

## Chemistry 102-009 – Spring 2019 -- Syllabus

<b>Course</b>	Chemistry 102, General Chemistry B; 3 Credits: Lecture and discussion
<b>Prerequisites</b>	Chemistry 101 or 105 and completion of Math 118 with a grade of C- or better. A student may be withdrawn from the course at any time if the prerequisites have not been satisfied.
<b>Lecture</b>	Mon, Wed, Fri 2:45 – 3:35 pm Flanner 133/Auditorium
<b>Discussion</b>	You must attend the section for which you are registered: Thursdays 10:00am, 1:00pm, 2:30pm or 4:15pm
<b>Instructors</b>	Dr. Sandra Helquist & Dr. Zachary Osner
<b>Email</b>	To receive a response: use your Loyola email account and send to both shelquist@luc.edu and zosner@luc.edu with only <b>Chem 102 in subject line</b> .
<b>Offices</b>	Dr. Helquist: Flanner Hall 200B; Dr. Osner: Flanner Hall 200A (these are shared offices, please knock if the door is closed and wait for a response).
<b>Office Hours</b>	For regular office hours, just show up with your questions anytime during the times that are <a href="#">posted at this link on Sakai</a> . SI hours and other tutoring information is also listed on the Sakai site. Weekly office hours will also be posted outside of both Dr. Helquist's and Dr. Osner's office doors.

### Course Content & Objectives

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 these problems.
- Apply chemical principles to explain natural phenomena.

**IDEA Objectives:** Chosen by the faculty for General Chemistry; also apply across other courses and disciplines

- Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories)
- Learning to *apply* course material (to improve thinking, problem solving and decisions)
- Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc)
- Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course

### Course Materials

The textbook/eText is Required for class (*Chemistry The Central Science*, Brown/LeMay/Bursten/Murphy/Woodward, 14<sup>th</sup> edition; can use copies on reserve at the Library); the student guide and solutions manual are Optional. Students that choose to use an alternate version of the textbook must do the extra work to align their reading/figures/problems with the current edition. Web access is Required for use of the ALEKS learning system (links/information are posted on Sakai [sakai.luc.edu](http://sakai.luc.edu)). Emails will be sent to the class via Sakai (to your Loyola account). Each student will need a scientific calculator – only calculators approved for use on the ACT exam are permitted – all calculator memory must be cleared prior to use on exams. Calculators cannot be shared between students. **Copyright/Intellectual Property reminder:** course materials provided by your instructors at Loyola may not be shared outside any course without the instructor's written permission.

### Co-Teaching Statement

Dr. Helquist and Dr. Osner will be attending all lectures together. Lecture topics will be presented separately between Dr. Helquist and Dr. Osner. Students can and should seek out Dr. Helquist and Dr. Osner equally for any questions related to topics covered in class. This gives the student a unique advantage and opportunity to gain knowledge from the different teaching styles and perspectives of Dr. Helquist and Dr. Osner.

### Time Investment

For a second-semester general chemistry course, the average independent working time (outside of class) required to learn the material to achieve a minimal passing grade of C- is 1.5-2.5 hours per day, every day, every week, of pre-and post-lecture reading, & homework, office hours, group study, additional preparation and problem-solving, spent by the student. This time is merely an estimate and it is up to you to devote the time necessary to achieve your desired course grade. Studying needs will also vary depending on your prior knowledge and your ability to master cumulative concepts in the course material.

## Student and Faculty Expectations

Each student will determine their level of learning in the course. We expect each of you to make the decision to take ownership of your learning early during the semester, and to adjust your daily practices and habits as needed to reach your desired level of achievement in the course. It is up to you to access resources for help as often as needed: office hours, tutoring, study groups, mentoring, and more. What can you expect of us? Our primary objectives are to provide you with the tools, environment, encouragement, and support to learn Chemistry. We expect that all of us will work together to follow the classroom guidelines listed on the next page and to master the course objectives listed above. Please ask us for additional assistance, clarifications, and contact to us to provide feedback as needed.

## Classroom Guidelines

- A “participant” is any person present in the classroom. These guidelines are the product of students’ in-class discussions and independent submissions collected via online homework during Fall 2015. These guidelines went into effect after in-class group review & discussion, and allowance of time for additional feedback to the instructor. If you have questions, concerns, or feedback about these guidelines, please contact me directly.
- All participants are expected to respect, value, and encourage each other’s contributions in the classroom. This will be done by:
  - Participants actively listening to each other’s presentations, questions and answers. Distractions (side conversations, use of personal devices, other) will be kept to a minimum.
  - Participants asking questions individually and in groups; participants engaging in problem-solving individually and in groups.
  - Correct, incorrect, incomplete and partial answers to questions will be critically but respectfully examined and discussed to cultivate conceptual understanding of material from multiple perspectives.
  - Participants will seek to engage with the material by finding areas of personal interest and exploring topics further by asking questions and seeking additional resources for information.

## Class Attendance and Content

Class attendance and active participation is expected of all students; there are no make-up classes or assignments. You are responsible for all material presented, handed out, or recommended. If you miss a class for any reason, contact a classmate promptly for notes and topics covered. Prepare for lecture by reading ahead in the textbook and working the ALEKS Objective. Come prepared to continue learning, ready to ask and answer questions individually and in groups. Lectures will be presented as a combination of “chalk talks” and slides/links/animations, and a large amount of time will be spent analyzing and working medium-to-difficult problems. Links, files, handouts and powerpoint slides will be posted on Sakai. A tentative schedule is posted on Sakai, subject to change: if you miss a class for any reason, contact a classmate promptly! We will cover roughly Chapters 11-17, 19-20 during the semester. We will begin with Chapter 11 on the first day of class, but not all textbook sections will be fully covered, so focus first on the material that is directly covered in lecture and assigned for homework, quizzes and recommended problems.

We have a *tentative* lecture schedule posted in the [Resources section of Sakai](#). Updates may be made during the semester.

## 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. Evidence of cheating (for homework, quiz, or exam) will result in, at a minimum, a “zero” on the item and penalty up to failure of the course, as well as referral to the Dean’s Office. For the Undergraduate Catalog statement on academic integrity, visit:

[http://www.luc.edu/academics/catalog/undergrad/reg\\_academicintegrity.shtml](http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml)

## Other Items

- A link to the official Loyola calendar can be found here: <http://luc.edu/academics/schedules/index.shtml>
- The Withdraw deadline for the semester is on Monday March 25<sup>th</sup>.
- We have an SI tutor for this course: Rajavi Patel (rpatel59@luc.edu); SI hours are listed in Sakai.
- Additional resources, advice, and suggestions for success (from multiple sources) will be posted and 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 semester. Absences will be discussed in person 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 in person.

## Accommodations

Students requiring accommodations must provide appropriate documentation from the University and meet with the instructors to discuss arrangements. Accommodations are provided after receiving documentation and allowance of a reasonable time frame for implementation: minimally, one week in advance of an exam. Accommodations cannot be retroactive. Information for students with disabilities is available at: <https://www.luc.edu/sac/>

## 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. Read the full policy at this link (scroll down): <https://www.luc.edu/chemistry/courses.shtml>

<b>Grading</b>	ALEKS	15%	<u>Cutoffs:</u>	A	92.0%	A-	87.0%	
	Discussion Group Work	10%	B+	83.0%	B	78.0%	B-	74.0%
	Exams	75%	C+	70.0%	C	64.0%	C-	60.0%
	Total score	100%	D	45.0%				

These are the grade cutoffs for Total scores; scores are not rounded up after calculation. Letter grades are only assigned to your Total score, not to individual assignments, quizzes or exams. Chemistry concepts and problem-solving skills are not easy to learn, so we reward you for keeping up with the material via homework and discussion work, and we offer two options for the exams (see details below). Note that both grading options for the exams give more weight to the final exam than a midterm exam. Each student will receive an estimated midterm grade before the withdraw deadline, and final course grades at the end of the semester are posted only on LOCUS. In accordance with departmental standards, the average course grade is usually between C+ and B- at the end of the semester. All scores are posted in the ALEKS and Sakai Gradebooks. Grades are only based on the criteria listed in this syllabus: no substitutes, no additional criteria will be considered for your scores. Please let us know what we can do to help you achieve your desired level of success in this course!

## ALEKS

Online, [www.aleks.com](http://www.aleks.com), due TuThSu at 11:59pm as pre- and post-lecture objectives. 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 we 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. ALEKS is worth 15% of your Course Grade. The 15% is distributed as follows: 50% Intermediate Objectives, 5% Final Knowledge Check and 45% Final pie mastery. You can find additional [ALEKS info and tips on Sakai](#).

## Discussion Group Work

No early assignments, no make-ups, no exceptions. The purpose of group work is to foster cooperation and communication between students and the instructors to help you learn the material and develop your problem-solving skills at the level that will be expected on exams. The problems worked in discussion are mostly taken from old exams: if you struggle with any part of any question in the group session, make a note of it for your next study session and get help as needed. Then keep practicing (studying!) until you can solve similar and related problems on your own: the amount of practice and help required will be different for each of you. Some group work assignments will be discussed in class, and some assignments will be collected for strict grading (like a quiz). Discussion group work is worth 10% of your course grade. The two lowest assignment scores will be dropped at the end of the semester to account for unavoidable absences (illness, emergency, etc).

## Exams

No early exams, no make-ups, no exceptions. Exams will consist of multiple-choice and long-answer questions. Exams comprise 75% of your overall course grade, and will be automatically calculated as the higher score between these options:

Option 1: All 3 midterms, 15% each; final exam, 30%; Total exam score = 75%

Option 2: Best 2 midterms, 17.5% each; final exam, 40%; Total exam score = 75%

Midterms: February 11, March 18, April 15. If you miss a midterm *for any reason*, Option 2 will be used to determine your grade. A second missed midterm will result in a score of *zero* counted in your course grade. It is in your best interest to prepare for and take all exams. Final: 2 hours, Friday May 5, 4:15-6:15 pm. The [University sets the schedule for final exams](#), and there can be no divergence from the posted schedule of dates and times. The final exam is Mandatory: a student who does not take the final will not pass the course. Exams are completed individually, and only midterm exams will be returned to students, with copies kept by the instructors.