



CHEM 1220-090 GENERAL CHEMISTRY II FALL 2020

Instructor: Professor Greg Owens, Ph.D.
owens@chem.utah.edu

Course Format: Asynchronous online content; zero in-person requirements
Online homework and exams

Materials: Text & Homework
Chemistry: Structure and Properties (Tro, 2nd edition)
Electronic access to Mastering Chemistry
*These items above are collectively packaged through Inclusive Access.

Technology

Scientific calculator (or equivalent computer application),
capable of log/exp functions and scientific notation
Laptop, tablet, or smartphone
Internet access

*If you require assistance with obtaining any of these materials, please visit <https://lib.utah.edu/coronavirus/checkout-equipment.php>

Prerequisites: A C- grade or better in General Chemistry I (CHEM 1210) is a prerequisite for this course. College Algebra (MATH 1050) is also prerequisite for this course, but more generally, actual competence in algebra is a prerequisite. These prerequisites are enforced; you'll be dropped from the course if you haven't satisfied them.

Course Description: This is the second semester of general chemistry especially for science majors, engineering majors, and students of all disciplines who plan to pursue professional degrees in medicine, dentistry, pharmacy, and physical therapy. All of these fields of study depend in some way or another on understanding the atomic and molecular nature of the vast majority of matter, explaining why so many diverse subjects require chemistry courses as prerequisites.

A lot of General Chemistry I focuses on the atomic and molecular nature of matter and the electronic structure of atoms as the bases for chemical reactivity and physical properties. In General Chemistry II, we will build on these ideas in a more detailed study of the behavior of solutions, a study of the speeds of chemical reactions and dynamic equilibrium, a more detailed look at acids, bases, solubility, thermodynamics, redox reactions, and electrochemistry. We also will learn about some of the transformations of elements through nuclear processes.

Chemistry 1220 is a four-credit, online, asynchronous course. Chemistry 1225 is the companion one-credit lab course. CHEM 1220/1225 are general chemistry courses that are comparable to any science majors' sequence taught at major state universities and the majority of private colleges and institutes in the United States. As a student, you are expected to perform at a level that is commensurate with students at peer institutions such as Pennsylvania State University, University of Wisconsin-Madison, and UCLA.

GRADES & ASSIGNMENTS

Grades:

Mastering Chemistry assignments	40
Metacognition assignments	5
Exam 1, September 18-19	15
Exam 2, October 16-17	15
Exam 3, November 13-14	15
Exam 4, December 10	15

Exams are *not* collaborative efforts. Each student must submit answers and work that they alone generate, and allowed resources are limited to Canvas, Mastering Chemistry, the etext, a calculator, and one's own notes.

Using any other resources, taking screenshots or photos of exam questions and/or distributing them by any means, posting exam questions to any website (especially Chegg, Course Hero, or similar sites), misrepresenting someone else's work as your own, and/or sharing information about exam questions/problems or contents in any way is expressly forbidden and a violation of the Department of Chemistry Code of Conduct and the University of Utah Student Code. Violations will result in a failing grade (E) for the course and a referral to the Dean of Students for further action, including suspension or dismissal from the university.

Grading Scale:

A	93+
A-	90-92.99
B+	87-89.99
B	83-86.99
B-	80-82.99
C+	75-79.99
C	70-74.99
D	60-69.99
E	< 60

Mastering Chemistry assignments: These assignments are due at 23:59 MT most Tuesdays and Fridays this semester. They must be completed online through the Mastering Chemistry system, which can be accessed via the Canvas course webpage. Completing these assignments is an important part of ensuring your success in this course. Experience with prior classes shows that scoring at least 80% on assignments greatly improves your probability of passing the course. Late homework submissions will lose 10% per day of the maximum point value, not to exceed the full credit value of the assignment.

Metacognition assignments: These assignments will be available periodically in the Canvas modules. They count for what amounts to 5% extra credit, but they also have been shown to increase student comprehension of the course material and to lead to better exam results.

Exams: These will be given as timed Canvas Quizzes. Each will open at 5:00 am MT on the first day of availability and close promptly at 8:00 pm on the second day of availability. If an exam is missed for a valid reason, the other three exams will count 20% each. The instructor is the sole arbiter of whether an exam is missed for a valid reason.

CANVAS

Learning Materials: Everything for this course is either on Canvas or linked directly from it.

Course Announcements: The instructor uses the announcements feature in Canvas to provide students in this course with all important and time-sensitive information. You are responsible for staying on top of the announcements and reading all information sent out about the course; plan on logging into our Canvas course several times each week.

If you fail to meet assignment requirements, deadlines, and instructions because you have not read the announcements in a timely manner, you will not be allowed to make up any points or assignments lost.

To read announcements, click on "Announcements" in the navigation menu on the course's Canvas homepage.

You can adjust your Canvas settings to push announcements to your email accounts and mobile phones. Read the [Canvas Guide](#) on adjusting notification settings for more information.

Communications: FERPA (Family Educational Rights and Privacy Act) regulations preclude discussing anything related to grading, whether for an assignment or the course, except by Canvas messaging or a secure Zoom meeting. Please, use only these options to discuss concerns about grades.

Discussion Boards: Please, do not send emails, using either university email or Canvas messages, about assigned problems or course-material content. Instead, please post questions about concepts and homework problems and the like to the appropriate discussion board, i.e. the one for that chapter of material. The instructor monitors these boards every day, and you and your peers can both participate by posting questions and responses to questions and learn from responses posted. When used well, this is a win for everyone.

Of course, there are limitations. These discussion boards are meant to facilitate *discussion* and understanding the material. Please, do not solicit or post explicit *answers* to homework questions, i.e. work for credit that must be your own. Working out how to solve problems via face-to-face interaction (Zoom) is allowed and encouraged. Copying and pasting answers from anywhere is prohibited.

Never post anything related to exams on a discussion board. Any questions about exam content should be sent in a private message to the instructor.

Zoom: Most everyone is stuck at home these days, so use Zoom to facilitate meeting with the instructor, the teaching assistants, and your peers. Collaboration on Mastering Chemistry assignments is both allowed and encouraged.

Office Hours: These are great opportunities to ask questions and get help on concepts, strategies, and Mastering Chemistry problems. Office hours will be held weekly via Zoom beginning the first week of classes, schedule TBD.

PHILOSOPHY & EXPECTATIONS

About the Course

CHEM 1220 is a General Chemistry course that is comparable to any science majors' sequence taught at major state universities in the United States. We will cover chemical processes that range from bizarre, laboratory-based phenomena to real-world, everyday occurrences. Most importantly, we will attempt to *explain* these processes at the level of atoms and molecules.

General Chemistry also, historically, has a reputation as a challenging course. Rather than presenting this course as a disconnected series of chemistry topics, we will approach the course very systematically, building from physical properties of solutions to the speeds of chemical reactions to their characteristics at equilibrium. We will then apply those equilibrium characteristics to acid-base reactions, solubility and precipitation reactions, and redox reactions, three classes of reactions to which you were introduced in CHEM 1210. We also will build on the energy considerations for chemical reactions you learned in CHEM 1210. In doing so, we will provide you a conceptual framework on which you can drape the wide array of topics covered.

Chem-Is-Try

As a student, you are expected to perform at a level that is commensurate with students from other elite institutions across the country. We in the Department of Chemistry expect excellence from you, as well as from ourselves! This class is a college-level science course, and for many of you, it will be a sudden change in expectations; most students and the vast majority of instructors find CHEM 1220 to be significantly more challenging than CHEM 1210. We expect your effort to match these demands. We expect you to be able to recall material from previous courses and use this information to solve general chemistry problems. We expect you to internalize the material and be able to apply it to problems not covered in homework assignments. Exam questions may differ from the homework, lectures, and your textbook. This design is not intended to trick you or set you up for failure. It is, instead, intended to test your ability to *apply* chemical principles to new situations, which is the ultimate aim of this course. We will practice such exercises throughout the semester.

Some Tips for Success

Your instructor's online lectures are designed to help you learn, not to hear himself talk. Use these resources. He will provide information that goes beyond the textbook and will teach you how to think about chemistry problems. Our department has firm data showing that attendance is the largest determining factor in end-of-semester grades. Maintaining a regular study schedule in an online format is the equivalent of this aspect for Fall 2020.

- General chemistry is a team sport. Do homework in groups, seek help from colleagues, and provide help to them when they ask. Teaching can be as much of a learning experience as asking.
- If you need help, please come get help. Your instructor has regular and by-appointment office hours, and you have many classmates with whom you are encouraged to work. Take advantage of these resources.
- Your textbook is very good but is not the only source. If the explanation in the text does not make sense to you, seek out other texts at the library or find internet sources, especially the OpenStax Chemistry texts. They're free!
- Finally, your instructor is here to guide you in reaching your maximal potential in General Chemistry, but this course requires *you* to be engaged and motivated to learn and improve, put forth your best effort in the course, and to seek out the support systems (such as office hours) and ask questions. All of the necessary tools and support for you to be successful in this course are available via Canvas; it is up to you to make use of them.

UNIVERSITY & COURSE POLICES

Academic Integrity: Incidents of academic misconduct (e.g. cheating, plagiarizing, misrepresenting one's work, and/or inappropriately collaborating on exams) will be subject to penalty per Section V of Policy 6-400, the [Student Code](#). Incidents of academic dishonesty on exams will result in a minimum penalty of a failing grade (E) for the course, and the incident(s) will be referred to the Dean of Students for possible further sanction.

Americans with Disabilities Act: The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the [Center for Disability & Access](#), 581-5020 (V/TDD). CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.

University Safety Statement: The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801- 585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu.

Addressing Sexual Misconduct: Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Undocumented Student Support Statement: Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit dream.utah.edu.

Technology Issues: It is your responsibility to maintain your computer and related equipment in order to participate in this online course. Equipment failures will not be an acceptable excuse for late or absent assignments.

Discussion threads, e-mails, and the Discussion forum of Canvas are all considered to be equivalent to classrooms, and student behavior within these environments shall conform to the Student Code. Specifically:

- Posting photos or comments that would be off-topic in a classroom are still off-topic in an online posting.
- Using angry or abusive language is called “flaming”, is not acceptable, and will be dealt with according to the Student Code.
- Do not use ALL CAPS, except for titles, since it is the equivalent of shouting online, as is overuse of certain punctuation marks such as exclamation points !!!! and question marks ????.

Questions about technical issues? Don’t hesitate to contact the instructor. If I can’t answer it, I’ll refer you to someone on campus who can.

We strongly recommend you have at least two browsers on your computer: Safari, Chrome, or Firefox. If something in Canvas isn't working correctly, **copy the page URL and open it in a different browser**. This often solves the problem.

Withdrawal Policy and the Academic Calendar: Students may drop any class without penalty or permission by Wednesday of the 2nd week of classes. After that date, students may withdraw from a course without permission until midway through the semester (see link below for specific dates). In this case, a “W” grade will be recorded on the academic record and applicable tuition and fees will be assessed. Students may appeal withdrawal deadlines “in cases of compelling, non-academic emergencies” by submitting a petition and supporting documentation to the Psychology office, which will then be forwarded to the dean of their major college.

Deadlines and other important dates during the semester can be found here:

<http://www.sa.utah.edu/regist/calendar/datesDeadlines/deadlines.htm>

Wellness: Personal concerns such as stress, anxiety, relationship difficulties, depression, and cross-cultural differences can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at www.wellness.utah.edu or 801-581-7776.

Note: This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas under Announcements.