

C101: Elementary Chemistry I

Department of Chemistry, Indiana University, Bloomington
Spring 2009

Course Syllabus

Course Number: 5773

Instructor: Dr. Michael Edwards
Office: Chemistry (A310)
E-mail: miedward@indiana.edu
Office Hours: Friday 10am - 11am or by arrangement

Associate Instructors: Names and office hours will be announced.
Office hours will be held in C046 and times will be posted in class

Class meetings: 1:25pm-2:15pm MWF in CH122

Course Webpage: <http://www.chem.indiana.edu/academics/ugrad/courses/>

Required Text: *Introductory Chemistry* by S. Russo and M. Silver
Study Guide and Selected Solutions for Introductory Chemistry
(sold as a package)

Lectures:

Your attendance at lecture is vital to your success in the course. During lectures we will discuss principles, outline goals, and present demonstrations when needed. You should read the textbook assignment **prior** to lecture and take clear notes during lecture. We fully encourage and expect student participation during lecture.

Discussion Sections: You must register for one of the following:

5774	2:30P-3:20P	T	FR C238
5775	3:35P-4:25P	T	CH 122
5779	9:05A-9:55A	R	BH242
5777	2:30P-3:20P	R	BH 144

The discussion sections are taught by associate instructors and provide you with an opportunity to ask questions. You will also be given weekly worksheets that you will work on in groups. If you complete 10 worksheets during the semester you can earn a maximum of 30 points. Take these points seriously. This could be the difference between earning an A or a B for the class.

Quizzes:

Quizzes will be given during lecture throughout the semester after completing a chapter. These are designed to encourage regular study of the material and aid the student in evaluating their mastery of the material.

Homework:*Graded homework*

You will be assigned homework problems for each chapter in the text. The problems are to be completed on-line using the CALM system (computer assisted learning method). The handout is now posted on the Chemistry Departmental website under the Academics-Course Homepages link (<http://www.chem.indiana.edu/academics/ugrad/courses/>). Your login is your username given to you by IU and a password you created. Due dates for CALM homework will be announced in class and posted on the website. If you have a problem with the computer program, please use the trouble report link on the top of the CALM page to report the problem to our computer staff.

Highly Recommended homework

In your textbook, there are problems at the end of each chapter. At the start of each chapter, I will give you a list of suggested end of chapter problems. We believe that working these problems is crucial to your success in the course.

Attendance:

An unexcused absence is an automatic zero for the exam or quiz missed. An excused absence may be granted by the instructor. If you anticipate that you will have an excused absence on the day an exam or quiz is scheduled (university function or religious holiday, etc.) you are required to make arrangements 1 week in advance of the exam or quiz date.

There are no makeup exams or quizzes for any reason. In order to accommodate for illnesses and other unforeseen circumstances, the lowest exam score will be dropped, the lowest two quiz scores will be dropped.

Academic Integrity:**Students and faculty are responsible for maintaining the academic integrity of the University.**

This will be enforced according to the *Code of Students Rights, Responsibilities, and Conduct* published by the Student Ethics Office. Examples of specific violations (i.e. cheating) are the intentional use of unauthorized study aids, equipment, or another's work on an exam. Aiding another individual during an exam is also considered cheating.

The sanctions made against a student committing academic misconduct may range anywhere from a zero on the test or assignment to a failing grade in the class to dismissal from the University. All cases of academic misconduct will be immediately reported to the Dean of Students.

Grading:

Exams 1-3 @ 100 points each (drop lowest)	200 pts.
10 Quizzes @ 15 points each (drop 2 lowest)	120 pts.
CALM Homework	100 pts.
10 Discussion Worksheets @ 3 points each	30 pts.
Final Exam	150 pts.
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Total	600 pts.

Approximate Grading Scale: These percentages roughly outline the breakdown of grades. We may lower the number of points needed for a grade, but we will not raise it. For example, 96% may end up being an A+.

A+	97-100%	B+	87-89.9%	C+	75-79.9%	D	<65%
A	93-96.9%	B	83-86.9%	C	70-74.9%	F	< 50%
A-	90-92.9%	B-	80-82.9%	C-	65-70%		

Study Hints:

- 1) Read textbook sections before coming to class.
- 2) Attend class and take thorough notes. There is no good substitute for taking your own lecture notes. If you attend lecture you will have a better understanding of the material covered and what the professor emphasized. There will be questions on the exam about topics covered in lecture that are not in the textbook.
- 3) Write down questions you have during lecture, after lecture, or while working problems.
- 4) Review lecture notes shortly after class to fill in gaps.
- 5) Work all suggested homework problems.
- 6) Study and work problems on a regular basis. DO NOT wait until the day before the test to begin studying.
- 7) Get help as soon as you begin having problems.

Sources of help:

- 1) **Instructor's office hours**
- 2) **Associate instructors in office hours** and discussion sections. AI office hours will be held in C046 for several hours each week. These office hours will be announced in class and can be found on the course website under student resources.
- 3) **A study group** of fellow students may be an effective way for you to learn.
- 4) **Tutors**
 - a) Free tutoring will be available in C046. Time TBA

Take advantage of free tutoring and earn extra credit

b) A list of private tutors who usually charge \$15/hr. is available online at <http://chemlearn.chem.indiana.edu>.

C101: Tentative Lecture Schedule

Date	Lecture Topic	Reading
M - Jan. 12	Syllabus, CALM homework, What is chemistry?	1.1, 1.2
W - Jan. 14	Matter; Chemical and Physical Properties	1.3, 1.4,
F - Jan 16	The Scientific Method/ Numbers in Chemistry	1.5, 2.1-2.3
M- Jan. 19	No Class! Martin Luther King Holiday	
W- Jan 21	Calculations in Chemistry (Unit Analysis)	2.4-2.5
F- Jan 23	Calculations in Chemistry (Unit Analysis)	2.6-2.8
M- Jan 26	What makes up matter? What is the atom?	3.1-3.4
W- Jan 28	The Periodic Table (Why is it periodic?)	3.5-3.6
F- Jan 30	Properties of the Elements	3.7
M- Feb 2	Modern Atomic Structure	4.1-4.3
Tu Feb 3	Exam 1 from 7:00 – 9:00 PM	
W- Feb 4	Line Spectra	4.4-4.6
F- Feb 6	Quantized Energy	4.7-4.9
M- Feb 9	Molecules: Covalent Bonding	5.1-5.2
W- Feb 11	Lewis Dot Structures	5.3-5.4
F- Feb 13	Ionic Bonding/Nomenclature	5.5-5.7
M- Feb. 16	Why is the shape of a molecule important?	6.1
W- Feb 18	VSEPR Theory	6.2
F- Feb 20	Polarity of Molecules and Intermolecular Forces	6.3-6.4
M- Feb 23	Intermolecular Forces	10.1
W- Feb. 25	Intermolecular Forces	10.2
F- Feb. 27	Intermolecular Forces	10.3, 10.4
M- Mar 2	Describing the Gas Phase	11.1
W- Mar 4	The Ideal Gas Law	11.2,
F- Mar 6	Ideal Gas	11.3
M- Mar 9	Types of Chemical Reactions	7.1-7.3
Tu- Mar 10	Exam 2 from 7:00 pm - 9:00 pm	
W- Mar 11	Chemical Reactions and Balancing	7.4-7.5
F- Mar 13	Types of chemical reactions	7.6
Mar 14 -22	No Class! Spring Break	
M- Mar 23	Stoichiometry	8.1,
W- Mar 25	the mole concept	8.2
F- Mar 27	Reaction Stiochiometry	8.3
M- Mar 30	Limiting Reactant	8.4
W- Apr 1	What is a Solution	12.1
F- Apr 3	Energy and the formation of solution	12.2 – 12.3
M- Apr 6	Solubilty	12.4 -12.5
W- Apr 8	What is Molarity? Percent Composition	12.6 -12.7
F- Apr 10	Reaction in Solution	12.8

Date	Lecture Topic	Reading
M- Apr 13	Colligative Properties of Solutions	12.9
Tu Apr 14	Exam 3 from 7:00 – 9:00 PM	
W Apr 15	Chemical Kinetics	13.1
F- Apr 17	Energy Change and chemical reaction	13.2
M- Apr 20	Energy Change and chemical reaction	13.2
W- Apr 22	Reaction Rate and Activation Energy	13.3
F- Apr 24	Reaction Rate and Activation Energy	13.3
M- Apr 27	What influences reaction rate?	13.4
W- Apr 29	What influences reaction rate?	13.4
F- May 1	Questions and Answers for Final Exam	

Final Exam: TBA