



CHEM 1220

Principles of Chemistry II

MWF, 8:30 am - 9:20 am, ESLC 053

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Office Hours: TBD and by appointment. Drop by OK and encouraged.

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Course Description: Chemistry 1220 is the second of a two semester sequence of general chemistry for chemistry majors.

Prerequisite(s): Previous or concurrent enrollment in Math 1050 or higher.

Recitation: All students must register for, and attend, the recitation section(s) listed in the USU Schedule of Classes. The recitation is designed to help to develop problem solving skills needed for the examinations, and also to reinforce your understanding of concepts covered in class. Recitation sections will begin the second week of classes.

Credit Hours: 4

Text: *Chemical Principles*, by P. Atkins, L. Jones and L. Laverman (any recent edition), ISBN 1-4641-8395-3

Course Learning Objectives: These are listed in the modules on the course webpage.

Learning Management System (LMS): Canvas Instructure will be used for the management of Chem. 1220. Importantly, you will take Quizzes AND Exams online using Canvas. Quizzes are open book and may be taken on any computer. Exams can only be taken in the USU Testing Center. To log on to Canvas, go to the web address: canvas.usu.edu. Your USERNAME is your BANNER login and your default PASSWORD is your BANNER password. Canvas has many useful features (your assignment scores, a chat room, discussion page, email, etc.) and you should take the time to explore them from within the course webpages.

Attendance: Starting the second week of classes each lecture will feature an online “quiz” which will be used to record your attendance in class. I will supply a code to allow you to access the quiz. The quiz will have a single question added each lecture to which you will enter the numerical randomly selected “attendance code” that is supplied in class. The quiz will only be open for a few minutes and you will not be able to retroactively answer questions corresponding to prior missed quizzes even if you know the code for the lecture you missed. Each attendance will earn 1 quiz point. At the end of the semester these points will count as ONE QUIZ worth 10 points according

to the following formula;

$$\text{Attendance Quiz score} = \frac{\text{Total number of attendance points}}{\text{Total possible number of attendance points}} \times 10$$

However, if your cumulative attendance is better than 85% you will automatically receive a perfect score of 10 on the quiz. If it is less than 50% you will earn a ZERO. If you are late or miss a class for a legitimate reason (which I will adjudicate) then I may allow you to make up that quiz point. My objective in doing this is to encourage students to attend a high percentage of lectures rather than trying to enforce 100% attendance so don't worry too much if you have to miss an occasional lecture.

Online Quizzes: There will be 9 graded online quizzes plus the Attendance "Quiz". Each quiz counts 10 points and is open book. You will take the quizzes online through Canvas. Quizzes will start the second week of classes and will have deadlines. You have an unlimited number of attempts and your highest score will be kept. Note that each time you take a quiz you will receive a slightly different version, covering the same concepts but with different questions.

Problem Sets: There will be 5 homework sets assigned. These will (usually) consist of 5 problems which are longer and harder than a typical quiz problem. You are encouraged to work with other students to solve these problems and we will spend some class and recitation time discussing them. I will select, at random and in class, one of the problems to be handed in for grading. Your homework should be legible and should show all of the important steps as well as notes explaining your reasoning. Each problem should be done on a separate sheet or sheets. A correct answer that does not follow these rules may score ZERO whereas an ultimately incorrect answer that does abide by these rules may score some, possibly maximum, points depending on how well you show your steps and logic. Each homework will be worth 40 points. The Final exam – Practice Final – will contain 5 questions based DIRECTLY on problem sets. These questions will not be identical to homework problems and will also be much shorter – much more like a normal quiz question in terms of length and difficulty. Therefore you must make sure that you actually understand how to solve every problem, even though only 1 problem will be graded from each homework set.

Midterm Exams: TWO 90-minute exams (200 points each) consisting of 40 multiple choice questions will be available during specified time windows – see schedule below. The exams are based on material covered in class, quizzes and homework sets. They will closely match the difficulty level and content of the practice exams. You are strongly urged to take the online practice exams several times. Practice Exams are graded as quizzes (but are worth 100 points each) and your highest score will be retained. Midterm exams should be taken in the USU Testing Center. Note that each student will receive a slightly different midterm exam, both in terms of question order and content. Questions will be drawn randomly from a test bank. **YOU ARE RESPONSIBLE FOR FINDING AN OPEN TIME IN THE TESTING CENTER TO TAKE THE EXAM.** If you leave it until the last minute and cannot find a spot in the Testing Center you will receive a ZERO for that exam.

Final Exam: The 2-hour Final Exam will be comprehensive and will follow the same procedures as for the Midterms. However, it will consist of 50 questions and is worth 250 points. It will be available throughout Finals window and should be taken in the USU Testing Center. The questions will be similar to those on the practice exams and quizzes **and Homeworks.** **YOU ARE RESPONSIBLE FOR FINDING AN OPEN TIME IN THE TESTING CENTER TO TAKE THE EXAM.** If

you leave it to the last minute and cannot find a spot in the Testing Center you will receive a ZERO.

Missed Exams: Because midterm exams are available during one-week time windows it is unlikely that you will be unable to take an exam. However, if you do miss one of the midterm exams due to illness or emergency, I will offer you the opportunity to take the exam at another time. If at all possible you should notify me of the reason for missing the midterm in advance. Missed midterms may require written documentation from a doctor or other authority at my discretion.

Grading:

Homework Problems	200 pts
10 Quizzes and 2 Practice Midterms	300 pts
Midterm Exams	400 pts
Completion of Course Evaluation	50 pts
Final Exam	250 pts
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TOTAL	1200 pts

Letter Grade Distribution:

≥ 93.00	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	60.00 - 66.99	D
80.00 - 82.99	B-	≤ 59.99	F
77.00 - 79.99	C+		

Based on the overall class average, the percentage cuts for the various grades may shift *lower* than the above cuts. In other words, a better grade may be assigned for lower percentages than those indicated above, a scenario that is in your favor. The percentages will never shift higher than the above.

Course Policies:

- **General**

- Quizzes are open book, open notes but should be done independently.
- Problem Sets are open book, open notes and may be done in collaboration with other students. However, final written-up solutions should be done independently.
- Exams are closed book, closed notes.
- **Makeup quizzes and exams will be permitted only in exceptional circumstances (illness, emergency, etc.). Discretionary events (e.g., vacations) do not qualify.**

- **Grades**

- Grades will be maintained in the Canvas course shell. Students are responsible for tracking their progress by referring to the online grade book.
- **IMPORTANT NOTE: the Canvas grade book assigns a percentage based ONLY on quizzes/exams ACTUALLY taken. For example, if someone took only 1 quiz in the class and scored 100% the Canvas grade book would show the overall percentage as 100% and your grade as an A. Obviously, when I grade the course all missed assignments will score ZERO and the person who took only 1 quiz would get an F.**

Academic Honesty Policy Summary:

In addition to skills and knowledge, USU aims to teach students appropriate Ethical and Professional Standards of Conduct. The Academic Honesty Policy exists to inform students and Faculty of their obligations in upholding the highest standards of professional and ethical integrity. All student work is subject to the Academic Honesty Policy. Professional and Academic practice provides guidance about how to properly cite, reference, and attribute the intellectual property of others. The administration of Chem 1210 will adhere strictly to the academic policies outlined in the current USU General Catalog.

Course Assessment: Students in this class are expected to develop proficiency in the principles listed on the class web page and the attached list of Learning Objectives. Embedded questions on midterms, quizzes, and homework sets will be used to assess your understanding of these principles. The formats to be used for assessment will include instructor-designed questions. Please note that assessment is a tool used by the Department of Chemistry and Biochemistry to improve the quality of instruction and proficiency of our students. Your grade will be based on your performance on the assignments indicated above, some of which will also be used for course assessment.

Americans with Disabilities Act: In accordance with the Americans with Disabilities Act, reasonable accommodations will be provided for all persons with disabilities in order to ensure equal participation in Chem 1210. In cooperation with the Disability Resource Center, reasonable accommodation will be provided for students with disabilities. Please meet with the instructor during the first week of class to make arrangements. Alternative format print materials, large print, audio, diskette or Braille, will be available through the Disability Resource Center.

Course Outline

The following weekly coverage might change as it depends on the progress of the class. The detailed list of topics and where they appear in the text may be found on the course homepage in Canvas. "Focus" refers to the material labeling and ordering scheme used in the textbook.

Week	Material
Week 1 (Jan. 7)	<ul style="list-style-type: none"> • Focus 4 Thermochemistry
Week 2 (Jan. 14)	<ul style="list-style-type: none"> • Thermochemistry, contd. • Focus 4: Entropy and The Second Law • Problem Set 1 available (Friday)
Week 3 (Jan. 21)	<ul style="list-style-type: none"> • Monday, Jan. 21st is a holiday (Martin Luther King, Jr. Day) • Entropy and The Second Law
Week 4 (Jan. 28)	<ul style="list-style-type: none"> • Focus 5: Chemical Equilibrium
Week 5 (Feb. 4)	<ul style="list-style-type: none"> • Chemical Equilibrium: contd. • Focus 6: Acid-Base and Solubility Equilibria • Problem Set 2 available (Friday)
Week 6 (Feb. 11)	<ul style="list-style-type: none"> • Acid-Base equilibria contd. • Problem Set 1 due (Monday)
Week 7 (Feb. 18)	<ul style="list-style-type: none"> • Monday, Feb. 18 is a holiday (Presidents' Day) • Focus 6: Solubility and Precipitation Equilibria • Problem Set 3 available (Friday)
Week 8 (Feb. 25)	<ul style="list-style-type: none"> • Focus 7: Kinetics • Problem Set 2 due (Monday)
Week 9 (Mar. 4) EXAM 1 OPEN	<ul style="list-style-type: none"> • Kinetics: contd. • Problem Set 4 available (Friday)
Week 10 (Mar. 11)	<ul style="list-style-type: none"> • Spring Break: Mar. 11-15
Week 11 (Mar. 18)	<ul style="list-style-type: none"> • Focus 10: Nuclear Chemistry • Problem Set 3 due (Friday)
Week 12 (Mar. 25)	<ul style="list-style-type: none"> • Focus 7: Redox Reactions and Electrochemistry
Week 13 (Apr. 1)	<ul style="list-style-type: none"> • Redox Reactions and Electrochemistry: contd. • Problem Set 4 due (Monday) • Problem Set 5 available (Monday)
Week 14 (Apr. 8) EXAM 2 OPEN	<ul style="list-style-type: none"> • Focus 9: d-block elements
Week 15 (Apr. 15)	<ul style="list-style-type: none"> • Focus 11: Organic Chemistry
Week 16 (Apr. 22)	<ul style="list-style-type: none"> • Organic Chemistry: contd. • Catch-up and review • Problem Set 5 due (Monday) • no class on Wednesday
April 25 - May 1	<ul style="list-style-type: none"> • FINAL EXAM (comprehensive)