Objectives: Students will develop an understanding of the chemical processes carried out by all living things. Students will demonstrate mastery of the material by solving written and lab problems on these topics and by being able to describe the major chemical jobs that living things perform. Emphasis is on kinetic and equilibrium approaches to solve problems. This course is designed for non-science majors.

Instructor: Dr. Rick J. Krueger
E-mail rkrueger@uscupstate.edu   web page: http://faculty.uscupstate.edu/rkrueger/   phone# 503-5714
Class Meetings: Lecture M-Th 12-2:30, Rec/Lab: sec 01: T-Th 8-11AM & sec 02: 2:40-5:40
Materials Casio fx-260 solar calculator  Required for laboratory: Chemistry 109 Lab Manual, Z87 safety goggles ($ ???? at USC Upstate Bookstore), and appropriate clothing for lab. Purchase access to Sapling Learning

Class Organization: The purpose of the lecture is to present topics in sufficient detail for students to be able to solve basic chemistry and biochemistry problems. Recitation will be used both to present new material in the form of written modeling or problem based exercises and to provide practice on problems introduced in lecture. A minor aspect of recitation will involve review of previous laboratory work and brief introductions to future laboratory experiments. The laboratory exercises are used to reinforce the principles developed in lecture, and to acquaint students with some of the techniques used in a chemistry lab.

Recommendations for success in CHM 109
1. Read the assigned material before you come to lab/recitation/lecture.
2. Ask questions during lecture, recitation, and lab when you do not understand.
3. Do practice problems on web page and the assigned homework questions.
4. Get help with the questions you did not understand. Help sessions!
5. Go over the practice problems ~5 days before the exam. Allow enough time to develop understanding in weak areas identified from homework & the practice problems.
6. Get help on anything you do not understand.
7. Carefully review your graded exam when it is returned to you. If you still do not know how to answer an exam question at this stage, see me or others for help.

CHM 109 is likely to be a relatively labor intensive and to be different than other science courses you may have taken! How will it be different?

(Discussed in lecture)
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red = lecture, blue = lecture related optional help sessions, black = lab

Note: The final exam will be at the indicated time ??? on ???

It may be necessary (for quality assurance?) to videotape some lecture sessions, including exams.

Last day to withdraw (or change to audit) without penalty (05/22/14)
CHEM 109 Topics List

1. Introductions-personal
2. Introduction to the course. PKU: example of the use of science to improve human health
3. Science: How is it conducted?
4. Chemistry: What do chemists study?
5. Measurements: Why are they important?
6. Atomic structure (with an aside on stability) Which elements are stable as individual atoms?
7. Formation of molecules and molecular & ionic compounds. (Examples: O₂, CO₂, & NaCl)
8. The states of matter: gas, liquid, & solid (including kinetic molecular theory & weak interactions)
9. Solutions
10. Chemical reactions
11. Kinetics
12. Equilibrium
13. Acid-base chemistry (mostly equilibrium)
14. Introduction to biochemistry (with an aside on the structure of liquid H₂O)
15. Protein structure and function (the two are closely related)
16. Nucleic acids
17. Carbohydrates
18. Lipids & membranes
19. Genomes
20. Evolution (with a sub-text on science & society)
21. Review

End note: Thermodynamics is an important area of chemistry that helps us understand many things that are important in human health, and therefore, modern medicine. Because of the background of students taking this course and the time constraints we will not have a separate section on thermodynamics. Instead we will dip into the subject for brief periods throughout the semester.
Explanation of Grade Determination and Exam Structure

Grade determination. You will receive number grades for all work you do during the semester. The sum of these numerical grades will be used to assign the letter grade that goes on your transcript.

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<tr>
<th>ACTIVITY</th>
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<tr>
<td>Homework</td>
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<td>Exam I</td>
<td>16</td>
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<td>Exam II</td>
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<td>Final Exam</td>
<td>27</td>
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<td>Quizzes</td>
<td>4</td>
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<td>Laboratory</td>
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<td><strong>Total</strong></td>
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Anticipated curve: A ≥ 88, B+ ≥ 85, B ≥ 78, C+ ≥ 75, C ≥ 68, D+ ≥ 65, D ≥ 58

Lecture attendance policy: You must be present for the lecture exams and final. Beyond that, there is a lecture attendance policy only for the first 6 days of class. You may miss one lecture of the 1st 6 without penalty. Each unexcused absence beyond that results in a 2 point loss from your total grade. Please note there is a very strong correlation between attendance and grades. That is, students that attend lecture regularly are much more likely to get a high grade in the class that students that do not attend regularly. Lecture related quizzes usually occur during the later part of the semester (see below). You cannot make up any lecture quizzes that you miss.

Lab and recitation policy issues are described in the lab syllabus.

Homework, Exam, etc. details.

1. Homework. Homework assignments will be designed either to test your understanding of a subject or to test whether you can identify terms, figures, etc. that have been covered in lecture or outside work. The policy for grade reduction on late homework is: 20% subtraction of credit for work that is less than 4 days late. No assignments will be accepted after graded work is returned to the class or that are more than 4 days late, whichever comes 1st. Assignments must be submitted as hardcopy. Comment re. Sapling, Careful re. copying!!!

2. Exams I and II. The main objective of these exams will be to test your understanding of the concepts and problems in the indicated chapters. Generally, the emphasis will be on problem solving, not memorization. However, for the more descriptive areas (e.g., metabolic processes), more memorization is required. If you have missed an exam for a legitimate reason, you will be permitted to take a cumulative makeup exam outside of lecture time during the week of 6/09. A legitimate reason for missing an exam would be physical illness (not just a runny nose) or severe emotional trauma, such as the death of a close relative. Documentation for your absence may be required. As soon as you suspect that you may not be able to take an exam, contact me by phone or e-mail to make sure that your absence from the exam is for an appropriate reason. There is no option to drop either midterm exam.

3. Final exam. The final exam will be cumulative, but will have a slightly heavier emphasis on week 6, since you will not have a midterm exam covering this material. It will generally emphasize problem solving and understanding more than memorization, but see above (#2) regarding the more descriptive subjects.

4. Quizzes. These will be very brief, unannounced, and designed to determine whether you have read assigned material before coming to class. Lowest quiz score will be dropped. These cannot be made up if missed.

5. Lab/recitation. See lab/rec syllabus. Turning in a lab report for a lab you did not attend is considered a violation of the student honor code.

6. Missed work. A zero is assigned when work is missed due to an unexcused absence.
Attendance: Required at 1st 6 lecture meetings. Loss of one percent of total grade for each lecture missed during this period over 1. After the first 6 meetings, attendance is not mandatory at lecture except for exams. However, you are responsible for all material covered during lectures that you miss, and if you miss a lecture without a good reason (see above under Exams I & II) for doing so, it would be inappropriate to ask your instructor to fill you in on what was missed.

Electronic resources
The usefulness and truthfulness of materials posted on the world wide web varies tremendously. While we will refer to some web resources, always consider the purpose/quality of the source when using it to draw conclusions.

Civility/Behavior guidelines: civility- politeness, consideration, courtesy.
Items related to lecture and (usually) recitation: Also see the USC Upstate 2010-2011 Catalog, p. 45.
1. Get to class on time. If you are late, try to sit near the door. Do not walk across the front of the room if seats are available in the back or sides.
2. When class starts turn your full attention to class. Talking once class starts is not appropriate.
3. I very seldom end class early or run over the allotted class time. Do not start shuffling papers, loading your book bag, etc., before class ends. The noise disrupts class.
4. If you know that you will need to leave class early for any reason (e.g. doctor’s appointment, childcare) sit near the door to minimize disruption when you leave.
5. Turn off all electronic devices (cell phones, beepers, watches, CD or tape players, etc.) that generate sound when you come into class. Cell phone, pager, etc. use is prohibited during exams. Do not even have them out on your desk.
6. Do not sleep in class. Even if you don’t snore, this is rude. So is yawning when you make no attempt to yawn unobtrusively. Sleeping, reading a newspaper or novel, or any activity other than being fully involved in the class is inappropriate.
7. Dress code: On exam days you may not wear sunglasses or a hat (an example would be a baseball cap) that has a bill or brim in the front. (I will allow exceptions for medical/religious reasons.) There are also safety-related dress requirements for lab (see safety video and lab packet).

Remember: The reason that all of this is necessary is that you are not the only student in class. The other students have paid a lot of money to be here. You are hurting their education and perhaps eventually their ability to make a living if you are disrupting class.

Regarding getting along with your instructors in CHM 109:
1. Please communicate, particularly if you don’t understand or if something is bothering you. Outside of class, email will often get a more rapid reply from me than will phone calls.
2.a) You are paying for part of my time, so use it, but please use it efficiently!! Have your questions organized when you come to see me during office hours. The more efficiently you use my time, the more I will be able to help you.
   b) While I encourage you to stop by my office when you have questions, my job description is only 50% teaching. I have set aside Monday and Friday for research and service. Avoid contacting me on those days except in case of emergency.
Disability Issues
If you have (or suspect you have) an academically relevant disability, please see the Office of Disability Services to set up the paper work and make sure that we can accommodate your disability appropriately. Remember that you must have approval of the Disability Services Office for each semester, and you must discuss with them any services that you require for CHM 109.

Academic Honor Code Issues
The USC Upstate Academic Integrity Code can be found in the USC Upstate Student Handbook. Please refer to the Handbook if you are unfamiliar with the Code. Also see the USC Upstate 2012-2013 Catalog, p. 45.

While the faculty anticipate that you will apply the Academic Integrity Code to all areas of the course, we have noticed in previous years that some Homework assignments & lab reports do not appear to have been prepared independently. To clarify: 1) If you performed an experiment as part of a group, your data should be the same as other students in the group. 2) However, if a large amount of other portions of your lab report is identical to that of another student, the simplest explanation for this is that copying was involved in preparation of at least one of the reports. 3) Even if a question in the lab report asks for an answer that could be given by quoting the explanatory material given with the lab (or from the textbook), do not copy the answer verbatim. Even using quotes and a citation is not appropriate. Instead, restate the information in the answer using your own words.

Do not copy homework assignments or lab reports from other students and do not let other students borrow your work, as their copying of your work could compromise your academic integrity.

If you have uncertainty at any time about whether a piece of work or particular activity might be a violation of the Student Honor Code, ask! For copying associated with lab reports, students usually receive a warning for the first offence. Depending on the nature of the first offense, credit for that work may be reduced. A second offence usually is taken first to Dean of Students and then Honor Court. In past semesters students have received an F for the entire course for a second violation associated with lab work.

USC Upstate has recently added the XF grade. This goes on the official transcript and indicates that the student has failed the course as a result of an honor code violation. Please consider the effect this would have on a potential employer as you consider your approach to the course this semester. A student in one of my previous CHM 109 sections has received an XF grade.

Calculators and Proficiency in calculator use:
You will need to purchase the calculator (Casio fx-260 solar calculator) that you will use for the two midterm exams and the final exam. You will have opportunities in recitation to practice using these calculators prior to the exams. Cost as of 5-14-13: $8.89 (http://www.officeworld.com/Worlds-Biggest-Selection/CSOFX260SOLAR/13Q1/). If you don’t have a calculator for the exams, you may borrow one, but there will be a 5% point penalty. If your calculator malfunctions during the exam, you may borrow one with no penalty.