South Plains College
Common Course Syllabus: CHEM 1412
Revised January 5, 2026

Department: Science

Discipline: Chemistry

Course Number: CHEM 1412

Course Title: General Chemistry II

Available Formats: conventional, fully online, hybrid, dual credit

Campus: Lubbock-Cooper High School

Course Description: (4:3:3) Chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. Basic laboratory experiments supporting theoretical principles presented in lecture; introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports. Semester Hours: 4 Lecture Hours: 3 Lab Hours: 3 Pre-requisite: A grade of "C" or better in CHEM 1411. Note: This course satisfies a 030 Life and Physical Sciences Core Curriculum requirement.

Prerequisites: A grade of "C" or better in CHEM 1411

Credit: 4 **Lecture:** 3 **Lab:** 1

Instructor: Micaela Brown
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E-mail: Upon email, I will reply within 2 school days.

Textbooks: OpenStax (online)

Supplies: All supplies provided

This course partially satisfies a Core Curriculum Requirement:

Life and Physical Sciences Foundational Component Area (030)

Core Curriculum Objectives addressed:

• Communications skills—to include effective written, oral and visual communication
• Critical thinking skills—to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
• Empirical and quantitative competency skills—to manipulate and analyze numerical data or observable facts resulting in informed conclusions
• Teamwork—to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Student Learning Outcomes:

From Lecture:

1. State the characteristics of liquids and solids, including phase diagrams and spectrometry.
2. Articulate the importance of intermolecular interactions and predict trends in physical properties.
3. Identify the characteristics of acids, bases, and salts, and solve problems based on their quantitative relationships.
4. Identify and balance oxidation-reduction equations, and solve redox titration problems.
5. Determine the rate of a reaction and its dependence on concentration, time, and temperature.
6. Apply the principles of equilibrium to aqueous systems using LeChatelier's Principle to predict the effects of concentration, pressure, and temperature changes on equilibrium mixtures.
7. Analyze and perform calculations with the thermodynamic functions, enthalpy, entropy, and free energy.
8. Discuss the construction and operation of galvanic and electrolytic electrochemical cells, and determine standard and non-standard cell potentials.
9. Define nuclear decay processes.
10. Describe basic principles of organic chemistry and descriptive inorganic chemistry.

From Lab:

1. Use basic apparatus and apply experimental methodologies used in the chemistry laboratory.
2. Demonstrate safe and proper handling of laboratory equipment and chemicals.
3. Conduct basic laboratory experiments with proper laboratory techniques.
4. Make careful and accurate experimental observations.
5. Relate physical observations and measurements to theoretical principles.
6. Interpret laboratory results and experimental data and reach logical conclusions.
7. Record experimental work completely and accurately in laboratory notebooks and communicate experimental results clearly in written reports.
8. Design fundamental experiments involving principles of chemistry.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Course Evaluation:

60% Formative grades (homework, notes check, lab notebook, quizzes)
40% Summative grades (tests, projects)

Homework: Homework will be assigned occasionally. It can be completed if there is extra time in class, otherwise it is to be completed at home.

Lab Experiments: This course includes in-person experiments conducted during scheduled lab sessions. Attendance and active participation in these sessions are required. All students must follow established safety protocols at all times. Proper lab attire and adherence to instructor guidance are mandatory. Failure to comply with safety rules may result in removal from the lab and a loss of credit for that activity.

Lab Grade: The provided lab notebook will be used during labs. It includes post lab questions and conclusions. It will be turned in after every lab session for a quiz grade.

Late Work: In the event that you are sick and are not able to make it to class, you will have 1 week from the time you are back on campus to get your work turned in. If I do not receive any of your work, it then becomes late. Late work will receive a maximum score of 70%. Students are expected to come into tutorials if they have missed class.

In the case that you are missing class for an extracurricular activity, doctor's appointment, or any other reason that you will have advanced notice for, you will need to come in BEFORE you leave to get the things that you will miss.

Extra Credit: There will be at least one extra credit opportunity a semester. Extra credit will not be accepted late.

Final Course Grade:

A: 90-100
B: 80-89
C: 70-79
D: 60-69

Attendance Policy: Students are expected to attend frequently in order to be successful in this course. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Students who enroll in a course but have "Never Attended" by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. If it is determined that a student is awarded financial aid for a class or classes in which the student never attended or participated, the financial aid award will be adjusted in accordance with the classes in which the student did attend/participate and the student will owe any balance resulting from the adjustment. This is in accordance with the policies set forth in the SPC General Catalog. This course information sheet contains the schedule of lectures and labs. If you are unable to finish this course, complete a withdrawal slip at the registrar's office.

Dropping a Course: Students may drop courses through Texan Connect, the Admissions and Records Office, or Advising and Testing Center through the late registration period.

After late registration has closed, a student must complete the online Student Initiated Drop Request to drop a course.

Students may also drop courses in person at any campus location by completing a Student Initiated Drop Form. Complete a Student Initiated Drop Form and return the signed form to the Levelland Admissions

and Records Office, the Student Support Center at the Lubbock Downtown Center, the Lubbock Career and Technical Center, or Plainview Center. You must have a picture ID to complete the drop.

A mark of "W" will be given for student-initiated drops that occur prior to and through the last day to drop as indicated in the online Academic Calendar found here: https://www.southplainscollege.edu/academiccalendar/index.php.

Syllabus Statements: For information about Artificial Intelligence, Disabilities, Non-Discrimination, Intellectual Exchange, Title IX Pregnancy Accommodations, CARE (Campus Assessment, Response, and Evaluation) Team, Campus Concealed Carry, and COVID-19, please use this link: https://www.southplainscollege.edu/syllabusstatements/.

Plagiarism and Cheating: Students are expected to do their own work on all projects, quizzes, assignments, examinations, and papers. Failure to comply with this policy may result in an F for the assignment and can result in an F or X for the course, if circumstances warrant.

Plagiarism violations include, but are not limited to, the following:

1. Submitting work that has been purchased, borrowed, or downloaded from another student or an online term paper site.
2. Cutting and pasting together information from books, articles, other papers, or online sites without providing proper documentation;
3. Using direct quotations (three or more words) from a source without showing them to be direct quotations and citing them; or
4. Missing in-text citations.
5. Violating the Artificial Intelligence policy, as outlined in the syllabus. For more information on AI, please reference this in the syllabus statements: https://www.southplainscollege.edu/syllabusstatements/

Cheating violations include, but are not limited to, the following:

1. Obtaining an examination by stealing or collusion;
2. Discovering the content of an examination before it is given;
3. Using an unauthorized source of information (notes, textbook, text messaging, internet, apps) during an examination, quiz, or homework assignment;
4. Entering an office or building to obtain unfair advantage;
5. Taking an examination for another;
6. Altering grade records;
7. Copying another's work during an examination or on a homework assignment;
8. Rewriting another student's work in Peer Editing so that the writing is no longer the original student's;
9. Taking pictures of a test, test answers, or someone else's paper.

Student Code of Conduct Policy: Any successful learning experience requires mutual respect on the part of the student and the instructor. Neither instructor nor student should be subject to others' behavior that is rude, disruptive, intimidating, aggressive, or demeaning. Student conduct that disrupts the learning process or is deemed disrespectful or threatening shall not be tolerated and may lead to disciplinary action and/or removal from class.

Lab Safety: The chemistry laboratory is a potentially hazardous environment. Therefore, all students must follow all of the safety rules given to you in the safety presentation. The students must also follow any specific safety rules listed in the lab manual and any that the instructor may announce.

Safety Rules: These safety rules will be given to you in class. The safety rules must be followed. You will be required to sign a sheet indicating you have read and agree to follow the safety rules before being allowed to perform an experiment.

Logging into the Course: You are not allowed to give your user ID and/or password to anyone. You will be dropped and given an F for your final grade if someone besides you is caught logging into this course under your user ID and/or password.

Course Schedule: The following table contains the tentative course schedule. All material (including lecture material, experiment material, and material scheduled for the chapter exams) is subject to change. Also, all dates are subject to change. Changes will be announced if necessary.

Week	Lecture	Lab	Exams
Week 1	Chapter 10: Liquids and Solids	Lab Safety	
Week 2	Chapter 11: Solutions and Colloids	Experiment 1: Determination of Molar Mass Using Boiling Point Elevation	
Week 3	Chapter 11 continued	Experiment 2: Determining the Concentration of a Solution: Beer's Law	Exam 1
Week 4	Chapter 12: Chemical Kinetics	Experiment 3: The Determination of an Equilibrium Constant	
Week 5	Chapter 13: Fundamental Equilibrium Concepts	Experiment 5: Acid-Base Titration	
Week 6	Chapter 14: Acid and Base Equilibria	Experiment 6: Determination of Ka by the Half-Titration of a Weak Acid	
Week 7	Chapter 16: Thermodynamics	Experiment 7: Buffers	Exam 2

Week 8	Ch. 16 continued	Experiment 9: Additivity of Heats of Reaction: Hess's Law	
Week 9		Experiment 10: The Enthalpy of Neutralization of Phosphoric Acid	
Week 10	Chapter 17: Electrochemistry		Exam 3
Week 11	Ch. 17 continued	Experiment 8: Ksp Determination of Sodium Chloride	
Week 12	Chapter 21: Nuclear Chemistry	Heat of Fusion:Ice	
Week 13	Ch. 21 continued	Experiment 11: Liquid Chromatography	Exam 4
Week 14	Intro to Organic chem. Chapter 20	Experiment 12: The Base Hydrolysis of Ethyl Acetate	
Week 15			FINAL EXAM