Calendar portion revised 8-21-21

Organic Chemistry 223 - Fall 2021

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Lecture	Tue/Thur	3:00 – 4:15 p.m.	Cuneo Hall-Room 109 (Sect 005)
Discussion	Thur	11:30 – 12:20 p.m.	Flanner Hall-Room 7 (Sect 006)
	Thur	1:15 – 2:05 p.m.	Flanner Hall-Room 7 (Sect 007)

Office Hours Mon: 3:30 – 5:00 p.m., Tue: 1:30 – 3:00 p.m., & Wed: 3:30 – 5:00 p.m.

Required Text: David Klein, "Organic Chemistry" 4th Ed. hard copy or eText
Required Online: WileyPLUS for Organic Chemistry (login information can be found under the resources tab in Sakai)

Recommended: Your favorite molecular modeling kit. Here are some options. ($ not guaranteed)

- Darling $18.65 in LUC Bookstore with cardboard box; $15 in stockroom
- Darling $36.00 in LUC Bookstore with green plastic box
- Prentice Hall Molecular Model Set for Organic $35.33 (colorful & pretty)
- Prentice-Hall Framework Molecular Models (Brumlik) $45.80 (tubes to cut)
- HGS Fundamental Organic Set $17.00

Extra help: *Pushing Electrons* by Daniel Weeks
The Organic Chemistry Answer by Matthew J. Hamiel

Do you have an interest in human health, prescription medicines and drugs? Organic chemistry is utilized by medicinal organic chemists for the design and construction of new molecules that are prescribed by doctors and dispensed by pharmacists to treat diseases. Organic chemistry is also the essential science for inventing new soaps and detergents, dyes, plastics, and resins, and it is also used in creating certain types of new photoreceptors for renewable solar energy.

1. *Content-specific Objective.* 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.

2. *Course Grading System.*

Design

There are three basic principles that I have used to design the grading system 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.

Standards

The standards for each letter grade are listed here according to all required course components, and are not averaged across categories. You must meet or exceed all of the standards listed to earn the corresponding letter grade. These lists are intended for complete transparency: you do not need to do any extra work to figure out what is required for any grade, and we will revisit the standards and expectations after the early rounds of testing to help you gauge your progress in the course. Grades are only based on the criteria listed in the syllabus: no substitutions, and no additions.

A Standards	**A- Standards**	**B+ Standards**
SSM Mastery + Proficiency ≥ 18 + 2 FOs ≥ 23 Mastered WileyPlus ≥ 90% of total points Group Assignments ≥ 12	SSM Mastery + Proficiency ≥ 16 + 3 FOs ≥ 22 Mastered WileyPlus ≥ 90% of total points Group Assignments ≥ 12	SSM Mastery + Proficiency ≥ 14 + 4 FOs ≥ 21 Mastered WileyPlus ≥ 80% of total points Group Assignments ≥ 11

B Standards	**B- Standards**	**C+ Standards**
SSM Mastery + Proficiency ≥ 12 + 4 FOs ≥ 21 Mastered WileyPlus ≥ 80% of total points Group Assignments ≥ 11	SSM Mastery + Proficiency ≥ 10 + 5 FOs ≥ 21 Mastered WileyPlus ≥ 80% of total points Group Assignments ≥ 10	SSM Mastery + Proficiency ≥ 8 + 5 FOs ≥ 20 Mastered WileyPlus ≥ 70% of total points Group Assignments ≥ 10

C Standards	**C- Standards**	**D Standards**
SSM Mastery + Proficiency ≥ 6 + 6 FOs ≥ 20 Mastered WileyPlus ≥ 70% of total points Group Assignments ≥ 9	SSM Mastery + Proficiency ≥ 4 + 6 FOs ≥ 20 Mastered WileyPlus ≥ 70% of total points Group Assignments ≥ 9	SSM Mastery + Proficiency ≥ 0 + 6 FOs ≥ 10 Mastered WileyPlus ≥ 50% of total points Group Assignments ≥ 6

Note: a student who fails to meet the standards for a grade of D will receive a grade of F for the course.

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. Scores for other components will be made available on Sakai.

3. *WileyPLUS Assignments.* Organic chemistry is a new language that is spoken in words and structures. The best way to learn a language is to work problems **every day**. The purpose of WileyPLUS assignments is to help you master essential foundational concepts in the course. Remembering and understanding foundational concepts is a prerequisite to **APPLYING** those concepts and analyzing problems: you need to learn the basics first so that you can use them! There will be WileyPLUS assignment sets assigned on Tuesday and Thursday after each class. Tuesday's assignment will be due on Friday night at 11:59 p.m. and Thursday's assignment will be due on Sunday night at 11:59 p.m.

4. *Group Assignments.* On average we will have one assignment per week, in small groups (assigned by the instructor), graded based on completion of all required components. Most assignments will be completed in class (lecture/discussion). 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. There are no make-up assignments for this course.

5. *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 released on Sakai with each unit as we progress through the material. There will be some overlap between chapters. Tests will be scored as Mastered or Not Mastered for each FO. A score of Mastered is earned for correctness and completeness of the problem(s), and each FO may only be counted once toward your mastery total. You will have multiple chances to demonstrate mastery of all of the FOs during the semester: 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.

6. *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 released with 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 SSM counts equally toward your grade at the end of the semester. 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.

7. *Mastery Testing Tentative Schedule.* There are no early tests given, and no make-ups. Excused absences require documentation of an unforeseeable emergency but do not result in a make-up testing because the FOs and SSMs will be available to master on multiple rounds of testing. Multiple attempts are provided in place of the dropped midterm exam policy that is commonly found in points-based exam systems. Our grading system is similarly designed to allow for circumstances that require you to be absent (e.g., illness).

Your health is important to me and our shared community. Please use good judgement and stay home if necessary/prudent.

Week 3: Unit 1, Thursday September 16th
Week 6: Unit 2, Thursday October 7th
Week 9: Unit 3, Thursday October 28th
Week 12: Unit 4, Thursday November 18th
Week 15: Unit 5, Thursday December 9th
Final Exam: as scheduled by the University

8. *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. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: http://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.

9. *Norms of Course Proceedings*. The classroom is to be a safe place to question and explore ideas. Student and teacher voices are important to this work. Collegial disagreement can be a healthy part of this process but must always include respect for all members of the class.

Course activities will be designed to help students reach the goal of learning chemistry content and developing critical thinking skills. This will more often be driven using data and reasoning to discover concepts and solutions rather than the identification and exchange of chemical facts and algorithms.

Students are expected to read individually on their own time outside of class.

10. *Panopto and Recorded Lectures.* In this class software will be used to record live class discussions. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. All recordings will become unavailable to students in the class when the course has concluded. *Students will be required to turn on their cameras at the start of class. Students who have a need to participate via audio only must reach out to me to request audio participation only without the video camera enabled.* The use of all video recordings will be in keeping with the University Privacy Statement shown below.

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.

11. *Copyright and Intellectual Property.* All material disseminated to the class (lectures, discussion worksheets, quizzes, exams) are copyrighted and the Intellectual Property of the class's Instructor. Students cannot share, upload, or distribute in any way the material presented in the class to any person who is not enrolled in the class without the Instructor's written permission. All materials distributed to the class will become unavailable to students in the class when the course has concluded.

12. *Students Accommodations:* The Student Accessibility Center (formerly known as Services for Students with Disabilities), Sullivan Center (773-508-3700), http://www.luc.edu/sac, has the mission "to support, service, and empower Loyola University Chicago students with disabilities" and to "Partner with faculty and staff to provide opportunities for collaboration, professional development, personal growth, and staff interaction, as they relate to students with disabilities." Please direct all questions concerning accommodations of disabilities to the Student Accessibility Center. Academic accommodations afforded to students require documentation and review. The Student Accessibility Center will issue accommodation letters for registered students to present to their instructors: accommodations are not active until students present these letters to their instructors. If students' accommodations involve attendance or deadlines, instructors and students will jointly complete and execute an Agreement Form articulating their terms. Seehttps://www.luc.edu/sac/faculty/facilitatingaccommodations/ for guidance about implementing various kinds of accommodations in a way that is appropriate to your class. The Student Accessibility Center stands ready to work with you.

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

http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf

Anything that you submit that is incorporated as part of your grade in this course (*e.g.* quiz, examination, homework, lab report) must represent your own work. Any students caught cheating will, at the very minimum, receive a grade of "zero" for the exam that was submitted and this grade cannot be dropped. If the cheating occurred during a course exam, the incident will be reported to the Chemistry Department Chair and the Office of the CAS Dean. Depending on the seriousness of the incident, additional sanctions may be imposed.

14. *Strategies and Suggestions.*

- The best method of learning organic chemistry is to work the assigned problems and write out the answers. *Then* check your answers versus the Answer Key.
- Study at least 10 hours per week and maintain a steady pace of studying. Organic chemistry continually builds, like a language, so studying some every day is most effective.
- Skim the current chapter before the corresponding lecture, so that you will be aware of the topics to be covered.

15. *Practices for Success.* Supporting claims with evidence, making applications, solving and analyzing problems, and using chemical principles to explain phenomena are critical skills in the field of chemistry. The development of these skills is not without some frustration, but it carries the reward of deepening one's ability to think critically and solve problems in any field. The use of targeted, guiding questions, regularly scheduled work, and strategic study plans can greatly assist the learning of chemistry. With such a focus, hopefully any frustration will quickly turn to appreciation and fascination for the relevance and connectedness of chemistry in your life and within the world around you. Solving and analyzing problems is the most important feature of this work. If, at any time, you need assistance framing such plans for your work in chemistry, please do not hesitate to ask the instructor.

16. *Tutoring.* The tutoring Center at the university offers free tutoring to students. To see the complete tutoring schedule and find additional information, visit the Tutoring Center webpage at www.luc.edu/tutoring

17. *Office Hours.* My office door will be open per the times listed. Please use this time to if you have extra questions regarding this course. If you are unavailable to meet at the listed times, please email me to set up time to potentially meet.

18. *Email.* Feel free to email me questions at any time. All emails must be sent through the student's LUC email address and **MUST** include "CHEM 223" in the subject line. Emails that are sent Monday – Friday will be answered within 24 hours. Emails sent on Saturday, Sunday, or doing breaks will be answered within 48 hours.

19. *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 (develop standard form on web) 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 as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time.

(https://www.luc.edu/athleteadvising/attendance.shtml)

20. *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.

21. *Harassment (Bias Reporting).* It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of his or her race, color, national origin, gender, sexual orientation, disability, religion, age or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfill its educational and health care mission. For this reason, every incident of harassment, discrimination or abuse undermines the aspirations and attacks the ideals of our community. The university qualifies these incidents as incidents of bias.

In order to uphold our mission of being Chicago's Jesuit Catholic University-- a diverse community seeking God in all things and working to expand knowledge in the service of humanity through learning, justice and faith, any incident(s) of bias must be reported and appropriately addressed. Therefore, the Bias Response (BR) Team was created to assist members of the Loyola University Chicago community in bringing incidents of bias to the attention of the university. If you believe you are subject to such bias, you should notify the Bias Response Team at this link: http://webapps.luc.edu/biasreporting/

22. *Final Exam.* The University sets the schedule for all final exams. The final exam will be held on:

Thursday, December 16, 2021 8:00 – 10:00 p.m.

You will have 2 hours to complete the exam. There will be no make-up final exams given under any circumstances, and the exam will not be given early, either. Please contact your instructor immediately about any issues that arise before the exam.

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 email a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office (apatricoski@luc.edu)