



Instructor: *Dr. Polina Pine*

Phone 83134

Email: ppine@luc.edu

Office Location: FH-403

Office Hours: M/W 12:30-1:30pm

Tu 11:00am-12:00

**During the weeks when the labs are not held
Tu Office Hours are canceled and substituted
with Fri 12:30-1:30pm**

Lectures:

Section 001 MWF 10:25-11:15am Flanner Hall-Auditorium

Section 002 MWF 11:30-12:20 am Flanner Hall-Auditorium

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

003 – M 12:35-1:25pm

004 – M 1:40-2:30 pm

005 – W 12:35-1:25pm

006 – W 1:40-2:30 pm

and one of the LAB sections: 007 - M 2:45-4:3 pm

008 - Tu 9:30am-11:15am

009 - W 2:45-4:30pm

010 - Tu 12:00-1:45pm

011 - Tu 2:00-3:45pm

Course Overview

The fundamentals of general, organic chemistry and biochemistry are discussed in the course. For success in this course, it is important that you work on problems every day and that you do not fall behind. Chemistry moves fast, and it is imperative that you keep up. It is strongly recommended that you do the practice problems in the textbook every day and ask questions of the lecturer.

The Home Work in a form of Mastering Chemistry will be given on each studied chapter in the book and will be graded (refer the Tentative Schedule for the chapter list). It is very important that you use the Mastering Chemistry resource every day. The successful completion of the course and a good grade can be successfully achieved by completing **all** the requirements of the course:

1. Reading the textbook
2. **Attending the lectures**
3. **Attending the discussion session**
4. Completing the Mastering Chemistry Assignments and Discussion Handouts
5. Completing Lab Assignments
6. **Following the safety rules**

Students have to expect to devote about 20-30 HOURS OUTSIDE OF CLASS TIME PER WEEK to studying for chemistry. Make-up assignments are not available for this course. Contact a classmate for notes, sections/topics covered if you miss a class. **For success in this course, it is important to review your notes, read the textbook and look over the slides prior and after class, work on homework problems every day. DO NOT FALL BEHIND.** Any absence or any not following the policies or announcements given in class may result in poor performance in class. **It is student's responsibility to follow the announcements, and all policies of the class.**

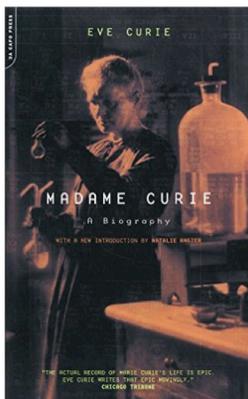
Required Text

- *General, Organic and Biological Chemistry.*
Author: Frost and Deal
ISBN:9781323246696
Publisher: Pearson Learning Solutions
- *Mastering Chemistry online access code for the above text (Required):*
Course ID: PINECHEM151F2016
<http://www.pearsonmylabandmastering.com/northamerica/masteringchemistry/>

Optional Texts (recommended but not required):

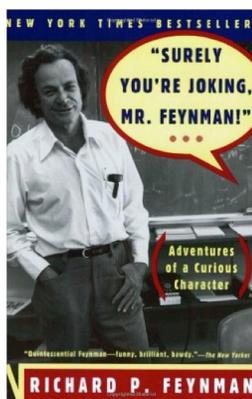
Madame Curie: A Biography

Author: Eve Curie



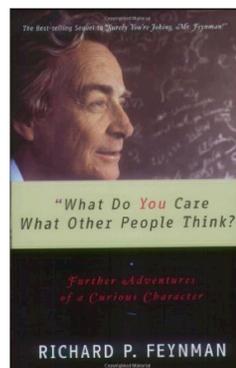
Surely You're Joking, Mr. Feynman! (Adventures of a Curious Character)

Author: Richard P. Feynman



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

Author: Richard P. Feynman



Course Materials

- 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.

All announcements, PowerPoint slides and handouts will be posted on Sakai. Students are responsible to print all related material from Sakai, check announcements and follow all instructions provided and posted by the instructor.

- MasteringChemistry online access code for the above text: **PINECHEM151F2016**
- Scientific Calculator
- Color pens
- HB2 pencils
- Lab Coat
- Periodic Table

Grading policy

Mastering Chemistry	10%
Labs	20%
Exams (higher score between two options, see below)	70%
Discussions*	EC (added to the following unit exam)

*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 the Discussion Handout and class attendance and 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. Students **must attend the discussion section and personally turn in their own discussion handout. No early and no late handouts will be accepted; students must follow the directions on the handouts.** Students are allowed and encouraged to work together on discussion handouts.

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 scores comprise 70% of your total course score, and will be automatically calculated as the **higher score** between these two options:

Option 1 (all three unit exams and final exam are calculated):

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

Option 2 (one low scored unit exam is disregarded):

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

Every unit exams: 50 minutes, the dates are given in the tentative schedule

If you miss one unit exam for any reason, Option2 will automatically be used to determine your grade. A second missed unit exam will result in a score of zero for the missed exam.

The final exam must be taken on the date scheduled or a grade of F will automatically result.

Final exam is comprehensive. Final exam: two hours - **MANDATORY**.

Section 001 **MWF** 10:25-11:15am Final Exam is scheduled for **Monday Dec 12th 9:00-11:00am**

Section 002 **MWF** 11:30-12:20am Final Exam is scheduled for **Mon. Dec 12th 1:00-3:00pm**

For the exact dates and times follow the link:

http://www.luc.edu/academics/schedules/spring/exam_schedule.shtml

All points are converted to percentages; the total grade is calculated as following:

$$\begin{aligned} \text{Total grade (out of 100\%)} &= (\text{exams grade in \% best of opt1 and opt2}) * 0.7 \\ &+ (\text{average mastering chemistry grade in \%}) * 0.1 \\ &+ (\text{average lab grade in \%}) * 0.2 \end{aligned}$$

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. (A is 100-94; A- is 93-88; B+ is 87-83; B is 82-79; B- is 78-75; C+ is 74-70; C is 69-65; C- is 64-60; D+ is 59-55; D is 54-51).

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

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.

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 odd-numbered problems given but NOT graded.

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/Labs	Monday	Wednesday	Friday
1	August 29, 31, Sep 2 Lab-introduction/ Check-in	Course Introduction, 1.1 Classifying Matter: Mixture or Pure Substance 1.2 Elements, Compounds, and the Periodic Table 1.3 Math Counts	1.3 Math Counts 1.4 Matter: The “Stuff” of Chemistry 1.5 Measuring Matter	1.5 Measuring Matter 1.6 How Matter Changes
2	Sep 5 7, 9 No lab Labor day	No Classes LABOR DAY	2.1 Atoms and Their Components 2.2 Atomic Number and Mass Number 2.3 Isotopes and Atomic Mass 2.4 Radioactivity and Radioisotopes	2.4 Radioactivity and Radioisotopes 2.5 Nuclear Equations and Radioactive Decay 2.6 Radiation Units and Half-Lives 2.7 Medical Applications for Radioisotopes
3	Sep 12,14,16 Lab1-Safety	2.7 Medical Applications for Radioisotopes 3.1 Electron Arrangements and the Octet Rule Electron configuration (Appendix 2.6-2.8) 3.2 In Search of an Octet, Part 1: Ion Formation 3.3 Ionic Compounds– Electron Give and Take	3.3 Ionic Compounds– Electron Give and Take 3.4 In Search of an Octet, Part 2: Covalent Bonding (Lewis structure)	3.4 In Search of an Octet, Part 2: Covalent Bonding (Lewis structure) 3.5 The Mole: Counting Atoms and Compounds

4	Sep 19, 21, 23 Lab 2 Measurements	3.6 Getting Covalent Compounds into Shape 3.7 Electronegativity and Molecular Polarity	4.1 Alkanes: The Simplest Organic Compounds 4.2 Representing the Structures of Organic Compounds 4.3 Families of Organic Compounds–Functional Groups	EXAM 1 (Sep 23)
5	Sep 26, 28, 30 Lab 3 physical/chemical changes	4.3 Families of Organic Compounds–Functional Groups 4.4 Nomenclature of Simple Alkanes	4.4 Nomenclature of Simple Alkanes 4.5 Isomerism in Organic Compounds	4.5 Isomerism in Organic Compounds 5.1 Thermodynamics 5.2 Chemical Reactions: Kinetics
6	Oct 3, 5, 7 Lab 4- isomerism and the shape of the molecules	5.2 Chemical Reactions: Kinetics 5.3 Overview of Chemical Reactions	5.3 Overview of Chemical Reactions 5.4 Oxidation and Reduction	5.4 Oxidation and Reduction 5.5 Organic Reactions: Condensation and Hydrolysis
7	Oct 10, 12, 14 No Lab fall break	Fall BREAK	5.6 Organic Addition Reactions to Alkenes	6.1 Classes of Carbohydrates 6.2 Functional Groups in Monosaccharides 6.3 Stereochemistry in Monosaccharides
8	Oct 17, 19, 21 Lab 5 Reaction/Vitamins	6.3 Stereochemistry in Monosaccharides 6.4 Reactions of Monosaccharides	6.4 Reactions of Monosaccharides 6.5 Disaccharides	6.6 Polysaccharides 6.7 Carbohydrates and Blood
9	Oct 24, 26, 28 Lab 6 Sugars	EXAM 2 (Oct 24 th)	7.1 Types of Attractive Forces 7.2 Liquids and Solids: Attractive Forces are Everywhere	7.3 Attractive Forces and Solubility 7.4 Gases: Attractive Forces are Limited
10	Oct 31, Nov 2, 4 Lab 7 Extraction of plant pigments	7.4 Gases: Attractive Forces are Limited 7.5 Dietary Lipids and Trans Fats 7.6 Attractive Forces and the Cell Membrane	8.1 Solutions are Mixtures 8.2 Formation of Solutions 8.3 Chemical Equations for Solution Formation	8.3 Chemical Equations for Solution Formation 8.4 Concentrations <i>(Last day to withdraw with the grade “W”)</i>

11	Nov 7, 9, 11 Lab 8 Fats and Lipids	8.5 Dilution 8.6 Osmosis and Diffusion 8.7 Transport Across Cell Membranes	9.1 Acids and Bases-Definitions 9.2 Strong Acids and Bases 9.3 Chemical Equilibrium	9.3 Chemical Equilibrium 9.4 Weak Acids and Bases 9.5 pH and the pH Scale
12	Nov 14, 16, 18 Lab 9 Dialysis	9.5 pH and the pH Scale 9.6 pKa 9.8 Buffers and Blood: The Bicarbonate Buffer System	9.7 Amino Acids: Common Biological Weak Acids 10.1 Amino Acids-A Second Look	Exam 3 (Nov 18 th)
13	Nov 21, 23, 25 No Lab-Thanksgiving	10.1 Amino Acids-A Second Look 10.2 Protein Formation	Thanksgiving NO CLASSES	
14	Nov 28,30 Dec 2 Lab 10 Acids/Bases	10.3 The Three-Dimensional Structure of Proteins 10.4 Denaturation of Proteins	10.5 Protein Functions 10.6 Enzymes—Life's Catalysts 10.7 Factors That Affect Enzyme Activity	10.7 Factors That Affect Enzyme Activity
15	Dec 5,7,9 No Lab	12.1 How Metabolism Works 12.2 Metabolically Relevant Nucleotides 12.3 Digestion	12.5 The Citric Acid Cycle—Central Processing	12.5 The Citric Acid Cycle—Central Processing

CHEM 151 Laboratory

Please note: **NO MAKE-UP LABS will be given.**

SAFTY NOTE: ABSOLUTLY NO DRINKS (INCLUDING WATER) AND FOOD (INCLUDING GUM) IN THE LAB!!!

POINTS WILL BE REDUCED FOR NOT FOLLOWING THE SAFTY RULES

There is a lab portion of this course for the lab experiments please refer tentative schedule given in the table above. There will be a total of ten experiments. The procedure for each experiment and the outline of the Pre-Lab will be passed out during the previous lab period or during the lectures on a week before the experiment. Each lab meeting will start with submission by students of the completed Pre-lab experiment to be performed that day. The Pre-lab is 30% of the experiment score. The lab report, due immediately after completion of the experiment will be worth 70%.

IMPORTANT: Students cannot start the lab if either of the following:

1. Prelab is not completed

2. The student did not read or have a lab manual

There will be a Safety and Equipment Quiz (10 questions) on the second week of lab. Please read carefully the safety protocol and equipment list, posted on Sakai.

To prepare for the quiz and first lab experiment watch the following video, which will be screened in the first lab:

<https://www.youtube.com/watch?v=VRWRmIEHr3A>

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

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>