

Instructor: Dr. Polina Pine

Phone 83134

Email: ppine@luc.edu

Office Location: FH-403

Office Hours: WF 12:30-1:30 pm

Best (the fastest) way to contact Dr. Pine is in person during the office hours, after the lecture or before/after the Discussion Session. If email is sent after 5pm during business days it may be answered the next day.

Lectures: MWF 11:30-12:20am FH Auditorium

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

Discussions: 013 – Th 10:00-10:50 am FH-7

014 – Th 11:30am-12:20pm FH-7

015 – Th 1:00-1:50 pm FH-7

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, nuclear 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:

1. Gaining factual knowledge (terminology, classifications, methods, trends)
2. Learning fundamental principles, generalizations, or theories
3. Learning to *apply* course material (to improve thinking, problem solving and decisions)
4. Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc)
5. Acquiring an interest in learning more by asking questions and seeking answers

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, 13th edition.

Course Materials

- Mastering Chemistry course ID: **PINECHEM102SPR2017**
- follow <http://www.pearsonmylabandmastering.com/northamerica/masteringchemistry/> for mastering chemistry assignments
- Scientific Calculator
- Color pens
- HB2 pencils
- Access to printer
- Positive attitude
- **No Taking Photos**
- **No taking Videos**
- **No Audio recording**
- **Using the computers, cell phones and tablets may be allowed only by a prior agreement by the instructor. Must be operated on silent mode during lecture and discussion.**

Please note that materials from this course cannot be shared outside the course without the instructor's written permission (as reminded by the CAS Dean's Office memo, Jan. 8. 2016).

Grading policy

Mastering Chemistry	15%
Discussions	EC (added to the following unit 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 is **based on following the format of both the Discussion Handout and Class Participation. You must attend and participate in the Discussion to get 1 point for the DH. If you do not submit the DH in person no points will be granted.** During the Discussions that do not require the submission of the DH no points are given, but the material discussed in the session is essential for the course and the exams. These points for the DH are added to the score of the following unit-exam. There will be three unit exams and one final exam. **No early exams, no make-ups for any reason!** Exams comprise 85% of your total course score, and will be automatically calculated as the higher score between these two options:

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

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

Final score = MC*0.15 + Total_Exam*0.85

Every unit exams: 50 minutes, the dates are given in the tentative schedule. **If you miss one unit exam for any reason (sickness, family event, traffic, etc.), Option 2 will automatically be used to determine your grade.** A second missed unit exam will result in a score of zero for the missed exam.

Unit-exams (see tentative schedule table): February 6th, March 1st, and April 12th

Final exam has to be taken during the scheduled time only!

Final exam: 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. Final exam for exact day and time check here: http://www.luc.edu/academics/schedules/spring/exam_schedule.shtml)

Initial schedule for the final exam is Monday, May 1st 2017 1:00-3:00 pm

No make-ups, no early dates for the exams for any reason.

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, <50.0% is F.

Graded exams will be returned as soon as possible usually within seven business days. Issues with graded exams must be submitted within 7 days of being returned, otherwise scores will be considered final.

March 27th - Last day (5:00 p.m.) to withdraw with a grade of "W", after this date, the penalty grade of "WF" is assigned.

IMPORTANT: Students wanting to drop lecture after midterm may stay in the co-req lab:

- Only if the midterm grade, in lecture, posted in LOCUS, is a D or better.
- Students must continue to attend lecture until the week of the drop date to gain as much background knowledge as possible.
- For Spring 2017 students wishing to drop lecture, and have a mid-term grade of D or better, can seek assistance from the Department of Chemistry & Biochemistry office beginning Monday March 20th at 9:00am through Monday March 27 - 4:00pm.
- Students with a midterm grade of F who decide to withdraw from lecture must also withdraw from lab.

NO EXCEPTIONS.

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 (usually the submission is once a week). Tentative schedule will be given in the beginning of the semester. Late submission will result "zero" for this assignment. **The suggested End-of-Chapter problems are given** but NOT graded. A list of Highly Recommended Textbook problems will be posted under RESOURCES on Sakai. Students must solve these problems on their own and seek for the help if needed during office hours or schedule a time around the Discussion sections based on Instructor's availability.

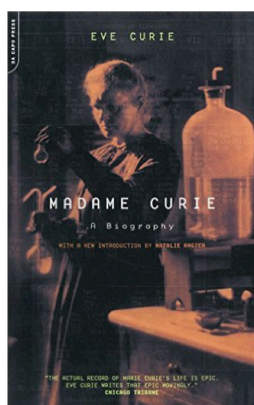
The Exams procedure

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 only: working **HB-2 pencil(s)**, working approved **calculator without a cover** (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.**

Optional Text (recommended but not required):

Madame Curie: A Biography

Author: Eve Curie

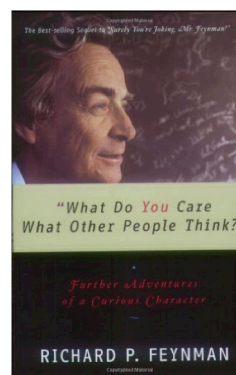
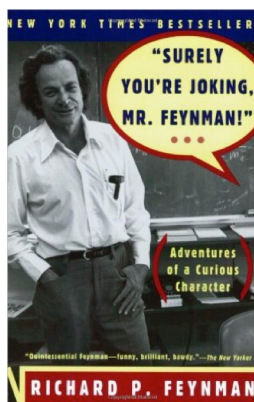


"What Do You Care What Other People Think?": Further Adventures of a Curious Character

Author: Richard P. Feynman

Surely You're Joking, Mr. Feynman! (Adventures of a Curious Character)

Author: Richard P. Feynman



Tentative Lecture Schedule is given bellow (students are expected to read the textbook before the lecture). Not all textbook sections will be fully covered, so focus first on the material that is directly covered in lecture and assigned for homework and discussion handouts.

Our actual pace and the topics may vary from this schedule:

Week	Dates	Monday	Wednesday	Friday
1	Jan 16,18,20		Intro, CH11 (11.1-11.2)	CH11 (11.2,11.4)
2	Jan 23,25,27	CH11 (11.5-11.6)	Solution Process (13)	Solubility, Solution Concentration (13)
3	Jan 30, Feb 01, 03	Solution Concentration, Colligative Properties (13)	Colligative Properties, Reaction Rates (13,14)	Reaction Rates, Rate Laws (14)
4	Feb 06,8,10	EXAM 1 (February 6 th)	Rate Laws (14)	Half-Life (14), Rate of radioactive decay (21.4), Collision Model (14)
5	Feb 13,15,17	Arrhenius, Activation Energy (14)	Reaction Mechanisms (14)	Dynamic Equilibrium, Equilibrium Constant (15)
6	Feb 20,22,24	Equilibrium Constants and Concentrations (15)	Reaction Quotient (15)	LeChatelier's Principle (15)
7	27 th Feb, March 1,3	Bronsted-Lowry Acids and Bases (16)	EXAM 2 (March 1 st)	Relative Acidity/Basicity, pH Scale (16)
8	March 6, 8,10	SPRING BREAK		
9	March 13, 15,17	pH Scale, Strong Acid/Base Calculations (16)	Weak Acid/Base Equilibria (16)	Weak Acids/Bases, Salt Solutions (16)
10	March 20,22,24	Common Ion Effect (17)	Buffer solutions and their preparation (17)	Buffer solutions and their preparation (17)
11	March 27,29,31	Acid-Base Titrations (17)	Acid-Base Titrations (17)	Solubility Equilibria (17)
12	Apr 3,5,7	Thermodynamics (19)	Spontaneous Processes, Entropy (19)	Entropy, Gibbs Free Energy (19)
13	Apr 10,12,14	Gibbs Free Energy & Equilibrium (19)	EXAM 3 (April 12 th)	Easter
14	Apr 17,19,21	Ester	Balancing Redox Reactions (20)	Electrochemical cells (20)
15	Apr 24,26,28	Free Energy, Equilibrium, Nernst (20)	Batteries, Fuel Cells, Electrolysis (20)	TBA

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/>

Students with documented evidence of the time extension must take the exams in the SSWD center ONLY with prior arrangement (usually at least one week before the exam). The start time of the exam must be the start time of the actual lecture or scheduled in such a way that the time of the exam of the student taking the exam in the SSWD center overlaps with the exam time of the class.

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

Harassment (Bias Reporting)

It is unacceptable and a violation of university policy to harass, discriminate against or abuse any person because of his or her race, color, national origin, gender, sexual orientation, disability, religion, age or any other characteristic protected by applicable law. Such behavior threatens to destroy the environment of tolerance and mutual respect that must prevail for this university to fulfill its educational and health care mission. For this reason, every incident of harassment, discrimination or abuse undermines the aspirations and attacks the ideals of our community. The university qualifies these incidents as incidents of bias. In order to uphold our mission of being Chicago's Jesuit Catholic University-- a diverse community seeking God in all things and working to expand knowledge in the service of humanity through learning, justice and faith, any incident(s) of bias must be reported and appropriately addressed. Therefore, the Bias Response (BR) Team was created to assist members of the Loyola University Chicago community in bringing incidents of bias to the attention of the university. If you believe you are subject to such bias, you should notify the Bias Response Team at this link: <http://webapps.luc.edu/biasreporting>

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