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CHEM 111-02, General Chemistry, Fall 2006

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Chemistry 111
General Chemistry: The journey begins...
Fall 2006

Instructor: Mauricio Cafiero, Ph.D, University of Arizona
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Class Time: Tues/Thurs :: 930AM – 1045AM

Office hours: I am here Monday through Friday from about 830AM to 500PM. You may feel free to see me anytime I am in my office and not ‘tied up.’ From time to time I may be in my lab, Kennedy 306. You may also seek me out up there. I will maintain ‘official office hours’ on MWT, 1045AM – 1130AM.

Text: *Chemistry*, by Chang

Materials: You may find that a calculator will be extremely useful in this class. If you are very clever, a simple four-function calculator will suffice, but I recommend a scientific calculator. Programmable calculators are acceptable, but you may not code formulae or notes onto them for use in exams.

A small package of tissues will be required if you plan to get a cold. You may bring a small, healthful snack to class if you wish.

Grading: Grades will be assigned based on how many points you earn through various assignments.

Exams	3 x 100 =	300
Final	1 x 150 =	150
Homework	=	150
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Total		600

The point scale will run: 90% -- 100 = A, 86.45% -- 89.45 = B+; 83.45% – 86.45 = B; *etc.* I may curve these grades downwards, but I will under no circumstances curve them upwards. You may feel free to ask me your average at any time, though by federal law it must be given in person (not over email, phone, text, aim, skype, etc).

Attendance: You are expected to attend *every* class. Excessive absence will result in a reduction of your grade. You may be absent three(3) times this semester for any reason whatsoever. **Every absence after the three allotted to you will result in a 5% deduction in your final grade.**

Extra Credit: There will be several opportunities for extra credit. Attendance at chemistry seminars will be worth 2 pts of extra credit. Other opportunities will be announced in class. I have been known to give credit for reading books, watching movies, and doing clever chemistry-related calculations. If you have a suggestion for a neat, chemistry related extra credit option, let me know!

Honor Code: Your work and behavior in this class will be guided by the honor code.

This semester starts with the simple concept, what is matter and how does it fit together? From there we go to the very specific quantum mechanical theory of chemistry (my favorite), and then we touch on a few other topics, such as thermodynamics and chemical reactions.

The purpose of this class is to get you, the student, to learn how to think quantitatively about the chemical world around you and to get you to understand the chemistry underlying our lives. Chemistry touches every part of your life, and I would like to make this course very relevant to you. If you have any questions about chemistry in your life, ask about it in class. We are game to discuss almost anything.

	Date	Topic:	Hmwk Chapter:
Thursday	August 24	What is Chemistry??	
Tuesday	29	States of Matter, Mixtures, Measurement; Handling numbers	
Thursday	31	Atomic Theory	
Tuesday	September 5	Chemical Formulae, Ions, Acids, Naming	
Thursday	7	Mass relationships; Review	
Tuesday	12	EXAM 1	
Thursday	14	Chemical Reactions	
Tuesday	19	Aqueous solutions; Acids/Bases; Precipitations; Titrations	
Thursday	21	Oxidation states; formal charges; Balancing chemical equations	
Tuesday	26	Pressure ; Gas Laws	
Thursday	28	Kinetic Molecular Theory	
Tuesday	October 3	Energy, Heat, work, and the First Law	
Thursday	5	Enthalpy, Hess's Law, Heat Capacity; Review	
Tuesday	10	EXAM 2	
Thursday	12	The old quantum mechanics ; wave/particle duality	
Tuesday	17	Fall Break	
Thursday	19	Quantum Mechanics; The H-atom; orbitals as exact solutions	
Tuesday	24	Electron configuration; orbitals as approximate solutions	
Thursday	26	Periodic Table, periodic trends	
Tuesday	31	Descriptive Chemistry	
Thursday	November 2	Intro to molecules: Lewis dot structures; The chemical bond	
Tuesday	7	Resonance; The octet rule; VSEPR Theory	
Thursday	9	linear and non-linear optical properties; hybrid orbitals	
Tuesday	14	Molecular Orbitals; intro to modeling; Review	
Thursday	16	Orbitals pre-quiz	
Tuesday	21	EXAM 3	
Thursday	23	Thanksgiving Break	
Tuesday	28	Intermolecular forces and bulk properties	
Thursday	30	Phase changes and diagrams;	
Tuesday	December 5	Review	
Fri-Wed	8-13	Final Exams	