

Loyola University Chicago

SPRING 2011

Syllabus

Organic Chemistry B CHM 224 Sec. 004

Lecture: M,W 06:15 PM – 08:00 PM Flanner Hall 133 Discussion W 07:10 – 08:00 PM

Instructor: Donald May Contact: dmay4@luc.edu

Office: Flanner Hall 403 Hours: Wed. 05:00 PM – 06:00 PM; Thurs. 01:15 PM – 02:15 PM

Additional times announced the week before exams. Other times by appointment.

Required Materials: **Textbook:** Organic Chemistry, Wade, L.G., Jr., 7th ed., Prentice Hall, 2010.
ISBN 978-032-159-2316

Optional: - Study Guide and Solutions Manual, Wade & Simek, 7th ed. ISBN 978-032-159-8714
- Molecular Model kit

Method of instruction: Lecture and discussion. Lectures may be supplemented with classroom discussion, use of molecular models, use of multimedia, and/or use of computer based materials as well as individual and/or group problem solving. Suggested problems will be given from the textbook.

Grading: Semester grades will be determined by the following criteria: the best two (2) out of three (3) unit exams (~100 pts. each) and one cumulative final exam (~200 points). See course/exam schedule. There are no early and no make-up exams. For a single missed unit exam, that exam will be dropped. For a second and third missed unit exam, the score entered will be zero. The student must have a valid and verifiable reason for missing the final exam, such as a serious illness requiring hospitalization, and so forth. Oversleeping, not knowing the date and time of the final exam or not being prepared and so forth, are not valid reasons. If a verifiable and valid reason cannot be provided a zero score for the final exam will be recorded. Students must bring their Loyola I.D. to each exam. Students are not allowed to leave during exams. If you leave, you must turn in your exam and you will be considered finished with the exam. Students cannot begin an exam and decide not to complete it. Students must turn in all exam materials when finished. Exams cannot be taken from the classroom: see Academic Integrity Violations.

Final course grade: Grading will be based on a curve: The mean, standard deviation and quartiles will be given and utilized for assigning grades.

Grades assigned will be: A, A-, B+, B, B-, C+, C, C-, D+, D, F

Student Conduct: At all times students are expected to conduct themselves in a mature and professional manner, which includes but is not limited to: treating everyone in class with respect, avoidance of extraneous comments and small group discussions during lecture. Eating, chewing gum/tobacco products and drinking (food items) are not allowed. Students are expected to take care of their personal matters before lectures/exams. Additionally radios, headphones, cell-phones or similar devices must be in silent mode and are not permitted during lectures and exams. Not all contingencies can be listed but inappropriate conduct will be addressed. Disruptive students will be asked to leave. If a cell phone rings (beeps, buzz, etc.) during any exam, the exam will be collected and the student will not be allowed to continue. Suggested textbook homework problems will be given but the student will not be required to turn them in. Exam questions, however, will come predominantly from lecture notes and from concepts related to suggested homework problems. If a student begins an exam it must be turned in for grading. Students must bring their Loyola I.D. for each exam. Students are not allowed to leave the room during exams until their exam is handed in for grading. If you leave, you must turn in your exam and you will be considered finished. Please keep noises and sounds to a minimum. When leaving, be respectful and leave quietly. During exams, only religious caps/ hats/hoods are allowed: nonreligious caps, hats, hoods, visors and so forth, will not be allowed to be worn during exams. All personal materials, besides pencils and erasers, will be placed at the front of the room. During exams, the first two rows closest to the chalkboard will be utilized. Students will sit in every other seat. Row three will be unoccupied. Row four will be utilized with students occupying every other seat. Row five will be unoccupied. Continuing with row six (utilized), every other row will be utilized, with students seating in every other seat.

Academic Integrity: Consult the Undergraduate Studies Handbook for additional information. All exams are closed book and closed note. During exams violations include but are not limited to: cell phone ringing, opening a book-bag or back-pack during an exam, using unauthorized notes or books, looking at another student's exam, talking to another student, taking a copy of the exam from the room and so forth. Students caught cheating will receive an "F" for the course. Further actions will also result.

Course Practices Required:

College-level writing skills on exams: Communication skills for discussion and articulation of questions: Completion of reading assignments and hand-outs. It is recommended that the student read through each chapter before lecture and eventually work through the suggested problems. For discussions there will be a handout to be completed and turned in at the end of discussion. Each discussion will have a value of either 0 or 1 point, which will essentially be "free" points to be added to the student's point total earned from exams. Discussions will reinforce topics covered in lecture. The discussion before an exam will be utilized for the answering of questions: Be ready to ask questions either from discussion handouts, lecture or suggested homework.

Learning Objectives:

Students who successfully complete this course will be able to do the following at an acceptable level:

Name and draw complex organic structures;

Predict both physical and chemical properties as well as identify and name, aromatics, phenols, aldehydes, ketones, carboxylic acids, derivatives of carboxylic acid, and amines;

Describe and differentiate between various mechanisms, such as electrophilic versus nucleophilic aromatic substitution;

Relate reaction mechanisms to intermediates, stereochemistry, and kinetics; predict reaction mechanism from experimentally related data and vice versa;

Work with multi-step reaction pathways; develop synthetic pathways to simple organic compounds

Use NMR, IR, UV, and mass spectrometry data to identify structures; predict the spectroscopic data from the structure;

Identify and describe biomolecules including carbohydrates, amino acids/proteins, lipids, and heterocyclic/nucleotide/nucleic acids;

Predict the structure and stereochemistry of various carbonyl and other condensation reactions.

Lecture Outline (tentative / subject to change)

Week	Date	Chapter	Topic
1	01/17 01/29	12, 13	Holiday; NO CLASS Mass Spectrometry; ^1H and ^{13}C NMR Spectroscopy
2	01/24 01/26		^1H and ^{13}C NMR Spectroscopy
3	01/31 02/02	14	Ethers, Epoxides, Sulfides
4	02/07 02/09	15	Conjugated Systems, Orbital Symmetry, Diels-Alder reactions 1,2 vs. 1,4 additions to conjugated 1,3-dienes
5	02/14 02/16	16	Aromatic compounds and ions, Huckel's rule EXAM I
6	02/21 02/23	17	Reactions of Aromatic compounds
7	02/28 03/02	18	Aldehydes and Ketones
8	03/07 03/09		NO CLASS SPRING BREAK NO CLASS SPRING BREAK
9	03/14 03/16	19	Amines
10	03/21 03/23		EXAM II
11	03/28 03/30	20 20	LAST DAY TO WITHDRAW WITH A "W" GRADE Carboxylic Acids
12	04/04 04/06	21	Carboxylic Acid derivatives
13	04/11 04/13	22	Condensations of carbonyls; alpha substitution
14	04/18 04/20	23	EXAM III Carbohydrates and Nucleic Acids
15	04/25 04/26	24	Amino Acids and Polypeptides
16	05/02		FINAL EXAM 06:15 PM – 08:15 PM