additional resources, advice, and suggestions for success (from multiple sources) will be posted/updated on Sakai.
- *Grading information is on the next pages, and I hope that the measure of what you gain from this course will include much more than the letter on your transcript. Your success in this course is important to me. Let me know what I can do to help you meet your needs and fulfill the requirements to succeed. – Dr. Helquist*

## Course Grading System

The standards for each letter grade are listed here according to all required course components. We will revisit the standards and expectations after the early rounds of testing to help you gauge your progress in the course. Each student will receive a midterm grade via LOCUS at least one week prior to the Withdraw deadline for the semester. Grades are only based on the criteria listed in the syllabus: no substitutions, and no additions.

### Grading Scheme

WileyPlus	6%
Group Assignments	6%
FO Mastery	26%
SSM Mastery	32%
<u>Final Exam</u>	<u>30%*</u>
Total score	100%

\*the final exam is mandatory to earn a passing grade

### Letter Grade Cutoffs\*:

A	90.0%	C+	65.0%
A-	85.0%	C	60.0%
B+	80.0%	C-	55.0%
B	75.0%	D	40.0%
B-	70.0%	F	< 40%

### Design of the FO and SSM Mastery system

There are three basic principles that I have used to design the assessments for this course. These are for you to:

1. Understand what the standards and requirements are for each letter grade so that you can choose what level of academic achievement to pursue in this course. I encourage each of you to strive for high achievement because I believe in the potential of all students to learn and improve their abilities in Chemistry.
2. Expect a challenging but flexible learning environment. The standards for demonstrating your Mastery of the course material are high in each area, but the methods for meeting the standards are designed to give you chances to revise and improve the quality of your work throughout the semester.
3. Learn from mistakes. Deep, connected learning involves hard work and reflection on your progress. Chemistry is a cumulative subject where the new topics build on prior knowledge and this system is designed for cycles of learning.

### Posting of Grades

Final course grades at the end of the semester are posted only LOCUS. Grades are never sent via email. WileyPlus scores are automatically recorded in the gradebook for that system. Other scores are posted on Gradescope or Sakai.

## WileyPlus: Required Homework

Registration information is on Sakai; use of this system includes eText access. The purpose of these assignments is to help you keep up with the course material by preparing ahead for each class. You will get as much benefit from these assignments as you choose to put forth in your effort to solve the problems on your own: a list of textbook sections will be continually updated on Sakai to correlate with the WileyPlus pre-lecture assignments. Typically you will have 2-4 required assignments per week, always due at 11:59pm, posted at least 48 hours in advance. Assignments will be submitted completely online with the individual grading policy listed with each assignment. Contact [Wiley Support](#) for help with technical aspects of using WileyPlus. Additional practice assignments will be posted that will not count toward the point total for your course grade.

## Group Assignments

On average, 1 assignment per week, usually completed in assigned groups. Most assignments will be completed in class and submitted to Gradescope. The purpose of participation is to improve your learning by: 1) cooperation, communication and support among your classmates as you practice the skills required for success in the course; and 2) providing feedback on your progress to encourage reflection and improvement. Assignments will include test questions from previous semesters. You will get as much benefit from these assignments as you choose to put forth in your effort and you are expected to correct your work after receiving feedback. Each assignment will contribute equally toward this category in your course grade. Refer to the Universal Absence Accommodation Policy for missed assignments.

## Foundational Objectives (FOs): Mastery Testing

The purpose of testing is to align your course grade with your level of learning, based on your mastery of Foundational Objectives (FOs). The FOs are all related to the Course Content & Learning Outcomes on the first page of this syllabus. A list of FOs will be updated for each unit as we progress through the material. There will be some overlap between chapters. FOs will be scored as Mastered or Not Mastered. A score of Mastered is earned for correctness and completeness of the problem(s), and each FO may only be counted once toward your FO Mastery score, which is calculated as 1% each for each Mastered FO (26% total). You will have multiple chances to demonstrate mastery of all of the FOs during the term: for example, if you receive a score of Not Mastered for any FO on the first test (or if you choose not to attempt an FO), you can try again to earn a score of Mastered for that FO on the second test. Revision of work that does not meet mastery standards is expected for your learning. Because you will have more than one chance to master the FOs, you will also be able to choose which FOs to work toward for the course. Note that the standards for earning Mastery will be high: by definition there is no partial credit, but you will learn the standards from the examples for class activities. Tentative test dates are: 9/16, 10/7, 10/26, 10/28, 11/18, 12/9. Refer to the Universal Absence Accommodation Policy for missed tests.

## Spectroscopy/Synthesis/Mechanisms (SSMs): Mastery Testing

The purpose of testing is to align your course grade with your level of learning, based on your mastery of in-depth topics. The purpose of SSMs is to allow you to demonstrate your higher-level skills of applying and analyzing, requiring you to go beyond memorization of facts and processes and transfer your understanding of essential course concepts to new scenarios. The SSMs are all related to the Course Content & Learning Outcomes on the first page of this syllabus. A list of SSMs will be updated for each unit as we progress through the material. SSMs will be scored as Mastered or Not Mastered. A score of Mastered is earned for correctness and completeness of the problem(s). Note that the standards for earning Mastery will be high: by definition there is no partial credit, but you will learn the standards from the examples for class activities. Each round of testing on SSMs will be followed by an opportunity to resubmit work to earn a score of Proficient for an SSM that was Not Mastered in the first testing opportunity. Resubmissions for Proficiency will also earn reattempts of SSMs. Reattempts will take place with the next round of testing. There are 16 SSM's for this course, with a total contribution of 32% to the course grade. At the end of the term, each Mastered SSM is worth 2% and each Proficient SSM is worth 0.5% toward the SSM Mastery percentage. Note that your grade will not count both Mastery and Proficiency for the same item; an SSM that is scored Proficient and then is subsequently Mastered on a re-attempt is worth 2%. Tentative test dates are: 9/16, 10/7, 10/26, 10/28, 11/18, 12/9. Refer to the Universal Absence Accommodation Policy for missed tests.

## Final Exam

The purpose of exams is to align your course grade with your level of learning, based on your ability to complete a cumulative and comprehensive test on the application of essential course concepts. The final is a 2-hour exam, completed on paper, during the [scheduled final exam period](#). Questions may include all material assigned for the semester; refer to feedback on selected participation assignments for expectations of scoring. The final exam will not be returned, and a score will be posted on Sakai. Note that taking the final exam is mandatory to earn a passing course grade (C- or higher).

## Changes to Syllabus

There may be changes to the syllabus during the semester. ***You are responsible for all syllabus changes made in class whether or not you attend.***

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## Course Topics

- Chapter 1: Review
- Chapter 2: Drawing Molecules
- Chapter 3: Acids & Bases
- Chapter 4: Alkanes and Cycloalkanes
- Chapter 5: Stereochemistry
- Chapter 6: Chemical Reactivity & Mechanisms
- Chapter 7: Alkyl Halides
- Chapter 8: Alkenes
- Chapter 9: Alkynes
- Chapter 10: Radicals
- Chapter 11: Total Synthesis
- Chapter 12: Alcohols
- Chapter 13: Ethers
- Chapter 14: IR and MS