

Syllabus for Chem 101, Section 21
Fall Semester 2022

Course Information

Course: Chemistry 101 – General Chemistry A (3 credits: Lecture & Discussion)

Prerequisites: A satisfactory performance on the Loyola math diagnostic test, completion of Math 117 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 A student missing a prerequisite may be withdrawn at any time.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: Monday, Wednesday, and Friday, 10:25 to 11:15 PM, Flanner Hall 133

Discussions: You must attend the section for which you registered (all on Wednesday) in Flanner Hall 07:

- 11:30 to 12:20 PM
- 1:40 to 2:30 PM
- 2:45 to 3:35 PM

Course Coordinator: Dr. Patrick L. Daubenmire (pdauben@luc.edu)

Chemistry 101 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. 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. Paul Chiarelli

Office: Flanner Hall 102

Email: mchiare@luc.edu (please put Chem 101 in the header)

Office Hours Schedule: In person, Tuesday 10:00 -11:00 AM **Please wear a mask.**

If you cannot come to the regular office hour, please send me an email so we can set up a time to meet in person or by zoom. We can go over chemistry problems and other material associated with the course that you like.

SI information

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
- Loyola email, Sakai (and integrated tools), Zoom, Gradescope & 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 Mastering Chemistry.

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

This course is the first in a 2-term sequence of general chemistry. We will focus on building a conceptual understanding of fundamental chemical principles including properties of atoms, molecules, states of matter, and chemical reactions. Students will learn the language of chemistry and develop scientific problem solving and critical thinking skills. This will serve as a foundation for further study in chemistry, other sciences and related disciplines.

You will learn to:

- Differentiate types of matter based on their chemical and physical properties (for example, pure substances vs. mixtures, metals vs. nonmetals, ionic vs. covalent vs. metallic, electrolyte vs. nonelectrolyte).
- Use multiple perspectives of matter (macroscopic, particle, symbolic levels) to qualitatively describe and explain characteristics, properties, and relationships of the following: atomic structure, nuclear chemistry, periodicity, molecular structure, chemical bonding, chemical reactions, thermochemistry, aqueous solutions, gases, and solids.
- 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 these problems.
- Apply chemical principles to explain natural phenomena

Class Attendance & Course Coverage

You will have the chance to introduce yourself to multiple classmates early in the course. Our actual pace may vary from this schedule: if you miss a class for any reason, it is your responsibility to work through the content, and I also suggest you contact a classmate for further discussion of the topics as you are still responsible for all material covered and assigned. We will not cover every topic in every chapter of the textbook this semester. Focus first on the material that is directly covered in lecture and assigned or recommended. I will pass out a set of notes at the beginning of each chapter. There is space in these note packets for you "to fill in the blanks" and add handwritten notes during lecture. There will be approximately ten discussion assignments during the semester. The discussion assignments are to be completed during the meeting time allotted for discussion. Completed notes, discussion assignment keys, and other slides will be posted on Sakai several days before the next exam. You are also expected to complete the Mastering Chemistry online homework problems assigned for each chapter. If you understand the concepts covered in the lecture notes as well as the homework

and discussion problems, you will do well on the exams. Everyone is encouraged to explore the additional material in the textbook for your own interest and enrichment if you like.

Student and Faculty Expectations

I expect you to take ownership of your learning and to use office 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. What can you expect of me? My primary objectives are to provide you with the tools, environment, encouragement, and support to learn Chemistry.

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

Students are allowed only THREE attempts to pass a particular chemistry course with a C- or better grade. The three attempts include withdrawals (W). The Department advises to complete a course with a grade of C or C-, and to demonstrate growth in future coursework, rather 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).

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/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 Friday, November 4.
- 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 Fall 2022 semester, students are able to convert a class to “Pass/No-Pass” or “Audit” through Monday, September 12th. 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 policies and protocols posted on the *Campus Info & Resources* site:

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

Fall 2022 Classroom Masking Policy

Everyone is expected to wear a mask during lecture, discussion, and exams. You are encouraged to maximize the distance between you and your nearest neighbors in the lecture hall to minimize the risks of exposing others to COVID-19. 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 wear masks over nose and mouth at all times we are together in the classroom.

Final Exam

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

Thursday December 15th, 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 our shared community and us. Please use good judgement and stay home if necessary/prudent for your circumstances.

This is the universal accommodation policy for in-class graded assignments:

- You are allowed to drop one discussion score due to absence.
- A 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 three exams.

You will be required to provide documentation for an absence you miss a second discussion or exam.

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.

Grading Scheme

Online Homework	15%
Discussion assignments	10%
Unit Exams	50%, (best two of three exam grades are recorded)
Final Exam	25%*
Total score	100%

*the final exam is mandatory to earn a passing grade.

There will be three in-class exams. You will be allowed to drop the lowest score. The first time you miss an exam or discussion assignment due to illness or some other unforeseen circumstance this will constitute your dropped score. Students are expected to attend discussion and finish the assignment provided during that period. Students may work in groups during the discussion. If a student makes a good faith effort to complete the assignment (does all the problems) and hand it in at end of the period, they will get a 100% for that assignment. Students will have ten online homework assignments during the course of the semester. The lowest discussion and homework score will be dropped at the end of the semester to compute the final grade. Students are expected to complete their online homework assignments on their own. Understanding the concepts covered in the homework and discussion assignments are paramount to doing well on the exams and final. The final exam will be cumulative.

Letter Grade Cutoffs:

Grade	Percentage
A	93.0-100
A-	89.0-92.9
B+	85.0-88.9
B	81.0-84.9
B-	77.0-80.9
C+	73.0-76.9
C	69.0-72.9
C-	65.0-68.9
D	60.0-64.9

Tentative Lecture Schedule

8-29		Syllabus, Class Procedures
8-31	1	Matter, Energy and Measurement No Discussion
9-2	1	Matter, Energy, and Measurement
9-5		Labor Day, Classes do not meet
9-7	2	Atoms, Molecules, and Ions Discussion 1: Matter and Measurements
9-9	2	Atoms, Molecules, and Ions
9-12	2,3	Atoms, Molecules, and Ions Chemical Reactions and Stoichiometry
9-14	3	Chemical Reactions and Stoichiometry Discussion 2: Chemical Reactions and Stoichiometry
9-16	3	Chemical Reactions and Stoichiometry
9-19	3	Chemical Reactions and Stoichiometry
9-21		Exam 1: Chapters 1-3
9-23	4	Reactions in Aqueous Solution

9-26	4	Reactions in Aqueous Solution
9-28	4	Reactions in Aqueous Solution Discussion 3: Reactions in Aqueous Solution
9-30	5	Thermochemistry
10-3	5	Thermochemistry
10-5	5,6	Thermochemistry, Electronic Structure of Atoms Discussion 4: Thermochemistry
10-7	6	Electronic Structure of Atoms
10-10		No Class, Midterm Break
10-12	6	Electronic Structure of Atoms Discussion 5: Electronic Structure of Atoms
10-14	21	Nuclear Chemistry
10-17	21	Nuclear Chemistry
10-19	21	Nuclear Chemistry Discussion 6: Nuclear Chemistry
10-21		Exam 2: Chapters 4-6 and 21
10-24	7	Periodic Properties of the Elements
10-26	7	Periodic Properties of the Elements Discussion 7: Periodic Properties of the Elements
10-28	7	Periodic Properties of the Elements
10-31	8	Basic Concepts of Chemical Bonding
11-2	8	Basic Concepts of Chemical Bonding Discussion 8: Chemical Bonding
11-4	8	Basic Concepts of Chemical Bonding
11-7	8	Basic Concepts of Chemical Bonding
11-9	9	Molecular Geometry and Bonding Theories
11-11	9	Molecular Geometry and Bonding Theories
11-14	9	Molecular Geometry and Bonding Theories
11-16	9	Molecular Geometry and Bonding Theories Discussion 9: Molecular Geometry and Bonding Theories
11-18		Exam 3: Chapters 7-9
11-21	10	Gases
11-23		Thanksgiving Break
11-25		Thanksgiving Break
11-28	10	Gases
11-30	10	Gases Discussion 10: Gas Laws
12-2	10	Gases
12-5		Review for Final
12-7		Review for Final
12-9		Review for Final

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.***