

Instructor: Dr. Polina Pine

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Office Location: FH-403

Office Hours M/Th/F 12:30-1:30

Lectures: Tu/Th 2:30-3:45

You must also be registered in one of the following discussion sections:

Discussions: 013 W 12:35-01:25 FH-7

014 W 01:40-02:30 FH-105

015 W 02:45-03:35 FH-105

Course Overview

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. The main objectives of the course are to **recognize/interpret basic concepts of** the material and **develop skills in scientific** and numeric problem solving.

Prerequisites

Chemistry 101 or 105 and completion of Math 118 with a grade of C- or better.

Required Text

- Chemistry The Central Science, Brown/LeMay/Bursten/Murphy/Woodward, 12th edition
- MasteringChemistry online access code for the above text (Required)

Course Materials

- MasteringChemistry online access code for the above text: **PINECHEM102012SPR15**
- Scientific Calculator
- Color pens
- HB2 pencils

Grading policy

Mastering Chemistry	15%
Discussions	EC (added to the following exam)
Exams	85%

The lectures are supplemented by the Discussion session; each Discussion Handout (DH) is worth 1 point. Getting the extra-credit for the Discussion Handout based on following the format of the Discussion Handout and class participation. You must attend and participate in the Discussion to get 1 point for the DH. The extra-points for the DH are added to the score of the following unit-exam.

There will be three unit exams and one final exam. Each unit exam contributes 20% and the final exam contributes 40% toward the total exam score. No early exams, no make-ups! Exams comprise 85% of your total course score, and will be automatically calculated as the higher score between these two options:

$$\text{Option 1: Total_Exam} = 0.2 * (\text{Exam1} + \text{Exam2} + \text{Exam3}) + 0.4 * \text{Final_Exam}$$

$$\text{Option 2: Total_Exam} = 0.2 * (\text{Two_Best_Unit_Exams}) + 0.6 * \text{Final_Exam}$$

Every unit exams: 50 minutes, the dates are given in the tentative schedule. If you miss one unit exam for any reason, Option two will automatically be used to determine your grade. A second missed unit exam will result in a score of zero for the missed exam. Final exam has to be taken!

Final: two hours - **MANDATORY**. The final exam must be taken on the date scheduled or a grade of F will automatically result. Final exam is comprehensive. Monday April 29th 2015 4:15-6:15 pm. The exact day and place will be announced.

The approximate grading scale is the following: 88.0% is the lowest A-; 75.0% is the lowest B-; 60.0% is the lowest C-; 50.0% is the lowest D

Instructor Privileges

Instructor reserves the right to make changes and adjustments to this syllabus as necessary, including, but not limited to, the grading policy and course schedule.

Homework Policy

The Home Work will be given online in the form of Mastering Chemistry at <http://www.MasteringChemistry.com> and will be graded. It is students' responsibility to follow the deadline for the submission. Tentative schedule will be given in the beginning of the semester. Late submission will result "zero" for this assignment. The suggested End-of-Chapter exercises are given but NOT graded. These exercises will be posted on Sakai with the tentative lecture schedule.

Tentative Lecture Schedule

Our actual pace and the topics may vary from this schedule. However, you must read the scheduled chapter before each class.

Week	Dates	Tuesday/Thursday
1	Jan 13,15	Intro, Solution Process (13) Solubility, Solution Concentration (13) Colligative Properties(13)
2	Jan 20,22	Colligative Properties(13), Reaction Rates (13,14) Rate Laws (14)
3	Jan 27,29	Half-Life, Collision Model (14) Arrhenius, Activation Energy (14) Reaction Mechanisms (14)
4	Feb 03,05	EXAM 1 (Tuesday Feb 03) Dynamic Equilibrium, Equilibrium Constant (15)
5	Feb 10,12	Equilibrium Constants and Concentrations (15) Reaction Quotient(15) LeChatlier's Principle (15)
6	Feb 17,19	Bronsted-Lowry Acids and Bases (15) Relative Acidity/Basicity, pH Scale (16) pH Scale, Strong Acid/Base Calculations (16)
7	Feb 24,26	Weak Acid/Base Equilibria (16); Salt Solutions (16) Common Ion Effect (17)
8	March 3,5	SPRING BREAK
9	March 10,12	EXAM 2 (Tuesday March 10th) Buffer solutions and their preparation (17)
10	March 17,19	Acid-Base Titrations (17) Solubility Equilibria (17)
11	March 24,26	Thermodynamics (19) Spontaneous Processes, Entropy (19)
12	March 31, Apr 2	Entropy, Gibbs Free Energy(19) Gibbs Free Energy &Equilibrium (19)
13	Apr 7,9	EXAM 3 (Tuesday, Apr 7th) Balancing Redox Reactions (20) Electrochemical cells (20)
14	Apr 14,16	Free Energy, Equilibrium, Nernst (20) Batteries, Fuel Cells, Electrolysis (20) Radioactivity, Nuclear Chemistry (21)
15	Apr 21,23	Nuclear Chemistry (21) Additional topics

Academic Integrity

Trust and integrity are important qualities in students. All submitted work must represent your own work and your own work only. Academic dishonesty of any kind, such as plagiarism and cheat sheets on exams, will not be tolerated. Any student caught cheating on an assignment in any way will receive a “zero” for that assignment and be reported to Chairperson of the Chemistry Department and the Dean School of Art and Science. For further information regarding the Academic Integrity policy and disciplinary procedures, refer to the Undergraduate Studies Catalog: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml.

Disability Accommodations

At times, students with disabilities may wish to avail themselves of the University’s ancillary services. Students requiring accommodations at the University need to contact the Coordinator of Services for Students with Disabilities, then provide documents and schedule arrangements with the instructor at the beginning of the term. Information is available at: <http://www.luc.edu/sswd/>

Tutoring Center

The CTAE offers several different programs each semester, including class-specific tutor-led small groups, Academic Coaching groups dedicated to general academic support, and a Study Buddy Directory for students seeking out more independent collaboration with other students in the same class or subject area. For more information refer to http://www.luc.edu/tutoring/Small_Group_Info.shtml

The Exams Procedure

Phones, tablets and any electronic devices are not permitted. You will get the Periodic Table, exam and answers form (if the exam is multiple choice questions). Come to the exam with **three** items: working **HB-2 pencil(s)**, working approved **calculator** (extra batteries are recommended), and your **Loyola ID** visible on your desk to be checked during the exam. If you are unsure whether your calculator is ACT-exam-approved, check the list at: <http://www.actstudent.org/faq/calculator.html>. All purses, bags, jackets, etc must be left at front of the room. Once the exam is distributed, if you exit the room for any reason before time is up, your exam is complete and will be collected.