

General Chemistry II

CHEM 1212

The instructor reserves the right to make changes or corrections to this syllabus at any time. Students will be notified when any changes are made by email or eLC announcements.

This is a Core IMPACTS course that is part of the STEM area.

IMPACTS refers to the core curriculum, which provides students with essential knowledge in foundational academic areas. This course will help master course content, and support students' broad academic and career goals.

This course should direct students toward a broad Orienting Question:

- How do I ask scientific questions or use data, mathematics, or technology to understand the universe?

Completion of this course should enable students to meet the following Learning Outcome:

- Students will use the scientific method and laboratory procedures or mathematical and computational methods to analyze data, solve problems, and explain natural phenomena.

Course content, activities and exercises in this course should help students develop the following Career-Ready Competencies:

- Inquiry and Analysis
 - Problem-Solving
 - Teamwork
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Course Overview

Description

Chemistry 1212 is a three-credit-hour course that is either on MWF or TR for three hours per week. Chemistry 1212L is the companion one-credit-hour lab course and must be taken concurrently, unless you already have credit for the lab course. Chemistry 1212L meets once per week. CHEM 1212/1212L are freshman chemistry courses that are comparable to similar sequences for science majors taught at major state universities in the country. This course uses an American Chemical Society Examinations Institute standardized exam as the final.

Instructor

NAME: DR. SUZANNE ELLENBERGER
Office: Chemistry Annex, room 418
Email: Suzanne.ellenberger@uga.edu

Group Office Hours (for content questions): Tuesday and Friday 3:30-5:00, Chemistry Annex, room 418
One-On-One Office Hours (for discussion of personal matters, course standing, etc.): By appointment

Course Information

There will be a weekly mandatory, in-person recitation session at the time listed on Athena.

Textbook (e-text purchased through eLC)

Chemistry, 10th edition, Steven S. Zumdahl, Susan A. Zumdahl, Donald J. DeCoste, Gretchen Adams.
The textbook **must be purchased through eLC** to receive the special UGA price of \$35.00.

Other Required Materials:

Square Cap account, the clicker system we'll be using for in-class activities this semester.

Any non-programmable, scientific calculator such as the Ti-3x series or the Casio ClassWiz series (**the TI-36x Pro is recommended**). Programmable or graphing calculators (eg. TI-83 or similar) **are not permitted**.

Course Learning Outcomes

1. Demonstrate the ability to solve scientific problems by following logical procedures based on well-established scientific principles.
2. Relate microscopic theories to macroscopic observations using chemical principles to explain observable phenomena.
3. Illustrate the principles of kinetics and thermodynamics as applied to rates and equilibrium positions of chemical reactions.
4. Use quantitative measures of solution concentration in describing acid-base, solubility, and electrochemical principles of aqueous solutions.
5. Interpret the value of logarithmic functions in the determination of rate constants; half-lives for radioactive isotopes; and solution concentrations of specific analytes (i.e., pH measurements to determine hydrogen ion concentrations).
6. Analyze nuclear processes such as radioactivity, fission, and fusion in terms of kinetic and thermodynamic principles.

Course Requirements and Grading

Course Coverage

These chapters will be covered in CHEM 1212:

Chapter 10: Liquids and Solids
Chapter 12: Chemical Kinetics
Chapter 17: Spontaneity, Entropy and Free Energy
Chapter 11: Properties of Solutions
Chapter 13: Chemical Equilibrium
Chapter 14: Acids and Bases
Chapter 15: Acid-Base Equilibria
Chapter 16: Solubility and Complex-Ion Equilibria
Chapter 18: Electrochemistry
Chapter 19: The Nucleus: A Chemist's View

Course Assignments

Recitation Sessions

In addition to lecture, you are required to attend weekly in-person recitation sessions that are intended to supplement course material and promote a deeper understanding of concepts. The assignments during recitation sessions may include worksheets, case studies, and other activities. During the recitation sessions you will work in small groups, and assignments will be due at 12:00 PM (**noon**) on the Saturday immediately

following the recitation. The worksheets will be posted to eLC, and you will need to convert the completed worksheets to a single PDF file and upload them to Gradescope yourself. **You are responsible for uploading the correct file as instructed in recitation.** Assignments will not be regraded if the pages in the PDF file are in an incorrect order or there are missing pages or other formatting issues. **Worksheets uploaded to eLC will not be graded.**

You must attend recitation to receive credit for the recitation. Attendance will be taken at the recitation sessions. You will **not be marked as attending if you arrive more than 10 minutes** after the recitation session begins, and you will not earn credit for that recitation.

There will be **14 recitation sessions** worth a total of 60 points, and the lowest two scores will be dropped. You will receive a portion of the recitation session points based on your total percentage. If you score 90% of the credit for the recitation questions, you will earn 90% of 60 points (or 54 points) toward your final grade. **If you must miss a recitation due to illness or other documentable reason, you must contact the Director of Instruction, Suzanne Ellenberger (suzanne.ellenberger@uga.edu), before the recitation begins to discuss making up the assignment.**

Academic Honesty Expectations: You are expected to work in groups on recitations; however, you must do your own problems and submit your own PDF file to Gradescope.

Class Activities

The instructor will provide class activities to accompany the in-person discussions during the semester. The activities can be worksheets, hands-on activities, clicker questions, or other activities. **Students must be present to receive credit for the class activities and are responsible for uploading any required files correctly.** Make-ups are not offered for in-class activities. Raw points equal to the average for **five days** of classes will be dropped for all students at the end of the semester to account for any absences. If you have to miss more than five days of class due to an extended illness, injury, or other documentable reason, please contact your instructor directly to discuss.

Class activities will be worth a total of 56 points. You will receive a portion of the class activities points based on your total percentage. If you score 90% of the credit for the class activities, you will earn 90% of 56 points (or 50.4 points) toward your final grade.

Academic Honesty Expectations: You must respond to your own questions and be present in class to attempt the activities. If you respond to class activities while you are not present in the classroom, a report will be made to the Office of Academic Honesty.

Reading Checks

Before beginning a chapter in class, you will need to complete a reading check that assesses the basic mastery of the material. Reading checks will be delivered on WebAssign and will be available on **Thursdays at 12:00 p.m. (noon) and will be due on Mondays at 9:00 a.m.** There will be a total of **fourteen** reading checks worth **two** points each. The reading check with the lowest score will be dropped at the end of the semester. **No credit will be received for late Reading Checks If you miss a reading check due to illness or other documentable reasons, you must contact the Director of Instruction, Suzanne Ellenberger (suzanne.ellenberger@uga.edu), by 9:00 AM on the Monday after the reading check closes.** You must use your UGA email and include your course CRN and the activity in question in the subject line of the email, with documentation included in the body.

Three attempts will be allowed for each question in the Reading Check. There is a 5% penalty for each incorrect attempt, so it is in your best interest to work the problems as you read the chapter.

Academic Honesty Expectations: You may work in groups on reading checks; however, each of you must do your own problems.

Progress Checks

Progress checks are **timed** assignments designed to test your understanding of the course materials and simulate exam conditions. The point value of progress checks has been intentionally set at a low value so that you can stumble on the progress check and not severely hurt your grade in CHEM 1212. It is much better to find out what you're struggling with on the progress check instead of the exam.

Progress checks will open on **Fridays at 12:00 PM (noon)** and will be due **Tuesdays at 9:00 AM** unless otherwise announced. There will be a total of **fifteen** progress checks worth **four** points each. The lowest scoring progress check will be dropped. We suggest starting early, as no extensions will be granted based on technical difficulties. Extensions will be granted only at the discretion of the director of instruction and only if the extenuating circumstance covers the entirety of the progress check availability. **If you miss a progress check due to illness or other documentable reasons, you must contact the Director of Instruction, Suzanne Ellenberger (suzanne.ellenberger@uga.edu), by 8:00 AM on the Tuesday that the progress check closes to request an extension.** You must use your UGA email and include your course CRN and the activity in question in the subject line of the email, with documentation included in the body.

Be Aware: Opening the progress check before it is due to look at the questions commits you to completing the assignment. The timer **cannot** be stopped or reset.

Academic Honesty Expectations: You are expected to work on your own when completing the progress checks. You should not use **any** outside resources. This is your opportunity to see what you need to work on before the exam. You should not share or post progress check questions for other students while the progress check is open.

Suggested Exercises and Practice Quizzes

Suggested exercises for each chapter will be posted at the beginning of each chapter and open for the entire term on WebAssign. I recommend that you do these practice problems with your available resources to help you build skills and master the material. These problems will not be graded.

Exams

Four (4) 90-minute examinations will be given on Thursday evenings. Exams will be worth 200 points. Exams will be administered in-person. Your exam grade with the lowest percentage score will be replaced with your final exam percentage value if it is higher. **Makeup exams are given at the discretion of the Director of Instruction and require official documentation (e.g. a doctor's note) of an unavoidable absence. You must contact the Director of Instruction, Suzanne Ellenberger (suzanne.ellenberger@uga.edu), as soon as possible and no later than 12:00 PM (noon) Monday of the exam week to request a make-up for absences that are known about in advance. For emergency absences (e.g. sickness), contact Dr. Ellenberger as soon as possible.** You must use your UGA email and include your course CRN and the exam in question in the subject line of the email, with documentation included in the body.

Because this is a course with mass exams, there are a few rules that you should be familiar with before entering the exam room. These rules will be enforced by the exam proctors.

- Personal belongings are to be left at the front or sides of the room and electronic devices turned off.
- You are not allowed to have a cell phone or smart watch on your person during the exam. All electronic devices must be left with your belongings. Any student found with a cell phone or smart watch will be referred to the Academic Honesty office.
- You should make use of the facilities before you enter the exam room. Once in the exam room you cannot leave until you have finished the exam. If you have a medical reason this is not possible, please sign up with the DRC as soon as possible.
- Bring your ID - we can accept any government issued photo ID but your UGA ID is preferred.

- You may only use a non-graphing calculator (see Other Required Materials) with the back cover removed and left in your bookbag.
- You will not be given extra time to bubble in answers after time is called, so make sure all answers have been transferred to the answer sheet before time has elapsed.

Exam Schedule:

Exam 1	Thursday, 5:30-7:00 PM	February 8, 2024
Exam 2	Thursday, 5:30-7:00 PM	February 29, 2024
Exam 3	Thursday, 5:30-7:00 PM	March 28, 2024
Exam 4	Thursday, 5:30-7:00 PM	April 25, 2024
Final Exam	Tuesday, 7:00-8:50 PM	May 7, 2024

Final Exam

The final exam will be administered on May 7. The final exam will be the **Second-Term General Chemistry Exam from the American Chemical Society Examinations Institute**. This multiple-choice exam has a total value of **300 points** in the course. If your percentage grade on this exam is higher than your lowest exam percentage grade, this percentage grade will replace it. It is in your best interest to do as well as you can on this exam. **Writing on this exam is prohibited and will result in a fine of \$25.00 so the exam booklet can be replaced. A hold will be placed on your UGA account until this has been resolved.**

Course Grades

Course grades in CHEM 1212 will be calculated based on these components:

Assignment	Points
Four exams	800
Final Exam (ACS)	300
Reading Checks	26
Progress Checks	56
Class Activities	58
Recitation Worksheets and Attendance	60
Total	1300

If you score below 50% on the final exam, you will receive an 'F' for the course. If you score 50% or higher on the final exam, your final grade will be based on the total points earned out of 1300 total possible points:

A	= 1170 to 1300	90%
A -	= 1144 to 1169.9	88%
B+	= 1118 to 1143.9	86%
B	= 1040 to 1117.9	80%
B-	= 1014 to 1039.9	78%
C+	= 975 to 1013.9	75%
C	= 884 to 974.9	68%
D	= 650 to 883.9	50%
F	= 0 to 649.9	

Final grades will not be adjusted (i.e., "curved") at the end of the semester. Course letter grades are delivered via Athena and appear when they are posted and released by the Registrar's Office.

Policies and Procedures

Communication

The instructor will communicate with the class in two ways: (1) e-mail and (2) announcements on the course eLC site. You may login to eLC at <http://elc.uga.edu> using your UGA myID and password. It is highly recommended that you forward your eLC e-mail to your preferred e-mail address. Remember that official communication is through eLC e-mail and/or UGA mail. It is your responsibility by UGA policy to check both on a daily basis.

The eLC site will also be used to store and deliver lecture slides, exam resources, general handouts, and other documents. You will also find instructions covering Gradescope and WebAssign.

Email Etiquette

The course instructor receives a large number of student emails per day. To ensure your email is answered as quickly as possible:

- Do not send emails to eLC accounts. Instructors may be reached via their primary email addresses.
- Instructors will not respond to questions that are answered in the course syllabus or postings on eLC.
- Please allow **at least 48 hours** for a response due to the high volume of emails.
- Your emails must be both courteous and coherent. If you would not say it in person, don't write it in an email.
- Experience has demonstrated that it is not effective to answer homework or concept questions via email. In order to receive help concerning classwork or homework, you must visit your instructor during regularly scheduled office hours.

What about lab (CHEM 1212L)?

CHEM 1212 and 1212L are individual courses that are administered and graded separately. You will receive separate and independent grades for these two courses. However, CHEM 1212 and 1212L must be taken concurrently. All students must be registered for both lecture and lab. (A small number of students may have already completed the lecture or lab when rules allowed that. Students who have taken CHEM 1212 and 1212L previously, and received grades of "I", should not register for the course(s) a second time because the earlier "I" grade will automatically be changed to an "F".)

Withdrawal Policy

The last day to withdraw from CHEM 1212 is Thursday, March 21st, 2024. A grade of "W" is assigned to all withdrawals made prior to the withdrawal deadline, irrespective of performance in the course. Withdrawal is accomplished through Athena. Go to the withdrawal section of Athena and follow the instructions.

CHEM 1212 and CHEM 1212L are corequisite courses. You may not remain enrolled in CHEM 1212L if you withdraw from CHEM 1212. There are no exceptions to this policy. After the withdrawal deadline, no student may withdraw from CHEM 1212/1212L except in the case of an approved hardship withdrawal that is authorized by the Office of Student Services (<http://reg.uga.edu/policies/withdrawals>).

Incomplete Policy

An incomplete grade, "I", may be assigned to students that are passing CHEM 1212 but are unable to complete all university coursework during the current semester due to unforeseen personal and/or medical circumstances. An incomplete grade is not assigned to students who are able to complete their university

coursework but choose not to complete chemistry due to poor performance. In order to receive an incomplete in the class you must meet with your instructor and sign a contract which stipulates the terms and conditions of all university sanctioned incompletes.

Disability Accommodations

Students with a disability that are seeking classroom or testing accommodations must register with the Disability Resource Center (DRC). More information can be found at <https://drc.uga.edu/register-for-services/>.

Academic Honesty

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

FERPA Notice

The Federal Family Educational Rights and Privacy Act (FERPA) grants students certain information privacy rights. See the registrar's explanation at <https://osas.franklin.uga.edu/ferpa-and-privacy> FERPA allows disclosure of directory information (name, address, telephone, email, date of birth, place of birth, major, activities, degrees, awards, prior schools), unless a request is submitted to the Registrar's Office <https://reg.uga.edu/resources/documents/imported/FERPARequestForRestriction.pdf>.

Mental Health and Wellness Resources

If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.

UGA has several resources for a student seeking mental health services (<https://healthcenter.uga.edu/bewelluga/>) or crisis support (<https://well-being.uga.edu/#emergency-popup>).

If you need help managing stress, anxiety, relationships, etc., please visit BeWellUGA (<https://healthcenter.uga.edu/bewelluga/>) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center. Additional resources can be accessed through the UGA App.

CHEM 1212 Tentative Course Schedule Spring 2024

Week	Dates	Chapter/Section	Reading Check	Progress Check	Recitation Session
1	January 8-13	Introduction, 10.1	RC1: 1/11-1/15 Ch 10.2-4, 10.6-10.9	PC1: 1/12-1/16 CHEM 1211 Review	R1: Not meeting , worksheet due 1/13 12:00 pm (noon)
	January 15	Martin Luther King Jr. Day (no class)			
2	January 14-20	10.2-10.4, 10.6-10.9 Omit X-Ray Analysis of Solids, Bragg Equation	RC2: 1/18-1/22 Ch 12.1-12.7	PC2: 1/19-1/23 Ch 10.1-10.4, 10.6-10.9	1/15-1/19 Not meeting
3	January 21-27	12.1-12.7	RC3: 1/25-1/29 Ch 17.1-17.7, 17.10	PC3: 1/26-1/30 Ch 12.1-12.7	R2: 1/22-1/25
4	January 28- February 3	17.1-17.7, 17.10	RC4: 2/1-2/5 Ch 11.1-11.3	PC4: 2/2-2/6 Ch 17.1-17.7, 17.10	R3: 1/29-2/2
5	February 4-10	11.1-11.3	RC5: 2/8-2/12 Ch 11.4-11.8	PC5: 2/9-2/13 Ch 11.1-11.3	R4: 2/5-2/9 <u>Exam Review</u>
	February 8	Test 1 (Ch 10, 12, 17.1- 17.7, 17.10)			
6	February 11-17	11.4-11.8	RC6: 2/15-2/19 Ch 13.1-13.5	PC6: 2/16-2/20 Ch 11.4-11.8	R5: 2/12-2/16
7	February 18-24	13.1-13.5	RC7: 2/22-2/26 Ch 13.6-13.7, 17.8-17.9	PC7: 2/23-2/27 Ch 13.1-13.5	R6: 2/19-2/23
8	February 25- March 2	13.6-13.7, 17.8-17.9	RC8: 2/29-3/11 Ch 14.1-14.6	PC8: 3/1-3/12 Ch 13.6-13.7, 17.8-17.9	R7: 2/26-3/1 <u>Exam Review</u>
	February 29	Test 2 (11, 13, 17.8-17.9)			
	March 4-8	Spring Break (no class)			
9	March 10-16	14.1-14.6	RC9: 3/14-3/18 Ch 14.9, factors affecting acid strength	PC9: 3/15-3/19 Ch 14.1-14.6	R8: 3/11-3/15
10	March 17-23	14.9, factors affecting acid strength	RC10: 3/21-3/25 Ch 14.7, 14.8, 14.10- 14.12, 15.1-15.2	PC10: 3/22-3/26 Ch 14.9, factors affecting acid strength	R9: 3/18-3/22
11	March 24-30	14.7-14.8, 14.10-14.12, 15.1-15.2	RC11: 3/28-4/1 Ch 15.3-15.4, 15.6	PC11: 3/29-4/2 Ch 14.7-14.8, 14.10- 14.12, 15.1-15.2	R10: 3/25-3/29 <u>Exam Review</u>
	March 28	Test 3 (Ch 14.1-14.9, factors affecting acid strength)			

12	March 31-April 6	15.3-15.4, 15.6	RC 12: 4/4-4/8 Ch 16.1-16.3, review of redox reactions	PC 12: 4/5-4/9 Ch 15.3-15.4, 15.6	R11: 4/1-4/5
13	April 7-13	16.1-16.3, review of redox reactions	RC13: 4/11-4/15 Ch 18.1-18.4	PC13: 4/12-4/16 Ch 16.1-16.3, review of redox reactions	R12: 4/8-4/12
14	April 14-20	18.1-18.4	RC14: 4/18-4/22 Ch 18.7-18.8	PC14: 4/19-4/23 Ch 18.1-18.4	R13: 4/15-4/19
15	April 21-27	18.7-18.8	RC15: 4/25—4/26 Ch 19	PC15: 4/25-4/29 Ch 18.7-18.8	R14: 4/26-4/30 <u>Exam Review</u>
	April 25	TEST 4 (Ch 14.10, 14.12, 15, 16, review of redox reactions, 18.1-18.4)			
16	April 28-30	19	No RC	No PC	Not Meeting
	Tuesday, May 7 7:00-8:50	FINAL EXAM Second Term ACS Standardized Exam			