

Syllabus**Organic Chemistry B** CHEM 224 Sec. 007 Discussion 008, 009**Lecture:** M,W,F 08:15 AM - 09:05 AM Cuneo Hall 109Discussion: 008 **Wed.** 11:30 AM – 12:20 PM Dumbach 118;009 **Wed.** 12:35 PM – 01:25 PM Dumbach 120**Instructor:** Donald May Contact: dmay4@luc.edu**Office Hours:** Flanner 403; **Wed.** 10:30 – 11:15 AM;

On the day directly before an exam day (times to be announced). Other times by appointment.

Required Materials: Textbook: Organic Chemistry, Wade, L.G., Jr., 8th ed., Pearson, 2013.**Optional:** - Study Guide and Solutions Manual, Wade & Simek, 8th ed.

- 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. Discussions may 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. Due dates will be given. The collective point total of the handouts will be added to the unit exams point total. Exams will incorporate theory up to and including all lectures and discussions, 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, to be eligible for a make-up final exam, which will have a different format. 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 expected to take care of their personal and professional issues before all lectures, discussions, and exams. 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. It is in the student's best interest to complete each exam giving their best effort. 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 after the grading of the exams. Answer keys to all discussions and exams will be posted in my display case (Flanner's 4th floor west-end). All attempts will be made to return graded exams in the next discussion. Issues with graded exams must be submitted within 7 days of being returned, otherwise scores will be considered final. Students must submit a signed statement requesting a review of the question(s), although the entire exam is now subject to being re-graded.**Final course grade:** Grades assigned will be: A, A-, B+, B, B-, C+, C, C-, D+, D, F**Student Conduct:** Only students officially enrolled may attend lectures/discussions/exams. 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 to be used 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 and present their Loyola I.D. for each exam; Students must also sign the exam sign-in sheet. 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 and or on the floor. Other exam instructions will be given.

Academic Integrity: Consult the Undergraduate Studies Handbook for additional information. All students in this course are expected to have read and to abide by the demanding standard of personal honesty, drafted by the College of Arts & Sciences, which can be viewed at:

http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf

Anything you submit that is incorporated as part of your grade in this course must represent your own work, unless indicated otherwise. All exams are closed book and closed note: No external materials or personnel are allowed. During exams, violations include but are not limited to: cell phone ringing, answering/using a cell phone, using unauthorized notes or books, looking at another student's exam, talking to other students at any time during the exam, opening and/or utilizing anything in your book bag, and so forth. Any student found to be in violation or cheating will, at minimum, be given a zero for the assignment/exam and the incident will be reported to the Chemistry Department Chair and the Office of the CAS Dean. For an exam, a zero score resulting from cheating cannot be dropped as the lowest exam score. Depending on the seriousness of the incident, additional sanctions may be imposed.

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: ethers, 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

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

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

Important Dates:

Monday, January 20: No classes: Holiday;

Tuesday, February 10: Summer 2014 Registration

March 03 – 08: No classes: Spring Break;

Monday, March 24: Last day for “W” otherwise “WF”

Thursday, April 17: No classes after 04:15 PM: Holiday

Monday, April 21: Classes beginning after 04:15 PM are held

Saturday, April 26: Classes End

Lecture Outline (tentative / subject to change)

Week	Date	Chapter	Topic
1	01/13	12	Review: Infrared Spectroscopy, Mass Spectrometry;
	01/15		Spectra Interpretation
	01/17	13	¹ H-NMR Theory
2	01/20		NO CLASS, Holiday
	01/22		Chemical shifts, Splitting patterns
	01/24		Spectra interpretation
3	01/27		¹³ C-NMR
	01/29	14	Ethers, Epoxides, Sulfides
	01/31		Nomenclature, synthesis, epoxide ring openings
4	02/03	15	Conjugated Systems, kinetic versus thermodynamic control
	02/05		Molecular orbital theory, Diels-Alder reactions
	02/07	16	Aromatic compounds/ions, Characteristics, Huckel's rule
5	02/10		Nomenclature: <i>o</i> , <i>m</i> , <i>p</i> di-substituted rings
	02/12		EXAM I
	02/14	17	Reactions of Aromatic compounds
6	02/17		Electrophilic Aromatic Substitutions
	02/19		Nucleophilic Aromatic Substitutions
	02/21	18	Aldehydes and Ketones: Nomenclature; Physical properties
7	02/24		Spectroscopy, Synthesis, Reactions;
	02/26		Imine Formation; Mechanisms
	02/28		Hemiacetals/Acetals Mechanisms
8	03/03		NO CLASS, SPRING BREAK
	03/05		NO CLASS, SPRING BREAK
	03/07		NO CLASS, SPRING BREAK
9	03/10	19	Amines, Classification, Nomenclature; Physical properties;
	03/12		Spectroscopy,
	03/14		Synthesis, Reactions
10	03/17	20	Carboxylic Acids, pKa's; physical properties; Spectroscopy,
	03/19		EXAM II
	03/21		Synthesis/Reactions of Carboxylic acids;
11	03/24		<u>Last day for "W"</u>
	03/26	21	Carboxylic Acid derivatives, Nomenclature Physical properties Spectroscopy,
	03/28		Synthesis, Reactions
12	03/31		Synthesis, Reactions, Mechanisms
	04/02	21	Synthesis, Reactions, Mechanisms
	04/04		Synthesis, Reactions, Mechanisms
13	04/07	22	Condensations of Enols; Enolizable Protons, Keto-Enol Tautomerism;
	04/09		alpha-substitutions; Aldol Condensations;
	04/11	23	Carbohydrates Classification;
14	04/14		Chair Conformations/Haworth Projections
	04/16		EXAM III
	04/18		NO CLASS, Holiday
15	04/21		NO CLASS, Holiday
	04/23		Reactions of Carbohydrates; Disaccharides/Polysaccharides, Nucleic Acids
	04/25	24	Amino Acids and Polypeptides, levels of structure
16	04/28		NO CLASS
	04/30		NO CLASS
	05/02		NO CLASS
17	05/05		FINAL EXAM 09:00 AM - 11:00 AM

The instructor reserves the right to modify any and all of the policies and scheduling contained in this syllabus, at any time.