

Loyola University Chicago

Organic Chemistry II CHEM 224 Sec. 006 Summer Session B: June 29 – August 07, 2020 [Link to academic calendar](#) **ONLINE:** required availability for synchronous sessions: **SECTION 006 SEE SCHEDULE ; TIME ZONE:** All times listed in this syllabus correspond to the local time in Chicago, Illinois (Central Time Zone) **Instructor:** Donald May Contact: dmay4@luc.edu; typically emails will be answered Monday-Friday within 36 hours of receipt. E-mails sent after 04:00 PM on Fridays will not be read until the next Monday. **Office Hours: 12:30 PM- 01:30 PM Thursdays before an exam**
Prerequisites: CHEM 221 or 223, or the equivalent.

TEXTBOOK (REQUIRED):

Klein, Organic Chemistry, 3e; complete access via WileyPlus: www.wileyplus.com/class/766884
The printed version is an optional add-on. A printed solutions manual is an optional add-on. Register on WileyPlus for the best price.

ELECTRONIC MATERIALS (REQUIRED):

1. Expect to use both a laptop computer and a mobile device (phone, tablet) for connectivity to online resources, including use of a camera or connected webcam during scheduled discussions and exams. (There is a possibility that exams will eventually use the EXAMITY program for proctoring of exam. This is a process which incorporates a single device for proctoring.)

Loyola is offering a limited supply of equipment loans for students enrolled in summer courses:
<https://www.luc.edu/its/dms/equipmentloan/browseourequipment/extendedloan>

2. Preliminary list of electronic resources:

Loyola email: messages to be sent to the class from Sakai, linked to your Loyola UVID

Loyola Sakai login with your Loyola UVID; e-mails may also come from LOCUS

Zoom conferencing: luc.zoom.us meeting ID & password will be provided, login with Loyola UVID

WileyPlus: www.wileyplus.com/class/766884

GradeScope: we will upload a course roster and send notification via email prior to first class

CamScanner: free application converts photos to pdf's of your work (alternative: Genius Scan)

Loyola Information Technology Services Support: <https://www.luc.edu/its/support/>

3. Exams & Proctoring will be conducted electronically, additional (free) software downloads may be required

COLLABORATION MATERIALS

You will be working in small groups of about 4 students each (groups will be divided up into breakout rooms by Wednesday July 08; students may be reassigned) with your classmates via Zoom in discussions. The low-cost method to collaborate quickly is to use a dry-erase whiteboard, which some of you may have used in other courses, to write out your work so that it is easily viewable via your webcam. For this you would only need a lap-size whiteboard and dry-erase markers, for example:

Amazon.com search results, sorted low to high price: "[lap whiteboards for students](#)"

Target.com search results: "[dry erase lap-size whiteboards](#)"

The expensive alternative is an electronic tablet and stylus.

You can also expect to use these materials for discussions and office hours with your instructors.

INDIVIDUAL MATERIALS

Molecular Model Kit, for example:

Duluth Labs: <https://duluthlabs.com/pages/product-comparison>

Pearson Prentice-Hall: ISBN-13: 978-0205081363

Darling Molecular Visions: ISBN-13: 978-0964883710

OPTIONAL STUDY AIDS

1) Study Guide and Solutions Manual for the textbook

2) Molecular model kit (see above)

3) paperback by D.P. Weeks entitled "Pushing Electrons: A Guide for Students of Organic Chemistry," Third Edition (Thomson Brooks/Cole); ISBN 0-03-020693-6. The first 3 chapters (pp. 1-161) of this workbook are intended to help students understand "structure and bonding in organic molecules," as well as techniques of "electron pushing" to comprehend reaction mechanisms.

4) paperback also by D.R. Klein entitled “Organic Chemistry as a Second Language: Translating the Basic Concepts” (I&I); 2004 by John Wiley & Sons, Inc.; ISBN 0-471-27235-3; www.wiley.com/college/klein. These are to help the student develop the skills required to solve a variety of problems in organic chemistry and to point out the fundamental principles in organic chemistry.

5) Supplementary Textbooks: Organic Chemistry, Eighth Edition by Wade (Pearson; 2016)

Organic Chemistry, Tenth Edition, by T.W.G. Solomons and C. Fryhle (John Wiley & Sons, Inc., 2011).

Organic Chemistry, Eighth Edition, by J. McMurry (Brooks/Cole Publishing Co., 2012).

Organic Chemistry, by F.A.Carey and R.M. Giuliano, Eighth Edition (McGraw-Hill, Inc., 2011).

Organic Chemistry: Structure and Function, by K.P.C. Vollhardt and N.E. Schore, Sixth Edition (W.H. Freeman and Co., 2011).

Method of instruction: Lectures via Panopto, to be posted and available within the course site on Sakai.

Discussions via Zoom, with meeting ID and password to be posted within our course site on Sakai. Lectures may be supplemented with the discussions, use of molecular models, use of multimedia, and/or use of additional electronic materials as well as individual and/or group problem solving. Suggested textbook homework problems will be given but the student will not be required to turn them in.

Online Classes Recording Statement: 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 possibly 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:

Privacy Statement: Assuring privacy among faculty and students engaged in online and face-to-face instructional activities, and 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.

Student and Faculty Expectations: Most of the work will be done asynchronously but the requirement for all students to reserve specific days for graded coursework, is given in the course schedule. There is no minimum number of study hours per day nor per week. From many years of teaching summer courses, in the consolidated time frame, students should not expect to be successful by cramming all coursework into 1-2 days per week, especially just before an exam. The course material is intrinsically cumulative and builds on previous theories. For any online course, it is also essential for you to be extremely pro-active, and this is even more true during this accelerated summer session. You may find that you need additional help in office hours, study groups, from Loyola ITS support with technology use, and more.

Academic Integrity: Consult the [Undergraduate Studies Handbook](#) for additional information. 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/> Anything you submit that is incorporated as part of your grade in this course must represent your own work, unless otherwise authorized. All exams are proctored and permitted materials and resources will be clearly stated prior to each exam. During exams, violations include but are not limited to: **using unauthorized notes, books, or electronic resources, communications with other people, efforts to thwart electronic proctoring, misuse and abuse of time limits.** Falsifying statements and facilitating misconduct for other students also constitutes a violation of academic integrity. Any student found to be in violation or cheating will be given a zero for the assignment/exam (which cannot be dropped from the course grade) and 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.

Disability Accommodations: Students requiring accommodations at the University need to contact the Coordinator of Services for Student Accessibility Center (SAC), Sullivan Center. Accommodations are provided after receiving documentation from SAC Testing and allowance of a reasonable time frame for arrangements (minimally, one week in advance). Accommodations cannot be retroactive. Contact: <http://www.luc.edu/sac/>

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>

Other Items

- Accommodations for religious reasons will be considered if the request is made to the instructor in person within the first week of the term. Absences for religious observances will be discussed in office hours.
- The instructor reserve the right to modify the syllabus for any course requirement at any time.

Learning Objectives: Students who successfully complete this course will be able to do the following at an acceptable level:

- Name and draw simple and more complex organic structures, including: dienes, aromatic compounds, carboxylic acid derivatives, amines, aldehydes/ketones
- Use IR, MS, proton and carbon-13 Nuclear Magnetic Resonance (¹H-NMR; ¹³C- NMR) data to identify structures; predict the spectroscopic data from the structure
- Describe reaction products and mechanisms of electrophilic and nucleophilic aromatic substitutions
- Differentiate between aromatic, nonaromatic, antiaromatic species
- Describe reactions in the synthesis and reactions of aldehydes and ketones
- Describe and differentiate between 1,2 vs. 1,4 additions to conjugated dienes
- Predict both physical and chemical properties of aldehydes/ketones, amines, carboxylic acids
- Work with multi-step reaction pathways; develop synthetic pathways to simple organic compounds
- Predict products under alpha-substitution and addition reactions
- Interconvert Fischer projections and Haworth projections of monosaccharides

SCHEDULE:			
Week (dates)	MONDAY:	Wed: 12:30 PM - 01:40 PM	Fri: 12:30 PM - 01:40 PM
1 (June 29- July 03)	Introduction session via 12:30 PM ZOOM Chapters 15,16	Problem-solving, Q&A; DISCUSSION #1 ZOOM	<u>HOLIDAY</u>
2 (July 06-10)	Problem-solving, Q&A 12:30 PM ZOOM Chapters 17	Problem-solving, Q&A DISCUSSION #2 ZOOM	EXAM I
3 (July 13-17)	Chapters 18, 19	Problem-solving, Q&A ZOOM	DISCUSSION #3 ZOOM
4 (July 20-24)	Chapters 20	Problem-solving, Q&A ZOOM	EXAM II (emphasis since Exam I)
5 (July 27-31)	Chapters 22, 21	Problem-solving, Q&A ZOOM	Discussion #4 ZOOM (Last day to withdraw from course with W grade)
6 (Aug. 03-07)	Chapters 24, 25	Problem-solving, Q&A ZOOM	FINAL EXAM (comprehensive and cumulative)

Grading: Semester grades will be determined by the following criteria: individual surveys, discussion group work, two unit exams and one cumulative final exam. See schedule. There are no early and no make-up exams or assignments.

Discussion group work (see schedule) 75 points

1 st Unit Exam	100 points
2 nd Unit Exam	100 points
<u>Final Exam</u>	<u>200 points</u>
Total available	475 points

Final Course Grade Assigned: A: 100% – 90.0% A- : 89.9% – 85.0% B+: 84.9% – 80.0% B: 79.9% – 75.0% B-: 74.9% – 70.0% C+: 69.9% – 65.0% C: 64.9% – 60.0% C-: 59.9% – 55.0%
D+: 54.9% – 50.0% D: 49.9% – 45.0% F: < 45.0%

Description of Discussion Group Work: 25 points each, via Zoom per the schedule shown. Discussion questions will come from concepts from suggested readings, recorded lecture notes, and from concepts related to suggested homework problems, usually emphasizing one or two major concepts. Most of the questions will be free-response. Groups will be assigned by the instructors, and active participation via Zoom is required to share in the group score. Each group will upload one copy.

Description of Exams: Two 60-minute unit exams, 100 points each; and a 2-hour final exam, 200 points, starting at 12:30 PM on Fridays per the schedule shown. Questions will come from concepts from suggested readings, recorded lecture notes and from concepts related to suggested homework problems, and from discussion handouts. Most of the questions will be free-response. Allowed materials will be listed with each exam. Exams are to be completed individually without assistance from any other person and without use of unauthorized resources.

Recommended Practice Problems: Because you will be asked to answer questions individually on exams, you should study by answering questions individually. Watching lectures/explanations and reading the textbook are necessary. Complete the suggested problems every day: when and if you are ready for the exams, you will know how and why your answers are correct without checking a solutions manual.