



# LOYOLA UNIVERSITY CHICAGO

Department of Chemistry & Biochemistry  
1068 W. Sheridan Rd.  
Chicago, IL 60660  
<https://www.luc.edu/chemistry/>

**Course:** **General Chemistry B (CHEM 102-005)**

Semester: Summer 2022

Lecture: MWF 8:20-11:10 AM CT (LSB 212)

*\*In person lecture/discussion may switch to online and may include asynchronous supplemental material, as circumstances warrant*

**Professor:** **Dr. Adri Lugosan**

Email: [alugosan@luc.edu](mailto:alugosan@luc.edu)

Office: Flanner Hall 200A

Office Hours: M 8:00-9:00 PM (Zoom: <https://luc.zoom.us/j/89204154884>)  
or by appointment

*\*No problem-solving questions via email – only in discussion section/office hours.*

*\*Please indicate section in e-mail subject!*

**Course Description:** Lecture and discussion. Build on knowledge from Chem 101 for an in-depth study of topics in Chem 102. We will focus on applying a conceptual understanding of fundamental chemical principles. Students will continue to learn the language of chemistry and develop their skills in scientific problem solving and critical thinking. This will serve as a foundation for further study in chemistry, other sciences, and related disciplines. Students will use multiple perspectives of matter (macroscopic, particle, symbolic levels) to qualitatively describe and explain characteristics, properties, and relationships of the following: liquids and solids, solutions, reaction kinetics, equilibria, acids and bases, reaction thermodynamics, and electrochemical system.

**Prerequisite:** Chemistry 101 or 105 and completion of Math 118 w/ C- or better OR math proficiency exam

**Materials:** **Textbook / Learning Platform**

Brown, LeMay, et. al. (2018) Pearson Modified Mastering Chemistry Access Card for Chemistry, The Central Science (plus eText) 14th Ed.

**Registration Course ID: lugosan85037**

**\*\*Registration/purchase instructions posted in Sakai Resources**

**\*\*can later purchase loose-leaf within Mastering e-text for ~\$44.99**

**Required Technology**

Modified Mastering Chemistry Platform (included with above purchase)

Non-graphing calculator (i.e. TI-30XS Multiview)

Zoom (<https://www.luc.edu/its/itrs/teachingwithtechnology/zoom/>)

**Sakai:** All students are enrolled in the class Sakai site. It is imperative that you check this site daily to keep informed of all activities.

**Homework:****Mastering Chemistry Assignments (15%)**

It is expected that students will read the chapters prior to the first class in which the material is presented (this should take 2-3 hours per chapter – highlight, take notes!). Required homework assignments (blue dot icons) and optional practice assignments will be listed in the Mastering Chemistry platform. The “Calendar” function is a good place to look and see what is due and when.

Additional practice is encouraged using the end-of-chapter problems (odd answers at the back of the textbook). Suggested problems may be highlighted for emphasis throughout lecture and discussion.

Keep in mind that for a 3-credit course students should spend ~9-12 hours/week studying and attempting practice problems to keep-up with the pace of the course.

**The lowest 2 homework scores will be dropped – this allows for 2 missed assignments due to illness or any other reason.**

**\*\*assignment content and due dates/times in Mastering may be edited/altered, added/removed at the professor’s discretion, as the semester dictates**

**Participation:****Discussion Participation (15%)**

Students are expected to regularly attend discussion. Discussion sessions will include interactive activities, problem solving, hand-outs, practice quizzes and/or other activities. Much of this work will be done in small groups although some individual work may be assigned. Grading of these assignments/sessions will be for effort and participation rather than correctness.

Participation will be monitored by the professor, and attendance may be recorded in a variety of ways (upload a filled-out handout on Sakai, answer a mini-quiz on Sakai, attendance record, etc.). The professor will notify students each session as to how attendance will be recorded. Attending is not a guarantee of points-actively answering questions (but allowing other students to also speak!) and actively problem-solving (showing work on handouts) is required.

**Students may earn up to 10 points max of possible participation points. There are > 10 opportunities to earn credit throughout the semester. This allows for leeway when missing discussions due to illness or any other reason. Discussion credit cannot be made up.**

**Exams:****Exams + Final (70%)**

Exams will be taken in person but may have some online components. Exams are not cumulative; however, material builds on prior knowledge. The Final exam IS cumulative. Exams may be entirely multiple choice or have short answer, essay, or matching questions in addition. Exams will be graded using Gradescope (see e-mail for registration instructions).

\*Professor reserves the right to implement a curve or adjustment to exam scores

**\*\*Announcements on Sakai override any described procedures here**

**Exam Dates:**

**Exam 1** – Friday, July 15

**Exam 2** – Friday, July 29

**FINAL** – Friday, August 12

\*Final Exam IS Cumulative

**Grading Scale:**

	93-100% = A	90-92% = A-
87-89% = B+	83-86% = B	80-82% = B-
77-79% = C+	73-76% = C	70-72% = C-
60-69% = D		
Below 60% = F		

**\*\*Professor reserves right to implement a curve. Grade rounded up if within 0.5% (89.5 = A- and 89.4 = B+)**

- Grade:** Grades will be determined using the *higher* of the two methods below:
- 1) **Regular Grade Calculation**  
30%: Participation + Mastering Homework  
Remaining 70%: Both exams + final are averaged
  - 2) **Lowest Exam Dropped Grade Calculation**  
30%: Participation + Mastering Homework  
Remaining 70%: Final weighs 2/3 and top exam weighs 1/3  
*\*\*due to this policy there will be NO make-up exams. If you miss an exam, it will count as the "dropped" exam, and method #2 will be used to calculate the grade.*

### **Institutional Policies:**

Loyola Official Academic Calendar: [www.luc.edu/academics/schedules](http://www.luc.edu/academics/schedules)

### **Incomplete Grade:**

If the Final Exam is missed for extenuating circumstances (incapacitating illness, immediate family member death, fire/flood or related emergency) students must fill-out an "Incomplete Grade Form". Be aware that the option to apply for an incomplete grade is at the discretion of the professor. Incomplete grade info: <https://www.luc.edu/regrec/faculty.shtml>

### **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. Students are encouraged to seek help with the course material early and often during the semester. Attend office hours regularly for assistance before any deficiencies become serious!

### **Accommodation Requests:**

Additional time on exams, a quiet space for exams, a note-taker, or permission to record lectures can be requested for qualifying students. It is the responsibility of the student to register with SAC and to provide documentation to the professor prior to the initiation of such accommodations. Student Accessibility Center: <https://www.luc.edu/sac/registerwithsac/>

### **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. **Lapses in academic integrity will result in a grade of 0 (zero) on the assignment or exam, which cannot be “dropped” per any other class policy. A second transgression will result in a grade of 0 (zero) in the course overall.**

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 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.

Recording of Class meetings:

In this class software may be used to record live class lectures. As a student in this class, your participation in live class discussions will be recorded. These recordings will be made available only to students enrolled in the class, to assist those who cannot attend the live session or to serve as a resource for those who would like to review content that was presented. All recordings will become unavailable to students in the class when the course has concluded. In case of a move to online learning: *Students will be required to turn on their cameras at the start of class. Students who have a need to participate via audio only must reach out to me to request audio participation only without the video camera enabled.* The use of all video recordings will be in keeping with the University Privacy Statement shown below.

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. Students may not share, electronically (uploading to the web) or otherwise (email, text message, in-person, etc.), any material outside of this course

including but not limited to: Zoom/Panopto recordings, PowerPoint or other presentations, tests, quizzes, screenshots, handouts, journal articles, or any created material from the course. Any breach to this policy can result in legal action.

### Mask Policy

As a Departmental policy, even in the event the University relaxes its universal requirement for indoor mask-wearing during the Summer 2022 semester, 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 we properly wear masks at all times (e.g. over nose and mouth).

### Tentative Course Schedule/Outline:

\*\*The instructor reserves the right to adjust the schedule, assignments, and grading rubric as circumstances may warrant during the semester.

<b>Week</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>
<b>1</b>	<i>July 4</i>	<i>July 5</i>	<i>July 6</i>	<i>July 7</i>	<i>July 8</i>
	<i>No Class</i>		Ch 11/12		Ch 13
<b>2</b>	<i>July 11</i>	<i>July 12</i>	<i>July 13</i>	<i>July 14</i>	<i>July 15</i>
	Ch 14		Ch 14		<b>Exam 1</b> Ch 15
<b>3</b>	<i>July 18</i>	<i>July 19</i>	<i>July 20</i>	<i>July 21</i>	<i>July 22</i>
	Ch 15		Ch 16		Ch 16
<b>4</b>	<i>July 25</i>	<i>July 26</i>	<i>July 27</i>	<i>July 28</i>	<i>July 29</i>
	Ch 17		Ch 17		<b>Exam 2</b> Ch 19
<b>5</b>	<i>Aug 1</i>	<i>Aug 2</i>	<i>Aug 3</i>	<i>Aug 4</i>	<i>Aug 5</i>
	Ch 19		Ch 20		Ch 20
<b>6</b>	<i>Aug 8</i>	<i>Aug 9</i>	<i>Aug 10</i>	<i>Aug 11</i>	<i>Aug 12</i>
	Ch 20		Review		Review <b>Final Exam</b>

### Course Content:

Ch 11. Liquids and Intermolecular Forces/Ch 12. Solids and Modern Materials

Ch 13. Properties of Solutions

Ch 14/21. Chemical Kinetics/Nuclear Chemistry

Ch 15. Chemical Equilibrium

Ch 16. Acid-Base Equilibrium

Ch 17. Additional Aspects of Aqueous Equilibria

Ch 19. Chemical Thermodynamics

Ch 20. Electrochemistry

Ch 18. Chemistry of the Environment (if time allows)

**Expectations:** I expect you to come to each class on time and prepared by reading ahead in the book and working the homework problems. I expect you to ask questions as often as possible when you need clarifications and assistance with the material, and I expect you to actively participate with your classmates during class time with the goal of learning the concepts by practice. Missing any class meeting is strongly discouraged. We will take a short, ~10-minute, break during each class meeting. Plan on studying a few hours every day, i.e., do not count on cramming it all in on the weekends as this is unlikely to lead to real and lasting understanding of the course material. *What can you expect of the instructor?* I expect to provide you with support, guidance, and encouragement as we work toward mastering the course content. Please ask me to provide additional help as needed! If I don't know there's a problem, I can't fix it.

**Best Practices:**

1. Memorization is not sufficient: Understanding the material is essential. There are many ways to state this distinction, for example: you need to know more than the chemistry content, you must understand the chemical concepts. You should already have some experience with this distinction from your previous Chemistry course(s) as well as having learned that simply trying to remember content does not typically lead to sustained learning.
2. Chemistry material is highly cumulative. You must have good to excellent understanding of many concepts from Chapters 1-11 in order to build on that knowledge as you begin to learn the 2nd semester material. The material we cover in this term will likewise lay the foundation for continued studies in chemistry, biology, and other sciences using this course as a prerequisite. As you continue in these courses, your instructors will regularly refer to foundational general chemistry concepts and principles.
3. To deal with the highly cumulative nature of the material, the best plan is to study by working problems every day. Work the required and recommended problems until you can complete them on the first attempt without assistance from your notes, book or the solutions manual. Ask yourself each time: what type of problem is this? Break up your studying, know when you have reached your limit for new content and take a break, give yourself time to process and assimilate before moving on to even more new material. In the summer, plan on 4-6 hours every day of the week. Falling behind in the summer is detrimental to your overall success in the course.
4. Foundational concepts, trends and patterns are your friends. If you attempt to memorize everything separately, you will have great difficulty distinguishing problem types. You will be asked to recognize, explain, and predict trends in structure, properties, and reactivity, so get curious! It is one thing to know what happens, but it is often more satisfying to know why it happens.
5. Even though I recommend that you do not attempt to rely only on memorization, you will still have to remember content. Remembering is a prerequisite for understanding and application: these two levels of learning will form the basis for your assessment.
6. Form a study group. Learn from and teach your peers.
7. Ask questions. Of yourself, of your classmates, of the instructor.
8. Learn from your mistakes. This is part of critical self-assessment.
9. Take ownership of your learning. It is up to you to determine your level of achievement in this and other courses.
10. Practice, practice, practice! Force yourself to answer questions that challenge you every day. There is no growth in the comfort zone, and no comfort in the growth zone!