

Loyola University Chicago

Organic Chemistry II CHEM 224 Sec. 001 Summer Session I: May 20 – June 28, 2019

Lecture: M, W, F; Sec. 001: 09:00 AM - 11:40 AM; ROOM: DUMBACH 125

Instructor: DONALD MAY Contact: dmay4@luc.edu

Office: Flanner Hall 403; Hours: Times by appointment.

Required Materials: Textbook: ORGANIC CHEMISTRY by David Klein; 3rd edition

Optional: - ISBN 978-1-119-37869-3

Optional: 1) Study Guide and Solutions Manual

2) Molecular model kit

3) Pushing Electrons: A Guide for Students of Organic Chemistry, Weeks

As a possible study aid, you may want to consider purchasing, a paperback also by D.R. Klein entitled "Organic Chemistry as a Second Language: Translating the Basic Concepts" (I&II); 2004 by John Wiley & Sons, Inc.; ISBN 0-471-27235-3; www.wiley.com/college/klein. These are to help the student develop the skills required to solve a variety of problems in organic chemistry and to point out the fundamental principles in organic chemistry. An additional study aid is a paperback by D.P. Weeks entitled "Pushing Electrons: A Guide for Students of Organic Chemistry," Third Edition (Thomson Brooks/Cole); ISBN 0-03-020693-6. The first 3 chapters (pp. 1-161) of this workbook are intended to help students understand "structure and bonding in organic molecules," as well as techniques of "electron pushing" so as to comprehend reaction mechanisms.

Supplementary Textbooks: Organic Chemistry, Eighth Edition by Wade (Pearson; 2016)

Organic Chemistry, Tenth Edition, by T.W.G. Solomons and C. Fryhle (John Wiley & Sons, Inc., 2011).

Organic Chemistry, Eighth Edition, by J. McMurry (Brooks/Cole Publishing Co., 2012).

Organic Chemistry, by F.A.Carey and R.M. Giuliano, Eighth Edition (McGraw-Hill, Inc., 2011).

Organic Chemistry: Structure and Function, by K.P.C. Vollhardt and N.E. Schore, Sixth Edition (W.H. Freeman and Co., 2011).

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 textbook homework problems will be given but the student will not be required to turn them in.

Grading: Semester grades will be determined by the following criteria: discussion handouts (lowest discussion score dropped), two unit exams and one cumulative final exam. See schedule. There are no early and no make-up exams. For a single missed unit exam the final exam will contribute 65%. 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. Discussion handouts will contribute 10% toward the final grade. Students must attend the lecture to receive the handout and turn in the handout, on the due date. No exceptions. Students are allowed to work together on discussion handouts. Anything you submit that is incorporated as part of your grade in this course must represent your own work, unless otherwise authorized. Discussion handouts must be completed: in regular #2 or HB pencil only, are expected to be neat and legible, free of scribbling/scribbled responses, incorporate correct chemical symbols (Review the Chemical Periodic Table of the Elements) and must have the instructor's initials for possible credit. Two unit exams will each contribute 25% with the comprehensive final at 40%; Discussion 10% + 2 unit exams at 25% = 50% + comprehensive final exam at 40% = 100%

Final Course Grade Assigned: A: 100% – 85.0% A- : 84.9% – 80.0% B+: 79.9% – 75.0%

B: 74.9% – 70.0% B-: 69.9% – 65.0% C+: 64.9% – 60.0% C: 59.9% – 55.0% C-: 54.9% – 50.0%

D+: 49.9% – 45.0% D: 44.9% – 40.0% F: < 40.0%

Student Conduct: Only students officially enrolled for the class may attend. At all times students are expected to conduct themselves in a 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. Additionally radios, headphones, cell-phones or similar electronic devices must be in silent mode and are not permitted to be in operation during lectures, discussions and exams. Students are expected to take care of personal matters before lectures, discussions and exams begin. The eating and drinking of food, water, soda, use of tobacco products, chewing gum, are not allowed, unless medically indicated by a physician. Not all possible contingencies for student conduct can be listed, subsequently other modes of student conduct not listed, will be addressed immediately. Disruptive students will be required to leave. Students are responsible for taking care of all personal matters before an exam begins. During exams, please keep sounds/noises to a minimum. If a cell phone rings (beeps, buzz, etc.) during any exam, the exam will be collected (See Academic Integrity) and the student will not be allowed to continue. Non-religious caps or hats are not allowed to be worn during exams. Additional guidelines for exams will be posted. Exam questions will come predominantly from lecture notes and from concepts related to suggested homework problems. Students must bring and present 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 must turn in all exam materials/pages when finished. Loose pages should be initialized by the student before turning in the exam. Exams turned in will not be returned until all exams are graded. The instructor reserves the right to modify any course requirement at any time. **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 otherwise authorized. 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, opening and/or utilizing anything in your book bag after the exam begins, and so forth. Any student found to be in violation or cheating will 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. Depending on the seriousness of the incident, additional sanctions may be imposed.

Lecture Outline (tentative / subject to change)

Schedule: Organic Chemistry II Lecture, Chemistry 224 001 Summer I 2019

All classes: M, W, F 09:00 AM - 11:40 AM

MAY

Monday	Tuesday	Wednesday	Thursday	Friday
20 CHP 15 NMR SPECTROSCOPY	21	22 CHP 15 NMR SPECTROSCOPY	23	24 CHP 16 DIENES
27 <u>NO CLASS</u> Memorial Day Holiday	28	29 CHP 16,17 DIENES, AROMATICS	30	31 CHP 17 AROMATICS
03 <u>EXAM I</u> CHP 18 EAS	04	05 CHP 18 EAS	06	07 CHP 19 ALDEHYDES/ KETONES
10 CHP 19 ALDEHYDES/ KETONES	11	12 CHP 20 CARBOXYLIC ACIDS	13	14 CHP 20 CARBOXYLIC ACIDS

JUNE

Monday	Tuesday	Wednesday	Thursday	Friday
17 <u>EXAM II</u> CHP 22 AMINES	18	19 CHP 22 AMINES	20	21 CHP 21 CARBONYLS "W" Day
24 CHP 21 CARBONYLS	25	26 CHP 24 CARBOHYDRATE	27	28 <u>FINAL EXAM</u>

Lectures will incorporate 50 minutes of time followed with a 10 minute break. In general, the last part of lectures will be utilized for discussion, which will be 25 minutes. This will allow students to clarify questions from homework, previous lecture material and so forth. Discussion handouts will also be given. Exams will be about 50 minutes in duration and generally cover all material up to and including material from the previous Friday's lecture. Exams will begin promptly at the beginning of the lecture day. Lectures subsequent to exams will then continue with new material, 10 minutes after the completion of each unit exam. **The lecture on June 26, 2019 will be a full lecture.** The final exam will be comprehensive (both 223,224) and will be 2 hours in duration.

Course Practices Required:

College-level writing skills on exams; Communication skills for discussion and articulation of questions; Completion of reading assignments, working through suggested homework and hand-outs. It is strongly suggested that the student study consistently every day: waiting until a few days before the exam, to assimilate the information generally will not give satisfactory results.

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; Differentiate between isomer types (structural and stereo) and conformers; predict and name different stereoisomers; Describe and differentiate between various mechanisms, such as nucleophilic acyl addition versus substitution; differentiate between types of electrophilic aromatic substitution and nucleophilic aromatic substitution; Relate reaction mechanisms to intermediates, stereochemistry, and kinetics; predict reaction mechanism from experimentally related data and vice versa; Work with multistep reaction pathways; develop synthetic pathways to simple and more complex organic compounds; Use NMR, IR, UV, and mass spectrometry data to identify structures; predict the spectroscopic data from the structure; Predict both physical and chemical properties of ethers, aromatics, phenols, aldehydes, ketones, carboxylic acids, derivatives of carboxylic acid and amines; Predict the structure, regio-chemistry and stereochemistry of conjugated dienes reacting with dienophiles and various carbonyl and other condensation reactions; Identify and describe biomolecules including carbohydrates, amino acids/proteins, and heterocyclic/nucleotide/nucleic acids

Disability Accommodations:

Students requiring accommodations at the University need to contact the Coordinator of Student Accommodation testing (SATesting). The instructor will provide accommodations after receiving documentation from SATesting and allowance of a reasonable time frame for arrangements (minimally, one week in advance). Accommodations cannot be retroactive. Information is available at: <http://www.luc.edu/sswd/>