



Spring 2024

CHEM 195-001
Dr. Helquist

CHEM 195: Foundational Concepts in Chemistry

The purpose of this syllabus is to describe the course, resources, and policies. It is meant to 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 Description: Chem 195, Section 001, Spring 2024

Foundational Chemistry seminar/topics support course; Co-req for CHEM 180/181 in the Spring 2024 semester, for students who took General Chemistry. Departmental consent required for enrollment: students will complete an agreement form regarding participation in this course for ongoing enrollment in CHEM 180/181.

Course Meetings: Wednesdays 4:15-5:30pm, in Flanner Hall 007

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

Instructor Contact Information

Section Instructor: Dr. Sandra Helquist (Ph.D.)

Office: Flanner Hall 200-B (shared office suite)

Email: shelquist@luc.edu

Email Policy & Timing: Use your Loyola (@luc.edu) email and send to shelquist@luc.edu with only "CHEM 195" in the subject line of the message, OR, reply directly to an email that I've sent to the class via Sakai. Doing either of these will ensure that I read your message. In most cases I will be able to respond within 24 hours Monday-Friday when classes are in session. You are encouraged to use Office Hours to get immediate answers to your questions, and to use your classmates as resources for help. You are welcome to email me in the evenings/nighttime, and you can expect a response sometime during the next day.

Office Hours Policy: You are welcome to stop by at any time to see if my door is open and check my posted schedule. Occasional extra hours may be announced in class. For regular OH, just show up!! Bring your questions anytime during the times listed. Bring a classmate with you or meet your classmates there to work together & get feedback & help.

Office Hours Schedule: In the STEM Center St. Joseph Hall, Cafeteria: Tuesdays, 1-3pm

- In the Flanner 200 office suite: Wednesdays, 2-3pm; Fridays 10-11:30am
- A limited number of short, individual appointments will be available weekly, by advance sign-up, via Sakai Sign-up page
- Occasional Sunday afternoon hours will be held in Ireland's, see Sakai Resources for Help for weekly updates

Course Objectives *Chem 195, Section 001, Spring 2024:*

The primary outcome of this course is to support a successful transition from General Chemistry curriculum to the CHEM 180/181 curriculum. The focus is on pre-requisite topics that are required in CHEM 160 but are not covered in General Chemistry, or the equivalent course(s), if taken elsewhere. The emphasis of this course is on understanding, prediction, investigation, explanation and evaluation over memorization. This means that students must foster their problem solving skills, ability to make claims based on evidence, use and understanding of models and their limitations, and skills of effective communication of scientific results. It is not enough to know *what* happens in chemistry, the student must also be able to explain *why* it happens. When successful, a student will be able to:

- Differentiate types of matter based on their chemical and physical properties.
- Use multiple perspectives of matter (macroscopic, particle, symbolic levels) to qualitatively describe and explain characteristics, properties, and relationships of chemical systems.
- Draw and interpret multiple representations of structures.
- Quantify relationships between variables controlling chemical systems.
- Differentiate among closely related factors, categorize problem types, and select appropriate tools to solve these problems.
- Apply chemical principles to explain natural phenomena.

Required Course Materials

- Molecular Model Kit (Duluth Labs MM-005 or equivalent)
- Scientific Calculator (non-programmable, non-graphing, and independent of another device such as a phone or tablet)
- Loyola Sakai course management site: sakai.luc.edu/portal/ and tools integrated into the site.
- Loyola email: messages are sent to the entire class via Sakai, linked to your Loyola email account
- Additional systems will be used for uploading your work and facilitating feedback and evaluation. Registration will be free but required. These include [Gradescope](#) and other sites/applications.

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.

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 the tentative 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: I do not have published lecture notes.

Slides/handouts/links/animations and other additional resources will be shared on Sakai. Pre-lecture reading and post-lecture Highly Recommended problems for additional daily practice will be continually updated online. 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. Explore the additional material in the textbook for your own interest and enrichment.

Classroom & Group Work Guidelines

The classroom is a space designed for learning. My expectations are that all voices will be heard and appreciated in the classroom, and that we will invite each other to engage while recognizing that contributions can take multiple forms. You will write expectations/guidelines for your group work this semester: this will be an essential part of the course.

Student and Faculty Expectations

I expect you to take ownership of your learning and to use office hours and tutoring 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 30-60 minutes 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. Because the course objectives are based on what students will learn, my teaching techniques include the use of pre-lecture homework, active learning and metacognition, to help you maximize your learning. I expect that all of us will work together!

Student Accommodations

Loyola University Chicago provides reasonable accommodations for students with disabilities. Any student requesting accommodations related to a disability or other condition is required to register with the Student Accessibility Center (SAC). Professors will receive an accommodation notification from SAC, preferably within the first two weeks of class. 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 audio record class lectures in order to provide equitable 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. Standards apply to both individual and group assignments.

Regarding the use of Artificial Intelligence: our Provost has expressed to "Let us all make sure we are learning and sharing best practices and not allowing AI to do the learning for us." In this course, any work you submit for credit must represent your own ideas and understanding of the assigned material. If you are uncertain about any case where your use of AI may be in conflict with University or course standards, please see me to discuss your concerns.

An instance of academic misconduct (including those detailed on the website provided above or in this syllabus) will be reported to the Department Chair and the academic Dean's office. You will receive a score of zero on the item in question for any instance of academic misconduct, and that score cannot be dropped.

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.

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 25.
- Loyola is using SmartEvals to provide instructor & course feedback. OIE will send emails near the end of the term.
- Additional resources, advice, and suggestions for success (from multiple sources) will be posted/updated on Sakai.

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 only within the first two weeks of the semester. For the Spring 2024 semester, students can convert a class to “Pass/No-Pass” or “Audit” through Monday, January 29th. Students must submit a request for Pass/No-Pass or Audit to their Academic Advisor.

Final Exam

The University sets the schedule for all final exams. This course does not include a final exam: all graded work is completed during the semester, and before finals week.

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:

- Group Work: the specification for an A accounts for an absence.
- Tests: you are eligible to submit revisions after the first attempt at an Objective whether you complete the problems or not; reattempts are available during the term.

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

Course Grading System Design

There are three basic principles that we have used to design the grading system for this course. These are for you to:

1. Understand what the standards and requirements are for each letter grade so that you can choose what level of academic achievement to pursue in this course. We encourage each of you to strive for high achievement because we believe in the potential of all students to learn and improve their abilities in chemistry.
2. Expect a challenging but flexible learning environment. The standards for demonstrating your Mastery of the course material are high in each area, but the methods for meeting the standards are designed to give you multiple chances to revise and improve the quality of your work throughout the semester.
3. Learn from mistakes. Deep, connected learning involves hard work and reflection on your progress. Chemistry is a cumulative subject where the new topics build on prior knowledge and this system is designed for cycles of learning.

Standards

The standards for each letter grade are listed here according to all required course components, listed in columns. You must meet or exceed all of the standards listed to earn the corresponding letter grade: standards are not averaged across components. These lists are intended for complete transparency: you do not need to do any extra work to figure out what is required for any grade, and we will revisit the standards and expectations after the early rounds of testing to help you gauge your progress in the course. Grades are only based on the criteria listed in the syllabus: no substitutions, and no additions. Descriptions of the components are found on the following pages.

A Standards

Homework: $\geq 90\%$
Group Work: $\geq 90\%$
Objectives: ≥ 10

B Standards

Homework: $\geq 80\%$
Group Work: $\geq 80\%$
Objectives: ≥ 7

C Standards

Homework: $\geq 70\%$
Group Work: $\geq 70\%$
Objectives: ≥ 4

A- Standards

Homework: $\geq 90\%$
Group Work: $\geq 90\%$
Objectives: ≥ 9

B- Standards

Homework: $\geq 80\%$
Group Work: $\geq 80\%$
Objectives: ≥ 6

C- Standards

Homework: $\geq 70\%$
Group Work: $\geq 70\%$
Objectives: ≥ 3

B+ Standards

Homework: $\geq 80\%$
Group Work: $\geq 80\%$
Objectives: ≥ 8

C+ Standards

Homework: $\geq 70\%$
Group Work: $\geq 70\%$
Objectives: ≥ 5

D Standards

Homework: $\geq 50\%$
Group Work: $\geq 50\%$
Objectives: ≥ 1

Note: a student who fails to meet the standards for a grade of D will receive a grade of F for the course.

Posting of Grades

Final course grades at the end of the semester are posted only on LOCUS. Final grades are never sent via email. WileyPlus scores are automatically recorded in the WileyPlus Gradebook for that system. Scores for all other required components will be made available on Sakai. Each student will see an estimated midterm grade in LOCUS before the withdraw deadline.

Course Assessment

All of the following are required components of your course grade:

Homework

The purpose of these assignments is to help you keep up with the course material by practicing after class and preparing ahead for each class. You will get as much benefit from these assignments as you choose to put forth in your effort to solve the problems on your own: a list of reading (textbook sections) will be

continually updated to correlate with the pre-lecture assignments. Typically, you will have more than one required assignment per week, always due to Gradescope at 11:59pm, posted at least 24 hours in advance.

Group Work

On average, 1 quiz per week, usually completed in assigned groups. Most assignments will be completed in class and submitted to Gradescope. The purpose of participation is to improve your learning by: 1) cooperation, communication and support among your classmates as you practice the skills required for success in the course; and 2) providing feedback on your progress to encourage reflection and improvement. Quizzes will include test questions from previous semesters. You will get as much benefit from these quizzes as you choose to put forth in your effort and you are expected to correct your work after receiving feedback. Each quiz will contribute equally toward this category in your course grade. Refer to the Universal Absence Accommodation Policy for missed work.

Objectives

The purpose of testing is to align your course grade with your level of learning, based on your mastery of comprehensive topics. The purpose of Objectives is to allow you to demonstrate your higher-level skills of applying and analyzing, requiring you to go beyond memorization of facts and processes and transfer your understanding of essential course concepts to new scenarios. The Objectives are all related to the Course Content & Learning Outcomes on the first page of this syllabus. A list of Objectives will be updated for each week as we progress through the material. Objectives will be scored as Satisfied or Not Satisfied. A score of Satisfied is earned for correctness and completeness of the problem(s). You will learn the standards from the examples for class activities. Each round of testing on Objectives will be followed by an opportunity to resubmit revisions for any Objective that was Not Satisfied in the first testing opportunity, and submitting revisions will also earn reattempts of Objectives. Reattempts will take place with the next round of testing. Rounds of testing will occur every 2-3 weeks, starting on **1/31**. Specific dates and timing will be announced at least one week in advance. All procedures, allowed resources, and requirements will be posted before each round of testing.

Practices for Success

Supporting claims with evidence, making applications, solving and analyzing problems, and using chemical principles to explain phenomena are critical skills in the field of chemistry. The development of these skills is not without some frustration, but it carries the reward of deepening one's ability to think critically and solve problems in any field. To do this, one may have to assess, evaluate, and possibly revise approaches to learning. The use of targeted, guiding questions, regularly scheduled work, and strategic study plans can greatly assist the learning of chemistry. With such a focus, hopefully any frustration will quickly turn to appreciation and fascination for the relevance and connectedness of chemistry in your life and within the world around you. Solving and analyzing problems is the most important feature of this work. If, at any time, you need assistance framing such plans for your work in chemistry, please do not hesitate to ask your instructor.

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.***