Course Credit: 4 Quarter Hours

Course Description: This course is appropriate for both science and non-science majors, and it is designed to introduce students to basic concepts in chemistry. Whether science or non-science majors, students will learn basic chemical principles that help to understand biological phenomena, other natural (e.g., geologic, environmental) processes, and industrial processes that are important to human life. The course content will build upon concepts taught in the first two quarters of general chemistry (CH 221 and 222) and will cover the following topics: 1) basics of acid/base chemistry and pH, 2) buffers (acid/base chemistry continued) and solid equilibria, 3) thermodynamics and free energy, 4) electrochemistry, and 5) nuclear chemistry. Throughout the course, Dr. Goforth will make every effort to relate these topics to things you already know, love, and care about, which will emphasize the practicality of learning and understanding concepts in chemistry.

Prerequisites: General Chemistry 221 and 222, Math 111 (equivalent of pre-calculus) or higher.

Instructor: Dr. Andrea M. Goforth, Ph.D.
Office: 207 A (enter through 207), Science Building 1
Email: agoforth@pdx.edu
Telephone: 503-725-5862

Lecture: Mondays, Wednesdays, and Fridays, 10:15 - 11:20 am, Hoffman Hall
Office Hours: Mondays, 3:00-5:00 pm, and Fridays, 1:00-3:00 pm; others available by appointment
Exam Dates: Friday April 20 (Midterm Exam 1), Wednesday May 9 (Midterm Exam 2), Wednesday May 30 (Midterm Exam 3). I do not anticipate changing these. Changes will be posted on D2L with 5 days advanced notice.
Chapter Homework Sets: Will be due by 11:59 pm on their respective due dates, which will be ~3 days prior to the Chapter Exams. Required Chapter Homework Sets will be posted on the Mastering Chemistry online system. Due dates will be announced in class and on D2L. Successful completion of Chemistry Workshop will count for homework credit, in lieu of Mastering Chemistry.
Final Exam Date and Time: Wednesday, June 13, 10:15 am – 12:05 pm

Required Access to Online Homework System: Mastering Chemistry, Pearson, www.masteringchemistry.com. If you did not receive an access code with your book, you can purchase it at the website under the Support Tab followed by the FAQs for Students Tab. To register for this course, enter our course code, MCGOFORTH62446.
**D2L Access/PSU WebMail Access:** To keep up with important course announcements (due dates & scheduling changes, handouts, suggested assignments, etc.), you must have access to PSU’s D2L System, which can be linked to this course while you are enrolled in it. Also, when e-mailing Dr. Goforth concerning this class, please use only your PSU e-mail account. I will not guarantee that I will answer e-mails from other accounts; to make sure yours is read, use your pdx.edu account. I DO NOT answer emails sent to D2L only, please send them to me directly at agoforth@pdx.edu.

**Brief Course Outline:**
1. Acids and Bases (Chapter 15, Tro)
2. Aqueous Ionic Equilibria (Chapter 16, Tro)
3. Free Energy and Thermodynamics (Chapter 17, Tro)
4. Electrochemistry (Chapter 18, Tro)
5. Radioactivity and Nuclear Chemistry (Chapter 19, Tro)
6. Transition Metals and Coordination Chemistry (Chapter 20, Tro)
7. Final Exam (Chapters 15-20, Tro), Date: Wednesday, June 13, 2012, 10:15 am-12:05 pm

**Grading:**

A: 94-100%, A-: 90-93%, B+: 87-89%, B: 84-86%, B-: 80-83%, C+: 77-79%, C: 74-76%, C-: 70-73%, D+: 67-69%, D: 64-67%, D-: 60-63%, F: <60%

The letter grade will be determined using the following formula: (number of accumulated points/total possible points) x 100%. The total number of possible points will be 450. The distribution of these points by assignment is listed below. Both your lowest Chapter Midterm Exam score and your lowest Chapter Homework Set score will be dropped.

**Exams** (3 Exams at 100 points/each, lowest dropped): 200 points
**Final Exam** (1 final exam, Wednesday, June 9, 10:15 am – 12:05 pm): 150 points
**Online Problem Sets or Chemistry Workshop** (5 graded sets at 20 points/set): 100 points

**Late Work and Exam Scheduling Conflicts:** Because of the drop/replace system for Midterm Exams and Homework Sets, no student will be allowed to make up a missed Midterm Exam or submit a late Chapter Homework Set without prior approval. Exceptions may be made for emergency reasons. If you know in advance that you cannot make the University scheduled final exam time and date due to an exceptional circumstance, you must notify Dr. Goforth in advance of the midterm (end of Week 5).

**In-Class Discussion/Problem Solving Days:** On these days, we will work problems together as a class and/or in small groups. Don’t miss these days, as there will occasionally be the opportunity to earn extra credit. Certainly, they will help you prepare for the exams.

**A Note About Calculators:** Both simple and graphing or programmable calculators are allowed. However, there must not be anything written on them besides your name. Anything else written on them may be considered cheating, including programming, so
do not program. I will randomly check calculators to make sure this rule is enforced.

**A Note about Notes Sheets for Exams:** You may have one sheet of regular paper (8.5x11”) with notes for each midterm exam. Front and back is allowable. You may have two sheets of regular paper (8.5x11”, front and back) for the final exam. Note sheets may NOT be typed or photocopied and must be turned in with your exam.

**Disability statement:** Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the PSU Disability Resource Center, located in Room 435 of the Smith Memorial Student Union (voice phone: 503-725-4150; TTY: 503-725-6504; e-mail: drc@pdx.edu), to coordinate reasonable accommodations if you are a student with verifiable documentation.

**Ethics and Integrity:** It is anticipated that the student is enrolled in this course to expand his/her knowledge of the physical sciences by learning the nature and importance of chemistry. This course seeks not only to acquaint its pupils with basic and advanced pedagogical models of chemistry, but also to encourage independent critical thinking and the further development of independent problem solving and career skills (e.g., interacting with peers, participating in scientific discussion, and occasional scientific critical reading). To achieve this mission, problem sets related to lecture material, quizzes related to the lecture material, and a cumulative final over the 3rd term material will be required for satisfactory completion of this course. It is anticipated that students will benefit from discussions of course material with their peers both inside the classroom and outside of testing periods. However, the student will maximally achieve the learning objectives of this course if his/her own work is submitted for analysis. Plagiarism (passing off someone else’s work as your own, or not citing someone else’s work appropriately) and other forms of cheating will be handled strictly and in accordance with the PSU Student Conduct Policy.