

**Organic Chemistry I & Lab for Chemistry Majors, CHEM 221, Fall 2016**

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<b>Lecture</b>	MWF	2:45 – 3:35 PM	Cuneo 109	(CHEM 221-001-1068)
<b>Discussion I</b>	Tue	11:30-12:20 PM	Dumbach 227	(CHEM 221-002-1070)
<b>Discussion I</b>	Tue	1:00-1:50 PM	Flanner 105	(CHEM 221-003-3999)
<b>Lab section I</b>	Tue	2:30-5:15 PM	LSB 115	(CHEM 221-004-4000)
<b>Lab section II</b>	Thur	2:30-5:15 PM	LSB 115	(CHEM 221-005-4001)

*Office Hours:* Monday & Wednesday 3:45-4:45 (right after lecture)*Required Text:* L.G. Wade, Jr., "Organic Chemistry" 8<sup>th</sup> Ed. ISBN-13 978-0321768414 **or** 7<sup>th</sup> Ed. ISBN 978-0-321-59231-6 **or** 6<sup>th</sup> Ed. ISBN 0-13-147871-0*Required Key:* J.W. Simek, "Solutions Manual Organic Chem.", 8<sup>th</sup> Ed. ISBN-13 978-0321773890 **or** 7<sup>th</sup> Ed. ISBN 978-0321598714 **or** 6<sup>th</sup> Ed. ISBN 0-13-147882-6*The laboratory portion of this course is under the direction of Mr. Tim Thomas, MS, MLIS.**Required Lab Text:* "Making the Connections 3" (3rd Ed.) by Anne B. Padias (ISBN: 978-0-7380-7436-8) **or** the 2<sup>nd</sup> Ed. (ISBN: 978-073804135-3)*Required Lab Book:* Laboratory Notebook: Hayden-McNeil (ISBN: 978-1930882744).*Note:* The Padias text and carbonless-duplicate lab notebook are available combined and will be good for both semesters.*Required:* Pick your favorite molecular modeling kit from wherever. Here are just a couple of options.

- Darling Molecular Modeling Kit #3, ~\$13.75 (inexpensive!) in *Loyola Bookstore*
- Prentice Hall Molecular Model Set, ~\$103 (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**

For chemistry majors only. CHEM 221 is a 4 credit hour lecture, discussion and laboratory course 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, and learn techniques for executing key reactions in the laboratory.

*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 posted on Sakai and is subject to change (dated 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%	Laboratory work & exams	20%
Mid-term exam II	20%	<u>Final Exam</u>	<u>20%</u>
Mid-term exam III	20%	TOTAL	100%

A curve may be applied based on the average and the standard deviation. I will give statistics including the mean, the median, and the standard deviation for all exams. 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.

There are no make-up exams. If you miss an exam for any reason, the final exam will be weighted to compensate for the missed exam. Exams will be graded and returned 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 attention no later than one week after the graded exam is returned.

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 practice speaking and writing it, so the best way to learn organic is to work problems every day. Homework problems will be assigned for each chapter, but will not be collected, so you must be disciplined about your own studying and problem solving, which includes working assigned problems and keeping up with the pace of the lecture. Past experience has clearly demonstrated that exam success is a direct result of consistently 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 for work demonstrate. I grade each page in order (i.e., I grade page 1 on all exams, then page 2 on all exams, etc.) to ensure that partial credit is awarded consistently and fairly. 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 ever let your eyes drift during an exam, first of all because copying is cheating, and secondly, because I am very good at detecting duplicate exams. Furthermore, 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](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.

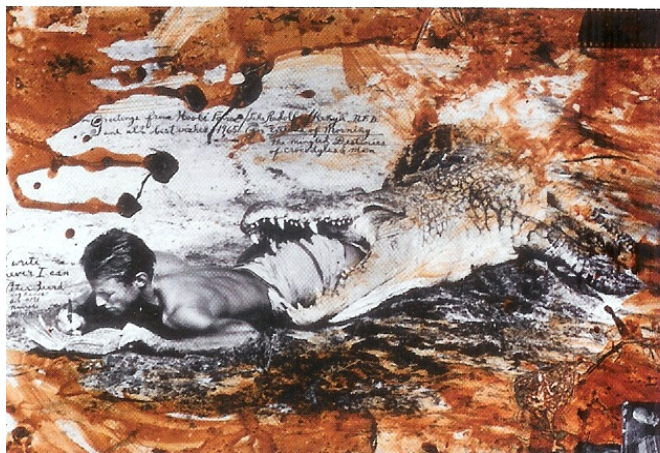
#### 7. Strategies and Suggestions:

- 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 to work 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](http://www.luc.edu/tutoring).

9. 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/>.

10. Students wanting to drop lecture may stay in the co-req lab only if midterm grade posted in LOCUS is a D or better. Students should continue to attend lecture until the week of the drop date to gain as much knowledge as possible. For Fall 2016, students wishing to drop lecture who have a midterm grade of D or better can seek assistance from the Department of Chemistry & Biochemistry office beginning Monday 10/31/16 at 9:00 am through Friday 11/4/16 at 4:00 pm. Students with a midterm grade of F must drop both the co-req lab as well as the lecture, with no exceptions.



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

**Organic Chemistry 221 Tentative Schedule (subject to change)**

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	8/29 Ch 1: Lewis Str & Bonding	8/30	8/31 ...Ch 1...	9/1	9/2 Ch 2: Struct/Props Orgo molecules
2	9/5 Labor Day No class	9/6	9/7 ...Ch 2...	9/8	9/9 Ch 3: Str & Stereo of alkanes
3	9/12 ...Ch 3...	9/12 Info Resources (open 2 weeks)	9/14 ...Ch 3...	9/115 Info Resources (open 2 weeks)	9/16 Ch 4: Rxn & Mech Free radical halo
4	9/19 ...Ch 4...	9/20	9/21 ...Ch 4...	9/22	9/23 Midterm I
5	9/26 Ch 5: Stereochem	9/27 Summary Lab Quiz 1	9/28 ...Ch 5...	9/29 Summary Lab Quiz 1	9/30 ...Ch 5...
6	10/3 Ch 6: Alkyl halides S <sub>N</sub> 1, S <sub>N</sub> 2, E1, E2	10/4	10/5 ...Ch 6...	10/6	10/7 ...Ch 6...
7	10/10 Midsemester Break – no class	10/11 Midsemester Break – no lab	10/12 ...Ch 6...	10/13	10/14 Ch 7: Alkenes Structure & Synth
8	10/17 ...Ch 7...	10/18 ChemDraw due	10/19 ...Ch 7...	10/20 ChemDraw due	10/21 Midterm II
9	10/24 Ch 8: Alkenes Reactions	10/25 Summary Lab Quiz 2	10/26 ...Ch 8...	10/27 Summary Lab Quiz 2	10/28 ...Ch 8...
10	10/31 Ch 9: Alkynes	11/1	11/2 ...Ch 9...	11/3	11/4 ...Ch 9...
11	11/7 Ch 10: Alcohols Struct & Synth	11/8 Submit Lab Notebooks	11/9 ...Ch 10...	11/10 Submit Lab Notebooks	11/11 ...Ch 10
12	11/14 ...Ch 10...	11/15 Summary Lab Quiz 3	11/16 Ch 11: Alcohols Reactions	11/17 Summary Lab Quiz 3	11/18 Midterm III
13	11/21 ...Ch 11...	11/22	11/23 Thanksgiving No class	11/24 Thanksgiving No class	11/25 Thanksgiving No class
14	11/28 ...Ch 11...	11/29	11/30 Ch 12: MS & IR	12/1	12/2 ...Ch 12...
15	12/5 Ch 13: NMR	12/6	12/7 ...Ch 13...	12/8	12/9 ...Ch 13...
16	12/12	12/13	12/14 12:00-1:30 Organic Pizza Study Day	12/15	12/16 Cuneo 109 4:15 p.m. Final Exam (Cumulative)