Chemistry 224-001 – Fall 2015
Lecture Syllabus

Course: Chemistry 224, Organic Chemistry B, 3 Credits, Lecture and discussion
Prerequisites: Chemistry 223 or 221 – a student missing a prerequisite may be withdrawn at any time
Lecture: MWF 11:30 am -12:20 pm  Section 224-001
You must also register for and attend one of the accompanying discussion sections:
Discussion: M 12:35-1:25 pm; 1:40-2:30 pm
Instructor: Dr. Sandra Helquist
Email: Send via Sakai to Instructor (select recipients) and leave subject line blank or from send to shelquist@luc.edu – put only “Chem 224-001” in subject line to receive a response
Office: Flanner Hall 200B (shared office, please knock and wait for a response)
Office Hours: Tuesdays 10-11am; Wednesdays 1-2:30pm; Thursdays 1-2:30pm; Fridays 9:30-11am
Organic Chemistry II: As a Second Language, Klein (Highly Recommended)
Molecular Modeling Kit (Recommended)
Study Guide and Solutions Manual to above text, Wade & Simek (Recommended)

Course Content & Objectives

Content-specific Objectives  Topics will include: conjugated π systems, aromatics, carbonyl compounds, amines, carboxylic acids and their derivatives, carbohydrates, amino acids, biopolymers. The student should learn how to:
1. apply material (principles, concepts, skills) learned in the first semester course (nomenclature, structure, reactions, mechanisms, spectroscopy, synthesis) to the study of second semester topics.
2. identify the various classes of organic compounds, their methods of preparation, and typical reactions.
3. name and draw specific organic compounds.
4. postulate a logical reaction mechanism for organic reactions.
5. discriminate among relative stabilities of reaction intermediates.
6. plan and write out multi-step syntheses using known functional group transformations, including syntheses of polyfunctional organic compounds.
7. name, draw and interpret the 2- and 3-dimensional structures of important biopolymers, and techniques for their synthesis and characterization.
8. analyze and interpret data from various instruments used in separating and identifying organic compounds including: IR, NMR, UV-vis and MS.

IDEA Objectives  These objectives include learning outcomes beyond this course and will apply across multiple courses and disciplines as you develop as an independent learner at Loyola. These have been selected by the Organic faculty:
1. Gaining factual knowledge (terminology, classifications, methods, trends)
2. Learning fundamental principles, generalizations, or theories
3. Learning to apply course material (to improve thinking, problem solving, and decisions)
4. Learning how to find and use resources for answering questions or solving problems
5. Learning to analyze and critically evaluate ideas, arguments, and points of view

Course Materials  Bring your books and modeling kit to class and use them! You should become familiar (if not already) with Sakai at sakai.luc.edu, to be used for announcements, posting of course materials, grades, etc. Answer keys for in-class assessments will commonly be posted on 2nd floor Flanner display case. Emails to the class will be sent from Sakai as necessary, so you must plan to regularly check your luc.edu email account. You will not be permitted to use a calculator on exams.

Expectations  I expect you to come to each class on time and prepared by reading ahead in the book and working a few simple practice problems. I expect you to ask questions as often as possible when you need clarifications and assistance with the material, and I expect you to actively participate with your classmates during class time with the goal of learning the concepts by practice. Make-up assignments are not available for this course. Contact a classmate for notes, sections/topics covered if you miss a class. Be courteous: save your electronic messaging for after class. Plan your schedule so you have at least 10 hours per week outside of class for reading, working problems, asking questions, i.e., studying (learning) the material on a Daily Basis. Some students may require up to 20 hours per week depending on prior preparation for this course. Plan on spending time on this course every day, i.e., do not count on cramming it all in on weekends or before exams as this is unlikely to lead to success in meeting the course objectives listed above.
Accommodations  Students requiring accommodations must provide appropriate documentation from the University and meet with the instructor to discuss arrangements. Accommodations are provided after receiving documentation and allowance of a reasonable time frame for implementation: minimally, one week in advance of an exam. Accommodations cannot be retroactive. Students with disabilities should visit: http://www.luc.edu/sswd/

Academic Integrity
You are encouraged to study with other students in and out of class, however, anything submitted for an individual grade during or outside of class must represent your own knowledge and understanding of the material. Evidence of cheating (for quizzes or exams) will result in, at a minimum, a “zero” on the item and penalty up to failure of the course, as well as referral to the Dean’s Office. For the Undergraduate Catalog statement on academic integrity, visit: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml

Grading  The purpose of the graded assessments (quizzes, exams) is primarily to gauge your level of understanding of concepts, as well as your ability to analyze problems in order to solve by applying chemical concepts. You will be assessed on the Course Content and Objectives as listed on the first page of this syllabus, and Course Grades will be assigned based on the level of achievement you demonstrate on graded assessments.
Your Chemistry 224 grade will depend on the following: Quizzes 20% + Exams 80% = Total 100%
Generally, 85.0% is the lowest A-; 70.0% is the lowest B-; 55.0% is the lowest C-; 40.0% is the lowest D. Cutoffs for plus/minus grades are not published as they will be determined by the overall distribution of course scores.

Exams:  No early exams, no make-ups! Unexcused absence (traffic, weather, oversleeping, forgetfulness, etc) results in a ZERO. Excused absences require documentation of an unforeseeable emergency but do not result in a make-up exam.
• Midterm Exams: 50 minutes, September 16, October 14, November 6, 16% each toward course grade. Organic chemistry material is highly cumulative over 2 semesters: all exams will require application of prior knowledge.
• Final Exam: Monday December 7th 1-3 pm as scheduled by the University, 32% of course grade. The final exam is Mandatory and Comprehensive, with emphasis on material covered after 3rd midterm exam, to be discussed in class.

Exam Procedure:  Use of your own models are permitted. Phones, other electronic devices, calculators are not permitted. If seen or heard, will be confiscated along with exam copy and student will be asked to leave. Seating arrangements may be altered before or during the exam. Show up early with two items: (1) your Loyola ID, visible on desk to be checked; (2) working pencil(s) or standard blue/black ink pens. All jackets, bags, loose accessories, etc must be left at the front of the classroom. Once the exam is distributed, if you exit the room (quietly, please), for any reason before time is up, your exam is considered complete and will be collected. I will return your midterm exams during the discussion periods or in office hours (copies will be kept). Scoring errors must be brought to my attention in person no later than one week after the exams are returned. The final exam cannot be returned.

Homework: Preparation, Practice, Self-Assessment
Very Highly Recommended: experience dictates that positive outcomes for learning that you are able to demonstrate on exams is directly proportional to working and UNDERSTANDING the assigned problems on a regular basis, i.e., applying the concepts discussed in class and read from your textbook to non-generic compounds. On quizzes and exams you will be expected to answer questions and solve problems, so you should study by answering questions and solving problems. When you cannot answer a question correctly on the first attempt, do not dismiss it! Figure out WHY you made the mistake (particularly important if you cannot identify the type of problem or if you have a misconception about the material), WHY the correct answer is correct, HOW you can recognize and apply the correct concepts and methods for solving that type of problem in the future, and FINALLY, attempt several more problems of that type until you can solve on the first attempt. Seek assistance with any part of this process as often as needed, especially if you do not understand why/how you are making particular mistakes! Pre-lecture: The purpose of reading ahead and working problems within the textbook sections is to help you come prepared to get the most out of our class time, and I do expect you bring questions to class. Post-lecture: The purpose of these problems is to help you continue to learn the material and to self-assess, critically and honestly, so you can gauge your progress toward meeting the course objectives. Use these to determine how much assistance and extra practice you need on a daily basis and prior to exams. Review notes/textbook as needed, then complete as many of the end-of-chapter exercises as possible every day. A list of Very Highly Recommended textbook problems will be posted on Sakai.
Best Practices & Suggestions

Students often ask me, “How do I get a/an (fill in grade of choice here) in this class?” The answer is simple (see the grading policy for the course), but the process of learning is challenging and can even be uncomfortable as you are pushed to expand the boundaries of your knowledge and abilities. Grades are earned based on quality of achievement in the course, with the top grade of ‘A’ earned by demonstrating complete (not partial) mastery of all (not some/most) of the course material on all quizzes and exams: trying to take a shortcut in one area will often be detrimental in another area. So what does it mean to demonstrate mastery of course material? Please refer back to the first page of this syllabus for the overview of Course Content and Objectives: you will be assessed on all of these. My primary concern is to provide you with the tools, environment, and encouragement to learn chemistry, and from there it is up to you to determine your level of achievement. Please continue reading for the best suggestions I have from my own experience as a student and as a teacher, and the experiences of my mentors, colleagues, and former students.

1. Memorization is not sufficient: Understanding the material is crucial. There are many ways to state this distinction, for example: you need to know more than the chemistry content, you must understand the chemical concepts. You should already have some experience with this distinction from your prerequisite Chemistry courses as well as having learned that simply trying to remember content does not typically lead to sustained learning.

2. Chemistry material, by nature, is highly cumulative. You must have good to excellent understanding of the concepts from the first semester Organic Chemistry in order to apply that knowledge as you begin to learn the second semester material. We will refer back to basic concepts and principles of the first semester material incessantly and relentlessly. Review early and as often as needed – see me with review questions early and as often as needed!

3. To deal with the highly cumulative nature of the material, the best plan is to study by working problems every day. Work the recommended problems until you can complete them on the first attempt without assistance from your notes, book or the solutions manual. Ask yourself each time: what type of problem is this? Break up your studying, know when you have reached your limit for new content and take a break, give yourself time to process and assimilate before moving on to even more new material. In the academic year, plan on 1.5-2.5 hours every day of the week. Falling behind is unacceptable if you wish to fundamentally understand the concepts in order to apply them to solve problems.

4. Foundational concepts, trends and patterns are still your friends. If you attempt to memorize everything separately, you will have great difficulty distinguishing problems types and will soon reach your limit of remembering even the basic content. You will be asked to recognize, explain and predict trends in structure, properties and reactivity, so get curious! It is one thing to know what happens, but it is often more satisfying to know why it happens.

5. Even though I am asking you not to rely strictly on memorization, you will still have to remember content. Remembering is a prerequisite for understanding, applying, and analyzing: these three levels of learning will form the basis for your assessment. If you are curious, check out this interactive pyramid depicting Bloom’s Taxonomy: http://media.ccconline.org/ccco/FacWiki/TeachingResources/Blooms_Taxonomy_Tutorials/BloomsTaxonomy_VerbsPyramid/BloomsTaxonomyVerbsPyramid.swf As you continue in your undergraduate coursework, the transitions from 100- to 200- to 300-level courses will include transitions to higher-order thinking skills being emphasized for your learning and assessed in your coursework.

6. Form a study group. Learn from and teach your peers.

7. Ask questions. Of yourself, of your classmates, of the instructor.

8. Learn from your mistakes. This is part of critical self-assessment.

9. Take ownership of your learning. It is up to you to determine your level of achievement in this and other courses, and it is up to you to access resources for help as often as needed: office hours, tutoring, study groups, mentoring, and more.


11. Fill in your own best practices and suggestions here and share them with your classmates and me:

If you are solving problems and asking questions on a Daily Basis, you have already studied for your Exams by learning the course material! Begin to review for each test a few days in advance. You may wish to use the Summary: Reactions of (class of compound), Essential Problem Solving Skills, Essential Terms listed at the end of chapter as a review tool, or to make your own study guides from lecture outlines or quizzes prior to exams. Find a review method that works for you: meet with classmates and quiz each other, bring additional questions to office hours. When you are taking any exam, read the instructions and questions carefully, bring your time well, start with the problems you know you can solve, write out your work so you can check it, and clearly indicate answers as appropriate.
Tentative Lecture Schedule & Attendance Policy

Introduce yourself to multiple classmates early in the course. Our actual pace may vary from this schedule: if you miss a class for any reason, it is your responsibility to immediately contact a classmate for notes/topics covered, as you are still responsible for all material covered and assigned. I do not provide notes, outlines or summaries. Lectures will be presented using “chalk talks” and slides/links/animations, with additional resources posted on Sakai as appropriate.

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Monday December 7, 1-3 pm
FINAL EXAM: Comprehensive

Other Items

A link to the official Loyola calendar can be found here: [http://luc.edu/academics/schedules/index.shtml](http://luc.edu/academics/schedules/index.shtml)
The Withdraw deadline for the semester is Friday October 30th.
For information about Loyola tutoring in the Sullivan Center, see: [http://www.luc.edu/tutoring/](http://www.luc.edu/tutoring/)
Links, Resources, and other items will be posted under Course Materials on Sakai.

Best wishes for a successful semester. I enjoy conceptual challenges, problem-solving, and trying to figure out why and how students make mistakes in order to correct misconceptions. I expect to provide you with support, guidance, and encouragement as we work toward the course objectives listed above, both for the organic chemistry content, and for the broader IDEA objectives. Please ask me to provide additional help as needed.