

# Chemistry 101

Fall 2019

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| Course: Chemistry 101   | Instructor: Prof. Jacob Ciszek   |
| Lecture (All): Tuesday and Thursday 4:15-5:30P<br>Flanner 133 | Flanner Hall 122<br>Phone: (773) 508-3107<br>E-mail: jciszek@luc.edu                         |
| Discussion (030): Tuesday 5:45-6:35P<br>Flanner 133           | Textbook: Chemistry the Central<br>Science (14 <sup>th</sup> ed.) by<br>Brown, LeMay, et al. |
| Discussion (031): Thursday 2:30-3:20P<br>Flanner 007          | 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. Please refrain from sitting in the last 8 rows.

## **Office Hours/SI Hours:**

- Sunday 6:00-6:50P (Scheu SI hours, STEM center classroom 2)
- Monday 3:00-6:00P (Ciszek office hours, FH122)
- Tuesday 7:00-7:50P (Scheu SI hours, STEM center classroom 2)
- Thursday 8:00-8:50P (Scheu SI hours, STEM center classroom 2)

**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, 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 one percent, then scaled to be out of 60 points (example from last year, 137.2 pts out of 169.5 = 81% +1% =82% or 49.2/60).

There are two types of quizzes each with a different goal:

Competency quizzes are probably new to you. Here you will be quizzed on 4 *simple* chemistry facts. Examples include "how many bonds does carbon usually form?" or "convert 5.0 g of carbon to moles." Competency quizzes are cumulative. The goal is to continuously reinforce basic facts/concepts that are critical to retain for subsequent classes. You must get *all* of them right to receive points, so despite their simplicity, there is a small amount of challenge.

Traditional quizzes are designed to assess new material and are similar to the quizzes you're familiar with. 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 ~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. *Also note – the staggered discussions scheduling means a holiday for Thursday's discussion (e.g. Thanksgiving) will also cause Tuesday's discussion to be canceled to keep content identical.*

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 1% added to it (discussed above). One quiz (either type) 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 24% to 29%). 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.

| <b>Grading scale:</b> |             |                   | (w/ dropped exam& T quiz) |         |
|-----------------------|-------------|-------------------|---------------------------|---------|
| Homework:             |             | 60                | 60                        | A > 90% |
| C. Quiz               | 2 × 5 pts   | 10                | 10                        | B > 80% |
| T. Quiz               | 4 × 15 pts  | 60                | 45                        | C > 70% |
| Exams                 | 3 × 100 pts | 300               | 200                       | D > 60% |
| Final                 | 150 pts     | 150               | 150                       |         |
| Discussion            | 11 × 4 pts  | 44 (drop 2 of 13) | 48                        |         |
| Total                 |             | 624               | 509                       |         |

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 percent). 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 2% to the final A-B, B-C, and C-D divisions (e.g. A- is 90 to 92)

**MasteringChemistry:** Homework for the class can be accessed via course number CISZEKCHEM101F19. In addition to acting as the online homework system, MasteringChemistry also has a “study area” available with additional resources.

**Other:** Simple calculators will be provided to you on quiz/exam days. You will not use your own.

**Schedule (including approximate page numbers):**

|              |  |                  |       |     |     |
|--------------|--|------------------|-------|-----|-----|
| 8/27         | Application of chemistry. Matter. Syllabus.    | p1-14            |       |     | D1  |
| 8/29         | Measurements, units, conversion                | p17-33           | H1a,b |     |     |
| 9/3          | Atoms: precedence & weight. Periodic table     | p44-58           |       | TQ1 | D2  |
| 9/5          | Molecules, compounds, & naming                 | p59-73           | H2    |     |     |
| 9/10         | Nucleus, radioactive particles, change         | p902-12          | H3    |     | D3  |
| 9/12         | Nuclear applications. Review                   | p917-933         | H4    |     |     |
| 9/17         | Exam 1   |                  |       | E1  | D4  |
| 9/19         | Reactions (1)                                  | p84-109          |       |     |     |
| 9/24         | Reactions (2)                                  | p84-109          | H5    |     | D5  |
| 9/26         | Solutions, precipitation, acid bases (basics)  | p122-136         |       | TQ2 |     |
| 10/1         | Interlude: oxidation/reduction                 | p137-143         | H6    |     | D6  |
| 10/3         | Concentrations, conversions, stoichiometry     | p144-152         | H7    |     |     |
| 10/8         | Mid-semester break                             |                  |       |     |     |
| 10/10        | Exam 2   |                  |       | E2  | -   |
| 10/15        | Introduction to energy. Simple E transfer      | p164-175         |       |     | D7  |
| 10/17        | Tracking energy: enthalpy, calorimetry         | p176-89          | H8    |     |     |
| 10/22        | Energy applied: foods & fuel                   | p194-199         | H9    |     | D8  |
| 10/24        | Electrons (and matter) as a wave               | p214-218         |       | TQ3 |     |
| 10/29        | Waves applied: mathematical soln.=orbitals     | p219-240         | H10   |     | D9  |
| 10/31        | Periodic predictions. Similarities in columns  | p241-245,259-287 | H11   |     |     |
| 11/5         | Fundamentals of a bond                         | p300-307         | H12   |     | D10 |
| 11/7         | Bonding complexities                           | p308-315         |       | TQ4 |     |
| 11/12        | Bonding formalisms                             | p315-326         | H13   |     | D11 |
| 11/14        | Molecular geometry: importance and intro.      | p340-345         | H14   | CQ1 |     |
| 11/19        | Complexities: lone pairs, expanded shells, etc | p346-360         | H15   |     | D12 |
| 11/21        | Complexities: multiple bonds, resonance        | p361-368,377-379 | H16   |     |     |
| 11/26        | Exam 3   |                  |       | E3  | -   |
| 11/28        | Thanksgiving                                   |                  |       |     |     |
| 12/3         | Gases and their calculations                   | p396-409         |       |     | D13 |
| 12/5         | Gas: application and behavior                  | p410-422         | H17   | CQ2 |     |
| <b>12/10</b> | <b>Final (cumulative) 4:15-6:15P</b>           |                  |       |     |     |

### **Loyola Formal Statements:**

**Final Exam-** The University sets the schedule for all final exams. The final will be held on: 12/10 at 4:15-6:15P. You will have exactly 2 hours to complete the exam. Additional time will not be granted, even if you arrive late. 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).

**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.

**Students with Disabilities** If you have any special needs, please let me know in the first week of classes. The university provides services for students with disabilities. Any student who would like to use any of these university services should contact the Student Accessibility Center (SAC), Sullivan Center, (773) 508-3700. Further information is available at <http://www.luc.edu/sac/>.

### **Loyola University Absence Policy for Students in Co-Curricular Activities (including ROTC):**

Students missing classes while representing Loyola University Chicago in an official capacity (e.g. intercollegiate athletics, debate team, model government organization) shall be allowed by the faculty member of record to make up any assignments and to receive notes or other written information distributed in the missed classes.

Students should discuss with faculty the potential consequences of missing lectures and the ways in which they can be remedied. Students must provide their instructors with proper documentation (develop standard form on web) describing the reason for and date of the absence.

This documentation must be signed by an appropriate faculty or staff member, and it must be provided as far in advance of the absence as possible. It is the responsibility of the student to make up any assignments. If the student misses an examination, the instructor is required to give the student the opportunity to take the examination at another time.

(<https://www.luc.edu/athletheadvising/attendance.shtml>)