

Chemistry 223-001 – Spring 2020 – Syllabus

Course: Chemistry 102, Organic Chemistry A, 3 Credits: Lecture and discussion
Prerequisites: Chemistry 102 or 106 - a student missing a prerequisite may be withdrawn at any time.
Lecture: MWF 2:45 – 3:35 pm Flanner 133/Auditorium
Discussion You must attend the section for which you are registered: Tue 1:00pm or 2:30pm; Dumbach 233

Instructor & Contact Information

Dr. Sandra Helquist (Ph.D.) Flanner Hall 200B is a shared office, please knock and wait for a response

Email policy: to receive a response, either use the email function in Sakai to send to Instructor (via select recipients) and leave subject line blank OR use your Loyola email address and put only “Chem 223” in the subject line, send to shelquist@luc.edu; in most cases I will be able to respond within 24 hours Monday-Friday when I am on campus.

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, and online office hours are available by prior appointment via Zoom (link will be posted/emailed). 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.

In the STEM Center 1st floor Regis, Seminar Room: Wednesday 10:15-11:45am

In the Flanner 200 office suite: Monday 12-2pm, Tuesday 4-5pm, Thursday 8:30-9:30am

A limited number of short, individual appointments are available on Fridays via Sakai Sign-up section. Occasional Sunday afternoon hours will be held in Ireland's (lower level of Damen Student Center).

Course Materials

Organic Chemistry, Klein, 3rd edition, hard copy or eText (Required); WileyPlus online (Required)

Highly recommended: Molecular Modeling Kit. The solutions manual for the book is also recommended; the books are on reserve at the library. Daily access to Loyola email, Sakai site sakai.luc.edu and WileyPlus are also required to receive announcements about the course and to access course materials, assignments, scores and other helpful resources.

Course Content & Learning Outcomes

Content-specific Objectives 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. draw and interpret multiple representations of organic molecules depicting connectivity, configuration, and conformations.
2. identify the various classes of organic compounds, name and draw specific organic compounds.
3. identify and compare chemical properties of organic compounds.
4. predict reaction products for various classes of organic compounds.
5. propose logical reaction mechanisms for organic reactions.
6. discriminate among relative stabilities of reactive intermediates.
7. plan and write out single and multi-step syntheses using known reagents and conditions.
8. analyze, interpret, and predict spectral data (MS, IR, NMR) used in identifying organic compounds.
9. apply skills that are essential to understanding modern biochemistry, medicine, and how we live and die.

Student and Faculty Expectations

Each student will determine their level of learning and grade achievement in the course. You can expect that your grade will depend on what you have learned to do at a high level of mastery (more details in the grading section). I expect each of you to make the decision to take ownership of your learning early during the semester, I also expect you to show up on time for each class and to come prepared, having kept up with the material so you can continue learning the material by engaging with classmates, working problems and asking questions. Plan your schedule so you have at least 1.5-2.5 hours available per day, every day, every week. Spend this time on pre-and post-lecture readings, & homework, SI sessions, office hours, group study, additional preparation and problem-solving. This time is merely an estimate and it is up to you to devote the time necessary to achieve your desired course grade. What can you expect of me? My primary objectives are to provide you with the tools, environment, encouragement, and support to learn Chemistry. Because the course objectives are based on what students will learn, my teaching techniques include the use of pre-lecture homework, active learning and metacognition, to help you maximize your learning. I expect that all of us will work together: please ask me for additional assistance and contact me to provide feedback as needed.

Supplemental Instruction

There are SI group study sessions available to everyone in this course. Your SI is Rajavi Patel, a student who has excelled in the course. See www.luc.edu/tutoring for session schedules. Students are asked to arrive with their Loyola ID, lecture notes, and textbook. It is most beneficial if you attend weekly: come ready to work with your peers!

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). After the second attempt, the student must secure approval for a third attempt. Read the full policy at this link (scroll down): <https://www.luc.edu/chemistry/courses.shtml>

Academic Integrity

You are encouraged to study with other students in and out of class, however, anything submitted for an individual grade during or outside of class must represent your own knowledge and understanding of the material. Evidence of cheating on quizzes or exams will result in, at a minimum, a score of zero (which cannot be dropped) and penalty up to failure of the course, as well as referral to the Dean's Office. For the Undergraduate Catalog statement on academic integrity, visit: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml and here for CAS: [link](#)

Course Outline & Class Attendance

We will cover much of Chapters 1-15 this semester. Pre-lecture readings will be updated continually on Sakai: these and the Pre-lecture WileyPlus will help you come prepared to practice higher-level applications and analysis in class. The [Tentative Schedule](#) will be updated on Sakai as needed. We will briefly review some textbook sections, and others will be discussed in more depth, so focus first on the material that is directly covered in readings, classwork, homework, quizzes and recommended problems. Class attendance and active participation is vital for your learning and is expected of all students. Bring questions to class every day! You are responsible for all material presented, assigned or handed out; Loyola students are expected to attend all classes so I do not provide any make-up assignments or assessments.

If you miss a class for any reason, contact a classmate promptly to get the notes.

Homework/Textbook Problems: Preparation, Practice, Self-Assessment

Required: WileyPlus assignments online. Very Highly Recommended: using additional resources for critical self-assessment – working extra problems – in WileyPlus and from your textbook, and the Orion adaptive practice system as needed. 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 problems: you must know how completely you are learning the material so you do not overestimate your competency prior to exams.

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 March 23rd.
- Loyola is using SmartEvals to provide instructor & course feedback. [OIE](#) will send emails near the end of the term.
- Additional resources, advice, and suggestions for success (from multiple sources) will be posted/updated on Sakai.
- On a strictly limited and pre-approved basis, a student may be allowed to miss a class in order to participate in a University-sponsored event (e.g., official athletic games). It is the student's obligation to inform the instructor of such an authorized absence in a timely fashion; in most cases, this information can be made available to the instructor at the beginning of the semester. Absences will be discussed in person after documentation is received.
- Accommodations for religious reasons will be considered if the request is made to the instructors in person within the first two weeks of the semester. Absences for religious observances will be discussed in person.

Accommodations

Students requiring accessibility accommodations must provide appropriate documentation from the University SAC office and meet with the instructor outside of class to discuss arrangements. Plan ahead for the allowance of a reasonable time frame for implementation: minimally, one week in advance of an exam. Accommodations cannot be retroactive. Information for students is available at: <http://www.luc.edu/sac/>

Grading	WileyPlus	10%		Grade Cutoffs:	
	Participation	10%		A 90.0%	A- 85.0%
	Mastery Exams	64%	B+ 80.0%	B 75.0%	B- 70.0%
	<u>Synthesis & Analysis</u>	<u>16%</u>	C+ 65.0%	C 60.0%	C- 55.0%
	Total score	100%		D 40.0%	

The Grade Cutoffs listed are the minimum percentages for Total scores. Letter grades are only assigned to your Total score, not to individual assignments or categories. Total scores are not rounded up after calculation. Grades are only based on the criteria listed in this syllabus: no substitutes, no additional criteria will be considered for your scores. Each student will receive an estimated midterm grade before the withdraw deadline, and final course grades at the end of the semester are posted only on LOCUS. All scores will be posted in the WileyPlus and Sakai Gradebooks.

Important Note: We will use mastery grading for this course. This may be different than the type of grading to which you have been accustomed in previous courses, so please read the descriptions below carefully and ask questions. We will spend some time during each of the first few class meetings to discuss the grading system.

WileyPlus Homework The purpose of these assignments is to help all students keep pace with the class 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. There will be multiple required assignments per week, always due at 11:59pm, posted before/after each class. Assignments will be submitted completely online with the individual grading policy listed with each assignment. Registration information is on Sakai. Most of these assignments will be Mastery-type, and you can reset any Mastery-type assignment as many times as needed to achieve full credit, half credit, or for additional practice.

Participation The purpose of participation assignments is to improve your learning by providing feedback on progress and mastery. You will get as much benefit from these assignments as you choose to put forth in your individual effort. There will be 1-4 assignments per week. Each assignment will be submitted either on paper during class, or electronically pre- or post-lecture via Sakai. Each assignment will be worth one point. Scoring (0 or 1 point) is based on timely and meaningful completion. Remember, there are no make-up assignments for this course.

Mastery Exams The purpose of the exams is to align your course grade with your level of learning, based on your mastery of Course Objectives (COs). The COs are all related to the Course Content & Learning Outcomes on the first page of this syllabus. A list of COs will be released with each chapter as we progress through the material (there will be some overlap between chapters). Exams will be scored as Mastered or Not Mastered for each CO that appears on the exam. A score of Mastered is earned for correctness and completeness of the problem(s). You will have multiple chances to demonstrate mastery of most of the COs during the semester: for example, if you receive a score of Not Mastered for any CO on the first exam (or if you choose not to attempt a CO), you can try again to earn a score of Mastered for that CO on the second exam. Because you will have more than one chance for most COs, you will also be able to choose which COs to work toward for any exam. Note that the standards for earning Mastery will be high: by definition there is no partial credit, but you will learn standards from the directions for class assignments and activities. Each CO counts equally toward your grade at the end of the semester.

Midterm Exams: Wednesday February 5, Friday February 28, Monday March 30, during lecture time.

Final Exam: Friday May 1, 4:15-6:15pm. The final exam is Mandatory: a student who does not take the final will not pass the course. The [University sets the schedule for final exams](#), and there can be no divergence from the posted schedule of dates and times. No early exams, no make-ups! Excused absences require documentation of an unforeseeable emergency but do not result in a make-up exam.

Synthesis & Analysis The purpose of these is also to align your course grade with your level of learning. Mastery of more than one of these assignments is required to earn a grade of A in the course. Successful completion of the problems in these assignments will require combining content from multiple Course Objectives (COs). There will be four assignments, each worth 4% toward your course total. You will have six total attempts to successfully complete the four assignments during the second half of the semester, including during the final exam period. Detailed criteria for a successful completion will be provided. Note: you can choose to “trade” your attempts at these assignments for additional attempts at individual COs. Dates & deadlines will be announced at least one week in advance.

Best Practices & Suggestions

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 reread carefully and completely – and ask questions if you are not sure how/when we are working toward these and the more specific Course Objectives in class. The top grade of ‘A’ earned by demonstrating nearly complete mastery of all of the course material on exams AND in Synthesis & Analysis assignments. To earn a grade of ‘C’ you will need to demonstrate good mastery of most (not some) of the course material. We are using a mastery-based grading system for this class to give you choices about how to earn your desired course grade, to give you improved feedback on your learning during the semester, and to recognize that each of you may achieve mastery of the COs at a slightly different pace. You are capable of setting high standards for yourself and I encourage you to push yourself to learn as much as possible this semester.

Please continue reading for the best suggestions I have from my own experience as a student and as a teacher, scientific research on learning, and the experiences of my mentors, colleagues, and students.

1. Take ownership of your learning. I am here to guide and support your learning, but ultimately I hope that you will decide to be in charge of your own learning in this course. This starts by becoming aware of what you do on a daily basis to meet your goals for achievement in this course and beyond. Most of us improve when we have help to achieve our goals, including keeping up with minimal pre and post-lecture work. Come to office hours, SI sessions, and form a study group that meets at least once per week. After that it is up to you to put in individual time, often working through struggles with the material, to master concepts, problem types and strategies at your desired level of performance.
2. Remembering topics is necessary but not sufficient: Understanding the material is crucial but still not sufficient: in this course you are expected to apply your understanding and analyze problems to demonstrate complete mastery of the material on quizzes and exams. If you are curious about how these levels of learning differ, check out this: [interactive pyramid depicting Bloom’s Taxonomy](#). You may already have some experience with this distinction from your prerequisite Chemistry courses as well as having learned that simply trying to memorize content does not typically lead to sustained learning. Get curious! It is one thing to know what happens, but it is often more satisfying to know why it happens, and to be able to make predictions from your knowledge. As you continue in your undergraduate coursework, the transitions from 100- to 200- to 300-level courses will include transitions to higher-order thinking skills being emphasized for your learning and assessed in your coursework.
3. Chemistry material, by nature, is highly cumulative. You must have good to excellent understanding of the concepts from the early material in order to apply that knowledge as you begin to learn the later material. Foundational concepts are still your friends: we will refer back to basic concepts and principles of even previous (general) chemistry course material incessantly and relentlessly. Review early and as often as needed – do this in your study groups too.
4. To deal with the highly cumulative nature of the material, the best plan is to study by working problems EVERY DAY so you are prepared for each class and each new topic covered. Pre-lecture: you are expected to use the required and recommended WileyPlus and Klein book problems to familiarize yourself with the basics of what will be covered in the next class, and bring clarification questions to ask during class. Post-lecture: work enough recommended problems (WileyPlus and Klein/other) so that you can complete any new question on the first attempt without assistance from your notes, book, classmates, tutors, or the solutions manual. Ask yourself each time: what type of problem is this? Break up your studying, know when you have reached your limit for new content and take a break, give yourself time to process and assimilate before moving on to even more new material. In the academic year, plan on 1.5-2.5 hours – or more if needed – EVERY DAY of the week. Falling behind is unacceptable if you wish to fundamentally understand concepts in order to apply them to solve problems and demonstrate mastery of the material.
5. If you are solving problems and asking questions on a Daily Basis, you have already studied for your exams by learning the course material! Begin to review for each test a few days in advance. You may wish to use the chapter/section lists and the Review of Concepts and Vocabulary listed in each textbook chapters as a review tool, or to make your own study guides from lecture outlines or quizzes prior to exams. Compare your list of concepts/review guide with your classmates to help each other recognize and continually review the central concepts.
6. I am happy to work with you on improving your metacognition and setting up a study schedule but the best general advice to check & improve your own learning is simply to solve problems and answer questions without looking at an example or the solution: make your practice like the test.

Best wishes for a successful semester. Let me know what I can do to help you achieve your goals in this course.