

Syllabus – General Chemistry B

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.

Course Information

Course: Chemistry 102 – General Chemistry B (3 credits: Lecture & Discussion)

Prerequisites: Chem 101 and Math 118 with a grade of C- or better, or the equivalent. A student missing a prerequisite may be withdrawn at any time.

Time Zone: This syllabus lists dates/times using Chicago local time (U.S. Central Time Zone)

Lectures: 102-018 - MWF 8:15-9:05 am (Flanner Hall 133)

Discussions: You must attend the section for which you registered:

- 102-019 - Thursday from 8:30-9:20 am (Flanner Hall 007)
- 102-020 - Thursday from 1:00-1:50 pm (Dumbach 233)
- 102-021 - Thursday from 2:30-3:20 pm (Dumbach 233)

Course Coordinator: Dr. Sandra Helquist (shelquist@luc.edu)

Chemistry 102 is a multi-section lecture & discussion course with common content and common outcomes across all sections. This includes the Final Exam during the Common Final Exam Period as scheduled by the University. The Course Coordinator is responsible for consultation and coordination with instructors regarding policies, exam writing, and grading. 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 Course Coordinator throughout the semester.

Section Instructor: Dr. Adri Lugosan

Instructor Contact Information

Office: Flanner Hall 200A

Email: alugosan@luc.edu (please list your course and section number in subject line!)

Office Hours Schedule:

Monday: 8:00-9:00 pm (Zoom: <https://luc.zoom.us/j/88296668123>)

Wednesday: 9:30-10:30 am (Flanner Hall 129)

SI information

SI Leader: Katherine Konzczak (kkonczak1@luc.edu)

There are 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. 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 whom 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.

Required Course Materials

- Textbook: Chemistry The Central Science, Brown et. al., 14th edition; eText or hard copy
- Pearson Mastering Chemistry platform

- Loyola email, Sakai (and integrated tools), Zoom, Gradescope & additional software & online resources.
- Scientific Calculator (non-programmable, non-graphing, and independent of another device such as a phone or tablet)
- Additional web-based systems will be used for uploading your work and facilitating feedback and evaluation. Registration will be free but required. These may include [Gradescope](#) and other sites.
- Additional software will be used. Downloads will be free but required. These may include applications that convert photos to pdfs (examples: CamScanner, Scannable, GeniusScan), and collaboration materials for group work (example: OneNote).

Copyright/Intellectual Property reminder: Course materials provided by your instructors at Loyola, including my materials, may not be shared outside any course without the instructor's **written permission**. Content posted without permission will be in violation of Copyright/Intellectual Property laws.

Course Content & Learning Outcomes

Prerequisite knowledge from Chemistry 101 is necessary for in-depth study of topics in Chemistry 102. We will focus on applying a conceptual understanding of fundamental chemical principles. You will continue to learn the language of chemistry and develop your skills in scientific problem solving and critical thinking. This will serve as a foundation for further study in chemistry, other sciences and related disciplines.

The material is highly cumulative over two semesters, such that you will be able to do the following:

- 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, electrochemical reactions.
- Quantify relationships between variables controlling chemical systems.
- Solve quantitative multistep problems combining multiple concepts within the systems.
- Differentiate among closely related factors, categorize problem types, and select appropriate tools to solve problems.
- Apply chemical principles to explain natural phenomena.

Class Attendance & Course Coverage

All lectures and discussion meetings will be “live” and the option to attend virtually will not be offered. The content covered each day is outlined in the Tentative Course Schedule/Outline at the end of the syllabus. If you miss a class, it is recommended you get in touch with your fellow peers to acquire the notes you may have missed. Lectures will be given through PowerPoint slides and PDF versions of the full PowerPoint lecture will be available on Sakai prior to covering the content together in class. Other class materials, such as discussion worksheets & answer keys, exam reviews, etc. will also be posted to Sakai. During lecture & discussion times we will be actively practicing the material so bringing a non-graphing calculator to class is beneficial.

Student and Faculty Expectations

I expect you to take ownership of your learning and to use office hours and SI sessions as learning resources to help you reach your desired level of achievement in the course. For this course, it is anticipated that the average independent working time (outside of class) required to learn the material in order to achieve a minimal passing grade of C- is 1-2 hours per day, every day, but your needs will also vary depending on your prior knowledge and ability to master cumulative concepts in the course material as the semester progresses. I expect you to come to each class on time and prepare 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. *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.

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.

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, submitting false documents, and deliberately disrupting the performance of other class members.

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).

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](https://www.luc.edu/athletheadvising/attendance.shtml)" 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/athletheadvising/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.

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.

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 Monday, March 27, 2023
- Loyola is using SmartEvals to provide instructor & course feedback. OIE will send emails near the end of the term.

Class Recording & Content Information

In general lecture, class sessions 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 only within the first two weeks of the semester. For the Spring 2023 semester, students can convert a class to “Pass/No-Pass” or “Audit” through Monday, January 30th. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

Health, Safety, and Well-Being On-Campus

Please be familiar with and adhere to all guidelines posted on the *Health, Safety, and Well-Being Update* site: (<https://www.luc.edu/healthsafetyandwellbeing/>.) This site relays important updates and protocols related to COVID-19 and other matters.

Spring 2023 Classroom Masking Policy

We will be following the masking guidelines set forth by the University. As of 1/11/23, masks are optional in the classroom. (Policy is subject to change)

Final Exam

The University sets the schedule for all final exams. The final will be held on:

Wednesday May 3rd, 7:00pm

Location will be updated on LOCUS when available.

You 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).

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:

- The lowest two homework scores will be dropped
- Students may earn up to 10 max discussion points & there are more than 10 opportunities throughout the semester to earn those 10 points
- A missed in-class exam due to absence for any reason is already accommodated in the course grading system, using Option 2 (see below). A missed exam would be the one not included in this calculation, as it would be the lowest score (0%) of the three exams.

You may provide documentation for an absence, but it is not required. These accommodations are automatically available to all students.

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 at least one week prior to the Withdraw deadline for the semester. Grades are only based on the criteria listed in the syllabus: no substitutions, and no additions.

Homework:

Mastering Chemistry Assignments (10%)

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/alterd, added/removed at the professor’s discretion, as the semester dictates

Participation:

Discussion Participation (15%)

Students are expected to regularly attend discussions. 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. 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 and Final Exam (75%)

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).

To reward improvement and to accommodate an exam absence, your Exams contribution to your course grade will be **automatically calculated as the higher score** between the two options listed here:

Option 1: Average of three in-class exams 50%
 Final Exam 25%
 Exams contribution 75%

Option 2: Average of best two in-class exams 40%
 Final exam 35%
 Exams contribution 75%

If you miss an in-class exam for any reason, Option 2 will be used to determine your grade. It is in your best interest to prepare for and take all exams. The final exam is Mandatory: a student who does not take the final will not pass the course.

Exam Dates:

Exam 1 – Monday, February 13

Exam 2 – Monday, March 20

Exam 3 – Monday, April 17

FINAL – Wednesday, May 3

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

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

Grading Scheme

Homework 10%

Discussion 15%

Exams 75%* (please see options described above for additional breakdown)

Total score 100%

*the final exam is mandatory to earn a passing grade

Letter Grade Cutoffs:

Grade	Percentage
A	92.0-100
A-	88.0-91.9
B+	84.0-87.9
B	80.0-83.9
B-	76.0-79.9
C+	72.0-75.9
C	68.0-71.9
C-	64.0-67.9
D	52.0-63.9
F	0-51.9

Changes to Syllabus

There may be changes to the syllabus during the semester. You are responsible for all syllabus changes made in class whether or not you attend. These updates will also be shared on the Sakai course page.

Tentative Course Schedule/Outline:

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

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	<i>Jan 16</i>	<i>Jan 17</i>	<i>Jan 18</i>	<i>Jan 19</i>	<i>Jan 20</i>
	MLK Day		Syllabus/Ch 11		Ch 11
2	<i>Jan 23</i>	<i>Jan 24</i>	<i>Jan 25</i>	<i>Jan 26</i>	<i>Jan 27</i>
	Ch 11/12		Ch 12		Ch 13
3	<i>Jan 30</i>	<i>Jan 31</i>	<i>Feb 1</i>	<i>Feb 2</i>	<i>Feb 3</i>
	Ch 13		Ch 13		Ch 13/14
4	<i>Feb 6</i>	<i>Feb 7</i>	<i>Feb 8</i>	<i>Feb 9</i>	<i>Feb 10</i>
	Ch 14		Ch 14		Ch 21/Review
5	<i>Feb 13</i>	<i>Feb 14</i>	<i>Feb 15</i>	<i>Feb 16</i>	<i>Feb 17</i>
	EXAM 1		Ch 15		Ch 15
6	<i>Feb 20</i>	<i>Feb 21</i>	<i>Feb 22</i>	<i>Feb 23</i>	<i>Feb 24</i>
	Ch 15		Ch 15		Ch 15
7	<i>Feb 27</i>	<i>Feb 28</i>	<i>Mar 1</i>	<i>Mar 2</i>	<i>Mar 3</i>
	Ch 16		Ch 16		Ch 16
8	<i>Mar 6</i>	<i>Mar 7</i>	<i>Mar 8</i>	<i>Mar 9</i>	<i>Mar 10</i>
	Spring Break – No Class				
9	<i>Mar 13</i>	<i>Mar 14</i>	<i>Mar 15</i>	<i>Mar 16</i>	<i>Mar 17</i>
	Ch 16		Ch 16		Ch 16/Review
10	<i>Mar 20</i>	<i>Mar 21</i>	<i>Mar 22</i>	<i>Mar 23</i>	<i>Mar 24</i>
	EXAM 2		Ch 17		Ch 17
11	<i>Mar 27</i>	<i>Mar 28</i>	<i>Mar 29</i>	<i>Mar 30</i>	<i>Mar 31</i>
	Ch 17		Ch 17		Ch 17
12	<i>Apr 3</i>	<i>Apr 4</i>	<i>Apr 5</i>	<i>Apr 6</i>	<i>Apr 7</i>
	Ch 19		Ch 19		No Class
13	<i>Apr 10</i>	<i>Apr 11</i>	<i>Apr 12</i>	<i>Apr 13</i>	<i>Apr 14</i>
	No Class		Ch 19		Ch 19/Review
14	<i>Apr 17</i>	<i>Apr 18</i>	<i>Apr 19</i>	<i>Apr 20</i>	<i>Apr 21</i>
	EXAM 3		Ch 20		Ch 20
15	<i>Apr 24</i>	<i>Apr 25</i>	<i>Apr 26</i>	<i>Apr 27</i>	<i>Apr 28</i>
	Ch 20		Ch 18/Review		Review
16	<i>May 1</i>	<i>May 2</i>	<i>May 3</i>	<i>May 4</i>	<i>May 5</i>
	Finals Week		FINAL EXAM	Finals Week	

Course Topics

We will not cover every topic in every chapter of the textbook this semester, but the material will usually come from the Chapters listed below. Focus first on the material that is directly covered in classes and assigned or recommended. Explore the additional material in the textbook for your own interest and enrichment.

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)

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. 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!