

Chemistry 224-001,002 – Summer 2010 Lecture Syllabus

Course: Chemistry 223, Organic Chemistry A, 3 Credits, Lecture and discussion
Prerequisites: Chemistry 223 or 221
Lecture: MWF 12:30-3:20 pm Cudahy Hall 202
Instructor: Dr. Sandra Helquist
Email: shelquist@luc.edu
Office: Flanner Hall 213
Office Hours: Immediately following class or by appointment.
Textbook: Organic Chemistry, Wade, 7th edition, Prentice Hall (Required)
Study Guide and Solutions Manual to above text, Wade & Simek (Recommended)
Molecular Modeling Kit (Recommended)

Course Content & Objectives Second semester of a two semester sequence for non-chemistry majors.. Organic chemistry of carbonyl compounds, amines, carboxylic acids and their derivatives, carbohydrates, lipids and proteins. The student should 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 organic reactions.
4. discriminate among relative stabilities of reaction intermediates.
5. plan and write out multi-step syntheses using known functional group transformations, including syntheses of polyfunctional organic compounds.
6. name, draw and interpret the 2- and 3-dimensional structures of important biopolymers, and techniques for their synthesis and characterization.
7. analyze and interpret data from various instruments used in separating and identifying organic compounds including: IR, NMR, UV-vis and MS.

Course Materials Bring your books and modeling kit to class and use them! You should become familiar (if not already) with Blackboard (Bb), to be used for announcements, posting of course materials, grades, etc. Materials will commonly be posted on 4th floor Flanner as well. Emails to the class will be sent from Bb as necessary, so you must plan to regularly check your email account of record as listed on Bb. You will not be permitted to use a calculator on exams.

Class Attendance Vital for your learning: you are responsible for all material presented or handed out, as well as reading and problems recommended in lecture even if you are not in attendance for a course meeting. For each class you are expected to indicate your presence by signing in on the class roster sheet, to be found at the front of the room anytime during the class meeting. Attendance and Attention is important and required. Prepare for lecture by scanning the new material to be covered. Come prepared to engage in discussion, ready to ask questions on homework or yet unassimilated lecture material.

Academic Integrity Research and learning in chemistry relies heavily on collaborative efforts. You are encouraged to study with other students in and out of class, however, anything submitted for an individual grade must represent your own knowledge and understanding of the material. On exams you are expected to obtain information only from your own mind. Any student caught cheating will receive, at a minimum, a "zero" on the test, and penalty up to automatic failure of the course as well as referral to the Dean's Office. You may review the University guidelines from the academic catalog at http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml.

Disability Accommodations At times, students with disabilities may wish to avail themselves of the University's ancillary services. Students who would like accommodations at the University need to contact the Coordinator of Services for Students with Disabilities. Contact information is available at <http://www.luc.edu/depts/lac/disabilities>.

Tutoring Center Free walk-in tutoring is offered in Biology, Chemistry, Math, Physics, and Statistics. Walk-in tutoring will run Monday-Thursday, beginning May 24th and ending August 12th. To see a full schedule of times, or to find more information on tutoring services, visit the Tutoring Center online at www.luc.edu/tutoring.

Grading Your grade for Chemistry 224 will depend on the following factors: Quizzes 20% and Exams 80%. 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 will be determined by the overall distribution of course scores. These are the highest standards that will be used, however, grading may be curved only at the end of the semester.

Quizzes: No early quizzes, no make-ups! 6 quizzes will be given, one per week. Quizzes are worth 20 points each; points will be added up to a maximum of 100 points total on all quizzes taken (out of the 120 points available) so that consistently good scores on the quizzes will contribute positively to the overall course grade. Quizzes may be given as individual or group exercises, or as take-home activities. Dates, time of quizzes may or may not be announced in advance. Keep up with the material so that you can gauge your level of understanding on the quizzes in order to identify areas of weakness prior to the exams.

Exams: No early exams, no make-ups! Exams will begin promptly at 12:30. A normal lecture class will follow each of the midterm exams. Unexcused absence (traffic, weather, oversleeping, forgetfulness, etc) results in a ZERO. Excused absences require documentation of an emergency situation (note from doctor, hospital, funeral director, court summons) and will be handled on a case-by-case basis. Midterms: 1 hour, July 19 and Aug 2, 20% each. Final Exam: 2 hours, August 13, 40%, **MANDATORY**. Comprehensive, with emphasis on material covered after 2nd midterm. The final exam must be taken on the date scheduled or a grade of F will automatically result.

Exam Procedure: Cell phones, PDAs, mp3 players, calculators are not permitted. If seen or heard, will be confiscated along with exam copy and student will be asked to leave. Come to the exam with Photo ID, such as Loyola ID or Driver's License, and leave visible on desk during exam to be checked. All purses, bags, jackets, etc must be left at front of room. 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 exams (photocopies will be kept) for the midterms only. 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.

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. Over 2 semesters, the course will cover functional groups, aliphatic and aromatic compounds, bonding, nomenclature, stereochemistry, conformational analysis, reaction mechanisms, multi-step syntheses, and spectroscopy. Because the course is cumulative and builds heavily on prior material, the best plan is to study organic chemistry regularly, every day, similar to immersing yourself in the study of the new foreign language, in the foreign country! 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 in lecture to non-generic compounds. 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 and expected. *If anticipating a passing (C) grade, the MINIMAL time per week in the summer devoted to Organic Chemistry is estimated at 9 hr for lecture/discussion, 6-12 hr for reading, and 6-12 hr for homework. Studying needs will vary for each student. It is therefore up to the individual student to devote the time necessary to achieve the desired grade.*

Tentative Lecture Schedule

Our actual pace may vary from this schedule: if you miss a class for any reason, get the notes from a classmate!

Week	Dates	Monday	Wednesday	Friday
1	July 5, 7, 9	JULY 4 th HOLIDAY	Ch. 12-13: Review of Spectroscopy	Ch. 14: Ethers, Epoxides Ch. 15: Conjugation
2	July 12, 14, 16	Ch. 15: Conjugated Systems, UV-vis	Ch. 16: Aromaticity, Aromatic Systems	Ch. 17: Reactions of Aromatic Compounds
3	July 19, 21, 23	MIDTERM I Ch. 18: Carbonyls	Ch. 18: Carbonyl Synthesis and Reactions	Ch. 19: Amines
4	July 26, 28, 30	Ch. 19: Amines Ch. 20: Carboxylic Acids	Ch. 20: Carboxylic Acids Ch. 21: Acid Derivatives	Ch. 21: Carboxylic Acid Derivatives - Reactions
5	August 2, 4, 6	MIDTERM II Ch. 22: α -Reactions	Ch. 22: Carbonyl Condensation Reactions	Ch. 23: Carbohydrates
6	August 9, 11, 13	Ch. 23: Nucleic Acids Ch. 24: Amino Acids	Ch. 24: Peptides, Protein Ch. 25: Lipids	FINAL EXAM COMPREHENSIVE