

Description: CHEM 225 is a course about laboratory techniques used in organic chemistry. In this course, students will learn how to safely handle organic chemicals, how to characterize them by measuring selected physical properties, how to purify organic compounds, and how to determine their structures. Lastly, students will prepare for a chemical reaction that is designed to convert one organic compound into a different substance and then analyze the results of the reaction.

Meeting Times and Locations:

Section Number	Day and Time	Teaching Assistant
001	All sections of CHEM 225 meet online for Summer I 2020	TJ DiPuma
002		Wiktorija Koza
003		Thahani Shifna Habeeb Mohammad

Contacts: Tim Thomas, LSB 124, (773) 508-8115, tthoma1@luc.edu
Contact information for the Teaching Assistants will be posted on Sakai.

Pre-requisites: Grade of 'C-' or better in 1 year of General Chemistry Lecture and Lab.

Recommended Materials: Bound composition book

Course Homepage: Announcements, assessments, videos, the grade book, etc. are posted on Sakai.luc.edu. You are responsible for this material, so you should check Sakai frequently.

Grading: Lab grades will consist of the following components:

Information Resources Assignment	5%
Chemical Structure Drawing and Molecular Modeling	5%
Knowledge Checks	25%
Data Analysis	25%
Exam 1	30%
Synthesis Written Lab Report	<u>10%</u>
	100% total

A>93%, A->90%, B+>87%, B>83%, B->80%, C+>77%, C>73%, C->70, D+>67%, D≥60%, F<60%

Information Resources Assignment: This assignment is completed via Sakai in order to familiarize students with authoritative, reliable resources to consult for finding physical property data on organic chemicals.

Structure Drawing Assignment: This assignment will expose students to chemical structure drawing programs, such as ChemSketch and ChemDraw.

Knowledge Checks: Since this is an online-only course, most of the content consists of videos posted on Sakai. Each video has a corresponding Knowledge Check. Students are allowed unlimited attempts until the due date, and assessments must be submitted to count. Spelling, grammar, and significant figures count. No late Knowledge Checks will be accepted.

Data Analysis: For each experiment, students will answer a series of questions about sample data for that experiment. Students are to answer the questions as if they had performed the experiment themselves. Only one attempt is allowed, and the work must be submitted by the due date to count.

Lab Exam: There will be one exam from 3:30 PM to 5 PM on Monday, June 8, 2020. The exam will cover all the course material up to and including chromatography. The exam will be delivered via Sakai and must be completed individually. Students are not allowed to obtain any assistance during the exam.

Synthesis Written Report: There will be a formal lab report for the synthesis of cyclohexene experiment. The lab report will be due at 9 PM on Friday, June 19, 2020. The lab report will be submitted via Sakai. More detailed guidelines for the report and an example will be posted on Sakai.

Re-grades: All requests to have items re-graded must be submitted in writing within one week after the graded materials are returned to the student.

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: <http://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. The penalty for academic dishonesty is a zero on the assignment and a possible letter grade reduction of the final course grade

Late Policy: Unless otherwise specified, materials that are submitted late but on the same date as they were due will receive a 10% deduction. There will be an additional 25% deduction for each day or portion of a day, including weekends, they are late after that.

Email: Faculty email addresses are posted on the open Internet for every software bot and spammer in the world to see. Therefore, faculty Outlook accounts are configured differently. An outside contractor also scans faculty email. Emails from outside sources are often blocked automatically. Because of this and a Federal law relating to student privacy (FERPA), students must use a Loyola email address when contacting the TAs or the instructor about this course. In the subject line of an email, please put Chem 225- section number and TAs name.

Course/Instructor Evaluation – SmartEval: The following information came from the University regarding course evaluations,

“Towards the end of the course, the students will receive an email from the Office of Institutional Effectiveness reminding them to provide feedback on the course. They will receive consistent reminders throughout the period when the evaluation is open, and the reminders will stop once they have completed the evaluation.

- The evaluation is completely anonymous. When the results are released, instructors and departments will not be able to tell which student provided the individual feedback.*
- Because it is anonymous and the results are not released to faculty or departments until after grades have been submitted, the feedback will not impact a student's grade.*
- The feedback is important so that the instructor can gain insight into how to improve their teaching and the department can learn how best to shape the curriculum.”*

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). 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: <http://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.

Student Accommodations: If you have any special needs, please let me know in the first week of classes. The university provides services for students with disabilities. Any student who would like to use any of these

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 (develop standard form on web) 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 as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time. (<https://www.luc.edu/athletheadvising/attendance.shtml>).

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 10 calendar days of the first class meeting of the semester to request special accommodations, which will be handled on a case by case basis.

Hard Deadline: All materials of any kind must be submitted by 5 PM on June 26, 2020. No materials will be accepted after this time. This hard deadline supersedes any other normal deadlines and the normal late policy. Final grades will be calculated based only materials submitted by this deadline. If there are substantial materials that are missing and that cannot be submitted before this deadline, the student should request an Incomplete.

Schedule: Tentative: Subject to Change

May

Monday	Tuesday	Wednesday	Thursday	Friday
18	19 Laboratory Safety, Chemistry Info Resources	20	21 Functional Group Identification & IR Spectroscopy	22
25 Memorial Day	26 Melting Point & Boiling Point Determination	27	28 Distillation	29

June

Monday	Tuesday	Wednesday	Thursday	Friday
1	2 Recrystallization & Extraction	3	4 Chromatography	5
8 Exam: 3:30 PM to 5 PM	9 Lab Notebooks & Reaction Stoichiometry	10	11 Synthesis of Cyclohexene	12
15	16 Polarimetry & Mass Spectrometry	17	18 ¹³ C NMR Spectroscopy	19
22	23 ¹ H NMR Spectroscopy	24	25 Wrap Up	26

Topics by Class Period

1. Laboratory Safety and Chemistry Information Resources
2. Functional Group Identification by Chemical Tests and Infrared Spectroscopy
3. Melting Point and Boiling Point Determination
4. Distillation
5. Recrystallization and Extraction
6. Chromatography
7. Lab Notebooks, Reaction Stoichiometry, and Synthesis Preparation
8. Synthesis of Cyclohexene by Acid-Catalyzed Dehydration of Cyclohexanol
9. Polarimetry and Introduction to Mass Spectrometry
10. Introduction to NMR Spectroscopy