

SYLLABUS - CHEM 224 – ACCELERATED and **CV-Mandated ONLINE****Organic Chemistry B – 2nd semester**

Summer 2020 - LOYOLA UNIVERSITY CHICAGO

Lecture/Discussion: #1081 CHEM 224-001 MWF: 8:30 – 11:10 am Cuneo 324
 #2496 CHEM 224-002 MWF: 12:30 – 3:10 pm Cuneo 324

Sr. Lecturer: Prof. C. Szpunar
 Student Office Hours: via email - cszpuna@luc.edu – availability as announced, MWF
 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 deals directly with bookstore.)

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

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

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 – **Course ID: 767855**

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

1. Organic Chemistry as a Second Language, II, Klein (2006), Wiley (ISBN 978-0-471-73808-4)
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* equivalent

Grading (approx. weighting below):

>90% A, 90-88% a-, 88-86% b+, 86-70% B, 70-68% b-, 68-66% c+, 66-55% C, 55-50% c-, 50-45% D, <45% F

♪ **EXAMS – 2** – dates announced – ONLINE **! NO MAKE UPS !** **40%**

♪ ♪ **QUIZZES – 4** – dates announced – ONLINE **!!! NO MAKE UPS !!!** **30%**

♪ ♪ ♪ **FINAL** – date announced - ONLINE, **no alternative date/time, NO MAKE UPS !!!** **30%**

HOMEWORK (HW) - per topic, per chapter; feel free to work any/all problems, as many as needed to apply and to master concepts – **recommended for student success.**

*** Please note that this course, Organic Chemistry, is **cumulative, comprehensive, and improvement-based**. The final exam is deemed a culminating measure of a student's progress. Any student meriting an F on the final exam may achieve a recorded course grade no higher than D, despite total points; a final-exam score of D may merit a course grade no higher than C, despite total points; and a final-exam score of C may merit a course grade no higher than B, despite student's standing otherwise (i.e., despite total points.)

*** Please note that once an overall course grade has been posted officially on LOCUS, any subsequent requests for an INCOMPLETE or for any additional extra credit with NOT 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.

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

1. identify various families / classes of organic compounds, their methods of preparation, and typical reactions.
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 / write out multi-step syntheses specifying reagents / conditions to transform functional groups.
6. prepare for basic 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.
- Take advantage of the Panopto clips/bits which may be added at a later date, for enrichment.
- Then, 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. Dishonesty dictates consequences which may include: (1) notification of Chemistry Department Chair, student's Department Chair, and CAS Dean, (2) documentation in the student's official university record, and (3) dismissal from the university. Immediate consequences will include a **ZERO** on any item in question (quiz or exam). Please refer to the LUC Undergraduate Handbook on policies or the CAS website: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml.

*** Student submissions via Sakai Assignments indicate that responses online for this course are subject to the **Honor System**. Do your own work! Googled responses are NOT acceptable. Lecture dictates acceptability for all responses.

Study Strategies and Suggestions: One may 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 compounds, nomenclature, structures, stereochemistry, reaction mechanisms, 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, similar to practicing the piano.

For study purposes, collaboration with others on HW problems is encouraged. However, collaboration is NOT acceptable for assessment, *i.e.*, on a quiz or test!!!

*** Online, Sakai Assignments is the avenue to student submissions for quizzes and exams.

Experience dictates that positive outcomes (for exam and course grades) are directly proportional to working and understanding the HW 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!!!

The student should scan the text chapter / segment to be covered BEFORE viewing the Power Point 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, reading the text, and infusing comprehension with practice through homework problems, joining and contributing to a study group would normally be strongly encouraged. But, not during an assessment, not for a quiz, nor an exam.

In anticipation of an acceptable / passing grade of C, the minimal time per week in the summer devoted to Organic Chemistry is estimated at 8 hr for classroom lecture, 6-12 hr for reading, and 6-12 hr for homework. For a higher course grade, more study time needs to be expended. Please be advised that experience dictates that a full-time summer job may not allow for a dedicated effort regarding Organic Chemistry.

Chemistry and Biochemistry Department Caution (effective Aug. 4, 2016, adj Aug. 27, 2019):

A student who opts to withdraw from CHEM 224 lecture after midterm may be permitted to remain in CHEM 226 – the co-required laboratory.

If a student plans to continue with the laboratory portion of the sequence, that student must continue to attend all of the lectures until the week of the official drop date, to gain as much background knowledge as possible in preparation for each laboratory assignment and in order to work safely in the laboratory amongst the other students. If a student is considering withdrawing from lecture, but wishes to remain in the lab, the student may seek assistance from the Department of Chemistry and Biochemistry Office in the week prior to the deadline for withdrawing, beginning Monday at 9:00 am through Friday at 4:00 pm.

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 and Biochemistry 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 obtain a signature from the Chemistry and Biochemistry Department. A copy of this form must be approved by 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 later 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-accelerated summer course will build in extra time for ALL students. For assessments and for technology-submission considerations. Other accommodations will be considered on a case-by-case basis.

Wk-Lecture	Date	Chapters	Lecture Outline Topic	Klein Text	*** EVENT ***
1 - 1	M-Jun 29	14	Review – IR Spectroscopy and MS		
1 - 2	W-July 1	15	NMR - Spectroscopy ...		
*** QUIZ 1 – IR Spectroscopy/MS – distributed through Sakai Assignments on Wednesday, due same day (20-minute quiz, will allow 2 hours for acclimation AND technology issues) Students must do own work.					
F-July 3	***	*****	Independence Day Holiday – otherwise observed		*****
*** TH Quiz 2 – Spectroscopy – distributed through Sakai Assignments on Friday due Monday noon!!! Student is permitted to work with colleagues, to seek help elsewhere, to collaborate with others on this assignment ONLY! But, each must turn in his / her own submission.					
2 - 3	M-July 6	16	Conjugated Systems, Dienes, UV Spectroscopy ...		
2 - 4	W-July 8	16 / 17	... / Aromatic Compounds Part 1 ...		
2 - 5	F-July 10	17	...		
*** QUIZ 3 – Dienes + Aromatic Cmpds – distributed through Sakai Assignments on Friday, due same day (20-minute quiz, will allow 2 hours for acclimation AND technology issues) Students must do own work.					
3 - 6	M-July 13	18	Aromatic Reactions Part 2 ...		
3 - 7	W-July 15	18 / 19	... / Aldehydes and Ketones		
3 - 8	F-July 17	19	...		
*** EXAM 1 – Arom Rxns + Aldehydes/Ketones – distributed through Sakai Assignments, due same day (50-minute exam, will allow 3 hours) Students must do own work.					
4 - 9	M-July 20	20	Carboxylic Acids and Derivatives		
4 - 10	W-July 22	20 / 21	... / Alpha Carbon Enols and Enolates		
4 - 11	F-July 24	21	...		
*** QUIZ 4 – Carbox Acids/Derivs + Alpha Carbons – distrib'd through Sakai Assignments, due same day (20-minute quiz, will allow 1 hour) Students must do own work.					
5 - 12	M-July 27	22	Amines		
5 - 13	W-July 29	22 / 23	... / Organometallics		
5 - 14	F- July 31	23	...		
*** EXAM 2 – Amines + Organometallics – distributed through Sakai Assignments, due same day (50-minute exam, will allow 3 hours) Students must do own work.					
6 - 15	M-Aug 3	24	Carbohydrates		
6 - 16	W-Aug 5	24 / 25	... / Amino Acids and Peptides		
6 - 17	F-Aug 7	25 / 26	... / Lipids		
*** Cumulative FINAL EXAM – Carbohydrates, Amino Acids, Lipids, et al. – distributed through Sakai Assignments, due same day (2-hour exam, will allow 4 hours) STUDENT'S MUST DO and SUBMIT OWN WORK.					

*** Not applicable for Online Course *** Otherwise intended for Accelerated-Summer Course

Daily Schedule – Mornings (tentative, approximate, flexible, may adjust order):

<u>Regular Day</u>	<u>Quiz Day</u>	<u>Exam Day</u>
08:30 – 08:45 am – Q/A, admin	08:30 – 08:45 am – Q/A	08:30 – 08:45 am – Q/A
08:45 – 09:35 lecture – 1	08:45 – 09:35 lecture – 1	08:45 – 9:35 lecture – 1
09:35 – 09:45 ***break***	09:35 – 09:45 ***break***	09:35 – 09:45 ***break***
09:45 – 11:10 lecture – 2	09:45 – 10:50 lecture – 2	09:45 – 10:20 lecture – 2
	10:50 – 11:10 <i>QUIZ wk2, wk4</i>	10:20 – 11:10 <i>EXAM wk 3, wk5</i>

FINAL-EXAM DAY: 08:30 – 09:00 am – Q/A, 09:00 – 09:10 break, 09:10 – 11:10 – FINAL

Daily Schedule – Afternoons (tentative, approximate, flexible, subject to adjustment):

<u>Regular Day</u>	<u>Quiz Day</u>	<u>Exam Day</u>
12:30 – 12:45 am – Q/A, admin	12:30 – 12:45 am – Q/A	12:30 – 12:45 – Q/A
12:45 – 01:35 lecture – 1	12:45 – 01:35 lecture – 1	12:45 – 01:35 lecture – 1
01:35 – 01:45 ***break***	01:35 – 01:45 ***break***	01:35 – 01:45 ***break***
01:45 – 03:10 lecture – 2	01:45 – 02:50 lecture – 2	01:45 – 02:20 lecture – 2
	02:50 – 03:10 <i>QUIZ wk2, wk4</i>	02:20 – 03:10 <i>EXAM wk 3, wk5</i>

FINAL-EXAM DAY: 12:30 – 01:00 pm – Q/A, 01:00 – 01:10 break, 01:10 – 03:10 – FINAL