

Chemistry 102-005 – Spring 2015 -- Syllabus

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 A student may be withdrawn from the course at any time if the prerequisites have not been satisfied.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 Cuneo 210 You must also register for and attend one of the accompanying discussion sections:
Discussion:	W 11:30am; 1:40pm Flanner 7
Textbook:	<u>Chemistry The Central Science</u> , Brown/LeMay/Bursten/Murphy/Woodward/Stoltzfus, 13 th edition MasteringChemistry online access code for the above text (Required)
Instructor:	Dr. Sandra Helquist
Email:	Put only “Chem 102-005” in subject line to receive a response (shelquist@luc.edu)
Office:	Flanner Hall 200B
Office Hours:	M 12-1:30pm, T 10-11:30am, W 2:45-4pm; Th 10-11:30am, additional times by appt & drop-in

Course Content & Objectives

This lecture and discussion course is a continuation of Chemistry 101 and includes topics on solutions, kinetics, equilibrium systems, acids and bases, chemical thermodynamics, electrochemistry, and nuclear chemistry. Building on the basic principles learned in the 101 course, students will deepen their conceptual understanding of specific complex topics in chemistry, and further develop their skills in scientific problem solving for use in higher-level courses in chemistry, other sciences, and related disciplines.

IDEA Objectives: Gaining factual knowledge (terminology, classifications, methods, trends)

Learning fundamental principles, generalizations, or 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)

Acquiring an interest in learning more by asking questions and seeking answers

Course Materials

The textbook/eText is required for class; the student guide and/or solutions manual that accompany the text are optional. Additionally, web access is required for the MasteringChemistry online homework system (links/info on Sakai and www.masteringchemistry.com). 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. Each student will need the use of a scientific calculator for problem solving – 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, it is anticipated that the average time required to learn the material in order to achieve a minimal passing grade of C- is 9-12 hours per week, every week, not just before exams, of independent working time outside of class (reading, homework, office hours, group study sessions, additional preparation) spent the student. This time is merely an estimate and it is up to each individual student to devote the time necessary to achieve the desired course grade. Studying needs will also vary depending on the prior knowledge of each student and the difficulty of the course material as the semester progresses.

Class Attendance

Class attendance and active participation is vital for your learning and is expected of all students. You are responsible for all material presented or handed out, as well as reading and problems recommended in lecture and discussion. If you miss a class for any reason, contact a classmate promptly to get the notes. Prepare for lecture by scanning the new material to be covered. Come prepared to engage in discussion, ready to ask and answer questions on course material -- especially bring questions to discussion classes. Lectures will be presented as a combination of “chalk talks” and slides/links/animations. Supplemental materials will be posted on Sakai and important information will be communicated outside of class via the Announcements/Email functions in Sakai.

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/req_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/>

Grading

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). In accordance with departmental standards, the average course grade is usually between C+ and B- at the end of the semester. Letter grades are assigned to your Total score; letter grades are Not assigned to any one graded component. A Total score of 88.0% is the lowest A-, 75.0% the lowest B-, 60.0% the lowest C-, 50.0% the lowest D. Cutoffs between plus/minus letter grades (B vs. B-, for example) are determined based on the overall distribution of student Total scores at the end of the semester.

Homework	15%
Group Quizzes	10%
Exams	75%
Total score	100%

Homework

Online, at <http://www.MasteringChemistry.com>, 3 assignments per week. MC questions include a range of problem types and difficulties and are meant to: (1) Help you learn the material by practicing it yourself; (2) Serve as an aid to your overall course grade as you make the effort to learn. Take your time doing homework problems: work the problems mindfully, review feedback provided even after you obtain a correct answer, and review any incorrect answers as well to determine why/how you can distinguish from the correct answer. The more you focus on *doing the problems to learn from them* (not just for the points!), the less time you will need to spend working additional problems later, or trying to cram for exams. If you struggle with a homework problem, come to office hours promptly for help. Completion of the homework problems is the minimum amount of practice required for learning: most students will need additional practice to achieve good to excellent understanding and problem-solving skills.

Group Quizzes

No early quizzes, no make-ups: *any missed quiz is scored as a zero*. Your overall quiz scores is the average of your best ten scores. Quizzes include Exam-level (moderate-to-difficult) long-answer problems and are completed in discussion, in small groups assigned by the instructor. Work must reflect efforts of ALL group members, and is meant to foster cooperation and communication between students, in addition to consultation with 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 (studying) until you can work similar and related problems from the textbook on your own.

Exams

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

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

Option 2: Best 2 midterms, 15% each; final exam, 45%; Total exam score = 75%

Midterms: 50 minutes, February 4, February 27, April 1. If you miss a midterm *for any reason*, Option 2 will automatically 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 each student's best interest to prepare for and take all exams.

Final: 2 hours, Thursday April 30, 9-11am. *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 Science policy.

Exam Day Procedure

Phones, tablets, wireless devices, unauthorized materials are not permitted on your person, subject to device confiscation and dismissal from exam. Seating arrangements may be altered before or during the exam. Show up early with three items: (1) your Loyola ID, visible on desk to be checked during exam; (2) pencil(s) or standard blue/black ink pen(s); (3) working approved calculator (www.actstudent.org/faq/calculator.html), with the memory cleared, to be checked during exam, extra batteries are recommended. All jackets, bags, loose accessories, etc must be left at the front of the classroom. Once the exam is distributed, if you exit the room (quietly, please), for any reason before time is up, your exam is considered complete and will be collected. I will return your midterm exams *during the discussion periods or in office hours* (copies will be kept). Scoring errors must be brought to my attention in person no later than one week after the exams are returned. The final exam cannot be returned.

Studying Strategies and Suggestions

Students often ask me, "How do I get a/an (fill in grade of choice here) in this class?" The answer is simple (see the grading policy for the course), but the process of learning is challenging and can even be uncomfortable as you are pushed to expand the boundaries of your knowledge and abilities. Grades are earned based on quality of achievement in the course, with the top grade of 'A' earned by demonstrating complete (not partial) mastery of all (not some/most) of the course material on all homework, quizzes and exams: trying to take a shortcut in one area will often be detrimental in another area. So what does it mean to demonstrate mastery of course material? This means that you have learned the chemical concepts, beyond rote memorization, well enough to distinguish among closely related topics, and can ultimately apply your knowledge to solve new types of problems. My primary concern is to provide you with the tools, environment, and encouragement to learn chemistry, and from there it is up to you to determine your level of achievement. Please continue reading for the best suggestions I have from my own experience as a student and as a teacher, and the experiences of my mentors, colleagues, and former students.

Taking Ownership of Your Learning: Almost all of you are in Chem 102 because you have taken at least one prerequisite college chemistry course. Most of you have also taken other college courses in science, math, arts, and humanities. By now you should appreciate that the approach you take to learn the material will vary between subject areas and courses. I encourage each of you to take ownership of your learning, such that you will determine, as an individual, what you must do to achieve your desired level of success in this course. The learning skills that you develop in this and other courses at Loyola are meant to help you develop into an independent, lifelong learner.

General Suggestions: Good knowledge of the material from Chem 101 (Chapters 1-11) is assumed and necessary for this course. If you do not remember particular topics, review immediately and seek help as needed. There are some things in Chemistry that must simply be memorized, but do not confuse rote memorization with learning a concept. Even for problems involving calculations, the basis of what you are doing comes from conceptual understanding. Try multiple methods for probing your understanding of the material and ask questions often. Problem-solving in general and in Chemistry in particular is a skill that can be learned and improved with dedicated practice. You are encouraged to form study groups – talk to your classmates and exchange contact information – and attend office hours and tutoring regularly to receive help. Take advantage of all the resources Loyola offers for support early and often. You are urged to contact the instructor to discuss problems before they become serious.

Step-By-Step Daily Studying Practices aka Learning the Course Material: Many students focus on preparing for exams. Most instructors ask their students to focus on learning the material in order to demonstrate that learning on exams. The difference is that learning new material and problem-solving skills requires frequent focused practice, practice under pressure, and often some coaching *on a daily basis*. Because many topics we will cover build heavily on prior material, the best plan is to study chemistry every day, 2.5-3.5 hours of independent working time for each hour you spend in class. Before each lecture, it is expected that you will scan the chapter/sections to be covered (sections are generally covered in order), taking note of key definitions, formulas and concepts, in order to improve lecture comprehension. In lecture and discussions, ask and answer questions with the instructor and your classmates. After lectures, detailed re-reading of the textbook is important, along with working the practice exercises contained within the text sections to immediately test comprehension of the material covered. You are then expected to ask follow-up/clarifying questions, and to complete the assigned homework problems by the next lecture meeting. Additional rounds of questions for the instructor are appropriate, brought to office hours or discussion classes in particular. Finally, work as many additional problems as needed to gain comprehensive mastery of the material, and repeat the process of working problems and asking questions until you can solve the most difficult problems on the first try without your notes or other assistance. Practice, practice, practice – every day!

If you have followed the Step-By-Step Daily Studying Practices above, you have already studied for your exams by learning the course material! Begin to review for each test a few days in advance. You may wish to use the Chapter Summary, Key Terms, and Key Skills listed at the end of each chapter as a review tool, or to make your own study guides from lecture outlines or quizzes prior to exams. Find a review method that works for you: meet with classmates and quiz each other, make your own quizzes from the textbook problems and/or Mastering Study Area, bring additional questions to office hours. When you are taking any exam, read the instructions and questions carefully, spend your time well on problems you know you can solve, and show all of your work and answers.

Supplemental Items: A Tentative Lecture Schedule is posted under Course Materials on Sakai.

A list of Highly Recommended Textbook problems is posted under Course Materials on Sakai.

For information about Loyola tutoring in the Sullivan Center, see: <http://www.luc.edu/tutoring/>

A link to the official Loyola calendar can be found here: <http://luc.edu/academics/schedules/index.shtml>