SYLLABUS - CHEM 224 – *ACCELERATED*

Organic Chemistry B – 2nd semester

Summer 2018 - LOYOLA UNIVERSITY CHICAGO

Lecture/Discussion: #1076 CHEM 224-001 *MTuWTh: 8:15 – 10:15 am* ~~Flanner 105~~ Cuneo 312
#1077 CHEM 224-002 *MTuWTh: 12:10 – 2:10 pm* ~~Flanner 105~~ Cuneo 312

Sr. Lecturer: Dr. C. Szpunar
Office: Flanner Hall **200B** Contact: in person (preferred), 773-508-3128, cszpuna@luc.edu
Emergency Message via Chemistry Dept. Office: 773-508-3100, fax: 773-508-3086
Student Office Hours:
- *directly after the MTuWTh morning lecture*
- *directly after the MTuW/Th afternoon lecture*
- *Mon, Tues, Wed 10:45 - 11:45 am – Flanner 200B*

N.B.: Answer keys will be posted in the glass case outside Flanner 200B. No photographing pls!

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

Optional Materials (found helpful by some students, **do not purchase immediately**):
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 *(weighting below) with approximate curved grade guidelines:* *> 90% A; 75-90% B; 55-75% C*

♫ **MID-TERM EXAM** – date scheduled and announced (subject to change, although unlikely) **30%**

!!! NO MAKE UPS !!!

- 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 appropriate documentation**, religious observance, official representation of the university, or personal emergency may constitute an Excused Absence.

♫ ♫ **QUIZZES** – 4 – dates announced (subject to change, although unlikely), ***NO MAKE UPS !!!*** **30%**

♫ ♫ ♫ **FINAL** – date announced (scheduled by CAS), **no alternative date/time,** ***NO MAKE UPS !!!*** **35%**

♫♫ ♫♫ ♫♫ ♫♫ ***Homework*** - assigned per topic/chapter; feel free to work any/all problems to apply and master concepts and due at each next lecture, in person, see below. **5%**

*** Please note that because this course, Organic Chemistry, is ***cumulative, comprehensive, and improvement-based***, and because 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 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 the various classes of organic compounds, their methods of preparation, and typical reactions.
2. name and draw specific organic compounds.
3. postulate a logical reaction mechanism for simple organic reactions.
4. discriminate amongst relative stabilities of reaction intermediates.
5. plan and write out multi-step syntheses using known 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 various instruments used in separating and identifying organic compounds: IR, NMR, and UV-vis spectrophotometers and mass spectrograph.

Lecture and Discussion – Attendance, Attention, and Participation: ***Important and required.*** Feel free to bring your books and models to class. Better yet, use them! Prepare for lecture by prior scanning of new material! Come prepared for discussion! Be ready to ask questions on assigned homework or as yet-unassimilated lecture material!

Cell Phones: NONE. Please be courteous and respectful of others. Silent mode during lecture and discussion. ***Not allowed in sight or within hearing during exams, subject to confiscation.*** NO phone conversations in lecture hall or in discussion class – before class, during class, after class – AT ANY TIME! NO texting – before class, during class, after class – AT ANY TIME! If you must talk or text, take it outside!!!

Photography: NONE. No photography of posted quiz/exam keys. No photography of discussion/lecture blackboard/ whiteboard.

Recording: NONE. No recording of lectures.

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.

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, families 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*. Collaboration with others on homework problems is encouraged, especially in a timely fashion. Experience dictates that positive outcomes (for exam and course grades) are directly proportional to working and understanding the assigned problems on a regular basis, i.e., applying the concepts learned to non-generic situations.

Typically, Organic Chemistry is not efficiently self-taught. Overnight cramming will probably not produce success!!! The student should quickly scan the chapter/segment to be covered BEFORE lecture to improve lecture comprehension. After lecture, careful detailed reading of the chapter/segment and focused working of the assigned problems are appropriate, necessary, essential, and expected**.** In addition to student's participation in lecture, discussion, reading, and homework, joining and contributing to a study group is strongly encouraged.

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/discussion, 6-12 hr for reading, and 6-12 hr for homework. For a higher course grade, more study time need be expended. Experience dictates that a summer job may not allow for a dedicated effort.*

Homework: Students are required personally to hand in **AT LECTURE** – attendance required – at least 10 completed, assigned problems (or parts of problems) from the previous day's lecture to earn full participation credit. For each missed assignment, students will be assessed **0.25%** from their homework/participation points. Each day's homework may NOT be turned in late, will NOT be accepted late, and may NOT be turned in by another. No exceptions!

Chemistry and Biochemistry Department CAUTION (*effective Aug. 4, 2016*):

A student who opts to withdraw from CHEM 224 lecture after midterm may be permitted to remain in CHEM 226 – the co-requisite laboratory, **ONLY** if his/her midterm grade, as posted in LOCUS, is a D or better. 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 remaining 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. **However, students with a midterm grade of F are required to drop the co-required laboratory along with the lecture without exception.**

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

Effective in 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 obtain a signature from the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form may be taken to the student's Academic Advisor in Sullivan to secure final permission for the attempt.

Lecture Outline (tentative, subject to change, but unlikely due to time constraints)

Wk-Lecture	Date	*Klein Chapters*	*Topic*	****** EVENT ******
1-1	M-July 2	14	Review – IR Spectroscopy and MS	
1-2	Tu-July 3	15	NMR - Spectroscopy …	
	W-July 4	***	************** ***Independence Day Holiday*** *- observed* ****************	
1-3	Th-July 5	15/16	… / Conjugated Systems, UV Spectroscopy …	
2-4	M-July 9	16	…	
2-5	Tu-July 10	17	Aromatic Compounds ...	
			*** Take-Home Spectroscopy DUE - counted as Quiz 1 *(Spectroscopy package is DUE at the beginning of lecture, to be handed directly to the lecturer, at lecture or in Flanner 200B only, but not later than 2:30 pm Tues, July 10.)*	
2-6	W-July 11	17/18	… / Aromatic Reactions …	
2-7	Th-July 12	18	… *************************************** Quiz 2 (Chapters 14-17)	
3-8	M-July 16	18/19	… / Aldehydes and Ketones …	
3-9	Tu-July 17	19	…	
3-10	W-July 18	20	Carboxylic Acids and Derivatives	
3-11	**Th-July 19**	20	… ************ **MID-TERM EXAM** (Chapters 15-20) **********	
4-12	M-July 23	20	…	
4-13	Tu-July 24	21	Condensations, Alpha Substitutions, Enolates …	
4-14	W-July 25	21	…	
4-15	Th-July 26	22	Amines … *************************************** Quiz 3 (Chapters 20-22)	
5-16	M-July 30	22	…	
5-17	Tu-July 31	23	Organometallics	
5-18	W-Aug 1	24	Carbohydrates …	
5-19	Th-Aug 2	24	… *************************************** Quiz 4 (Chapters 22-24) **************** *last day to withdraw with W* ****************	
6-20	M-Aug 6	24	…	
6-21	Tu-Aug 7	25	Amino Acids and Peptides	
6-22	W-Aug 8	26	Lipids	
6-23	**Th-Aug 9**	***	********* **Cumulative FINAL EXAM** (focus: Chapters 19-24) *********	

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

Regular Day	**Quiz Day**	**Exam Day**
08:15 – 08:30 am - Q/A, admin	08:15 – 08:30 am - Q/A	08:15 – 08:30 - Q/A
08:30 – 09:20 **lecture – 1**	08:30 – 09:20 **lecture - 1**	08:30 – 9:20 **lecture**
09:20 – 09:25 ***break***	09:20 – 09:25 ***break***	09:20 – 09:25 ***break***
09:25 – 10:15 **lecture – 2**	09:25 – 09:55 **lecture – 2**	09:25 – 10:15 *EXAM*
	09:55 – 10:15 *QUIZ*	
		**********
		08:15 – 10:15 *FINAL EXAM*

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

Regular Day	**Quiz Day**	**Exam Day**
12:10 – 12:25 am - Q/A, admin	12:10 – 12:25 am - Q/A	12:10 – 12:25 - Q/A
12:25 – 01:15 **lecture – 1**	12:25 – 01:15 **lecture - 1**	12:25 – 01:15 **lecture**
01:15 – 01:20 ***break***	01:15 – 01:20 ***break***	01:15 – 01:20 ***break***
01:20 – 02:10 **lecture – 2**	01:20 – 01:50 **lecture – 2**	01:20 – 02:10 *EXAM*
	01:50 – 02:10 *QUIZ*	
		**********
		12:10 – 02:10 *FINAL EXAM*