

**Required Notes:** Full copy of class lecture notes (includes 2 yrs of previous homework assignments & exams with answer keys) are posted on Prof. Stanley's web site (free download). Black & white hard copies will be sold by the Chemistry Graduate Student Council the first week of classes with an estimated cost of \$25 (available from Prof. Stanley after that). I strongly recommend that you use a printed set of notes in class and annotate them with additional information presented during lecture.

**Recommended Text:** any General Chemistry book (see me if you have questions as to the suitability of a specific textbook)

**Internet Web Site:** <http://chemistry.lsu.edu/stanley> Helpful information!! Class notes!! Assignments!! Announcements!!

**Exams:** There will be *three* 80 minute "hourly" exams during class and a comprehensive group final exam jointly prepared by professors teaching 1202 sections. Make-up hourly exams are available to students who have legitimate medical excuses or other reasons that are up to me to decide whether I will allow you to take a make-up exam. In order to be considered for a make-up exam you MUST contact me within 24 hrs of the exam. I can factor a missed exam (& homeworks, quizzes) out of your final % grade under special circumstances (once again up to me to decide). There are two make-up Final exams, but you need to get permission from your Dean to take the make-up Final.

The overall grading percentages are shown below:

**Three hourly exams** (dates could change): **30%** (100 pts each, total of 300 points), **Sept 28, Oct 26, Nov 30**

**Final Exam:** **25%** (250 pts), **Weds, Dec 13, 7:30-9:30 AM**

**25 in-class Quizzes** **15%** (6 pts each, total of 150 points)

**Homework:** **30%** (10 homeworks @ 30 pts each, total of 300 pts)

**Bonus Homework assignment:** **40 pts bonus (max)**

**1 or 2 bonus quizzes:** **6 or 12 pts bonus (max)** *Bonus points can be revoked for poor class behavior*

**Quizzes:** There will be 25 regular in-class quizzes -- usually one per lecture. Each quiz will consist of a relatively simple question on the material being lectured on. Blank quiz sheets will be available at the beginning of each class to be used for each daily quiz -- pick one up and fill in your name (printed & signed) when you enter the classroom. The quizzes serve several functions: 1) you will learn more if you come to class and this allows me to determine attendance; 2) they minimize talking and not paying attention in class -- a pop quiz helps motivate you to focus on the lecture; 3) I get important feedback on what you are learning (or not learning) in class.

**Homework:** There will be 10 graded homework assignments for this course (several may be combined into "double" 60 pt homework sets). Students can work on the homework together in study groups of one to six (or more). **Each student in a study group, however, must turn in their own hand-written copy of the homework.** Each study group should hand in the names of the students that will be involved in that study group by **Friday, Sept 1<sup>st</sup>**. Sheets of paper with element names will be handed out in class and posted on the bulletin board outside my office. Groups will be referred to by the assigned **element names** (please use the full element name, not the symbol on your homework). Homework's handed in late (without medical or other official justification) **will lose 10 points per day turned in late (20 pts/day for double credit assignments).** **Once I post the answer key for a homework, however, I will not accept that homework assignment.** Students who want to work alone should still sign up on an element sheet and work as a group of one. **Failure to sign up for an element group may result in loss of some or all available bonus points.** You are welcome to change groups at any time -- just let me know if you switch groups.

**Class Discussion:** I will be asking questions in class to study groups and calling on them by their study group **element name** (so please remember your study group element name!!). The group (if sitting together) will be able to discuss the question and answer as a group. **I, therefore, suggest that study groups try to sit near one another in class.** When I ask your group a question, you will be allowed a short period of time to discuss the question and answer it. A bonus credit "reward" for good class discussion will be given based on 1 or 2 extra in-class "bonus" quizzes (availability dependent on class behavior).

**Bonus Homework Assignment:** There will be one bonus homework service-learning assignment worth a maximum of 40 points. **It will involve visiting a K-12 class and performing a set of themed science/chemistry demonstrations for that class (LSU ChemDemo program).** The teacher in the class will evaluate your teaching skills and give you up to 20 points for your presentation. You are also required to type a 2-4 page essay on your experience in the classroom performing the ChemDemo -- this will be worth a maximum of 20 points. Extra points for this may be made available. Details on this bonus homework assignment will be handed out separately. Group members that visit K-12 classrooms together can work together on the bonus essay, but I expect the essays to be somewhat different and for you to put in your own personality and perspectives into the essay.

**Grading Scale: NO CURVE!!** All grades will be posted on Semester Book.

<b>A = 100-90%</b>	<b>B = 89-80%</b>	<b>C = 79-70%</b>	<b>D = 69-60%</b>	<b>F = below 60%</b>
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**Office Hours:** I have open office hours so feel free to stop by anytime except: *lunch (12-1 PM), Fridays after 3:25 PM (we usually have departmental seminars), and 30 mins before lecture.* I will announce other times when I know that I will not be around. If my office door is closed, I am not around or extremely busy! If you see me talking to someone in my office, you may interrupt if you have a brief question or wish to turn something in to me. Otherwise, please show good manners and wait or come back a little later. Please feel free to call before coming over to check if I am around. I have an answering machine so feel free to leave a message. **I am more than willing to make specific appointment times to meet with you -- even on evenings (not late) and weekends!**

**Exam Help/Review Sessions:** There will generally be 2 help/review sessions immediately prior to each exam (on Tuesday and Wednesday) at times and locations to be announced. I review homework assignments and answer questions about the lecture material, previous homeworks, and exams. There will also generally be 2 help/review sessions scheduled before the final exam.

**Class Rules:** Because of the large class size there is often excessive talking in class leading to complaints from students. Believe it or not, many students actually do come to class to listen to the lecture and learn the material. I expect everyone in class to respect everyone else's rights. I work extremely hard to present an educational and entertaining lecture. Correspondingly, I expect you to pay attention to what I am saying and to make an honest effort to learn the material and complete assignments on time. **Failure to do so will result in loss of all BONUS points available to you. Continued violations will result in your ejection from the class. I also despise cheaters and will prosecute students caught cheating to the maximum extent.**

**Grading:** Everything (except for the Final Exam) in this course is hand graded by chemistry graduate students and myself: quizzes, homeworks, and hourly exams. I prepare and hand out detailed answer keys for all the homeworks and exams. **Grading mistakes are routinely made (but not on purpose).** It is your responsibility to carefully and promptly check your homework and exams for grading errors. This includes such mundane things as checking to see if the points are added up correctly. **I am MORE THAN WILLING and actually enjoy polite, logically constructed arguments (backed up with facts and a firm working knowledge of the answer key) about why my graders (or I) took too many points off and why you should get points back. I routinely give back many points under this situation. You have one week to bring an assignment back to me for a re-grade!!** So it is important that you pick up your assignment and answer key and review it **thoroughly and promptly.**

It is also **critically important** for you to carefully review *all* questions with the answer key (even the ones marked correct) and present your case for *all* questions that you have concerns with during your meeting with me. I am not happy with students that come to my office with a concern about one question, then return 5 minutes later with a concern about another question, then stop back 5 minutes later with another fishing expedition question. I am **especially unhappy** with students that immediately run into my office after picking up a test or homework and ask me why X points were taken off when they **haven't even thought about it or carefully studied the answer key to see what I consider the correct answer to be.** Depending on the situation, **during a re-grade I will consider taking points off for questions marked correct that are actually wrong!** I am usually nice about this (i.e., will not nail you for a wrong answer that wasn't marked wrong), but I have the right to ensure that all the grading is correct.

## Material Covered in Class (outline):

### Thermodynamics

The Nature of Energy, The First Law of Thermodynamics, Enthalpy & Enthalpies of Reaction, Calorimetry, Hess's Law & Enthalpies of Formation, Second & Third Laws of Thermodynamics, Entropy & Entropies of Reaction, Gibbs Free Energy, Free Energy & Temperature, Free Energy & the Equilibrium Constant

### Kinetics

Activation Barriers & Factors that Affect Reaction Rates, Reaction Rates, Temperature & Rate, Arrhenius equation, Concentration and Rate, Change of Concentration with Time, Reaction Mechanisms, Catalysis

### Equilibrium

The Concept of Equilibrium, The Equilibrium Constant, Calculating Equilibrium Constants, Heterogeneous Equilibrium, Applications of Equilibrium Constants, LeChâtelier's Principle, Solubility Equilibria, Common Ion Effect,

### Acid-Base Equilibrium

Acids & Bases, Brønsted-Lowry Acids and Bases, Autoionization of Water, The pH Scale, Strong Acids & Bases, Weak Acids & Bases, Relationship between  $K_a$  &  $K_b$ , Acid-Base Properties of Salt Solutions, Acid-Base Behavior & Chemical Structure, Buffered Solutions, Acid-Base Titrations,

### Electrochemistry

Oxidation-Reduction Reactions, Balancing Oxidation Reduction Equations, Voltaic Cells Cell EMF, Spontaneity of Redox Reactions, Effect of Concentration on Cell EMF, Batteries, Corrosion