SYLLABUS – CHEM 223 – Organic Chemistry A – 1st Semester – MWF Lecture

Spring 2018 - LOYOLA UNIVERSITY CHICAGO (LUC)

Lecture: #2061 **Section:** 001 **Mon+Wed+Fri** **10:25 – 11:15 a.m.** **Flanner Audit**

Discussion:	#2062	**Section:** 002	Friday	08:15 am – 09:05 am	Flanner 007
	#2063	**Section:** 003	Friday	09:20 am – 10:10 am	Flanner 007

Lecturer: Dr. C. Szpunar
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Emergency Message via Chemistry Dept. Office: 773-508-3100, fax: 773-508-3086

Office Hours: **Tues**: 10 am – 12 noon, **Wed:** 11:30 am – 1:00 pm, **Thurs**: 10 – 11:15 am, and as arranged

Required:

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, but hold off initially – **do not purchase immediately**):

1. Organic Chemistry as a Second Language: First Semester Topics, 4E ed., Klein, 2017, Wiley (ISBN 978-1-119-11066-8 (PBK))
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*

EXAMS – 3 – dates scheduled, announced (subject to change, although unlikely) **NO MAKE UPS** **45%**

- 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, any 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 – TBD – **unannounced** (during lecture or discussion or as take-home, **NO MAKE UPS**) **15%**

HOMEWORK – as needed per topic/chapter, due at each next lecture as participation, see below **6%**

FINAL EXAM – date scheduled and announced by the College of Arts and Sciences (CAS) **34%**

*** 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 course 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 and Attention: Important and required. Feel free to bring your books and modeling kit 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 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 or exam keys. No photography of discussion or lecture blackboard or whiteboard content.

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 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 read the chapter/segment to be covered BEFORE lecture to improve lecture comprehension. After lecture, careful detailed re-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.

*If anticipating a 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.*

Homework/Participation: Students are required to hand in **at the beginning of LECTURE** at least 5 completed problems (or parts of problems) from the previous day's lecture to earn full participation credit, with his/her name on each page (35 daily assignments). ***No assignment is expected on EXAM DAYS.*** For each missed assignment, students will be docked **0.2%** from their homework/participation points. Each day's homework may NOT be turned at a later time and will NOT be accepted late. No exceptions!!!

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

A student who opts to withdraw from CHEM 223 lecture after midterm may be permitted to remain in CHEM 225 – 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 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 obtain a signature from 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.

Lecture Outline for *Klein Ed. 3* (*tentative, subject to change*) – **Spring 2018**

Week	*Date*	*Ch-Lect*	*Topic*	******EVENT******
1	Jan 15	***	********** *Monday* ********** *MartinLutherKing Day HOLIDAY*	
	Jan 17	1-1	Review – Gen Chem: Electrons, Bonds, Molecular Properties	
	Jan 19	1-2		
2	Jan 22	2-1	Molecular Representations	
	Jan 24	2-2		
	Jan 26	2-3		
3	Jan 29	3-1	Acids and Bases	
	Jan 31	3-2		
	Feb 2	3-3		
4	Feb 5	4-1	Alkanes and Cycloalkanes	
	Feb 7	4-2		
	Feb 9	4-3		
5	*Feb12*	***	********* ***Monday*** ******** ***EXAM I (Chapters 1-4)***	
	Feb 14	5-1	Stereochemistry / Stereoisomerism	
	Feb 16	5-2		
6	Feb 19	5-3		
	Feb 21	6-1	Chemical Reactivity and Mechanisms	
	Feb 23	6-2		
7	Feb 26	7-1	Alkyl Halides: Nucleophilic Substitution and Elimination Reactions	
	Feb 28	7-2		
	Mar 2	***	********* ***Friday*** ******** ***EXAM II (Chapters 4-7)***	
8	Mar 5-10	***	********** *Monday-Friday* ********* *MIDTERM Spring BREAK*	
9	Mar 12	7-3		
	Mar 14	8-1	Addition Reactions of Alkenes	
	Mar 16	8-2		
10	Mar 19	8-3		
	Mar 21	9-1	Alkynes	
	Mar 23	9-2		
11	Mar 26	10-1	Radical Reactions: Alkanes to Alkyl Halides	
			********* Monday ******* (last day to withdraw with a W) **********	
	Mar 28	10-2		
	Mar 30 – Apr 2***		******* ** *Good Friday – Easter Monday* ******** *EASTER BREAK*	
12	Apr 4	10-3		
	Apr 6	11-1	Synthesis	
13	*Apr 9*	***	******* ***Monday*** ******* ***EXAM III (Chapters 7-11)***	
	Apr 11	12-1	Alcohols and Phenols	
	Apr 13	12-2		
14	Apr 16	12-3		
	Apr 18	14-1	Spectroscopy – IR and MS	
	Apr 20	14-2		
15	Apr 23	14-3		
	Apr 25	13-1	Ethers, Epoxides, Thiols, and Sulfides (student to finish on his/her own, if time does not permit)	
	Apr 27	13-2		
16	***Apr 30 Mon***		***Cumulative FINAL EXAM, 9:00 – 11:00 am, Flanner Auditorium***	