First up – thermodynamics! You have already seen some thermodynamics in 161, when you covered enthalpy and heat. In 162, we introduce qualitative and quantitative aspects of entropy and Gibbs’ free energy. Then, we transition to chemical equilibrium, at which point we define this unique (and key!) concept and also learn basic problem-solving. The next set of lectures applies what you have learned in Ch. 18 & 14 to acid-base chemistry. We define strong and weak acids and bases and also cover concepts such as the relationship of molecular structure to acid (or base) strength. Among the topics in Ch. 16 are titrations & buffer chemistry. We also discuss solubility equilibria, as yet another application of “chemical equilibrium”. Sharpen your pencils and dust off your calculator for this section!

Concepts in chemical kinetics, such as rate laws, the integrated rate law, and collision theory, are discussed. We work basic kinetics problems and show how the experimentally derived rate law can be used to determine feasible reaction mechanisms. We finish the semester with a review of oxidation-reduction chemistry, leading to our final topic, electrochemistry. We’ll discuss the galvanic & electrolytic cells and talk about the quantitative relationships with thermodynamics.

I. GENERAL INFORMATION:

- The Tutorial Room is located upstairs and is a good place for you to seek help. The TA’s will be available to provide help with lecture and lab material. Schedule TBA.
- Course Prerequisite: “C” or better in CHEM 161.
- Student Learning Outcomes for CHEM 161-162 are posted online (www.chem.hawaii.edu).

II. TENTATIVE SCHEDULE OF TOPICS:

- **Ch. 18** – Thermodynamics
- **Ch. 14** – Chemical Equilibrium
- **Exam 1** – Chapters 18 and 14

Ch. 15 – Acids and Bases
Ch. 16 – Equilibria in Solutions of Weak Acids & Bases
Ch. 17 – Solubility Equilibria
**Exam 2** – Chapters 15-17

Ch. 13 – Chemical Kinetics
**Exam 3** – Chapter 13

Ch. 5 – Oxidation-Reduction Reactions
Ch. 21 – Electrochemistry

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III. EXAM SCHEDULE and GRADING.

- **Exam 1**: Tuesday, September 22, 2009 25%
- **Exam 2**: Tuesday, October 27, 2009 25%
- **Exam 3**: Thursday, November 12, 2009 15%
- **FINAL**: Thursday, December 17, 2009 (9:45-11:45 a.m.) 35%
- 100%
IV. EXAMS.

1. **The exams cover material from the lectures, reading assignments, and homework problems.** Exams 1 & 2 will each include approximately 20-22 questions. Exam 3 will contain 12-15 questions. More details about the exam content will be given in class.

2. **The Final Exam is cumulative, with emphasis on the material covered since Exam 3.** In a typical Final Exam (35-40 questions), more than half of the test will be taken from Redox and Electrochemistry. The remaining questions will be based on material from Exams 1-3. More details about December’s Final Exam will be provided as we approach the end of the semester.

3. **Exams are computer-graded, multiple-choice tests (closed-book and closed-notes).**

4. **For each exam, you will need a #2 pencil with eraser, a calculator, and a government-issued picture ID** (UH student ID also ok). Calculators may not be shared. You must use an electronic object designed specifically and solely for calculation (i.e., not your fancy cell phone). Use of all other electronic devices, such as cell phones and cameras, are explicitly prohibited during an exam.

5. **You will have a (new) seat assigned to you for each of the four exams.** Please do not call me, the TA’s, or the Chemistry Department for your seating assignment.

6. **We'll use the entire class period for each exam.** We begin the class period on time. Because you can use the entire period for the exam, you should make the most of the time allotted. After you submit your scan sheet, you will not be allowed to change any of your answers. No time extensions will be given to latecomers. If you are more than 20 minutes late for an exam, you may not be allowed to take the exam (and you fail the exam).

7. **You'll receive your score for Exams 1-3 by email.** I will use the email address provided by MyUH. If you don’t want to get your score by email, you must let me know as soon as possible.

8. **There are no “makeup” exams for Exams 1-3.**

9. **If you miss (or will miss) an exam, you must see me, in person, to discuss your absence.**
   - If you have some advance notice that you will be out of town, then please let me know as soon as possible, so we can make arrangements for an early exam.
   - If something bad happens on the day of the exam, it’s fine to give me a call or send an email. However, you must see me, in person, as soon as you are able to return to classes. Conditions of an “excused absence” are discussed at that time.
   - Whether you know in advance or have an emergency on the day of the exam, be advised that you will be asked to provide written verification (doctor’s note for illness, police report for traffic accident, athletics department for tournament, etc.). You must have a very good reason for missing an exam.

10. **Academic dishonesty will not be tolerated.** Acts of academic dishonesty include, but are not limited to, giving or receiving unauthorized assistance during an exam, obtaining unauthorized information about an exam before it is given, submitting another’s work as one’s own, using prohibited sources of information during an examination, and altering answers after an exam has been submitted. Such acts will result in the appropriate actions in accordance with the University of Hawaii’s policy on student conduct and academic honesty.
   - In event of a room or building emergency, such as a fire alarm or bomb threat, we will meet at the front of Bilger Hall. (Rain or shine!)
V. GENERAL COURSE INFORMATION. Chemistry is interesting and relevant to nearly every part of our lives, and I hope that we can help you learn the fundamentals of this most amazing and exciting science. To this end, I have put certain policies into effect that will help me run this class successfully. These class policies and my advice for your success in CHEM 162 follow:

1. Success usually comes with regular attendance and timely completion of reading and problem assignments.
   - Many students find my lectures to be helpful in learning the material. I lecture with PowerPoint.
     - My PowerPoint files will not be made available outside of class or on the internet.
     - My lectures shall not be recorded without my permission (given only in unusual situations).
     - If you want to hear what I have to say, then come to class.
   - At the start of every lecture, I'll give you the reading assignment and the homework problems that go with the day's lecture, as well as the reading for the next class.
   - It's very important to read the book.
     - Read the sections before you hear my lecture. Ask yourself:
       - What are the main ideas in these sections?
       - Are there equations that seem to be particularly important?
       - Are there problem-solving skills that are highlighted?
       - Does the text refer back to a previous chapter? Do you feel like you need a review?
     - After my lecture, look at your notes and then, again, read the chapter. Some students like to highlight or outline the chapter, too. Others like to rewrite their lecture notes at this stage. You will see that certain concepts, problems, etc., are emphasized more than others.
     - Before the exam, look at your outline and/or your highlighted text one more time as part of your review.
   - It's very important to do the homework problems in a timely fashion.
     - Do the homework problems. Please folks – reading the solutions manual or looking at your friend's homework problems does not really count as “doing” homework.
     - Try the homework problems shortly after I cover the material in class, so everything I discussed in class is still “fresh” in your head.
     - If you don't understand, bring your questions about the homework problems to a TA or to me.
     - If you keep up, then the workload will be very manageable. If you wait until the weekend before the test, you might find yourself to be overwhelmed & very stressed-out. Plus, most of us do not retain things very well if we cram (& the Final Exam is cumulative).

2. Seek help when you have questions.
   - The General Chemistry TA's will staff the Tutorial Room until the end of the Finals Week. You should see your lab TA with 162L questions, but all of the TAs in the Tutorial Room should be able to answer your questions about the lecture material in this class.
   - You are always welcome to approach me after class is over with your questions or concerns.
   - You don't need an appointment if you come to see me during regular office hours. I usually answer questions about the lecture material and homework during Office Hours, but you can also see me to talk about other course-related matters.
   - If you have another class/work/etc. during my regular office hours, then please ask about setting up an appointment with me.
   - You should prepare for your visit to my office by writing down specific questions about the homework problems or lecture material, if possible.

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3. **The most efficient way to communicate with me is face-to-face.** Email and phone are okay in some instances, but please don’t forget the usual courtesies if you choose to use them.

4. Any student who feels s/he may need an accommodation based on the impact of a disability is invited to contact me. I am happy to work with you and the KOKUA Program (Office for Students with Disabilities) to ensure reasonable accommodations in this course. KOKUA can be reached at (808) 956-7511 or (808) 956-7612 (voice/text) in room 013 of the Queen Lili‘uokalani Center for Student Services.

5. **Let’s work together to create an optimal learning and working environment.**

   I know it’s not easy to be a student in a big class, but there are ways to make this experience effective and (hopefully!) enjoyable. However, I need your collective and individual help.

   - Minimize conversation with your neighbors when I am lecturing.
   - Keep the other stuff quiet, too - cell phones, music players, etc., can all be very distracting to the others around you. If it’s important to surf the web, text-message, & listen to music while I lecture, then you may want to re-examine your motivation to attend class in the first place.
   - This class starts at 10:30 and ends at 11:45. I will try my best to start and end on time.
     - Please try to be ready to start at 10:30. You might have to be late once or twice, due to things beyond your control. Better to come to class a little late than not at all! However, if you think you might be regularly late, please let me know, as a courtesy.
     - Once you get here, you should plan to stay until 11:45 (or until I am done). If you need to leave early, please sit by the door and also let me know. I would definitely appreciate it, if you could take steps to be courteous to me and the others in this room.
     - In a few unfortunate cases, something happens during a lecture. Examples of such an emergency are suddenly feeling sick or urgent message from a family member. In these cases, you should just quietly excuse yourself & deal with your emergency. However…
     - **It is rude to disrupt this class with an early exit.** In past years, I have observed that there are always a few people who disrupt the lecture by leaving early, often from front-and-center of the auditorium. Most of these people are repeat offenders, so I know there’s no emergency, and there’s never any advance notice, either.
       
       To those of you who need it, please heed today’s gentle reminder to refrain from such selfish & obnoxious behavior, while you are enrolled in my class. (Many thanks in advance from your fellow students and me!)

6. **Please let me know, if you have questions about the course.** Now, let’s get started…