

SYLLABUS – CHEM 224 – Organic Chemistry B – 2nd Semester
Spring 2021 - LOYOLA UNIVERSITY CHICAGO (LUC)

Lecture: #1077	Section: 005	TuThur	8:00 – 9:15 am
Disc: #1078	Section: 006	Mon	12:10 pm – 1:00 pm
#1079	Section: 007	Mon	1:30 pm – 2:20 pm

Sr. Lecturer: Prof. C. Szpunar
 Student Office Hours: via email - cszpuna@luc.edu – *typically available, TThF mornings*
 Office: Flanner Hall **200B**
 Emergency Message via Chemistry Dept. Office: 773-508-3100, fax: 773-508-3086

Required: (See bookstore for most up-to-date offerings as publisher interacts directly with bookstore.)

1. Organic Chemistry, Klein, 3rd ed., Wiley, 2017
2. Student Study Guide and Solutions Manual, Klein, 3rd ed. Wiley, 2017

Example Option 1: ISBN 978-1-119-38071-9

1. Soft, unbound, printed 3-hole punch text
2. Paperback solutions manual/study guide
3. Wiley Plus plus Orion – the online homework/practice tool – **Course ID: 794167**

Example Option 2: ISBN 978-1-119-43349-1

1. Soft, unbound, printed 3-hole punch text
2. Etext solutions manual/study guide
3. Wiley Plus plus Orion – the online homework/practice tool

Suggested / Recommended Materials:

1. Molecular modeling kit, Darling, Duluth, or equivalent
2. WileyPlus online homework/practice tool

Optional Materials (found helpful by some students, **do not purchase immediately**):

1. Organic Chemistry as a Second Language, 5th ed., Second-Semester Topics, Klein (Oct 2019), Wiley (ISBN 978-1-119-49391-4, 1-119-49391-9) *or* equivalent previous editions.
2. Barron's Orgo Cards: Organic Chemistry Review, Wang, Razani, Lee, Wu, and Berkowitz (ISBN 0-7641-7503-3) *or* Organic Chemistry Study Cards, R Van De Graaff, K Van De Graaff, and Prince, Morton Publishing, 2003 (ISBN 0-89582-577-5) *or* any type of flash cards, including self-made

Grading Guidelines (approx. weighting below):

>91% A, 91-90% a-, 90-88.5% b+, 88.5-75% B, 75-70% b-, 70-68.5% c+, 68.5-55% C, 55-50% c-, 50-45% D, <45% F

🎵 **EXAMS – 3** – dates announced – ONLINE – **NO MAKE UPS** **50%**

- UNEXCUSED ABSENCES merit a zero score.
- EXCUSED ABSENCES are handled on a case-by-case basis; grade weighting may be adjusted, depending on the circumstance(s); however, an excused absence **MUST BE CORROBORATED and DOCUMENTED**, e.g., accompanied by a note from the doctor, dentist, hospital rep, or funeral director; by a court summons, plane ticket stub, hospital release form, obituary, or other. With proper documentation, religious observance, representing the university, or personal emergency constitutes an Excused Absence.

🎵🎵 **QUIZZES** – dates announced – ONLINE **NO MAKE UPS** **20%**

🎵🎵🎵 **FINAL** – date announced – ONLINE (scheduled by CAS), **no alt date/time, NO MAKE UPS** **30%**

🎵🎵🎵 **Homework** - per chapter/topic; feel free to work any, all, and as many problems to apply/master concepts – **recommended for student success.**

*** Please note that this course, Organic Chemistry, is **cumulative, comprehensive, and improvement-based**. The final-exam grade – deemed a culminating measure of a student's progress – and the student's LUC-Early-Alert status grade – may be taken into account, subjectively, in assigning the student's overall course grade.

*** Also please note that once an overall course grade has been posted officially on LOCUS, any subsequent requests for an INCOMPLETE GRADE or for any additional extra credit WILL NOT and CANNOT be considered.

Course Objective: To guide, encourage, and foster the learning and understanding of Organic Chemistry – nomenclature, structures, properties, mechanisms, syntheses, and spectroscopy – by the individual student, helping him/her to connect, extrapolate, integrate, and apply the many different aspects learned, using critical thinking.

Student Outcomes: If successful, the student will learn how to ...

1. identify the various classes / families of organic compounds, their properties, their methods of preparation, and some typical reactions / transformations.
2. name and draw specific organic compounds.
3. postulate logical / acceptable reaction mechanisms for simple organic reactions.
4. discriminate amongst relative stabilities of reaction intermediates.
5. plan and write out effective, efficient multi-step syntheses using known reagents / conditions to transform functional groups and to add or remove carbons.
6. prepare for typical purification / separation techniques of organic compounds required in the laboratory.
7. analyze and interpret data from a combination of spectroscopic / analytical techniques used in separating and identifying organic compounds: IR, NMR, and UV-vis, and mass spectrometry.

*****Online Lectures – Attention and Participation: *Important and essential.*** N.B. (Note well!)

- Feel free to use your models at any time. Many of us need to see a 3-dimensional (3D) representation.
- Prepare for lectures by scanning the Klein-text headers and illustrations for the new material.
- Use the Power-Point lecture highlights in combination with detailed PP comments, to acquire new concepts to be learned / applied, in lieu of normal face-to-face lectures.
- Read the corresponding text. However, **whatever is covered in lecture rules!** Use the text as a resource.
- Subsequently, do HW problems to assimilate the concepts, as many as needed to acquire the concepts – the key to success! Use the Klein study guide to help explain the HW-problem responses. Note that the study-guide answers may not be all encompassing; the study-guide answers may not be unique, nor complete.
- Feel free to ask questions by email – homework or as yet-unassimilated lecture material, anything chemistry. Please try to be concise.
- Explanations to HW or lecture questions deemed particularly significant will be shared via email with all students.

Academic Honesty: Essential, expected, and enforced.

Upon student notification, dishonesty dictates consequences which may include:

- (1) notification of Chemistry and Biochemistry Department Chair,
- (2) notification of the CAS Assistant Dean for Student Academic Affairs, and
- (3) notation in the student's official university record upon documentation.

Immediate consequences will include a ZERO score on any item in question, i.e., the quiz or the exam.

Please refer to the LUC CAS Academic Integrity Statement and the sanctions for academic misconduct:

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

*** Any student submissions – quizzes or exams – in this course are to be delivered via Sakai Assignments, if technologically possible. Feel free to contact the Loyola IT Help Desk for support, and assistance with your specific equipment. Students are expected to download the assignment from Sakai at the appointed time, complete it, and upload via Sakai within the appointed time. If any technology issues arise, contact the lecturer by email for individual resolution. Responses for this course are subject to the **Honor System**. Do your own work! Googled responses are NOT acceptable. Lecture and Zoom discussions dictate acceptability for all responses.

Study Strategies and Suggestions: One should approach the study of Organic Chemistry in a manner similar to tackling a new foreign language. Its study will provide a basis to understanding future material – *building constantly, incessantly, and relentlessly* on the structural and mechanistic information presented previously and, hopefully, acquired by the student. Over two semesters, the course will cover: bonding, functional groups, properties of aliphatic- and aromatic-compound families, nomenclature, structures, stereochemistry, reaction mechanisms, syntheses, multi-step syntheses, and spectroscopic techniques. Because the course is cumulative and builds heavily on prior material, the best plan is to study Organic Chemistry regularly, every day, similarly to practicing the piano, similarly to learning a language. “Organic Chemistry has its own language – Organese,” according to Szpunar.

Experience dictates that positive outcomes (for exam and course grades) – the secret to student success – are directly proportional to working and understanding the relevant problems on a regular basis, *i.e.*, applying the concepts learned to specific, non-generic situations and thinking creatively. Typically, normally, usually, Organic Chemistry is not efficiently self-taught!!!

Experience has demonstrated that overnight cramming will probably NOT produce success! The student should scan the text chapter / segment to be covered BEFORE viewing the PowerPoint lecture highlights and assimilating the PP-detailed comments (***what would have been said in lecture, if the course were not online***) to improve lecture comprehension. After each PP lecture, careful detailed reading of the chapter / segment and focused working of the homework (HW) problems are appropriate, necessary, essential, and expected.

In addition to student’s viewing of PP lecture, assimilating the PP-detailed comments, participating in face-to-face Zoom discussions as the Internet permits, reading the text, and infusing, ensuring comprehension with practice through homework problems, joining and contributing to a study group is typically, normally, usually, strongly encouraged. But, NOT during an assessment, NOT for a quiz, NOT for an exam. Let’s say that again. For study purposes, collaboration with others on HW problems is strongly encouraged, especially in a timely fashion. However, collaboration is NOT acceptable for assessment, *i.e.*, NOT on a quiz, NOT on an exam!!!

In anticipation of an acceptable / passing grade of C, the minimal time per week devoted to Organic Chemistry is estimated at 4 hr for lecture and discussion, 4-10 hr for reading, and 4-10 hr for homework.

Chemistry and Biochemistry Department Course Repeat Rule (effective Aug. 24, 2017):

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 contact the Chemistry Department, request permission to register from the Department of Chemistry & Biochemistry – website: <http://www.luc.edu/chemistry/forms/>, and obtain a signature from the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. Approval is also required from the student’s Academic Advisor to secure final permission for the attempt.

Accommodations (SSWD/SAC):

Typically, normally, usually, any student requesting accommodation(s) for extra exam time, different test venue, special equipment, and/or other course considerations would present his/her required SSWD/SSA letter to the Chair of the Chemistry and Biochemistry Department in the first or second week of the term, but NOT less than 10 days before a scheduled exam.

Please note that when requesting extra exam time, the student MUST NOT have scheduled another class directly BEFORE and directly AFTER this course, which would preclude him/her from taking the scheduled exam AT THE TIME OF THE GIVEN EXAM, *i.e.*, the SSWD/SSA exam time **must overlap** the official exam time to be fair to ALL students. The student should note the posted SSWD/SSA office schedule for his/her requests; he/she must schedule each accommodated exam at least one week prior to any exam, where any such accommodation might be requested.

*** This online course builds in extra time for ALL students, for assessments and for technology-submission considerations. Other accommodations will be considered on a case-by-case basis.

Lecture Outline for Klein Ed. 3

Week	Date	Chapter	Topic	***EVENT***
	Jan 18			**** Holiday – Martin Luther King Day ****
1	Jan 19+21	14	Review – IR Spectroscopy and MS	
2	Jan 26+28 Jan 28	15	NMR Spectroscopy	*** Thur - Mon *** Spec Quiz 1 (Chapters 14-15)
3	Feb 2+4	16	Conjugated Systems - Dienes	
4	Feb 9+11 Feb 11-12	17	Aromatic Compounds	*** first-half Spring Break per LUC mandate of Oct 28, 2020
5	Feb 16 Feb 16+18	18	Aromatic Reactions	***** Tues ***** EXAM I (Chapters 14-17.5)
6	Feb 23+25 Feb 25	19	Aldehydes and Ketones (begin)	*** Thur *** Quiz 2 (Chapters 17-19.4)
7	Mar 2 Mar 4	19 20	Aldehydes and Ketones (continue) Carboxylic Acids and Derivatives (begin)	
8	Mar 8 to Mar 12			*** Mar 8, 9, 10 – second-half Spring Break **** MIDTERM BREAK *****
9	Mar 16 Mar 18 Mar 18	20 21	Carboxylic Acids and Derivatives (continue) Alpha Carbon Enols and Enolates (begin)	***** Thur ***** EXAM II (Chapters 18-20)
10	Mar 23 Mar 25	21 22	Alpha Carbon Enols and Enolates (continue) Amines (begin)	
11	Mar 29 Mar 30 Apr 1	22	Amines (continue)	**** Monday ***** (last day to withdraw with a W) *** *** Thur *** Quiz 3 (Chapters 21-22)
	Apr 2 to Apr 5			***** Easter Break, Good Friday to Easter Monday *****
12	Apr 6 Apr 8	23 24	Organometallics Carbohydrates (begin)	
13	Apr 13+15	24	Carbohydrates (continue)	
14	Apr 20+22 Apr 22	24	Carbohydrates (continue)	***** Thur ***** EXAM III (Chapters 21-24)
15	Apr 27 Apr 29	25 26	Amino Acids, Peptides, and Proteins Lipids	
16	May 8		Cumulative FINAL EXAM, Sat, 9:00 – 11:00 am, as originally scheduled. CV-Mandated ONLINE, TBD, expected to be rescheduled by CAS for ALL	

CHEM 224 sections to Wednesday evening, May 5, TBD, AFTER STUDY DAY ENDS – check Sakai Overview for update.