

SYLLABUS GENERAL CHEMISTRY I**(2025_FALL_12807_CHEM_1311****002_General Chemistry I)****Start Date:** 08/22/2025 **End Date:** 12/7/2025**Type:** Classroom**Building:** Warnock Science **Room:**00301**Class hours:** Tuesday/Thursday 11:00AM-12:15PM**Instructor:** Esra BALCIOGLU**E-mail:** esra.balcioглу@sulross.edu**Office hours:** By Appointment**Office Phone:** 432 8378614**Campus Office:** MAB 112/A

Contacting Me: The best way to reach me is via email. Do not hesitate to contact me for any reason. I will respond to email inquiries as soon as possible.

COURSE MATERIALS

The following course materials are required:

1. Textbook: Chemistry: The Central Science, 15e, Theodore Brown, H. LeMay, Bruce Bursten, Catherine Murphy, Patrick Woodward, Matthew Stoltzfus. Pearson. ISBN-13: 978-0-13-749360-9, ISBN-10: 0-13-749360-6
2. Recommended-American Psychological Association (October 2019). Publication Manual of the American Psychological Association, Seventh Edition, <https://apastyle.apa.org/products/publication-manual-7th-edition-spiral>
3. Reference book:
Introductory Chemistry: Concepts and Critical Thinking, 8th Edition. Charles H. Corwin. Pearson. ISBN-13: 9780135214275
"OpenStax Chemistry 2e" <https://openstax.org/details/books/chemistry-2e> by Paul Flowers, Klaus Theopold, Richard Langley, etc.
4. Scientific calculator.

Additional resources, including supplementary readings, videos, and other materials, will be made available on Blackboard throughout the semester.

SRSU Library Services and Support

The Bryan Wildenthal Memorial Library at Sul Ross State University is your go-to hub for academic resources, offering a wealth of materials and services to the entire SRSU community at no cost. You'll find a vast collection of books, articles, and online databases readily accessible at www.library.sulross.edu. If you're accessing resources off-campus, simply use your Lobo ID and password to log in. For checking out physical materials, remember to bring a photo ID.

Need assistance? Our librarians are here to help! You can reach them via email at srsulibrary@sulross.edu, by phone at 432-837-8123, or by visiting them in person.

Important Syllabus Information

Please be aware that the syllabus is subject to updates. It's crucial to regularly check course announcements for any changes. The instructor reserves the right to modify the syllabus as necessary throughout the semester.

Course Description

CHEM 1311 – General Chemistry I is an undergraduate-level course that introduces the fundamental principles of chemistry and their applications. Students will explore the classification and properties of matter, the structure and behavior of atoms, molecules, and ions, and the periodic table as a framework for understanding chemical properties. Core topics include stoichiometry, reactions in aqueous solution, the behavior of gases, electronic structure of atoms, and chemical bonding.

The course emphasizes the development of quantitative problem-solving skills, critical thinking, and the ability to connect theoretical concepts with real-world applications, providing a strong foundation for further study in chemistry and related scientific disciplines.

Prerequisite: MATH 1314, MATH 1315, MATH 1316, MATH 2314 or equivalent. Advanced placement in CHEM 1311 may be given on successful completion of advanced placement examination.

Course Learning Objectives

By the end of this course, students will be able to:

- Classify matter and describe its physical and chemical properties.
- Explain atomic and molecular structure, periodic trends, and the formation of ions.
- Apply stoichiometry to quantify relationships in chemical reactions.
- Analyze and predict the outcomes of reactions in aqueous solutions and gases.
- Describe electronic structure and chemical bonding using basic bonding models.
- Solve quantitative chemistry problems using appropriate units, significant figures, and scientific notation.

Student Learning Outcomes (SLOs) for Chemistry Majors

Graduates with a major in chemistry will be able to:

- Organic Chemistry – Demonstrate proficiency in drawing molecular structures, and explaining organic reactions, stereochemistry, structural analysis, and biochemical reaction mechanisms.
- Inorganic Chemistry – Apply principles of coordination chemistry, valence theory, and molecular theory to explain bonding and reactivity.
- Analytical Chemistry – Demonstrate competence in qualitative and quantitative analysis, including calibration, equilibrium, gravimetric, titrimetric, spectroscopic, and electrochemical methods, supported by data interpretation.
- Physical Chemistry – Explain and apply concepts of atomic and molecular structure, thermodynamics, electrochemistry, surface and solid-state chemistry.
- Research Skills – Locate, evaluate, and interpret chemical literature, and design and conduct a research project using appropriate methodologies.

B.Sc. in Chemistry – Marketable Skills

Graduates of the Chemistry program will be able to:

1. **Professional Skills** – Demonstrate reliability, punctuality, and effective time management in professional and academic settings.

2. **Laboratory & Analytical Skills** – Analyze and synthesize chemical compounds, perform spectroscopic and other characterizations, and interpret data using scientific reasoning.
3. **Scientific Writing** – Write clear, well-structured scientific papers and properly cite and evaluate scholarly references.
4. **Oral Communication** – Deliver effective oral presentations on scientific topics, supported by appropriate visual aids and professional communication techniques.

Student Learning Outcomes for Core Curriculum Chemistry Courses

Students completing chemistry courses in the Core Curriculum will be able to:

1. **Critical Thinking Skills** – Apply inquiry, analysis, and evaluation of scientific information to solve real-world chemistry problems. Performance will be assessed through exams, laboratory experiments, and self-assessments.
2. **Communication Skills** – Demonstrate effective written and oral communication by preparing laboratory reports (observations, explanations, and conclusions) and engaging in class discussions. Communication will also be reinforced through opportunities for reflection and self-assessment.
3. **Empirical and Quantitative Skills** – Apply mathematical reasoning to collect, manipulate, and analyze experimental data in order to draw valid scientific conclusions.
4. **Teamwork** – Work effectively in collaborative laboratory settings by engaging constructively with peers, considering multiple perspectives, and contributing to the achievement of shared goals.

Technology Requirements

This course requires frequent use of **Blackboard**. Students must check it regularly for announcements, assignments, grades, and course materials. Key Blackboard tools include email, course documents, discussion boards, grade center, SafeAssign, and external links.

Basic Computer Skills Needed:

- Sending/receiving email with attachments
- Browsing the internet and downloading files
- Using word processing software (e.g., MS Word)
- A reliable computer with stable internet access
- A current web browser capable of streaming content and downloading materials
- Access to Blackboard using your **Lobo ID and password**

For assistance, tutorials are available on the Blackboard support page.

Participation Policy

This is a fully online course with no class meetings scheduled. However, active participation is expected. To start, please complete the non-graded **“Introduction” post** to introduce yourself to your classmates and your professor.

Students are expected to:

- **Log into Blackboard regularly** to check announcements, assignments, and deadlines
- **Complete all assignments and exams online** by their posted due dates
- **Contact the instructor via email** with any questions about course materials, assignments, or exams.

Consistent engagement is key to success in this course.

Attendance Policy

Although this is a fully online course, student engagement and participation are still mandatory. The University’s attendance policy applies to all distance learning courses. A student may be dropped with an **“F” grade** for excessive non-participation—defined as **more than 3 weeks of inactivity** in a long semester, **1 week in a summer session**, or **3 days in a midwinter session**.

- **Inactivity includes:**

- Not logging into Blackboard
- Not submitting assignments
- Not participating in required activities
- Not communicating with the instructor
- Not following the participation guidelines in the syllabus
- Students must respect academic integrity and copyright laws. All submitted work must be their own unless group work is specifically assigned. Additionally, students accessing the course from a remote site are expected to treat the host campus, its facilities, and staff with professionalism and care.
- Students are required to check their **SRSU email accounts regularly**, as all official communications—including those sent via Blackboard—will be directed there.

Late Assignment Submission Policy

All coursework and assignments must be submitted **by the stated deadlines**. Late work is generally **not accepted**, as students are informed of all due dates at the beginning of the term and are expected to plan accordingly.

Exceptions will only be made in cases of **documented and university-recognized excuses**. If a student misses an assignment or exam, they must promptly provide a valid explanation and supporting documentation.

Students are strongly encouraged to review the syllabus regularly and stay informed of all deadlines throughout the semester.

Academic Integrity

Students are expected to uphold the highest standards of academic honesty as outlined in the **Sul Ross Student Code of Conduct**. Any form of academic dishonesty—including **cheating, plagiarism, collusion, fabrication, or falsification of records**—will not be tolerated and will be addressed in accordance with university policies.

Definitions:

- **Cheating:** Using unauthorized materials or assistance during exams, altering academic records, or obtaining answers through dishonest means.
- **Plagiarism:** Submitting another's work, ideas, or words as your own without proper citation.
- **Collusion:** Assisting or being complicit in another student's academic dishonesty.

Using tools like **ChatGPT or other AI generators** is prohibited unless explicitly permitted for a specific assignment. Violations may result in penalties ranging from a failing grade on an assignment to failure of the course and may lead to further disciplinary action.

Maintaining academic integrity protects both the value of your education and the credibility of the university.

APA Style

This course will use the American Psychological Association (APA) Seventh Edition formatting and style guide for all written assignments. If you have any questions or concerns regarding the use of APA, a few resources have been provided below. Please note that all external sources must be appropriately cited. A failure to do so constitutes plagiarism and is a violation of the course academic honesty standards. Beside numerous online sources you can also visit the following link for help with APA https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html.

Student Support Services

Sul Ross State University offers various programs to help students succeed, including advising, counseling, mentoring, tutoring, supplemental instruction, and writing assistance. For a complete list of services, visit

Student Support Services at <https://www.sulross.edu/section/311/student-support-services>. For more information, contact SSS at (432) 837-9118 or visit Ferguson Hall, Room 105.

Counseling Services: Sul Ross students have access to nine free counseling sessions through TimelyCare. For 24/7 support, visit TimelyCare/SRSU. In-person counseling is also available in Ferguson Hall, Room 112 (Alpine campus), and via telehealth for remote and RGC students.

Students with Special Needs - Americans with Disabilities Act as Amended (ADAAA)

Sul Ross State University (SRSU) is committed to equal access in compliance with 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. Alpine students seeking accessibility/accommodations services must contact Mary Schwartze Grisham, M.Ed., LPC, SRSU's Accessibility Services Coordinator at 432-837-8203, or email mschwartz@sulross.edu. The office is located on the first floor of Ferguson Hall # 112, and the mailing address is P.O. Box C-122, SRSU, Alpine. Texas, 79832.

Course Evaluation

Important: Refer to the **course calendar** and **academic calendar** posted on Blackboard for all important **due dates** and **submission deadlines**.

Grading

Grading Components

Assessment	%
Homework (Blackboard multiple-choice homework)	30
Midterm Exam	30
Final Exam	40
Total Possible Points	100

Course Grade Scale

Letter Grade	Points Range
A	100 –90
B	89 – 80
C	79 – 60
D	59 –50
F	49 & below

Course Schedule

This course schedule is subject to change as needed to meet the needs of the course. Students will be notified of adjustments when they are made. Also, any additional reading materials, resources and other information will be posted on Blackboard.

Students will be notified of how to access this information by the instructor. ***All times are in central time***

Week	Dates	Topics	Assignments
1	August 25-31	<ul style="list-style-type: none"> - Course Introduction & Requirements - The Study of Chemistry - Classification of Matter - Properties of Matter 	Syllabus & Semester Project Guidelines Chapter 1: Classification and Properties of Matter
2	September 1-7 Sep 1 st , Labor Day No class	<ul style="list-style-type: none"> - Units of Measurement - Uncertainty in Measurement and Significant Figures 	Chapter 1
3	September 8-14	<ul style="list-style-type: none"> - Atomic Theory - Atomic Structure - Atomic Weights - Periodic Table 	Chapter 2: Atoms, Molecules, and Ions
4	September 15-21	<ul style="list-style-type: none"> - Molecules and Molecular Compounds - Ions and Ionic Compounds - Naming Inorganic Compounds - Some Simple Organic Compounds 	Chapter 2
5	September 22-28	<ul style="list-style-type: none"> - Chemical Equations - Simple Patterns of Chemical Reactivity - Formula Weights - Avogadro's Number and Mole 	Chapter 3: Chemical Reactions and Reaction Stoichiometry
6	Sep 29-Oct 5	<ul style="list-style-type: none"> - Empirical Formulas from Analyses - Quantitative Information from Balanced Equations - Limiting Reactants 	Chapter 3
7	October 6-12	<ul style="list-style-type: none"> - General Properties of Aqueous Solutions - Precipitation Reactions - Acids, Bases, and Neutralization Reactions - Oxidation-Reduction Reactions - Concentrations of Solutions - Solution Stoichiometry and Chemical Analysis 	Chapter 4: Reactions in Aqueous Solutions
8	October 13-19 October 17, Final Day for Midterm Exam	Midterm Exam	
9	October 20-26	<ul style="list-style-type: none"> - Physical Characteristic of Gases - The Gas Laws - The Ideal-Gas Equation - Gas Mixtures and Partial Pressures - The Kinetic-Molecular Theory of Gases - Calculation of reactant/product amounts in gaseous reactions using ideal gas 	Chapter 10: Gases

		equation	
10	October 27- Nov 2	<ul style="list-style-type: none"> - Molecular Speeds, Effusion, and Diffusion - Real Gases: Deviations from Ideal Behavior - The Wave Nature of Light - Line Spectra and the Bohr Model - The Wave Behavior of Matter 	Chapter 10 Chapter 6: Electronic Structure of Atoms
11	November 3-9	<ul style="list-style-type: none"> - Quantum Mechanics and Atomic Orbitals - De Broglie equation, dual nature of particles, Schrodinger wave equation and orbital concept by 4 quantum numbers - Representations of Orbitals - Many-Electron Atoms - Electron Configurations-Aufbau principle, Hund's rule, Pauli exclusion principle - Electron Configurations and the Periodic Table - Development of the Periodic Table - Effective Nuclear Charge - Sizes of Atoms and Ions 	Chapter 6 Chapter 7: Periodic Properties of the Elements
12	November 10-16	<ul style="list-style-type: none"> - Ionization Energy and Electron Affinity - Metals, Nonmetals, and Metalloids - Trends for Group 1A and Group 2A Metals - Trends for Selected Nonmetals 	Chapter 7
13	November 17-23	<ul style="list-style-type: none"> - Lewis Symbols and the Octet Rule - Ionic Bonding - Covalent Bonding - Bond Polarity and Electronegativity - Drawing Lewis Structures - Resonance Structures - Exceptions to the Octet Rule - Strengths and Lengths of Single and Multiple Bonds 	Chapter 8: Basic Concepts of Chemical Bonding
14	November 24-Nov 30 Thanksgiving Day Holiday (11 / 26-28)	<ul style="list-style-type: none"> - Molecular Shapes - The VSEPR Model - 	Chapter 9: Molecular Geometry and Bonding Theories

		<i>November 25th, the last day before Thanksgiving.</i>	
15	December 1-7 December 4	<ul style="list-style-type: none"> - Molecular Shape and Molecular Polarity - Covalent Bonding and Orbital Overlap - Hybrid Orbitals - Multiple Bonds - Molecular Orbitals - Molecular-Orbital description of period 2 Diatomic Molecules Last Class Day before Finals	Chapter 9:
15	December 5-7	Final Exams	

END OF COURSE EVALUATIONS: Student evaluations of faculty are administered online at the end of each term/session for all courses with five or more students. Students will receive an email containing a link to a survey for each course in which they are enrolled. All responses are anonymous.