Chemistry 224-001 – Summer 2014
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Prerequisites:	Chemistry 223 or 221 – a student missing a prerequisite may be withdrawn at any time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 8:30-11:10 am Mundelein 407
Instructor:	Dr. Sandra Helquist
Email:	shelquist@luc.edu - put "Chem 224-001" in the subject line to receive a response
Office:	Flanner Hall 200B
Office Hours:	Immediately following class or by announcement/appointment.
Textbook:	Organic Chemistry, Wade, 8th edition, Prentice Hall, hard copy or eText (Required)
	Organic Chemistry II: As a Second Language, Klein (Highly Recommended)
	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. Mastery of the second semester material requires comprehensive understanding and recall of the first semester material. Organic chemistry of conjugated π systems, aromatics, 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.

IDEA Objectives

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, 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 email account of record as listed on Sakai. You will not be permitted to use a calculator on exams or quizzes, other permitted materials will be announced in class.

Class Attendance Vital for your learning: you are responsible for all material presented even if you are not in attendance for a course meeting. Attendance and Attention is important and required: there are no make-ups for missed assessments. Prepare for lecture by reading the new material to be covered and working the problems within the text sections. Come prepared to engage in discussion, ready to ask questions on homework, reading and/or notes. Contact a classmate for notes, sections/topics covered if you miss a class. We will take a short, ~5 minute-break during each class meeting. Be courteous: save your electronic messaging for the break or after class.

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 quizzes and 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 item and penalty up to automatic failure of the course, as well as referral to the Dean's Office. For the full College of Arts and Sciences statement on academic integrity, visit:
http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf

Disability Accommodations At times, students with disabilities may wish to avail themselves of the University's ancillary services. Students requiring accommodations at the University need to contact the Coordinator of Services for Students with Disabilities, then provide documents and schedule arrangements with the instructor at least one week prior to the first exam. Information is available at: http://www.luc.edu/sswd/

Tutoring Center The Center for Tutoring & Academic Excellence generally offers free walk-in tutoring during the summer. Check the website for contact information: http://www.luc.edu/tutoring/index.shtml

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: very small adjustments may be made, but only at the end of the term.

Quizzes: No early quizzes, no make-ups! Quizzes (4-5 total) will be given in class and/or as take-home activities. Date/ time of quizzes may or may not be announced in advance. The lowest quiz score will be dropped at the end of the term; all remaining quiz scores will be averaged (by percent, so that equal weight is given to each quiz) to obtain the overall quiz contribution to the course grade. Every missed quiz receives a score of zero – no early quizzes, no make-ups! Keep up with the material and use these for exam preparation.

Exams: No early exams, no make-ups! Exams will begin promptly at the beginning of class; midterm exams are followed by regular lecture/discussion. Unexcused absence (traffic, weather, oversleeping, forgetfulness, etc) results in a ZERO. Excused absences require documentation of an unforeseeable emergency situation and will be handled on a case-by-case basis. Midterms: 60 minutes, July 14 and July 28, 20% each. Final Exam: 2 hours, August 8, 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. The Withdraw deadline for the course is Friday Aug 1st http://luc.edu/academics/schedules/summer/academic_calendar.shtml

Exam Procedure: 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. 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 other items and materials must be stowed and inaccessible. 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 (copies 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 in class. 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 a 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., studying by applying the concepts learned in lecture to non-generic compounds. Typically, overnight cramming will probably not produce success. The student should read the chapter/sections to be covered and work basic textbook problems BEFORE lecture to improve lecture comprehension and identify initial questions/areas of confusion. After lecture, careful review of textbook and lecture notes along with focused working of as many additional problems as needed to fully comprehend the material are appropriate and expected, as well as asking additional rounds of questions. A list of textbook problems to be worked for each chapter is available on Sakai. *If you are anticipating a grade of C (passing/satisfactory completion), the MINIMAL time per week in the summer devoted to Organic Chemistry is estimated at 9 hr for classes/office hours, 6-12 hr for reading, and 6-12 hr for working problems. 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.* For this 2nd semester course, good knowledge of all material from the prerequisite course (Chem 223 or 221 or the equivalent) is necessary and assumed. Review early and as often as needed – see the instructor with questions early and as often as needed! As with the first-semester material, some memorization is required, however, students relying on memorization alone are, on average and over the course of two semesters, less successful than the student who studies to understand the fundamental principles of organic chemistry and to recognize and APPLY patterns in structures, mechanisms and reactivity. Remember, studying = mindfully working practice problems, learning from your mistakes (why is the wrong answer wrong, and why is the right answer right) and seeking help as needed.

Tentative Lecture Schedule

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!

Week	Dates	Monday	Wednesday	Friday
1	June July 30, 2, 4	Ch. 12-13: Review of IR, MS, NMR	Ch. 13: NMR Ch. 14: Ethers, Epoxides	JULY 4TH HOLIDAY
2	July 7, 9, 11	Ch. 14: Ethers, Epoxides 15: Conjugated Systems	Ch. 15: Conjugated Sys. Ch. 16: Aromaticity	Ch. 16: Aromatic Cmpds, Ch. 17: EAS Rxns
3	July 14, 16, 18	**MIDTERM I** Ch. 17: NAS,Side-Chains	Ch. 18: Carbonyls, Properties, Synthesis	Ch. 18: Carbonyl Rxns Ch. 19: Amines
4	July 21, 23, 25	Ch. 19: Amines, Rxns	Ch.20: Carboxylic Acids, Acyl Transfer	Ch. 21: Acid Derivatives, Acyl Transfer
5	July/August 28, 30, 1	**MIDTERM II** Ch. 22: α-carbons	Ch. 22: α-carbon Reactivity, Synthesis	Ch. 23: Carboyhydrates
6	August 4, 6, 8	Ch. 23: Nucleic Acids Ch. 24: Amino Acids	Ch. 24 : Amino Acids, Peptides, Proteins	**FINAL EXAM COMPREHENSIVE**

HIGHLY RECOMMENDED Practice problems from the textbook to be posted on Sakai

To be completed for studying every day. Bring questions about these problems to your instructor, your classmates, your tutor. Make sure you understand: (1) what the problem is asking; (2) what strategy you are using to solve each problem; (3) why or why not your answer was correct; (4) which topics are giving you the most difficulty so that you can adjust your studying to get help and work additional problems as needed.