

Chemistry 102-001 – Spring 2017 -- Syllabus

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| 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 A student may be withdrawn from the course at any time if the prerequisites have not been satisfied. |
| Lecture | MWF 8:15 – 9:05 am Flanner 133/Auditorium |
| Discussion | You must attend the section for which you are registered: Tuesdays 8:30am, 11:30am or 2:30pm |
| Instructor | Dr. Sandra Helquist |
| Email | To receive a response: send via Sakai to Instructor (select recipients) and leave subject line blank <u>OR</u> use your Loyola email account and send to shelquist@luc.edu with only Chem 102-001 in subject line. |
| Office | Flanner Hall 200B (shared office, please knock and wait for a response) |
| Office Hours | You are welcome to stop by at any time to see if my door is open and check my posted schedule For regular office hours, just show up with your questions anytime during: Mondays 12:30-1:30pm, Tuesdays 10-11am & 1-2pm, Wednesdays 12-2pm; occasional extra hours may be announced in class |

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)
- Learning how to find, evaluate, and use resources to explore a topic in depth

Course Materials

The textbook/eText is Required for class (*Chemistry The Central Science*, Brown/LeMay/Bursten/Murphy/Woodward, 13th 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 MasteringChemistry homework system (can purchase code with textbook) and the ALEKS learning system (links/information are posted on Sakai 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.

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 her/his level of learning in the course. I 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 me? My primary objectives are to provide you with the tools, environment, encouragement, and support to learn Chemistry. I 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 me for additional assistance, clarifications, and contact to me 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.

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

Accommodations

Students requiring accommodations must provide appropriate documentation from the University and meet with the instructor 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: <http://www.luc.edu/sswd/>

Sakai Items

- A tentative Course Schedule is posted in the [Course Materials](#) section and will be updated as needed. The ALEKS objectives will keep pace with the course schedule as pre-lecture preparation.
- A list of Highly Recommended Textbook problems is posted in the Course Materials section. You also have access to the Study Area in MasteringChemistry which includes extra practice problems.
- A list of Best Practices and Suggestions is posted in the Course Materials section.
- Complete information and Tips for [ALEKS](#) and [MasteringChemistry](#) are posted and will be updated during the beginning weeks of the semester.
- All emails sent to the class via Sakai will also be posted as Announcements; announcements may be updated as needed.
- Additional resources will be continually posted and updated on Sakai.

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 Monday March 27th. Students can seek assistance with LOCUS procedures from the Department office (Flanner 125), or from academic advising in the Sullivan Center.
- For information about Loyola tutoring in the Sullivan Center, see: <http://www.luc.edu/tutoring/>

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| Grading | ALEKS | 15% | <u>Cutoffs:</u> | A 91.0% | A- 88.0% |
| | MasteringChemistry | 5% | B+ 85.0% | B 78.0% | B- 75.0% |
| | Group Quizzes | 10% | C+ 72.0% | C 64.0% | C- 60.0% |
| | <u>Exams</u> | <u>70%</u> | | D 50.0% | |
| | Total score | 100% | | | |

These are the grade cutoffs for Total scores. Letter grades are only assigned to your Total score, not to individual assignments, quizzes or exams. Total scores are not rounded up after calculation. Chemistry concepts and problem-solving skills are not easy to learn, thus the grading policy rewards students for keeping up with the material via homework and group quizzes, as well as two grading options for the exams (see details below). Note that both grading options for the exams give more weight to the final exam than to 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 will be visible in the ALEKS, MasteringChemistry, 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 me know what I can do to help you achieve your desired level of success in this course. ALEKS, Mastering, and Quizzes are all designed to help you!

ALEKS

Online, at www.aleks.com, due SunTuesThurs at 11:59pm as pre-lecture objectives. Assessments or “Knowledge Checks” are also automated in the system to help you remember 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. 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 final outcome, the list of topics to be mastered, has been set for the course, and it is the same for everybody. But YOUR individual path, how you will get from your present state of mastery to that ultimate goal, is going to be unique to you. No other student will have exactly the same experience. 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 is worth 15% of your Course Grade. The 15% is distributed as follows: 50% Intermediate Objectives and 50% Final pie mastery. You can find additional [ALEKS info and tips on Sakai](#).

MasteringChemistry

Online, at www.MasteringChemistry.com, due Fridays at 11:59pm as a post-lecture assignment. MasteringChemistry will function as a traditional homework system and serves a different purpose than the ALEKS system. While ALEKS will tutor/coach/drill you on the fundamentals to help you prepare for every lecture, MasteringChemistry will help you know what to expect on the more difficult exam problems: Chem 102 tends to be significantly more difficult than Chem 101 because the material is highly cumulative over two semesters, and because we cover the topics in more depth during Chem 102. Almost all students need more practice than what is done in class to master the most challenging applications and analysis of the course material. MasteringChemistry is worth 5% of your Course Grade. The 5% is distributed among all of the homework assignments over the semester. You can find additional [MasteringChemistry info and tips on Sakai](#).

Group Quizzes

No early quizzes, no make-ups, no exceptions. Quizzes include exam-level long-answer problems and are completed in discussion, in small groups assigned by the instructor. Quiz work must reflect efforts of ALL group members: the purpose of the quizzes is to foster cooperation and communication between students and the instructor, to help you learn the material. If you struggle with any part of a question in the group session, get help as needed and keep practicing working problems (studying!) until you can solve similar and related problems from the textbook well enough to achieve the exam scores you desire (this will be different for each of you). Quizzes are worth 10% of your course grade, calculated from the average of your best ten scores. This grading policy is designed to account for an unavoidable absence (illness, emergency, etc).

Exams

No early exams, no make-ups, no exceptions. Exams will consist of multiple-choice and long-answer questions. Exams comprise 70% 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, 25%; Total exam score = 70%

Option 2: Best 2 midterms, 15% each; final exam, 40%; Total exam score = 70%

Midterms: 50 minutes, February 15, March 22, April 21. 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, Thursday May 4, 9-11 am. *Mandatory: a missed final exam will result in a course grade of F.* The final exam must be taken [on the date scheduled](#) per College of Arts and Sciences policy. Exams are completed individually, and only midterm exams will be returned to students, with copies kept by the instructor.