

Chemistry 102-001 – Spring 2021 – Syllabus

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 when questions about policy arise during the semester. When updates to the syllabus are made during the semester, a new version will be posted electronically, and all students will be notified.

- Course:** Chemistry 102, General Chemistry B, 3 Credits: Lecture and discussion
Prerequisites: Chemistry 101 or 105 and completion of Math 118 with a grade of C- or better.
A student missing a prerequisite may be withdrawn at any time.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)
Online classes via Zoom: login to Sakai to access the [Zoom tool](#) within our course site, you must be ‘authenticated’ or signed in to join a class Zoom meeting
Lectures: TuTh 3:00 – 4:15 pm (Section 102-001)
Discussions: You must attend the section for which you registered: Fri 2:50pm (002), 4:10pm (003)
Instructor: Dr. Sandra Helquist (Ph.D.)

Instructor Contact Information

- Email policy:** I require that our lecture course, Chem 102, is listed in the email subject line. Here is how to do this:
1. Reply to one of emails that I sent from Sakai to the entire class
2. Use Email in Sakai, send to me: Instructor, via Select Recipients, and leave the subject line blank
3. Use your Loyola email and put: Chem 102 in the subject line, send to shelquist@luc.edu
This policy is because I always teach more than one class, and it is even more important since we are online. Doing this ensures that: 1) I know you are a student of mine and I will give higher priority to your email and 2) I know which class you’re writing about and can respond appropriately.
Email timing: 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 – I never have email notifications activated – and you can expect a response sometime during the next day.

- Office Hours policy:** Office hours (OH) is one of the [Resources for Help](#), available to give students a regular set of times every week to have access to talk to the instructor outside of scheduled classes. For regular, online OH, just show up! Bring your questions, fully or partially formed, anytime during the times listed. Bring a classmate with you or meet your classmates online to work together & get feedback & help. All students are encouraged to attend office hours regularly to ask questions or to discuss any issues that arise during the semester. Private conversations can occur by request – just show up!

- OH Schedule:** [Zoom link \(click to join, must authenticate / login to your account\)](#)
Mondays, 4-5pm; Wednesdays 9:30-11am; Thursdays 5-6pm; Fridays 9:30-11am. Additional times may be announced as needed, and updates will always be posted on Sakai [Resources for Help](#)
A limited number of short, individual appointments will be available via Sakai Sign-up.
Occasional Sunday afternoon hours will be held online and the schedule will be updated weekly.
[You are welcome to ask about additional availability for “drop-ins” online](#)

TA information

Our teaching assistant (TA) for the course is Riley Demeulenaere, a Master’s student in the department. Riley’s teaching contributions will include assisting during the Discussion classes and holding regular drop-in help hours. The schedule will be posted on Sakai [Resources for Help](#). Contact Riley via email at: rdemeulenaere@luc.edu

SI information

There are **online** Supplemental Instruction (SI) study sessions available for this course. SI sessions are led by an SI leader, Brendan Crawford, 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.

Course Materials

- Textbook: *Chemistry The Central Science*, Brown et. al., 14th edition; eText or hard copy (Mastering is optional)
- Online homework: ALEKS, see Sakai for additional information and recommendations
- Computer + mobile device (phone, tablet) for connectivity to online resources, including using of a camera or connected webcam: use of two devices is the default set-up for proctored tests. Accommodation requests must be discussed with Instructor at least one week before a test.
- Scientific Calculator
- Loyola Sakai course management site: sakai.luc.edu/portal/ and tools integrated into the site (example: Panopto)
- Loyola email: messages are sent to the entire class via Sakai, linked to your Loyola email account
- Zoom conferencing: luc.zoom.us meeting information is posted on Sakai
- 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, Flipgrid, 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), collaboration materials for group work (examples: JamBoard, OneNote), testing-related software approved by the University (example: Respondus Browser), and others.
- Use of low-tech collaboration tools is also encouraged, for example, small whiteboards for drawing and sharing work.

Copyright/Intellectual Property reminder

Course materials provided by your instructors at Loyola, including my materials for this course, may not be shared outside any course without the instructor's written permission.

Course Description and 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. 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.

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

You will have the chance to introduce yourself to multiple classmates early in the course on Zoom. Our actual pace may vary from the tentative schedule posted on Sakai / Resources folder: if you miss a class for any reason, it is your responsibility to work through the content along with the lecture recording once it is posted on Panopto, 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. An outline will be shown at the beginning of each Zoom class, but I do not have published lecture notes. Lectures will be presented using some pre-recorded content to be viewed on Panopto to supplement the regular "live" Zoom lectures. Slides/handouts/links/animations and other additional resources will be shared on Sakai.

To help you stay on track, pre-lecture readings will be posted and continually updated on the Sakai overview page for this course. Required Pre-lecture Homework objectives are assigned and continually updated in ALEKS. 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, but the material will usually come from Chapters 11-17, 19, and 20. 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 the TA and SI support 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. 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

The Student Accessibility Center (formerly known as Services for Students with Disabilities), Sullivan Center (773.508.3700), <http://www.luc.edu/sac>, has the mission “to support, service, and empower Loyola University Chicago students with disabilities” and to “Partner with faculty and staff to provide opportunities for collaboration, professional development, personal growth, and staff interaction, as they relate to students with disabilities.” Please direct all questions concerning accommodations of disabilities to the Student Accessibility Center. Academic accommodations afforded to students require documentation and review. The Student Accessibility Center will issue accommodation letters for registered students. Students with testing accommodations will submit all test requests via [Accommodate](#) at least seven days in advance. If students’ accommodations involve attendance or deadlines, instructors and students will jointly complete and execute an Agreement Form articulating their terms. See <https://www.luc.edu/sac/faculty/facilitatingaccommodations/> for guidance about implementing various kinds of accommodations in a way that is appropriate. The Student Accessibility Center stands ready to work with you.

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.

Academic Integrity

You are encouraged to study with other students in and out of class, however, anything submitted for an individual grade during or outside of class must represent your own knowledge and understanding of the material. At times you may have questions about what level of collaboration is consistent with honest work, especially for group work or activities completed outside of class: when this happens, please ask! For the Undergraduate Catalog statement on academic integrity, visit: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml. The following is a brief excerpt: *Academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. Academic integrity is a guiding principle for all academic activity at Loyola University Chicago, and all members of the University community are expected to act in accordance with this principle.* The College of Arts & Sciences (CAS) also has a full statement, linked here: <https://www.luc.edu/cas/advising/academicintegritystatement/>. 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).

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 29th.
- 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.
- On a strictly limited and pre-approved basis, a student may be allowed to miss a class in order to participate in a University-sponsored event (e.g., official athletic games). It is the student’s obligation to inform the instructor of such an authorized absence in a timely fashion; in most cases, this information can be made available to the instructor at the beginning of the term. Absences will be discussed (office hours or appointment) after documentation is received.
- Accommodations for religious reasons will be considered if the request is made to the instructors in person within the first two weeks of the semester. Absences for religious observances will be discussed (office hours or appointment).

Class Recording & Content Information

In general lecture meetings will be recorded: you will be notified when the recording begins and be able to access recordings via the Panopto function in Sakai. The following is a mandatory statement for all courses in the College of Arts & Sciences (CAS). We will discuss class norms and standards for online sessions during the first week and continue the discussion as needed throughout the semester.

Recording of Zoom class meetings

In this class software will be used to record live class discussions. 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. *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.

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.

Final Exam

The University sets the schedule for all final exams, and has posted the schedule for Spring 2021: [link to schedule](#). The final will be held on Wednesday May 5th, 8:00pm.

This time is common to all sections of Chem 102 for Spring 2021. 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).

Exam Proctoring

Pending successful adoption of alternative proctoring methods, you will be required to attend Zoom proctoring with video and audio connected to show you and your complete workspace. Use of two devices is the default set-up and one week advance discussion is required for any accommodations. Students are eligible for some [Extended Equipment Loans](#) from [Loyola's Digital Media Services](#). Please contact me immediately about any issues (e.g. poor internet connection, defective equipment) that arise before or during any test. I may request electronic documentation of technical issues when considering accommodations.

Grading information is on the next pages, and I hope that the measure of what you gain from this course will include much more than the letter on your transcript. Your success in this course is important to me. Let me know what I can do to help you meet your needs and fulfill the requirements to succeed.

– Dr. Helquist

Course Grading System

Design

- There are three basic principles that I 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. I encourage each of you to strive for high achievement because I 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 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. 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 ALEKS, Group Quizzes, MCQ Exams and Mastery Objectives follows on the next page.

A Standards

Mastery Objectives: ≥ 14.5 Points
MCQ: ≥ 90% Exam Average
Complete 4 Practice Tests
ALEKS: ≥ 95% Overall Grade
100% Pie Progress
Final Knowledge Check
Group Quizzes: 8 Completions
3 Explanation Keys

B Standards

Mastery Objectives: ≥ 11.5 Points
MCQ: ≥ 75% Exam Average
Complete 3 Practice Tests
ALEKS: ≥ 80% Overall Grade
≥ 85% Pie Progress
Final Knowledge Check
Group Quizzes: 7 Completions
2 Explanation Keys

C Standards

Mastery Objectives: ≥ 8.5 Points
MCQ: ≥ 60% Exam Average
Complete 2 Practice Tests
ALEKS: ≥ 70% Overall Grade
≥ 75% Pie Progress
Group Quizzes: 6 Completions
1 Explanation Key

A– Standards

Mastery Objectives: ≥ 13.5 Points
MCQ: ≥ 85% Exam Average
Complete 4 Practice Tests
ALEKS: ≥ 90% Overall Grade
≥ 95% Pie Progress
Final Knowledge Check
Group Quizzes: 8 Completions
3 Explanation Keys

B– Standards

Mastery Objectives: ≥ 10.5 Points
MCQ: ≥ 70% Exam Average
Complete 3 Practice Tests
ALEKS: ≥ 80% Overall Grade
≥ 85% Pie Progress
Final Knowledge Check
Group Quizzes: 7 Completions
2 Explanation Keys

C– Standards

Mastery Objectives: ≥ 7.5 Points
MCQ: ≥ 55% Exam Average
Complete 2 Practice Tests
ALEKS: ≥ 70% Overall Grade
≥ 75% Pie Progress
Group Quizzes: 6 Completions
1 Explanation Key

B+ Standards

Mastery Objectives: ≥ 12.5 Points
MCQ: ≥ 80% Exam Average
Complete 3 Practice Tests
ALEKS: ≥ 80% Overall Grade
≥ 85% Pie Progress
Final Knowledge Check
Group Quizzes: 7 Completions
2 Explanation Keys

C+ Standards

Mastery Objectives: ≥ 9.5 Points
MCQ: ≥ 65% Exam Average
Complete 2 Practice Tests
ALEKS: ≥ 70% Overall Grade
≥ 75% Pie Progress
Group Quizzes: 6 Completions
1 Explanation Key

D Standards

Mastery Objectives: ≥ 5 Points
MCQ: ≥ 40% Exam Average
ALEKS: ≥ 55% Overall Grade
Group Quizzes: 5 Completions

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 LOCUS. Grades are never sent via email. ALEKS scores are automatically recorded in the ALEKS 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.

ALEKS

Online, at www.aleks.com, ALEKS is required for your course grade. At the end of the semester, your Overall ALEKS grade is calculated from: 50% Objectives + 5% Final Knowledge Check + 45% Pie Progress. You can find additional ALEKS information and tips on Sakai. Regular work (Learning topics in Objectives) is due MonWedFri at 11:59pm as Pre-lecture work. Assessments or “Knowledge Checks” are also included to help you retain course content throughout the entire semester. Chemistry is a complex and challenging subject, so I have chosen ALEKS to make sure you master the basic, fundamental concepts in the course to fully advance your personal educational and career goals. We have solid data that show this service can improve mastery and retention, particularly for students who would otherwise have difficulty passing. What you must do is decide to trust the system when it assigns you work: trust that this is indeed the work you should be doing now, and that doing it diligently will build the essential mastery you need to succeed in chemistry as fast as possible. ALEKS will help you by finding out YOUR individual state of knowledge, and then tutoring you in only the topics on which YOU need to work. The list of topics to be mastered has been set for the course, and it is the same for everybody. But YOUR individual path is going to be unique to you.

Group Quiz

Weekly, completed in small groups (assigned by instructor). The purpose of working challenging problems as a group is to help you learn via cooperation, communication and support among your classmates as you push the limits of your knowledge. For weekly synchronous quizzes you are required to attend your scheduled discussion on Zoom to work with your assigned group. Each group submits one copy of their work at the end of the discussion period. Participating group members will receive Completion credit if the work they submit includes a meaningful attempt at completing all of the problems. At least three times during the semester each group will be asked to prepare an answer key with explanations to be posted for the entire class. Participating group members will receive Explanation Key credit if the answer key includes completely correct work along with explanations of the concepts applied to solve the problems. Group quiz content will include challenging free-response problems at the level of the Mastery Objectives in order to help you prepare for the grading standards upon which you will be tested individually. There are no make-up quizzes.

MCQ Exams

Two midterms and a final exam, completed Individually. Refer to Exam Proctoring information listed earlier in the syllabus. You may always use the class Equation Sheet with Periodic Table and a calculator, along with your own mind, as resources during testing. MCQ exams will consist of multiple-choice questions meant to test how well you understand and can apply the essential course concepts. Four practice tests will be posted during the semester that include questions from past semesters. Exams are comprehensive and include cumulative concepts. For the midterm exams, but not the final exam, you will be able to submit revised work for partial points by the specified deadline. Revisions must include an explanation of any errors and corrections that were made. Plan on time limits of up to 45 minutes for a midterm, and up to 60 minutes for the final. Midterms are tentatively scheduled for the 8th and 12th weeks of the semester with the specific MCQ dates and timing to be announced at least one week in advance. All procedures and requirements will be posted before each round of testing. The final exam is mandatory: it must be taken to consider the options for weighted percentages listed here. I will automatically calculate your grade using the higher weighted percentage between these two options. If you miss a midterm for any reason, Option 2 will be used.

Option 1: Count 2 midterms at 33% each (midterms = 66% of total); final exam, 34%

Option 2: Count the best midterm at 50% (midterms = 50% of total); final exam, 50%

Mastery Objectives

These are detailed Objectives (MO's) for the course that will be tested Individually in a Mastery format – you will see this format on your group quizzes. The purpose of the mastery-based system is to give you multiple opportunities to demonstrate your higher-level skills of applying and analyzing chemistry concepts. These MO's will challenge you to go beyond memorization of facts and processes and transfer your understanding of essential course concepts to new scenarios, which is why you will have options to revise work and reattempt MO's for credit. Each round of testing on these objectives, 3-4 MO's per round, will be followed by opportunities for revision of work by the specified deadline. Mastery-level work on any MO submitted during testing will receive 1 point. Revised work that is complete and correct by the deadline will receive $\frac{1}{2}$ point per MO. It is expected that work that does not earn mastery credit during testing will be revised as a pre-requisite for reattempting an MO in a later round of testing. If a successfully revised MO is reattempted and mastered during a later round of testing, a score of 1 point replaces the $\frac{1}{2}$ point previously earned: in other words, a maximum of 1 point per MO can be counted toward the total Mastery points. Rounds of testing are tentatively scheduled for the 4th, 8th, 12th and 15th weeks of the semester, with an additional round tentatively scheduled during the final exam period. Specific MO dates and timing will be announced at least one week in advance. All procedures and requirements will be posted before each round of testing. Refer to Exam Proctoring information listed earlier in the syllabus. You may always use the class Equation Sheet with Periodic Table and a calculator, along with your own mind, as resources during testing.