

CHM 1311: General Chemistry I

Lecture Period: MW 2:00-3:15 pm
Classroom: Amy St. Building - RGC | Room A117
Instructor: Dr. Audrey Whiting
Email: awhiting@sulross.edu
Office: Amy St. Building - RGC | Room TBD
Office Hours: TBA | *or* by appointment

Course Description:

This course fulfills 3 credit hours in the Life and Physical Sciences core curriculum and is primarily designed for students pursuing professional medical fields. Topics covered include matter, atomic theory and structure, moles, chemical units of concentration, chemical equations, bonding, the kinetic molecular theory of gases, the periodic table, Lewis structures, molecular geometry, and hybridization of atomic orbitals.

Student Learning Outcomes for Core Courses:

- **Critical Thinking:** Students will develop critical thinking skills to include creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information.
- **Communication:** Students will develop communication skills to include effective development, interpretation and expression of ideas through written, oral, and visual communication.
- **Personal Responsibility:** Students will develop principles of personal responsibility for living in a diverse world; to include intercultural competency, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.
- **Social Responsibility:** Students will develop principles of social responsibility for living in a diverse world, to include the ability to connect choices, actions, and consequences to ethical decision-making.
- **Empirical and Quantitative:** Students will develop empirical and quantitative skills to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- **Teamwork:** Students will develop teamwork skills to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Learning Objectives for General Chemistry I Lecture:

Upon completion of this course, students should demonstrate proficiency in:

1. Fundamental concepts and terms in general chemistry
2. Electronic structures of atoms and the periodic table
3. Concepts of chemical bonding

4. Chemical reactions in aqueous solutions
5. Applications of the ideal gas equation

Required Course Materials:

- **Textbook:** [Chemistry Raymond Chang 14ed](#) | **Reference Book:** [OpenStax Chemistry 2e](#)
- **Online Access to Blackboard:** In order to receive announcements, assignments, and grades, students should be enrolled in the course Blackboard site. Students may contact me using the Blackboard messaging feature; however, email is strongly encouraged for any questions or concerns.
- **Online Access to Tophat:** Students will be invited to join the course page via Tophat and must sign in using their SRSU credentials. Students are also encouraged to download the mobile app. Please notify your instructor if you have difficulties accessing Tophat.
- **Scientific Calculator:** Students must have access to a calculator able to perform exponential and logarithmic functions. *Note:* accessing programs, the internet, or memory storage during exams will be unnecessary and prohibited. Students may not use a phone, tablet, smart watch, etc. as a calculator during an exam. Students will not be able to share calculators during exams.

Lecture Format:

This class has been primarily designed for an in-person format but on limited occasions may be offered virtually at the discretion of the instructor. Please plan to attend in person—any changes will be communicated via email or blackboard announcement. In the event of a University-excused absence or unexpected illness, please request the class notes from a peer.

Attendance Policy:

Roll will generally not be taken; however, attendance will be indirectly assessed through an in-class participation component (discussed below). Since exam and homework content is often covered in lecture, missing class is strongly discouraged. Please make every effort to arrive to lecture on time. If you must leave early, please notify Dr. Whiting in advance.

Grading scheme and components:

The following table illustrates the grading margins in this course.

Scores on the borderline will be handled individually at the discretion of the instructor.

Remember: you are earning your grade as you accumulate points through every assignment!

Letter Grade	Percentage
A	90.00-100
B	80.00-89.99
C	70.00-79.99
D	60.00-69.99
F	<60.00

Breakdown of Course Points:

- **Course Participation:** 10%
- **Homework Problem Sets:** 20%
- **3 Midterm Exams:** 50% (16.7% per exam)
- **1 Final Exam:** 20%

Course Participation:

Regular attendance is expected and is essential for success in this course. Attendance and participation will be assessed at random via Tophat polls, which may be timed and may also be graded for accuracy. Students must be present in class to respond to these polls. Instructions for creating a Tophat account will be provided on the first day of class.

Homework:

- **Submissions:** Homework assignments and their due dates are listed in the course schedule. One PDF file must be uploaded to Blackboard by class time (2:00 PM) on the due date; hard copies will also be accepted. Please note that late submissions will not be accepted. Dates listed in this syllabus are subject to change at the instructor's discretion.
- **Grading:** Students will submit solutions to all assigned homework problems; however, only a selection of problems will be chosen for grading. Selected problems will be graded on a combination of accuracy and effort (e.g., one point for a correct solution and one point for a genuine attempt), though the exact point breakdown is subject to change. Students should complete all assigned problems, as the graded questions will not be announced in advance.

Exams:

- **Midterm Exams:** There will be three, 75-minute midterm exams over the course of the semester. Exams are designed to be challenging and will comprise the majority of your course grade; they are not designed to be “cumulative”, but mastery of earlier material will be inadvertently tested throughout the semester. If a student is absent for an exam without a university excused absence, they are not guaranteed a makeup. All absences will be handled at the discretion of the instructor.
- **Final Exam:** The final examination will be cumulative, but may more heavily emphasize content that was not on midterm exams and will integrate concepts learned across the entire semester.

Principles for Success in this Course:

- ***Ask questions:*** it is imperative that you ask questions *as they come up!* More than likely, other students are also waiting for a brave soul to speak up when something is unclear. Getting your questions answered quickly is the most efficient way to clarify misunderstandings, allowing progression in the synthesis of information.
- ***Attend lecture:*** chemistry is most effectively understood and communicated through a combination of language and image. You will be challenged to organize facts and create a mental picture of concepts in the moment. This is not as easily captured by copying down a peer's notes.
- ***Work on practice problems:*** practicing through problems is how you can dive into this experience and how you will achieve mastery over material. Problems challenge you to think critically and inspire your own way of knowing.
- ***Take advantage of resources:*** your success is my primary goal this semester. Please attend office hours and set up one-on-one meetings with me.

Course Calendar and Tentative Schedule:**Course Dates:** August 24th to December 2nd **Final Exam:** December 4, 7-9th (*TBA*)**Important Dates:** Last day to drop: September 9th Last day to drop with a W: October 2nd

The tentative course schedule can be found below. This schedule is meant to serve as a general guideline for materials covered over the course of the semester. I reserve the right to change any due dates that would be of advantage to the class as a whole. If this is to happen, an announcement will be made during class.

Date	Lecture	Chapter	Content	Assignments
August 24 th	1	1	Syllabus and Introduction	
August 26 th	2		Classifications of matter, an overview of states and properties of matter, physical, and chemical changes, units of measurement	
August 31 st	3		Scientific notation, significant figures, precision, and accuracy	
September 2 nd	4	2	Subatomic particles and atomic models	Chapter 1 Homework
September 7 th	No Class—Labor Day Holiday			
September 9 th	5	2	Atomic number, mass number, isotopes, molecules, compounds, ions, molecular formula, empirical formula	
September 14 th	6		Chemical nomenclature, naming of compounds, acids, bases, oxides, and oxoacids	
September 16 th	7	3	Molecular mass, mole, molar mass, atomic mass, formula mass and their relations	Chapter 2 Homework
September 21 st	8		Mole concept and mole calculation	
September 23 rd	EXAM—Chapters 1 & 2			
September 28 th	9	3	Chemical equations and balancing chemical equations	

September 30 th	10		Calculating limiting reagents and percent yields	
October 5 th	11	4	Terminologies related to solutions, electrolytes, non-electrolytes, precipitation reactions, writing balanced ionic equations	Chapter 3 Homework
October 7 th	12		Acid-base reactions and oxidation numbers; oxidation-reduction reactions	
October 12 th	13		Solution stoichiometry, concentration units, and gravimetric analysis	
October 14 th	14	5	Calculation of reactant/product amounts in gaseous reactions using ideal gas equation	Chapter 4 Homework
October 19 th	15		Deviation of ideal gas properties, modification of ideal gas law for real gases	
October 21 st	EXAM—Chapters 3, 4, & 5			
October 26 th	16	7	Properties of light, black-body radiation and the photo-electric effect, atomic spectra and Bohr atomic theory	Chapter 5 Homework
October 28 th	17		De Broglie equation, dual nature of particles, Schrodinger wave Equation, and quantum numbers	
November 2 nd	18		Electronic configuration: Aufbau principle, Hund's rule, Pauli exclusion principle	
November 4 th	19	8	Periodic table, classification of elements and	Chapter 7 Homework

			electronic configuration of ions	
November 9 th	20		Periodic trends and properties of elements	
November 11 th	EXAM—Chapters 7 & 8			
November 16 th	21	9	Basic concepts of chemical bonding, ionic bonds, lattice energy, covalent bonds, polar covalent bonds, and polarity	Chapter 8 Homework
November 18 th	22		Lewis structures of molecules, formal charge calculation, resonance structures and bond energy	
November 23 rd	23	10	Molecular geometry and VSEPR theory	Chapter 9 Homework
November 25 th	No Class—Thanksgiving Break			
November 30 th	24	10	Prediction of molecular geometry and polarity	
December 2 nd	Final Exam Review			Chapter 10 Homework

ADA Statement:

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. To help protect confidentiality, students seeking accessibility/accommodation(s) services must submit the [Accommodation Request Form](#) located on our [website](#). Students are welcome to call the Office of Accessibility Services at 432-837-8203 or stop by Ferguson Hall Room 112 if they have any additional questions regarding the process. Our mailing address is PO Box C-122; Alpine, TX; 79832.

Statement Regarding Generative Artificial Intelligence (AI):

The University does not recommend or endorse any specific AI tools or resources. Students should be aware that many generative AI tools (e.g., ChatGPT, Google Gemini, Microsoft Copilot) store user input and may use this data to train future models. For this reason, students should never upload or share personal, confidential, or identifiable information—such as names, ID numbers, health data, or assignment submissions containing such details—into any generative AI platform. When using AI tools, students should verify whether the tool complies with student privacy standards as indicated by the University. Faculty may recommend specific tools that better align with institutional data privacy policies, but ultimate responsibility for data protection rests with users. Students are encouraged to use faculty-recommended platforms when engaging in coursework involving generative AI. The University is not liable for any adverse experience or impact when students interact with these tools.

Student Responsibilities:

All full-time and part-time students are responsible for familiarizing themselves with the [Student Handbook](#) and the [Undergraduate & Graduate Catalog](#) and for abiding by the [University rules and regulations](#). Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize him/herself with the requirements of such laws.

SRSU Distance Education Statement:

Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit the SRSU website.

Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

Counseling:

Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting [TimelyCare](#). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

Libraries:

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the [library's website](#). Off-campus access requires logging in with your LoboID and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email (srsulibrary@sulross.edu), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as InterLibrary Loan (ILL), ScanIt, and Direct Mail to get materials delivered to you at home or via email.

Academic Integrity:

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources *unless permission is expressly given* for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

Classroom Climate of Respect:

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Privacy:

Course materials (videos, assignments, problem sets, etc.) are for use in this course only. You may not upload them to external sites, share with students outside of this course, or post them for public commentary without my written permission.