

**Organic Chemistry I, CHEM 223, Fall 2021**Dr. Daniel Becker, Ph.D., Flanner Hall 217A, email: [dbecke3@luc.edu](mailto:dbecke3@luc.edu)Faculty website: <http://www.luc.edu/chemistry/facultystaff/beckerdaniel.shtml>Research website: <http://www.beckerlabluc.com/>

<b>Lecture</b>	Tue/Thu 3:00-4:15 PM	Flanner 133 Aud.	CHEM 223-008 (2917)
<b>Discussion I</b>	Thur 8:00-8:50 AM	Mundelein 616	CHEM 223-009 (2918)
<b>Discussion II</b>	Thur 9:45-10:35 AM	Cuneo 312	CHEM 223-010 (2919)

*Office Hours:* Tuesdays 4:30-5:30 PM (right after class) in Flanner 217A, or via appointment. Appointments may be made to meet in person or via Zoom ID 235 110 7365.

*Suppl. Instructor (SI)* Katherine Konczak, [kkonczak1@luc.edu](mailto:kkonczak1@luc.edu)

*Required Online:* WileyPlus [course ID A15981](#) online module (can be purchased separately); comes with eText and includes answers to all problems that can substitute for the answer key (SSG/SM) listed below.

*Required Text:* Organic Chemistry, Klein, 3rd edition, hard copy or eText with WileyPlus Student Study Guide (SSG) and Solutions Manual (SM) for Organic Chemistry, Klein 3<sup>rd</sup> Edition. For an alternate way to purchase just the SSG/SM see (<https://www.vitalsource.com/products/organic-chemistry-student-solution-manual-study-david-r-klein-v9781119422532>)

*Prerequisites:* CHEM 102 (Gen Chem B) & CHEM 112 (Gen Chem B Lab), or CHEM 106.

*Required:* Any organic molecular model kit. Here are just a couple of options.

- Duluth Labs MM-005 Student Set at <https://duluthlabs.com/products/mm-005-organic-chemistry-molecular-student-set>
- Molecular Visions Organic Model Kit (#3) [Molecular Model Kits](#)/KIT #3 ISBN 978-09648837-4-1 --MOLECULAR VISIONS Organic Kit

*Extra Resources* *Organic Chemistry as a 2<sup>nd</sup> Language I* (1<sup>st</sup> semester topics), David R. Klein  
*Organic Chemistry as a 2<sup>nd</sup> Language II* (2<sup>nd</sup> semester topics), David R. Klein  
*Pushing Electrons* by Daniel Weeks a workbook for extra help with *mechanisms*

*Mask Policy* As a Departmental policy, even in the event the University relaxes its universal requirement for indoor mask-wearing during the Fall 2021 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, in this class we properly wear masks at all times (e.g. over nose and mouth). Any student refusing to wear a mask will be asked to leave.

*Why Orgo?* 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 (drugs!) that are prescribed by doctors and dispensed by pharmacists to treat diseases. Organic chemistry is also essential for inventing new dyes, plastics, resins, and detergents, and it is also used in creating new photoreceptors for renewable solar energy and LEDs for display panels (organic LEDs = OLEDs).

1. *Course Description:* This 3 credit hour lecture course and the first semester of a two semester sequence for non-chemistry majors. A survey of topics includes stereochemistry, spectroscopy, and fundamental concepts of organic chemistry; nomenclature, properties and syntheses of aliphatic and aromatic hydrocarbons, alkyl halides, alcohols and ethers. Recommended to co-enroll in CHEM 225 (if lab required for major).

2. *Expected Outcomes:* Assign and understand IUPAC names, predict reaction products and mechanisms, supply

starting materials and reagents for synthetic conversions, interpret as well as predict spectra (MS, IR) for organic molecules, and learn techniques for executing organic reactions in the laboratory.

3. *Syllabus*: The current syllabus is posted on Sakai and is subject to change (dated at the top) during the semester. *You are responsible for all changes announced whether or not you are in attendance.*

4. *Exams and Grading*: There are three mid-term exams and one 2-hour final exam. This grading standard will be applied: 90% A, 88.5% A-, 87% B+, 83% B, 80% B-, 77% C+, 73% C, 70% C-, 65% D, 60% D-, <60% F. A curve for each individual exam may be applied based on the specific average and standard deviation, and will be provided upon return of the exam, along with exam grade distribution statistics.

Mid-term exam I	20%
Mid-term exam II	20%
Mid-term exam III	20%
WileyPlus quizzes + Homework	15%
<u>Final Exam</u>	<u>25%</u>
Total	100%

*Online quizzes* will be administered via *WileyPlus* on roughly a weekly basis and will be announced. Content will be the source of material on each quiz. The lowest quiz score will be dropped. Missed quizzes do not have the option to be made-up, and a missed quiz will serve as the drop. Separately, there will be one or two submitted, hand-written homework assignments specifically on writing mechanisms. These quizzes and homework assignments will be open-note, and you may work together.

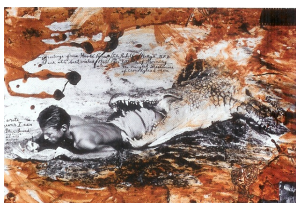
In the case of in-person exams, you must bring a form of photo identification to the exam, which you may be asked to show. All exams are closed book and closed notes. When you are finished with your exam, please bring your completed exam to the front, and leave the room quietly without disturbing the other students. If remote testing is necessary, then exams will be converted to PDF format only and emailed as one document named Lastname, Firstname Exam # to me directly at [dbecke3@luc.edu](mailto:dbecke3@luc.edu). Please contact your instructor immediately about any issues (e.g. poor internet, defective equipment) that arise before or during the exam.

There are no make-up midterm exams. If you miss an exam for any reason, the final exam will be weighted more heavily to compensate for the missed exam. Exams will be graded and returned as quickly as possible, usually by the following class period. All grading questions, points of clarification, and grading errors must be brought to the instructor's attention no later than one week after the graded exam is returned.

The University sets the schedule for all final exams and has set the final exam policy as detailed here. You will have 2 hours to complete 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 e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office ([apatricoski@luc.edu](mailto:apatricoski@luc.edu)).

5. *Daily Homework (unsubmitted)*: Organic chemistry is a new language that is spoken in structures. The best way to learn a language is to practice speaking and writing it, therefore the best way to learn this new language of organic chemistry is to work and hand-write out the answers to problems every day. Homework problems will be recommended for every chapter but will not be collected, so you must be disciplined about working problems and keeping up with the pace of the lecture. Experience has very clearly demonstrated a direct correlation of success in organic with consistently working the assigned problems in the book and writing out the answers.

6. *Discussion*: The discussion section will be devoted to working through problems and answering questions about the homework problems and lecture/text material. *Attendance and participation are expected.*



*Never miss an opportunity to work some organic chemistry problems.*

7. *Sakai Materials*: All handouts provided in class will be mirrored on Sakai.

8. *Academic Honesty*: First off, let me say that I grade all exams individually and personally, and I pay especially close attention to written answers in order to check your understanding and to assign appropriate credit for work demonstrate. I grade each page in order (i.e., I grade page 1 on all exams, then page 2 on all exams, etc.) to ensure that partial credit is awarded consistently and fairly. Thus, it is very obvious to me when two exams have identical written answers. Therefore, resist the temptation to ever let your eyes drift during an exam, first of all because copying is cheating, and secondly, because I am very good at detecting duplicate answers. Also, please be mindful of your own exam by not providing an attractive nuisance for wandering eyes of other potentially weak-willed individuals. All exams are closed book and closed note. Academic dishonesty includes using notes or books during exams, looking at another student's test during the exam period, or talking during an exam. The consequence of academic dishonesty is failure of the exam, and the incident will be reported to the Chemistry Department Chair and the Office of the Dean. Additional sanctions including expulsion from the University may be imposed. Anything you submit that is incorporated as part of your grade in this course (quiz, exam, lab report, etc.) must represent your own work. Any student caught cheating will, at the very minimum, receive a grade of F for the item that was submitted. Cheating on any lab material results in zero points for the lab portion of the course. All students in this course are expected to have read and to abide by the appropriate standard of personal honesty and integrity, drafted by the College of Arts & Sciences that can be viewed online at <https://www.luc.edu/cas/advising/academicintegritystatement/>

9. *Supplemental Instruction (SI) and Tutoring*: There are Supplemental Instruction (SI) study sessions available for this course. SI sessions are led by an SI leader, who is a student that has recently excelled in the course. Session attendance is open to all and is voluntary, but 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 attend SI sessions with their Loyola ID, lecture notes, and textbook. The Tutoring Center offers free small group tutoring and lab (drop-in) tutoring for Loyola students. The groups meet once a week through the end of the semester and are led by a student who has successfully completed study in the course material. To learn more or request tutoring services, visit the Tutoring Center online at [www.luc.edu/tutoring](http://www.luc.edu/tutoring). The Student ACS (American Chemical Society) affiliate also offers tutoring for free ever week in Flanner Hall.

10. *Student Accommodations*: The Student Accessibility Center (SAC), 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. See <https://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.

11. *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.

12. *Absence Policy for Students in Co-Curricular Activities, ROTC, and Religious Observations:* 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/athletheadvising/attendance.shtml>) 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.

13. *Synchronous Class Recordings:* Software may be used in this class to record live class lectures and discussions, particularly if sessions need to be conducted remotely. As a student in this class, your participation in synchronous class lecture and discussion 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 Sakai course is unpublished (i.e. shortly after the course ends, per the Sakai administrative schedule). Students who prefer to participate via audio only will be allowed to disable their video camera so only audio will be captured. Please discuss this option with your instructor. The use of all video recordings will be in keeping with the University Privacy Statement shown below.

### **Loyola University 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. 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 instructor use.

### 14. *Strategies and Suggestions for learning organic chemistry*

- The best method of learning organic chemistry is to work the assigned problems and write out the answers. *Then* check your answers versus the Solutions Manual (SG/SM).
- Study at least 12 hours per week and maintain a steady pace of studying. Organic chemistry continually builds, like a language, so studying every day is most effective.
- Homework will not be collected, but it is essential to work problems in a timely fashion.
- Skim the current chapter before the lecture, so that you will be aware of the topics to be covered.
- Many students of organic chemistry find the making and use of flash cards to be beneficial.

**Organic Chemistry 223 Tentative Schedule (subject to change)**

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	8/30	8/31 Ch 1: Gen Chem Review	9/1	9/2 ...Ch 1...	9/3
2	9/6 Labor Day No classes	9/7 Ch 2: Molecular Representations	9/8	9/9 ...Ch 2...	9/10
3	9/13	9/14 Ch 3: Acids & Bases	9/15	9/16 ...Ch 3...	9/17
4	9/20	9/21 Ch 4: Alkanes & Cycloalkanes	9/22	9/23 Midterm I over Ch 1-4	9/24
5	9/27	9/28 Ch 5: Stereoisomerism	9/29	9/30 ...Ch 5...	10/1
6	10/4	10/5 Ch 6: Reactivity & Mechanisms	10/6	10/7 ...Ch 6...	10/8
7	10/11 Mid- semester Break	10/12 Mid-semester Break	10/13	10/14 Ch 7: Subst/Elim Alkyl Halides	10/15
8	10/18	10/19 ...Ch 7...	10/20	10/21 Midterm II over Ch 1-7	10/22
9	10/25	10/26 Ch 8: Alkene Additions	10/27	10/28 ...Ch 8...	10/29
10	11/1	11/2 Ch 9: Alkynes	11/3	11/4 ...Ch 9...	11/5
11	11/8	11/9 Ch 10: Radical Reactions	11/10	11/11 ...Ch 10...	11/12
12	11/15	11/16 Ch 11: Synthesis	11/17	11/18 Midterm III over Ch 1-11	11/19
13	11/22	11/23 Ch 12: Alcohols & Phenols	11/24 Thanksgiving Break	11/25 Thanksgiving Break	11/26 Thanksgiving Break
14	11/29	11/30 ...Ch 12...	12/1	12/2 Ch 13: Ether & Epoxides & Sulfur	12/3
15	12/6	12/7 Ch 14: IR & MS	12/8 ...Ch 14...	12/9 ...Ch 14...	12/10
16	12/13	12/14	12/15 Study Day	12/16...Saturday 12/18 5:30-7:30 p.m. Final Exam Cumulative Ch 1-14	12/17 → Final Saturday