

## Loyola University Chicago

The purpose of this syllabus is to describe the course, resources, and policies. It is meant help all students understand the expectations and requirements for the course, and it should be used as a reference for questions about policies.

When updates to the syllabus are made during the term, a new version will be posted electronically, and all students will be notified. **Organic Chemistry II CHEM 224 Sec. 003 Summer Session II: Monday JULY 01 – Friday AUGUST 09, 2024 Lecture: M, W, F; Sec. 001: 08:20 AM - 11:10 AM; INSTITUTE FOR SUSTAINABILITY: SES 124 Time Zone:** This syllabus lists dates/times using Chicago local time (U.S. Central Time Zone)

**In-Person Learning:** All graded assignments scheduled during class time are available in class only.

**Instructor:** DONALD MAY Contact: [dmay4@luc.edu](mailto:dmay4@luc.edu) **Office:** Flanner Hall 403; **Hours:** By APPOINTMENT  
**PREREQUISITE CHEM 221 / CHEM 223; Course Coordinator:**

**Chemistry 224 is a multi-section lecture & discussion course with common content and common outcomes across all sections. This course includes a Final Exam during the Common Final Exam Period as scheduled by the University. Your Section Instructor is responsible for communicating with you regarding all course content and policies and is the first and primary person you should contact, with questions about all aspects of the course. As needed, all Section Instructors will consult with the current or previous Course Coordinator throughout the semester.**

**Required Materials: TEXT: ORGANIC CHEMISTRY** by David Klein; 4<sup>th</sup> ed.

**Optional:** 1) **Study Guide and Solutions Manual (RECOMMENDED)** 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 titled: "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](http://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" 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.

### SI information (as applicable)

**There may be Supplemental Instruction (SI) study sessions available for this course. SI sessions are led by an SI leader, who is a student that has recently excelled in the course. Session attendance is open to all, and while it is voluntary, it is extremely beneficial for those who attend weekly. Times and locations for the SI session can be found here: [www.luc.edu/tutoring](http://www.luc.edu/tutoring). Students who attend these interactive sessions find themselves working with peers as they compare notes, demonstrate and discuss pertinent problems and concepts, and share study and test-taking strategies. Research shows students who regularly attend sessions have higher grades at the end-of-the-semester and more deeply understand course concepts than those who do not. Students are asked to arrive with their Loyola ID number, lecture notes, and textbook.**

**Grading:** Semester grades will be determined by the following criteria: discussion handouts (lowest discussion score dropped), Best two out of three unit exams and one cumulative final exam. See schedule. There are no early and no make-up exams. Graded Discussion handouts will contribute 20% toward the final grade. 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**). **Two out of three** unit exams with the lowest score or percent dropped with the comprehensive final at 30%; Discussion 20% + **Two** unit exam at 50% + comprehensive final exam at 30% = 100%

**Course Grading System: The standards for each letter grade are listed here according to all required course components. Each student will receive a midterm grade via LOCUS, prior to the Withdraw deadline for the semester. Grades are only based on the criteria listed in the syllabus: no substitutions, and no additions.**

**Grading Scheme: GRADED DISCUSSIONS 20%; TWO UNIT EXAMS (THREE Unit Exams with the single, LOWEST SCORE or % DROPPED) 50%**

**Final Exam 30%\*** \*the final exam is mandatory to earn a passing grade

**Total score 100%**

**Letter Grades\*: A 90.0% A- 85.0% B+ 80.0% B 75.0% B-70.0% C+ 65.0% C 60.0% C- 55.0% D 40.0%**

**F < 40%**

**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.

**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: Course Content & Learning Outcomes**

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

Prerequisite knowledge from Chemistry 223 is necessary for in-depth study of topics in Chemistry 224.

Topics include: nomenclature, structures, properties, reactions, mechanisms, spectroscopy, and syntheses of arenes, carbonyls, carboxyls, amines, carbohydrates, lipids, and amino acids. If successful, the student will be able to:

1. identify the various classes of organic compounds, their methods of preparation, and typical reactions
2. name and draw specific organic compounds
3. visualize and interpret multiple representations of organic molecules depicting connectivity, configuration, and conformations
4. postulate logical reaction mechanisms for organic reactions
5. discriminate among relative stabilities of reactive intermediate
6. plan and write out single and multi-step syntheses using known reagents and conditions
7. identify and compare general physical properties of organic compounds
8. analyze, interpret, and predict spectral data (MS, IR, NMR) used in identifying organic compounds;

Describe and analyze how organic chemistry affects living systems. Emphasis: Work with multi-step reaction pathways; develop synthetic pathways to simple organic compounds; Use Nuclear Magnetic Resonance Spectroscopy (NMR), infrared spectroscopy (IR), and mass spectrometry (MS) data to identify structures; predict the spectroscopic data from the structure

**Student Accommodations** Loyola University provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with Student Accessibility Center (SAC), located in Sullivan Center, Suite 117. Professors receive the accommodation notification from SAC via Accommodate. Students are encouraged to meet with their professor individually in order to discuss their accommodations. All information will remain confidential. Please note that in this class, software may be used to record class lectures in order to provide equal access to students with disabilities. Students approved for this accommodation use recordings for their personal study only and recordings may not be shared with other people or used in any way against the faculty member, other lecturers, or students whose classroom comments are recorded as part of the class activity. Recordings are deleted at the end of the semester. For more information about registering with SAC or questions about accommodations, please contact SAC at 773-508-3700 or [SAC@luc.edu](mailto:SAC@luc.edu)

**Course Repeat Rule** Effective with the Fall 2017 semester, students are allowed only THREE attempts to pass Chemistry courses with a C- or better grade. The three attempts include withdrawals (W). The Department advises that it is preferable to complete a course with a grade of C or C-, and to demonstrate growth in future coursework, than to withdraw from a course. After the second attempt, the student must secure approval for a third attempt. Students must come to the Chemistry Department, fill out a permission to register form or print it from the Department of Chemistry & Biochemistry website: <https://www.luc.edu/chemistry/forms/> and personally meet and obtain a signature from either the Undergraduate Program Director, Assistant Chairperson, or Chairperson in Chemistry. A copy of this form is then taken to your Academic Advisor in Sullivan to secure final permission for the attempt.

**Academic Integrity** 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:

<https://www.luc.edu/cas/advising/academicintegritystatement/>

A basic mission of a university is to search for and to communicate the truth as it is honestly perceived. A genuine learning community cannot exist unless this demanding standard is a fundamental tenet of the intellectual life of the community. Students of Loyola University Chicago are expected to know, to respect, and to practice this standard of personal honesty.

Academic dishonesty can take several forms, including, but not limited to cheating, plagiarism, copying another student's work, and submitting false documents.

Any instance of dishonesty (including those detailed on the website provided above or in this syllabus) will be reported to The Chair of The Department of Chemistry & Biochemistry who will decide what the next steps may be. Evidence of cheating in this course will result in, at a minimum, a score of zero (which cannot be dropped from grade calculations) and penalty up to failure of the course. College policies include that instructors will report incidents of academic misconduct to their chairperson as well as to the Assistant Dean for Student Academic Affairs in the CAS Dean's Office. I will report incidents to the Chemistry & Biochemistry Department for further action(s).

#### **Accommodations for Religious Reasons**

If you have observances of religious holidays that will cause you to miss class or otherwise effect your performance in the class you must alert the instructor **within 3 calendar days of the first class meeting of the semester** to request special accommodations, which will be handled on a case by case basis.

#### **Other Items**

- A link to the official Loyola calendar can be found here: <https://www.luc.edu/academics/schedules/>
- **The Withdraw deadline for the semester is on Friday, AUGUST 04, 2023.**
- Loyola is using SmartEvals to provide instructor & course feedback. OIE will send emails near the end of the term.

#### **Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC):**

Students missing classes while representing Loyola University Chicago in an official capacity (e.g., intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation i.e., "[Athletic Competition & Travel Letter](#)" describing the reason for and date of the absence.

This documentation must be signed by an appropriate faculty or staff member and it must be provided to the professor in the first week of a semester. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to allow the student to take the examination at another time.

(<https://www.luc.edu/athleteadvising/attendance.shtml>)

Students who will miss class for an academic competition or conference must provide proper documentation to their instructor as early in the semester as possible.

#### **Class Recording & Content Information**

In general lecture, meetings may be recorded. The following is a mandatory statement for all courses in the College of Arts & Sciences (CAS). We will discuss class norms and standards during the first week and continue the discussion as needed throughout the semester.

**Privacy Statement** Assuring privacy among faculty and students engaged in online and face-to-face instructional activities helps promote open and robust conversations and mitigates concerns that comments made within the context of the class will be shared beyond the classroom. As such, recordings of instructional activities occurring in online or face-to-face classes may be used solely for internal class purposes by the faculty member and students registered for the course, and only during the period in which the course is offered. Students will be informed of such recordings by a statement in the syllabus for the course in which they will be recorded. Instructors who wish to make subsequent use of recordings that include student activity may do so only with informed written consent of the students involved or if all student activity is removed from the recording. Recordings including student activity that have been initiated by the instructor may be retained by the instructor only for individual use.

**Additional Content, Copyright & Intellectual Property Statement** By default, students may not share any course content outside the class without the informed written consent of the owner of that content. This includes any additional recordings posted by students, materials provided by the instructor, and publisher-provided materials. For example, lectures, quiz/exam questions, book figures/slides, and videos may not be shared online outside the class. In some cases, copyright/IP violations may overlap with breaches of academic integrity. Remember that obtaining consent to share materials is an active process.

**Pass/Fail Conversion Deadlines and Audit Policy** A student may request to convert a course into or out of the "Pass/No-Pass" or "Audit" status. For the SUMMER II 2024 semester, students are able to convert a class to "Pass/No-Pass" or "Audit" through JUNE, 2024. Students must request a Pass/No-Pass or Audit to their Academic Advisor.

#### **Health, Safety, and Well-Being On-Campus**

Please be familiar with and adhere to all policies and protocols posted on the *Campus Info & Resources* site:

<https://www.luc.edu/healthsafetyandwellbeing/campusinfosources/>

**SUMMER 2024 Classroom Masking Policy** It will remain a principle of this class-section that, out of respect for the health of housemates and others in regular contact with members of our community, in this class students may wear masks over nose and mouth in the classroom.

**Final Exam** The University sets the schedule for all final exams. **FRIDAY, AUGUST 09<sup>th</sup>, START TIME 08:20 AM** Location will be in the regular lecture room. Students will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you start late. There will be no make-up final exams given under any circumstance, and the exam will not be given early, either. Instructors may not reschedule final exams for a class for another day and/or time

during the final exam period. There can be no divergence from the posted schedule of dates for final exams. Individual students who have four (4) final examinations scheduled for the same date may request to have one of those exams rescheduled. If a student reports having four final examinations scheduled for the same date, students should be directed to e-mail a petition to Adam Patricoski, Assistant Dean for Student Academic Affairs, CAS Dean's Office ([apatricoski@luc.edu](mailto:apatricoski@luc.edu)).

#### Universal Absence Accommodation Policy

The purpose of a universal absence accommodation policy is to account for emergency circumstances (e.g., serious illness, caring for a family member, car accident) that require you to be absent from class, while maintaining fairness in grading for students who attend and complete all in-class graded assignments. We believe that class attendance and participation are essential for your success in this class, and that your health is important to us and our shared community. Please use good judgement and stay home if necessary/prudent for your circumstances. This is the universal accommodation policy for in-class graded assignments:

One missed in-class exam due to absence for any reason is already accommodated in the course grading system. Given that only the best TWO in-class exams are included in this calculation, a missed exam would be the one not included in this calculation, as it would be the lowest score (0%) of the unit exams. You may provide documentation for an absence, but it is not required. These accommodations are automatically available to all students. Lecture and graded assessment outline (subject to change)

Schedule: Organic Chemistry II Lecture, 224 003 SUMMER II 2024

LECTURES: M, W, F; 08:20 AM - 11:10 AM INSTITUTE FOR SUSTAINABILITY: SES 124

#### JULY

Monday	Tuesday	Wednesday	Thursday	Friday
01 CHP 15 NMR	02	03 CHP 15	04	05 HOLIDAY NO CLASSES
08 CHP 16, CHP 17	09	10 CHP 17 GRADED DISCUSSION	11	12 <u>EXAM I</u> CHP 18
15 CHP 18 CHP 19	16	17 CHP 19 CHP 20	18	19 <u>EXAM II</u> CHP 20
22 CHP 20 CHP 22	23	24 CHP 22 GRADED DISCUSSION	25	26 <u>EXAM III</u> CHP 24

#### JULY / AUGUST

Monday	Tuesday	Wednesday	Thursday	Friday
29 CHP 24 MIDTERM GRADES LOCUS	30	31 CHP 21 GRADED DISCUSSION	01	02 CHP 21 "W" Day
05 CHP 25	06	07 CHP 26	08	09 <u>FINAL</u> <u>EXAM</u>

Lecture components will incorporate 50 minutes followed with a 10-minute break. In general, the last part of lectures will be utilized for discussion, which will be about 20-25 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 50 minutes 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 each unit exam.

The lecture on AUGUST 07, 2024 will be a full lecture. The final exam will be comprehensive.

#### Course Topics

Chapter 15: NMR

Chapter 17: Aromatic Compounds

Chapter 19: Aldehydes and Ketones

Chapter 21:  $\alpha$ -Carbon Chemistry

Chapter 24: Carbohydrates

Chapter 16: Conjugated Systems & Pericyclic Reactions

Chapter 18: Aromatic Substitution Reactions

Chapter 20: Carboxylic Acids & Derivatives

Chapter 22: Amines

Chapter 25: Amino Acids

Chapter 26: Lipids