

CHEMISTRY 1210 – General Chemistry I Syllabus – Fall 2019

Course Description

Chemistry 1210 is a four-credit course that consists of three lectures (section 1; MWF) and two discussions (section 2 or 3; TH) per week. Chemistry 1215 is the companion one-credit lab course. Chemistry 1215 has an online pre-lab/quiz component and then meets for one three-hour period per week. CHEM 1210/1215 are general chemistry courses that are comparable to any science majors' sequence taught at major state universities in the United States. As a student, you are expected to perform at a level that is commensurate with students from other elite institutions across the country. We expect excellence from you as well as from ourselves! In addition to many crucial and fundamental chemical principles, we will integrate into our studies considerations pertaining to a topic very important to all life on Earth – *Sustainability*. In our endeavors as humans, scientists and thinkers, if our practices are not sustainable over the long-term, are we not “doomed”?

Instructor

Jeff Statler
Lecture; MWF 7:30 – 8:20 AM
Classroom; HEB 2008
Offices; HEB 1011 & TBBC 4428
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Assistant; Cassandra Dennison – GH 1473 – (801) 581-8126

Materials

- **E-access to Mastering Chemistry/Learning Catalytics/Tro's *Chemistry: Structure and Properties***
- **A scientific calculator capable of log/exponential functions and scientific notation.**
PROGRAMMABLE CALCULATORS OR OTHER ELECTRONIC DEVICES CAPABLE OF STORING ALPHANUMERIC DATA ARE NOT ALLOWED FOR USE ON EXAMS. TI-30 calculators which sell for ~ \$12 are appropriate and available in the University Bookstore.
- **Laptop, web-capable tablet or smart phone**
Learning Catalytics will be used for student-response questions in both lecture and discussion.

Final Grades

Final grades in CHEM 1210 will be calculated on the following basis.

	% per Assignment	Total % of Final Grade
Introductory Quiz	2%	2%
Three Midterm Exams	12%	36%
Final Exam	22%	22%
Homework	# correct / total number	15%
Lecture Performance	# correct / total number	10%
Discussion Performance	# correct / total number	15%
		100%

Final grades will be assigned on the following basis:

A	≥ 93.00%	B+	89.99 – 87.00%	C+	79.99 – 77.00%		
A-	92.99 – 90.00%	B	86.99 – 83.00%	C	76.99 – 73.00%	D	69.99 – 60.00%
		B-	82.99 – 80.00%	C-	72.99 – 70.00%	E	≤59.99%

FINAL GRADES IN CHEM 1210 WILL NOT BE CURVED AT THE END OF THE SEMESTER. Final grades are not posted to Canvas nor will your instructor provide you with that information. All students can access their grades via the PeopleSoft system once they are posted and released by the Registrars Office.

Course Policies: General

- CHEM 1210 and 1215 should be taken concurrently. CHEM 1215 is an independent and separate course from CHEM 1210. Your grade in CHEM 1210 is not averaged with your CHEM 1215 grade nor vice versa. CHEM 1215 is required for most majors that require CHEM 1210. Students taking CHEM 1215 simultaneous with CHEM 1210 almost always “do better”!
- 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 Services, 162 Olpin Union Building, 581-5020. CDS 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 Services.

Chronology

The following topics will be investigated in our efforts to master concepts, apply calculations and reach a personal, working definition of *sustainability* and vision for our *future*;

- Review Unit – Measurements and Calculations in Chemistry
- Unit One – Chemical Foundations
- Unit Two – Atomic Structure and Periodicity
- Unit Three – Atoms, Molecules, Ions, Moles, Equations, Nomenclature
- Unit Four – Bonding & Geometries
- Unit Five – Chemical Energetics (Energy)
- Unit Six – Gases
- Unit Seven – Liquids, Solids and Phase Changes
- Unit Eight – Stoichiometry
- Unit Nine – Types of Chemical Reactions and Solution Stoichiometry

It is a good idea to *work numerous problems* in the back of each chapter.

This will improve your familiarity with and mastery of the material.

Attendance

- Attendance is mandatory in CHEM 1210 however no official attendance records are kept per se. Question responses will be some indication of your attendance/participation. It is strongly recommended that you attend class since students who show up for lectures do better in the class.
- You should schedule all activities such as advising appointments, preregistration, Regents Examinations, etc. early in the semester so that they do not interfere with regularly scheduled assignments or labs. Such absences are not excused.
- Lectures, assignments or discussions missed because of participation in officially-scheduled University of Utah functions *will be considered* as *excused absences*. Typically, this means that we will average your other scores for the missed assignment and substitute the average score. A written statement by the sponsoring University of Utah faculty member, on University Department letterhead, must be submitted to your instructor one week prior to the function to receive an excused absence. This does *not* apply to club sports sponsored by Associated Students of the University of Utah.
- **You are responsible for announcements made in lecture! Absence from class does not relieve you of this responsibility.** Critically important announcements will also be posted as an announcement on our Canvas page – check these regularly!

Discussion Sessions:

CHEM 1210 students must be registered in a Discussion Section.

- The first discussion sections will be held on Thursday, August 22nd.
- Learning to solve problems in general chemistry is the focus of the discussions, which are led by teaching assistants (TAs). Discussions are not meant to be repetitions of the class lectures, and in some cases will present material that your lecturer does not cover in class. Your TA's primary job is to help you solve chemical problems. The problems solved during discussion sections are designed to help you improve your problem solving skills. Your responses to these problems will be collected through and recorded in your Learning Catalytics account.
- You will be allowed to miss three (3) discussion sections without penalty to your grade, although you will certainly want to study the problems you missed later as they are posted on Canvas.
- If you have any complaints about your TA, bring them to your class instructor (Professor Statler) and he will speak to the TA about the issue without revealing your identity.

Tutoring Room

- The Chemistry Department has a tutoring area in room 1316 of the Chemistry Building. It is open and available to you Monday through Friday. Exact hours of operation will be posted on the door soon after the beginning of the semester. Each general chemistry TA is required to spend at least 2 hours per week there. Please do attend any of these office hour sessions.
- This is the perfect time and place for you to get one-on-one tutoring from one of our TA's. Please take advantage of this opportunity!

Supplemental Instruction

- The Supplemental Instruction Program, called SI for short, is offered in this course to provide organized study sessions. These sessions are free and open to all students in the course and are led by an undergraduate who has done well in this subject area. Your SI leader will be attending classes, reading the material, and doing any relevant assignments to be prepared for the SI sessions. The purpose of SI is to see that each of you has the opportunity to do as well as you would like to in this course. **In SI sessions, we will review, organize, and clarify the material from lectures; teach you ways to develop effective study skills for this course; and help you prepare for exams.** Your SI leader will schedule 3 meetings per week convenient to the majority of your schedules. Attendance is voluntary, and you may attend as many or as few sessions as you like.

Homework

- Homework problem sets are assigned about 7 days prior to their due date, and are to be completed online through the Mastering Chemistry System. Completing these assignments is an important part of ensuring your success in the course. Experience with prior classes shows that scoring at least 80% on assignments greatly improves your probability of passing the course.
- In addition to the Mastering Chemistry homework system assignments, you may be occasionally asked to participate in answering a few questions on Canvas pertaining to our lecture and demonstrations.
- **Late homework submissions will not be counted.** Planning ahead and having internet access will certainly help here!

In-class exercises

- In-class question/exercises will be administered during the lecture period using the Learning Catalytics system.
- Only students who attend that day's lecture and have access to their Learning Catalytics account are entitled to participate. We anticipate you being able to use any web-enabled device to respond to questions. There will be no makeup for lecture question/exercises administered. **Any student who answers questions for another student not present in class is in violation of the University's Academic Honesty code. All students who participate in this activity will receive an E for the course.**
- During each class session, question and exercises will be given that are designed to reinforce and expand your knowledge of the subjects being studied that day. Students will often work in groups to answer these questions. Some of these questions will be evaluated for correctness while others will be simply for "participation". Some of these questions will be answered individually while others will be discussed with your colleagues.
- At the end of the semester, your accumulated student-response points will be included as your in class 'clicker' exercise score for CHEM 1210. This is weighted at 10% of your final overall grade as described on page 1.
- It is **your responsibility** to correctly establish your Learning Catalytics account, choosing the **session ID** associated with the current (and correct) lecture or discussion.
- Responding to questions under more than one Learning Catalytics account (for an absent colleague) is considered an act of cheating.

Exams

- The material covered on each examination will include everything in the assigned chapters except material that is explicitly excluded. An announcement of the point at which each exam will "stop" will be made in class and posted on the Canvas site before each exam.
- To be fair to all, questions about what will be covered on exams will be answered in class only. No such questions will be answered by telephone or e-mail.
- The only legitimate excuses for missing your testing period are extenuating circumstances that are beyond your control. Examples of these circumstances are illness, death in the family, or car accidents on the way to take the test. Forgetting when to come take your exam or sleeping through your exam period are not legitimate excuses. Excuses must be accompanied with proper documentation. **Students that miss an exam due to illness must bring documentation from a physician stating that they were seen in the physician's office and that they were too ill to attend classes on that date.** Legitimate excuses must be documented within two days of the missed exam period. If you miss your exam period because of extenuating circumstances, it is your responsibility to inform your instructor in a timely fashion. Your instructor will then discuss with you appropriate measures to remedy the situation.
- Exams missed because of participation in officially-scheduled University of Utah functions can be taken at another time agreed upon in advance with your professor.
- Midterm exams will be given on paper during discussion periods in lieu of that discussion.
- The exams will consist of several multiple-choice questions as well as several free-response/calculation problems.
- Credit for your correct answers will only be awarded if you **clearly submit** the correct answer. If you intend to mark the correct answer but inadvertently submit another, you will earn no credit. Free-response questions should be answered with legible handwriting with clear, concise logic. All calculations need to be clearly presented and include units, while any equations used must be explicitly stated.
- **You must bring a clearly legible University of Utah ID Card. You must also bring your nonprogrammable calculator and a pen or pencil. Only approved calculators can be used in CHEM 1210 exam sessions. You will be provided with scratch paper, a periodic table and equations/constants.**
- Exam scores are typically posted on the Canvas grade book within four school days of the last exam day.
- Any questions regarding credit on an exam question must be submitted in writing within two days after the grades have been posted on Canvas. Any questions regarding exam credit will not be considered beyond one week after the key is posted.
- Midterm Exams and Quizzes are as follows:

Introductory Quiz	Thursday (in discussion), August 29th
Midterm Exam 1	Thursday (in discussion), September 12th
Midterm Exam 2	Thursday (in discussion), October 17th
Midterm Exam 3	Tuesday (in discussion), November 19th

Final Exam

- **The ACS Final Exam will be given to ALL CHEM 1210 students: This time & date will be announced soon.**
- The only students who will be allowed to take the final exam at an alternate time, are those with an exam conflict or three (3) exams in a single day. No other exceptions will be made. Students with exam conflicts or three (3) exams on the same day must look at this website [Final Exam Schedule Conflicts](#) and click on "Final Exam Schedule Conflicts". The procedure for documenting this problem is outlined on the website.
- The Final Exam will be multiple choice and will be done on paper with a number 2 pencil.
- As with each Midterm Exam, credit for your correct answers will only be awarded if you **submit** the correct answer. If you intend to mark the correct answer but inadvertently mark another, you will earn no credit.
- The key for the Final Exam will not be posted because we are not allowed to post keys for ACS Exams.
- Final Exam scores are not posted to Canvas.
- This ACS final exam is comprised of 70 questions and is given in a 120-minute time frame.

Semester Start and End Dates

- Fall Semester 2019 begins on Monday, August 19th and ends on the final exam date. Requests to miss the final exam, take it early, etc. because of vacation or other personal plans will be denied.

Academic Dishonesty

- By submitting an assignment, you are representing that it is your own work and that you have followed the rules associated with the assignment. Incidents of academic misconduct (e.g. cheating, plagiarizing, research misconduct, misrepresenting one's work, and/or inappropriately collaborating on an assignment) will be dealt with severely in accordance with the Student Code. For more details, the Student Code for the University of Utah can be found at: <http://regulations.utah.edu/academics/6-400.php>. Bringing more than one clicker to lecture or discussion is considered an act of cheating. Speaking to a fellow student about an exam question before the last testing session for that midterm exam has closed is also considered an act of cheating. A single instance of academic misconduct may result in a failing grade for the course; however, multiple instances of misconduct may result in probation, suspension or dismissal from a program, suspension or dismissal from the University, or revocation of a degree or certificate. Incidents of academic dishonesty will be dealt with severely. Anyone caught cheating on an exam will be referred to the Dean for immediate disciplinary action and should expect to receive an 'E' in the course. Additionally, a letter detailing the cheating incident will be put in the student's permanent academic file.

Withdrawal Instructions

- Subject to changes in the official University of Utah Calendar, students may drop (delete) any class without penalty during the first week of the term. The last day to drop a class without tuition penalties is **Friday, August 30th**. It is possible to withdraw from the course up to **Friday, October 18th**, but you will still have to pay tuition for the course and a "W" will appear on your transcript. You do NOT need the instructor's signature to withdraw. After October 18th, a student must petition for withdrawal to the Dean's office of their academic college. University policy states that withdrawals after this date should only be granted for "non-academic reasons beyond the student's control." "I want to avoid a bad grade" or similar does not qualify. Students must decide on or before Friday, October 18th if they wish to withdraw from CHEM 1210.
- With respect to the course content, it is the student's obligation to determine, before the last day to drop courses without penalty, when course requirements conflict with the student's sincerely-held core beliefs. If there is such a conflict, the student should consider dropping the class. A student who finds this solution impracticable may request a content accommodation from the instructor. Though the University provides, through this policy, a process by which a student may make such a request, the policy does not oblige the instructor to grant the request, except in those cases when a denial would be arbitrary and capricious or illegal. This request must be made to the instructor in writing, and the student must deliver a copy of the request to the office of the department Chair or to the office of the Dean of the College of Science. The student's request must articulate the burden the requirement would place on the student's beliefs.

Science Foundation General Education Requirement (SF)

This course meets the Science Foundation General Education Requirement (SF). This course is inherently useful to students since it provides them with tools to understand the world around them with a focus on matter and energy. Key topics include: Dimensional Analysis, Particulate Nature of Matter, Elements/Compounds/Mixtures, Scientific Method, Early Experiments, Atomic Structure & Periodicity, Nomenclature, The Mole Concept, Stoichiometry, Bonding & Molecular Geometries, Polarity, Chemical Energetics, Gasses, Intermolecular Forces & Phase Changes, Aqueous Solutions & Solution Stoichiometry, Types of Reactions and Calorimetry.

Students develop strong problem solving skills in this class. In particular, the first two-thirds of the course teaches the skill set needed to approach and solve quantitative problems that impact on science and technology. Students use the scientific method to propose and test theories that describe the workings of the material world.

A knowledge of chemistry is essential to understanding the great challenges facing the world in areas as diverse as energy, health care, the environment and sustainability issues. Discussion of these topics as examples of “applied” chemistry naturally arise in the classroom, text and the web. More broadly, the course employs the scientific method as a means of acquiring and assessing knowledge and thus contributes to the critical thinking skills of our students.

In spite of our potentially large class size, we allow substantial time for an interactive “lecture” environment utilizing team problem-solving sessions daily in both lecture and discussion.

Learning Outcomes

This course will provide opportunities to develop the following Learning Outcomes:

- ☞ have a sound understanding of the fundamentals of chemical theories and their application
- ☞ be able to predict, observe, analyze and explain the results of a chemical demonstration
- ☞ be skilled in problem solving, critical thinking and analytical reasoning
- ☞ use dimensional analysis and other numeracy skills to arrive at quantitative conclusions via quantitative literacy
- ☞ identify and employ various methods to solve chemical problems
- ☞ demonstrate oral and written communication skills used in communications with various audiences
- ☞ describe and detail chemical issues associated with global sustainability
- ☞ become life-long, scientific learners and critical thinkers capable of formulating defensible, informed opinions

This course will provide students with *Foundations and Skills for Lifelong Learning* since the problem solving skills developed in this course can be applied to real world problems. Our overriding theme of sustainability especially as it applies to science and technology will serve as a unifying theme, directing our efforts toward increased mastery of these outcomes.

Veterans Center

If you are a student veteran, the U of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class for any reason.

Wellness Statement

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., 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.

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

Disabilities Accommodation

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 this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.

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).

Disclaimer: 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.