ABOUT THIS COURSE

This is the third term of the three-term General Chemistry sequence. If you are in this course, it is probably because you have an interest in the biological or physical sciences. Most students in General Chemistry are not chemistry majors; in fact, most have other majors, such as biology, biochemistry and human physiology. Chemistry is foundational for the other sciences and as such, is required for most science majors at the University of Oregon.

As a student in General Chemistry, you will be required to learn a new language - the language of chemistry. As you learn to think like a chemist, you will study phenomena in terms of macroscopic, sub-microscopic and symbolic interpretations. Success in this course requires not only an understanding of the basic vocabulary, facts and concepts, but also the ability to critically analyze relationships between phenomena and to apply knowledge to novel situations.

ACCESS AND ACCOMMODATIONS

The University of Oregon is working to create inclusive learning environments. Please notify us if there are aspects of the instruction or design of this course that result in disability related barriers to your participation and success. You are also encouraged to contact the Accessible Education Center in 164 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu.
Course Structure

CH 223 is designed for **active and engaged learning**, which means that it may be different than some of your other university classes. In addition to lectures, there will be classroom activities, group work and out-of-class assignments, all of which are designed to build your basic knowledge and scaffold that knowledge to develop the critical thinking and problem solving skills that will lead to your success in this and future science courses. In-class small group exercises will allow you to work collaboratively with your classmates to solve problems, receive peer feedback and develop deeper understanding of the lecture material. For this to work, you must **take responsibility for your own learning and participate as an active learner.**

Course Objectives

1. Develop problem-solving and critical thinking skills that are important for all scientists
2. Develop an understanding and of and an appreciation for the connections between chemistry and other disciplines, and how science can improve the environment
3. Develop content knowledge and skills necessary to progress to more advanced science classes
4. Build confidence in doing and learning chemistry

More specifically...

General Chemistry is a full-year sequence. CH 222 and Math 112 are pre-requisites for CH 223. Chapters 17-21 and 24 in the Silberberg & Amateis text will be covered. It would be a mistake to assume that all of the material covered in the lectures appears in the text, or vice-versa. Therefore, it is important that you study both the text and the lecture notes. Exam questions will expect you to assimilate concepts and examples from both the textbook and the lecture and will not necessarily be the same as examples that you have seen before.

During this term, you will learn to:

- Analyze reversible reaction systems as they approach dynamic chemical equilibrium
- Determine the effect of changing reaction conditions on the equilibrium position of a system
- Apply the concept of dynamic chemical equilibrium to analyze acid-base titration reactions and behavior of slightly soluble salts
- Use energy considerations (enthalpy, entropy, Gibb’s free energy) to determine the conditions under which a reaction is spontaneous
- Describe voltaic and electrolytic cells, and examine the interdependence of the standard free energy change, the standard cell potential and the equilibrium constant
- Describe radioactive decay processes and how they can be applied in real world applications

CH 223 Teaching Assistants

Charlie Davis
qdavis@uoregon.edu
Office hours:
Mondays 3-3:50pm 160E KLA
Wednesdays 4-4:50pm 160E KLA

Phil Kovac
pkovac@uoregon.edu
Office hours:
Tuesdays 12-12:50pm 160E KLA
Thursdays 12-12:50pm 160E KLA

Science Literacy Program Fellow

Christian Gervasi
cgervasi@uoregon.edu
Office hours:
Tuesdays 4-4:50pm 171 Onyx
Thursdays 4-4:50pm 107 KLA
REQUIRED MATERIALS
- ALEKS, included at no extra charge with the textbook package when purchased at the UO Duckstore
- Sapling on-line homework system
- Non-graphing, non-programmable scientific calculator (see departmental calculator policy)
- I>clicker 2 – available in the UO bookstore

EXPECTATIONS
Most students don’t come to this class with a full recollection of their high school chemistry class so don’t panic when you don’t remember something you think you should know. However, we expect you to be willing to do the necessary work to retrieve your prior knowledge and learn new things. Attend and be prepared for class - that means read the material before class. Complete assignments, participate in classroom activities, and ask questions when you need help. Be kind to each other in the classroom. Communicate with us if you are struggling.

In return, you should expect that we will guide your learning, help you develop a framework for your new knowledge, answer your questions and show you how to apply what you have learned to new topics.

THE GRADING SCALE
90% = A, 78% = B, 62% = C, 50% = D, <50% = F These cut-offs may be shifted downwards slightly at the end of the term, depending on the course averages. i.e. you may receive a higher grade than expected. You will never receive a lower grade than expected based on your percentage score. If you choose the P/N option, you must earn the equivalent of a C- to receive a passing grade in this course. A course grade of incomplete will only be considered for individual cases with cause. It is not a replacement for an unsatisfactory score.

“An incomplete may be issued when the quality of work is satisfactory, but some minor but necessary requirement has not been completed, for reasons acceptable to the instructor.”

http://registrar.uoregon.edu/incomplete_policy
IMPORTANT DATES:

Midterm Exam 1:
Thursday, April 27th 7pm

Midterm Exam 2:
Thursday, May 18th 7pm

Final Exam:
Tuesday, June 13th 5pm

ACADEMIC DISHONESTY
Academic dishonesty in any guise, including plagiarism, fabrication, and cheating, will not be tolerated. All work submitted in this course must be your own and produced exclusively for this course. Additional information about plagiarism, including examples, can be found at http://libweb.uoregon.edu/guides/plagiarism/students. Consequences of academic dishonesty range from receipt of a failing grade on the assignment to an F in the course. All violations will be taken seriously and noted on student disciplinary records. For further information, refer to the University Student Conduct Code.

ALEKS HOMEWORK
Chemistry is a complex and challenging subject. To make sure you do well enough in it to fully advance your personal educational and career goals, the UO General Chemistry courses have incorporated the ALEKS online chemistry assessment and tutoring service into our instruction. We have done this because we have solid data that show this service can improve mastery and retention, particularly for students who would otherwise have difficulty passing.

You will have regular required assignments using ALEKS, and you can expect to spend at least several hours a week working on them. Just how much time has to be spent will vary from student to student and will depend critically on how efficiently you use the ALEKS service. A separate ALEKS Quick Start guide will be posted on Canvas that will explain how to access ALEKS and how you can get the most from ALEKS with the least time and effort.

SAPLING HOMEWORK
All homework assignments are done within the Sapling homework system. Information on purchasing and accessing Sapling will be posted on Canvas. All assignments are due at 11:55 pm on the date indicated, generally a Wednesday. There will be ten Sapling assignments of equal weight. Study groups are encouraged but remember that all work that is submitted must represent your work and your work only.

PARTICIPATION
Participation points will be based on graded clicker questions, quizzes and other assignments submitted to Canvas.
Exam policies:

1. No make-up quizzes or exams will be given. In no instance will an exam be given early. Written requests for alternate testing arrangements due to conflicts with authorized and unavoidable university events must be made during the first two weeks of the term. Documentation must be included with all requests.

2. You must bring #2 pencils and an approved calculator to quizzes and exams.

3. Only approved calculators may be used during quizzes and exams. Sharing of calculators is not allowed.

4. A limited number of calculators will be available to check out during the exam on a first-come, first-served basis. A 5% penalty on the exam will be assessed should you choose to check out a calculator.

5. The use of electronic dictionaries is not allowed. Paper dictionaries must not contain ANY extra writing and must be presented to the instructor or head proctor at the beginning of the exam for inspection.

6. UO Student identification cards must be brought to each quiz or exam and may be requested by the instructor or assisting proctor at any time.

7. The "hat rule" will be enforced during all exams. All baseball caps must be removed or turned backwards. All brimmed hats must be removed.

8. All cell phones and other wireless communication devices must be turned OFF and placed under your seat with your backpack and other belongings. Use of a cell phone during an exam for ANY reason will be regarded as a violation of academic dishonesty guidelines.

9. Headphones and unauthorized earpieces must be removed during quizzes and exams.

10. Keep all exam material at your seat – not on the seat next to you. Stow away ALL other personal materials (bags, packs, phones, etc.) under your seat.

11. A periodic table, appropriate equations, and physical constants will be provided with each exam.

Calculator policies:

- The UO General Chemistry Committee has adopted a policy whereby only certain models of calculators are allowed in quizzes and examinations. This is to provide a level playing field for all students and preclude devices with communications capabilities.

- An inexpensive non-programmable scientific calculator without text storage or graphing capabilities (for example: Casio FX-115MSPlus, TI 30X IIS or TI 30X IIB, HP 10S, or Sharp EL-5XX series) should be brought to all quizzes and exams, even if you're not sure if you will use it. Calculators will not be provided. Make sure your calculator is in good working order and that batteries are fresh. The calculator you use should have capabilities for square roots, logarithms, scientific notation operations and a y^x key. Inquiries about the acceptability of calculators must be made in advance of entering the exam room. It is in your best interest to familiarize yourself with your calculator before the exam by using it for homework assignments.

- The following types of calculators are NOT approved for use during quizzes and exams:
  - graphing calculator
  - pocket organizer
  - hand-held or laptop computer
  - electronic writing pad or pen input device
  - calculator that requires an outlet
  - calculator that communicates with other calculators
  - calculators that make noises or "talks"
  - calculator that accepts a "chemistry card"
  - calculator with a QWERTY (typewriter-like) keypad
  - cell phone calculator

If it is determined that a student is using a non-approved calculator, the calculator will be confiscated and returned at the end of the exam. The student will be required to complete the examination without a calculator. Following the examination, the instructor may decide to proceed with a charge of cheating.
Clicker Tips and Policies:

Clicker Registration: Clickers must be registered through the link on the CH223 Canvas site. Registrations made through the iClicker web site will not be recorded. Any points earned before your clicker is registered will be awarded retroactively after your clicker is registered.

Clicker questions will be asked during most lectures. Generally, class will begin with two or three quiz questions based on concepts from the reading and previous lectures. These questions will earn 2 points each for a correct response. Questions will also be asked during class to give you a chance to assess your understanding and to provide me with feedback as to the pace and coverage of the material. These questions will generally not be graded. Because most of the clicker points will be based on participation, it is in your best interest to attend class every day and remember your clicker. Each day’s points will be converted to a percentage and posted on Canvas. The lowest 4 daily percentage scores will be dropped at the end of the term. You must be present to earn clicker points and no make-up clicker assignments will be given.

If you forget your clicker, or your battery fails during class, we will give you TWO opportunities to still earn credit. In order to get credit, you must write down your name, UO ID number, date, and your answers to each question. For answers involving calculations, all work must be shown. You must turn this in to before leaving the classroom. Submissions will not be accepted after that time. After two paper submissions, you will not receive credit.

Clickers should be brought to class every day. It is your responsibility to ensure proper clicker operation. Avoid rough treatment to keep the clicker operating properly. In the event that you lose or damage your clicker, you will need to purchase and register another clicker.

Academic conduct rules apply to clicker use. Students found to be involved in incidents of clicker sharing will have their course grade automatically lowered by one full letter grade.

Inclement Weather Policy:

In the event that a class must be cancelled due to inclement weather, an email will be sent to your UO account and an announcement will be made on the CH 223 Canvas web site.

E-mail Policy:

The University of Oregon has adopted university email addresses as an official means of communication. It is your responsibility to regularly check your UO email account in order to stay current with course communications.

Email is a very handy method for communicating with people, whether around the world or across campus. In some situations email protocol is not as formal as paper communications. In others, (academics, jobs, etc.) there are some expectations of protocol. When communicating with us (or any faculty member) by email, please adhere to the following guidelines:

- The subject line should indicate the course number and the nature and topic of the email.
- Spell correctly and use appropriate punctuation.
- Always sign your messages with first and last name. Unsigned messages will not receive a response. You should always refer to your syllabus and/or the Canvas web site for answers to your questions before sending an email inquiry. If you do not receive a timely response it is because the answer is readily available from one of those sources.

Classroom Decorum:

The university asks that faculty outline basic expectations for classroom decorum. As a courtesy to other students, please refrain from talking during lectures unless it is part of a class activity. Turn cell phones off or place on silent ring. If you need to talk, either to a classmate or on a cell phone, please excuse yourself quietly with minimum disturbance and go outside to converse. Laptop computers and other electronic devices should not present a potential audible or visual distraction to others. If you have an irresistibile need to electronically multitask, browse the web, answer email, update your friends, tweet, send a text, ... please leave the room for these activities.