

Chemistry 101

Fall 2014

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| Course: Chemistry 101 | Instructor: Prof. Jacob Ciszek |
| Lecture (All): Tuesday and Thursday 2:30P-3:45P Cuneo Hall 210 | Flanner Hall 122 Phone: (773) 508-3107 E-mail: jciszek@luc.edu |
| Discussion (015): Thursday 11:30A-12:20P Mundelein 506 | Textbook: Chemistry the Central Science (13 th ed.) by Brown, LeMay, et al. |
| Discussion (016): Thursday 1:00-1:50P Mundelein 506 | Online HW: MasteringChemistry |
| Website: Sakai (sakai.luc.edu) | |

Course Philosophy: While every student may not enter the class with the intent to become proficient in chemistry, I strongly feel that my role as a professor is to get you to that point. Thus the expectations of you the student is through hard work, attending class, and completion of the homework you will obtain this proficiency and do well in the course. My role is to provide you with the information and the tools, in a coherent matter, so that solving said homework (as well as the quizzes and exams) are not burdensome.

We have a limited amount of days allotted to class. Thus it is very important that the class environment is free of distractions. No laptops or other computers are allowed. Cell phone use including texting is not acceptable.

Office Hours: These consist of 1½ hours during each of the following time slots (3h total):

Tuesday 12:45-2:15P, except 8/26

Thursday 4:15-5:45P, abbreviated 9/18, none 11/20

Academic Honesty & Discipline: Honesty is the foundation of the academic system and hence is of the utmost importance. All exam and quiz answers should be exclusively your own work and no outside materials are allowed. In the unfortunate event that a student is caught cheating, 100 points will be deducted from your total grade and you will be brought to the attention of the Department Chair and Dean of the College who will determine if further action should be taken.

Grading: For a typical week, two homework assignments are due. Roughly every two weeks, there will be a quiz or an exam.

The role of homework is to refresh the lecture information in your mind and prepare you for quizzes and exams. Homework will primarily be posted on MasteringChemistry with a rare paper assignment. Online homework will be due Tuesday and Thursday at 8:00A. Collaboration on homework is allowed. MasteringChemistry does not necessarily mimic the style of questions on the exam/quizzes, so do not use it for exam prep; its main use is as a quick review of the lecture material and to see which concepts you're having trouble with. Your grade for homework will be the percentage of total points achieved plus 5%.

Quizzes are designed such that an average student who works hard and grasps the material should score ~85%. Exams (and the final) are designed so that this same student will score approximately 70-75%. This allows motivated students to truly go beyond what is expected and to distinguish themselves, not to penalize those who work as expected.

Discussion points are given for the final portion of the discussion section where you are expected to work through some selected problems in small groups. The purpose here is to work through material presented in lecture. Discussion section may recap earlier material, or introduce difficult concepts for a subsequent lecture.

There are no makeup exams, quizzes, or homework. However, circumstances may occasionally force you to miss one of these, and thus there are mechanisms that minimize the effect on your grade. For discussion points, two of the grades are automatically dropped. For homework, your grade will have 5% added to it (meaning the maximum here is 105/100). One quiz and one exam can be dropped. The last point means two things: 1) you have the ability to miss an exam/quiz should circumstances (illness, wedding, etc.) prevent you from attending. However, if you miss an exam and a quiz, the final becomes a dramatically more important part of your grade (from 22% to 27%). For those of you who do not miss an exam or quiz, I will calculate your grade both with a dropped score and without, and you will receive the higher of the two.

| Grading scale: | | | (w/ dropped exam/quiz) | |
|-----------------------|-------------|--------------------------|------------------------|---------|
| Homework: | | 100 | 100 | A > 90% |
| Quizzes | 4 × 15 pts | 60 | 45 | B > 80% |
| Exams | 3 × 100 pts | 300 | 200 | C > 70% |
| Final | 150 pts | 150 | 150 | D > 60% |
| Discussion | 12 × 5 pts | <u>60</u> (drop 2 of 14) | <u>60</u> | |
| Total | | 670 | 555 | |

Note, the intended scale for exams and the final would put the average just above the lowest C. Homework and quizzes will mitigate this a bit. Based on overall class competence the grading scale may be relaxed a little at the end of the semester (certainly no more than a couple percent). If the whole class has mastered the material, you will not be punished because you are below the average. The A, B, C, D scale represents the maximum score you would need for that grade. Pluses and minuses are not indicated in the grading scale but will be given. This will be done according to the natural breakdown of the grade distributions. Expect this to be the closest 1-2% to the final A-B, B-C, and C-D divisions.

MasteringChemistry: Homework for the class can be accessed via course number CISZEKCHEM101F14. In addition to acting as the online homework system, MasteringChemistry also has a “study area” available with additional resources.

Other:

Simple calculators are allowed for exams. Those capable of storing complex (for example images) or large amounts (1+ pages of text) of information are not. See me if you are unsure about yours (or visit www.actstudent.org/faq/calculator.html).

The Tutoring Center offers free small group tutoring and lab (drop-in) tutoring for Loyola students. The groups meet once a week through the end of the semester and are led by a student who has successfully completed study in the course material. To learn more or request tutoring services, visit the Tutoring Center online at www.luc.edu/tutoring.

Students requiring accommodations at the University need to contact the Coordinator of Services for Students with Disabilities. The instructor will provide accommodations after receiving documentation from SSWD and allowance of a reasonable time frame for arrangements (minimally, one week in advance). Accommodations cannot be retroactive. Information is available at: <http://www.luc.edu/sswd/>

Schedule (including approximate page numbers):

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|--------------|--|---------------------------|-----|----|
| 8/26 | Application of chemistry. Matter. Syllabus. | p5, 20-21, 1-14 | | |
| 8/28 | Measurements, units, conversion | p14-32 | H1 | |
| 9/2 | Atoms: precedence & weight. Periodic table | p42-55 | | Q1 |
| 9/4 | Molecules, compounds, & naming | p55-72 | H2 | |
| 9/9 | Reactions | p80-110 | H3 | |
| 9/11 | Reactions | p80-110 | H4 | |
| 9/16 | Exam 1 | | | E1 |
| 9/18 | Solutions, precipitation, acid bases (basics) | p122-37 | | |
| 9/23 | Interlude: oxidation/reduction | p138-45 | H5 | |
| 9/25 | Concentrations, conversions, stoichiometry | p146-54 | H6 | |
| 9/30 | Introduction to energy. Simple E transfer | p164-75 | | Q2 |
| 10/2 | Tracking energy: enthalpy, calorimetry | p175-87 | H7 | |
| 10/7 | Mid-semester break | | | |
| 10/9 | Energy applied: foods & fuel | p189-200 | H8 | |
| 10/14 | Exam 2 | | | E2 |
| 10/16 | Electrons (and matter) as a wave | p212-25 | | |
| 10/21 | Waves applied: mathematical soln.=orbitals | p226-48 | H9 | |
| 10/23 | Periodic predictions. Similarities in columns | p256-77 ²⁷⁸⁻⁸⁸ | H10 | |
| 10/28 | Fundamentals of a bond | p298-308 | H11 | |
| 10/30 | Bonding complexities | p309-15, 325-32 | H12 | |
| 11/4 | Bonding formalisms | p315-24 | | Q3 |
| 11/6 | Molecular geometry: importance and intro. | p342-49, 358-59 | H13 | |
| 11/11 | Complexities: lone pairs, expanded shells, etc | p349-57, 360-64 | H14 | |
| 11/13 | Complexities: multiple bonds, resonance | p365-72, 386-87 | H15 | |
| 11/18 | Exam 3 | | | E3 |
| 11/20 | Gases and their calculations | p398-412 | | |
| 11/23 | Gas: application and behavior | p412-26, 430-31 | H16 | |
| 11/27 | Thanksgiving | | | |
| 12/2 | States of matter. Intermolecular forces | p442-57, 480-82 | | Q4 |
| 12/4 | Changing states: theory & prediction | p457-71 | H17 | |
| 12/11 | Final (cumulative) 9:00A-11:00A | | | |