

Loyola University Chicago

Syllabus Organic Chemistry B CHM 224 Sec. 007 Discussion 008, 009

Spring 2013

Lecture: T,R 08:30 AM – 09:45 AM Flanner Hall 133

Discussion: 008 W 08:15 AM – 09:05 AM Cuneo 311; 009 W 11:30 AM - 12:20 PM Cuneo 312

Instructor: Donald May Contact: dmay4@luc.edu

Office: Flanner Hall 403 Hours: Thurs. 10:00 AM – 01:00 AM; Fri. 12:30 PM – 01:30 PM

Additional times announced 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

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.

Discussions will incorporate explanation of theory, review of exam questions or completion of lecture material. Discussion handouts will be completed and turned in after each discussion.

Grading: Semester grades will be determined by the following criteria: Each weekly discussion will incorporate a handout worth one (1) point. The collective point total of the handouts prior to each unit exam will be added to the subsequent exam. Exams will incorporate theory up to and including the lecture prior to the exam. 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 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 lecture: see Academic Integrity Violations. The grade-score correlation (curve) for each exam will be given.

Final course grade: 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/discussions/exams. Additionally radios, headphones, cell-phones or similar devices must be in silent mode and are not permitted during lectures/discussions/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, discussion handouts 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. Other exam instructions will be given.

Academic Integrity: Consult the Undergraduate Studies Handbook for additional information. All exams are self-contained: 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 1 point, which will essentially be "free" points to be added to the student's point total, earned from the subsequent individual exam. Discussions will reinforce topics covered in lecture. The discussion before an exam will be utilized for the answering of questions.

Learning Objectives:

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

Name and draw simple and more 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 and heterocyclic/nucleotide/nucleic acids

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

Important Dates:

Monday, January 21: No classes: Holiday

Tuesday, February 11: Summer Registration

March 04 – 09: No classes: Spring Break

Monday, March 25, Last day for "W" otherwise "WF"

Thursday, March 28: No classes after 04:15 PM: Holiday

Monday, April 01: Classes beginning after 04:15 PM are held

EXAM DATES: Subject to change

Thursday, February 14: EXAM I

Thursday, March 21: EXAM II

Tuesday, April 16: EXAM III

Saturday, May 04: FINAL EXAM 09:00 AM – 11:00 AM

Lecture Outline (tentative / subject to change)

Week	Date	Chapter	Topic
1	T 01/15 R 01/17	12 13	Mass Spectrometry ^1H and ^{13}C NMR Spectroscopy
2	T 01/22 R 01/24		^1H and ^{13}C NMR Spectroscopy Spectra Interpretation
3	T 01/29 R 01/31	14	Ethers, Epoxides; Nomenclature, synthesis, reactions Sulfides
4	T 02/05 R 02/07	15	Conjugated Systems, Orbital Symmetry, Diels-Alder reactions 1,2 vs. 1,4 additions to conjugated 1,3-dienes
5	T 02/12 R 02/14	16	Aromatic compounds and ions, Huckel's rule EXAM I
6	T 02/19 R 02/21	17	Nomenclature of aromatic compounds Reactions of aromatic compounds
7	T 02/26 R 02/28	18	Reactions of aromatic compounds Aldehydes, Ketones; Classification, nomenclature, synthesis, reactions
8	T 03/05 R 03/07		NO CLASS SPRING BREAK NO CLASS SPRING BREAK
9	T 03/12 R 03/14	19	Aldehydes, Ketones; nomenclature, synthesis, reactions Amines; Classification, nomenclature, synthesis, reactions
10	T 03/19 R 03/21		Amines; Classification, nomenclature, synthesis, reactions EXAM II
11	T 03/26 R 03/28	20	Carboxylic Acids; Nomenclature, synthesis, reactions Carboxylic Acids (Easter Holiday: No Classes after 04:15PM)
12	T 04/02 R 04/04	21	Carboxylic Acid derivatives; Nomenclature, synthesis, reactions Carboxylic Acid derivatives; Nomenclature, synthesis, reactions
13	T 04/09 R 04/11	22	Condensations of Enols; keto-enol tautomerization revisited α -substitutions; diethyl malonate & ethyl acetoacetate ester syntheses
14	T 04/16 R 04/18	23	EXAM III Carbohydrates and Nucleic Acids
15	T 04/23 R 04/25	24	Carbohydrates and Nucleic Acids Amino Acids and Polypeptides
16	Sat. 05/04		FINAL EXAM 09:00 AM - 11:00 AM