

Organic Chemistry I & Lab for Chemistry Majors, CHEM 221, Fall 2015

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<http://www.luc.edu/chemistry/facultystaff/beckerdaniel.shtml>

Lecture	MWF	2:45 – 3:35 PM	LSB 142	(CHEM 221-001-1070)
Discussion I	Tue	11:30-12:20 PM	Mundelein 616	(CHEM 221-002-1072)
Discussion I	Tue	1:00-1:50 PM	Cuneo 312	(CHEM 221-003-5713)
Lab section I	Tue	2:30-5:15 PM	LSB 115	(CHEM 221-004-4722)
Lab section II	Thur	2:30-5:15 PM	LSB 115	(CHEM 221-005-4723)

Office Hours: Monday & Wednesday 3:45-4:45 (right after lecture)

Required Text: L.G. Wade, Jr., "Organic Chemistry" 8th Ed. ISBN-13 978-0321768414 **or** 7th Ed. ISBN 978-0-321-59231-6 **or** 6th Ed. ISBN 0-13-147871-0

Required Key: J.W. Simek, "Solutions Manual Organic Chem.", 8th Ed. ISBN-13 978-0321773890 **or** 7th Ed. ISBN 978-0321598714 **or** 6th Ed. ISBN 0-13-147882-6

Required Lab Text: "Making the Connections 2", by Anne B. Padias (ISBN: 978-073804135-3)

Required Lab Book: Laboratory Notebook: Hayden-McNeil (ISBN: 978-1429224543).

Note: The Padias text and carbonless-duplicate lab notebook retail for <\$50 combined and will be good for both semesters, so a pretty good deal!

Required: Pick your favorite molecular modeling kit from wherever. Here are just a couple options.

- Darling Molecular Modeling Kit #3, ~\$13.75 (inexpensive!) in *Loyola Bookstore*
- Prentice Hall Molecular Model Set, ~\$75 (colorful & pretty!) in *Loyola Bookstore*

Extra Resources:

- Organic Chemistry as a Second Language I (first semester topics) by David R. Klein
- Organic Chemistry as a Second Language II (second semester topics) by David R. Klein
- *Pushing Electrons* by Daniel Weeks for extra help with *mechanisms*

CHEM 221 Course Description

Prerequisite: For chemistry majors only. CHEM 221 is a lecture, discussion and laboratory course (221L) covering nomenclature, properties, reactions, syntheses, and spectroscopy (NMR, IR, Mass spectrometry) of organic molecules including alkanes, alkenes, alkynes, and alcohols.

Outcome: Assign IUPAC names, understand and apply spectroscopy to identify unknowns, predict reaction products, supply starting materials or reagents, propose reasonable reaction mechanisms.

Why Orgo?

Do you have an interest in human health, prescription medicines and drugs? Organic chemistry is utilized by medicinal organic chemists for the design and construction of new molecules that are prescribed by doctors and dispensed by pharmacists to treat diseases (*drugs!!*). Organic chemistry is also essential for inventing new soaps and detergents, dyes, plastics, and resins, and it is also used in creating new photoreceptors for renewable solar energy and LEDs for display panels (organic LEDs = OLEDs).

1. *Syllabus*: The current syllabus is available on Sakai and is subject to change (date at the top) during the semester. *You are responsible for all changes announced whether or not you are in attendance.*
2. *Exams and Grading*: There are three mid-term exams and one 2-hour final exam.

Mid-term exam I	20%
Mid-term exam II	20%
Mid-term exam III	20%
Laboratory work & exams	20%
<u>Final Exam</u>	<u>20%</u>
TOTAL	100%

I grade on a curve based on the average and the standard deviation. I will give statistics including the mean, the median, and the standard deviation for each exam. I do not predict cutoffs, but can tell you what the cutoff was for a previous test or class.

You must bring a form of photo identification, such as your Loyola Student ID or your driver's license, with you to the exam, which you may be asked to show. All exams are closed book and closed notes. When you are finished with your exam, please bring your completed exam to the front, and leave the room quietly without disturbing the other students.

Exams will be graded and returned to you as quickly as possible, usually by the following class period. All grading questions, points of clarification, and grading errors must be brought to the instructor's attentions during office hours no later than one week after return of the exam.

3. *Homework*: Organic chemistry is a new language that is spoken in words and in structures. The best way to learn a language is to work some problems every day. Homework problems will be assigned for each chapter, but will not be collected. You must work problems in a timely manner. Past experience has shown that exam success is a direct result of working the problems in the book.

4. *Discussion*: The discussion section will be devoted to answering questions regarding homework problems plus questions over lecture/text material. *Attendance and participation are expected.*

5. *Sakai Materials*: Handouts given in class are mirrored on Sakai so you can access materials and obtain extra copies if you wish.

6. *Academic Honesty*: First off, let me say that I grade all exams individually and personally, and I pay especially close attention to written answers in order to check your understanding and to assign appropriate credit, be it full, partial, or no credit awarded. I grade each page separately (ie., I grade page 1 on all exams, then page 2 on all exams, etc.) to ensure that partial credit is awarded fairly and consistently. Thus, it is very obvious to me when two exams have identical answers, especially when the answer has some peculiar flaw. Therefore, resist the temptation to let your eyes drift if you suffer that weakness, and also be mindful of your own exam by not providing an attractive nuisance for wandering eyes of other possibly weak-willed students. All students in this course are expected to have read and to abide by the appropriate standard of personal honesty and integrity, drafted by the College of Arts & Sciences, that can be viewed online at: http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf

For this course, all exams are closed book and closed note. Academic dishonesty includes using notes or books during exams, looking at another student's test during the exam period, or talking during an

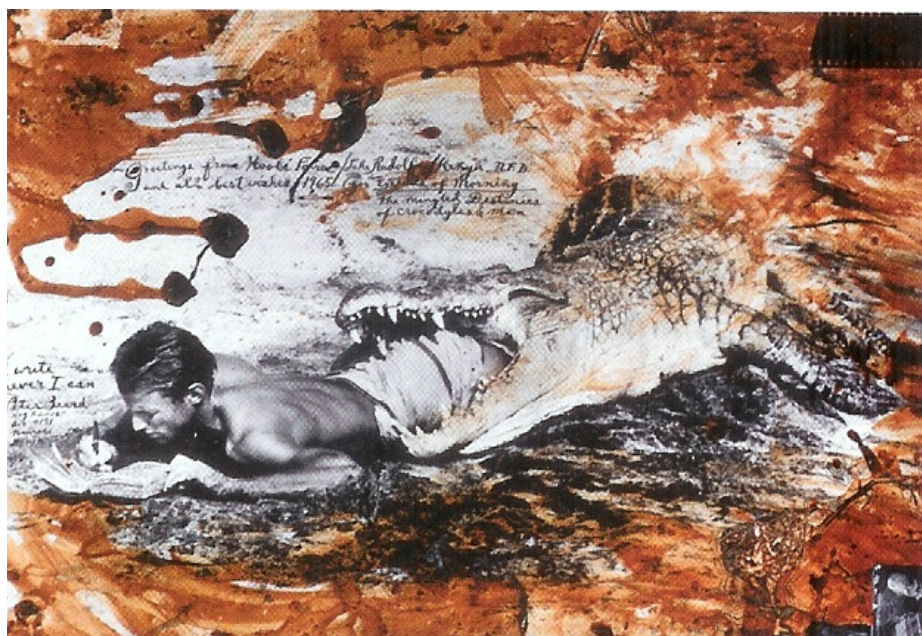
exam. The consequence of academic dishonesty is failure of the course, and the incident will be reported to the Chemistry Department Chair and the Office of the Dean. Additional sanctions including expulsion from the university may be imposed. The Undergraduate Handbook contains a complete description of the University policy regarding academic dishonesty. Anything you submit that is incorporated as part of your grade in this course (quiz, exam, lab report, etc.) must represent your own work. Any student caught cheating will, at the very minimum, receive a grade of “zero” for the item that was submitted. Cheating on any lab material results in zero points for the lab portion of the course. If cheating occurs during a course exam, the incident will be reported to the Chemistry Department Chair and the Office of the CAS Dean. Additional sanctions may be imposed.

7. *Strategies and Suggestions:*

- The best method of learning organic chemistry is to work the assigned problems and write out the answers. *Then* check your answers versus the Solutions Manual by Simek.
- Study at least 10 hours per week and maintain a steady pace of studying. Organic chemistry continually builds, like a language, so studying every day is most effective.
- Homework will not be collected, but it is essential that you work the assigned problems in a timely fashion.
- Skim the current chapter before the lecture, so that you will be aware of the topics to be covered.

8. The Tutoring Center offers free small group tutoring and lab (drop-in) tutoring for Loyola students. The groups meet once a week through the end of the semester and are led by a student who has successfully completed study in the course material. To learn more or request tutoring services, visit the Tutoring Center online at www.luc.edu/tutoring.

9. Please note that CAS has accommodations for students with disabilities (SSWD), including a testing center in the Sullivan Center. For more information see <http://www.luc.edu/sswd/>.



Never miss an opportunity to work through some organic chemistry problems.

Organic Chemistry 221 Tentative Schedule (subject to change)

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	8/24 Ch 1: Lewis Str & Bonding	8/25	8/26 ...Ch 1...	8/27	8/28 Ch 2: Struct/Props Orgo molecules
2	8/31 ...Ch 2...	9/1	9/2 Ch 3: Str & Stereo of alkanes	9/3	9/4 ...Ch 3...
3	9/7 Labor Day No class	9/8	9/9 ...Ch 3...	9/10	9/11 Ch 4: Rxn & Mech Free radical halo
4	9/14 ...Ch 4...	9/15	9/16 ...Ch 4...	9/17	9/18 Midterm I
5	9/21 Ch 5: Stereochem	9/22	9/23 ...Ch 5...	9/24	9/25 ...Ch 5...
6	9/28 Ch 6: Alkyl halides S _N 1, S _N 2, E1, E2	9/29	9/30 ...Ch 6...	10/1	10/2 ...Ch 6...
7	10/5 Midsemester Break – no class	10/6 Midsemester Break – no class	10/7 ...Ch 6...	10/8	10/9 Ch 7: Alkenes Structure & Synth
8	10/12 ...Ch 7...	10/13	10/14 ...Ch 7...	10/15	10/16 Midterm II
9	10/19 Ch 8: Alkenes Reactions	10/20	10/21 ...Ch 8...	10/22	10/23 ...Ch 8...
10	10/26 Ch 9: Alkynes	10/27	10/28 ...Ch 9...	10/29	10/30 ...Ch 9...
11	11/2 Ch 10: Alcohols Structure & Synth	11/3	11/4 ...Ch 10...	11/5	11/6 ...Ch 10
12	11/9 ...Ch 10...	11/10	11/11 Ch 11: Alcohols Reactions	11/12	11/13 Midterm III
13	11/16 ...Ch 11...	11/17	11/18 ...Ch 11...	11/19	11/20 Ch 12: MS & IR
14	11/23 ...Ch 12...	11/24	11/25 Thanksgiving No class	11/26 Thanksgiving No class	11/27 Thanksgiving No class
15	11/30 Ch 13: NMR	12/1	12/2 ...Ch 13...	12/3	12/4 ...Ch 13...
16	12/7	12/8	12/9 12:00-1:30 Organic Pizza Study Day	12/10	12/11 LSB 142 4:15 p.m. Final Exam (Cumulative)