South Plains College
Common Course Syllabus: CHEM 1412
Revised 01/08/2026

Department: Science

Discipline: Chemistry

Course Number: CHEM 1412

Course Section: 001

Course Title: General Chemistry II

Available Formats: Face to face

Campuses: Levelland

Instructor: Dr. Bangshing Wang. Office S117B. **Email:** bwang@southplainscollege.edu

Office Hours:

Monday:	8:30 am ~ 9:30 am
Tuesday:	9:30 am ~ 11:00 am & 2:15 pm ~ 3:00 pm
Wednesday:	8:30 am ~ 9:30 am
Thursday:	9:30 am ~ 11:00 am & 2:15 pm ~ 3:00 pm
Friday:	9:30 am ~ 11:00 am

Course Description: CHEM1412: General Chemistry II. (4:3:3) Pre-requisites: A grade of C or better in General Chemistry I (CHEM1411). 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.

Prerequisite: A grade "C or better" from CHEM1411 (General Chemistry I)

Credit: 4 **Lecture:** 3 **Lab:** 3 **Textbook:** Openstax.org

Supplies: Required

- CHEM1412 lab manual. (Blackboard)
- Safety glasses/goggles
- Four maroon colored scantrons-Apperson Form 29240 (SPC Bookstore)

- Scientific calculator. Usage of cell phones *WILL NOT BE* allowed on exam!

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 Le Chatelier'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 and chemical instrumentation.
9. Identify appropriate sources of information for conducting laboratory experiments involving principles of chemistry.

Student Learning Outcomes Assessment:
Few topics/questions from the exams will be selected to assess the students learning outcomes at the end of semester.

Course Evaluation/Grading Policy:
LECTURE EXAMS and FINAL EXAM: There will be THREE exams and ONE final exam, they will be taken in class; these exams will cover the materials in the lecture notes, and the schedule of the exams are on the course schedule. Exams will be in a multiple-choice format. Only the materials discussed in the lecture notes will be on the exam, and you will have time to finish it. There will be no make-up for lecture exams unless a student is hospitalized. This will require documentation to be provided to the Dean of Students and/or the Associate Director of Health & Wellness. All other missed lecture exams will receive a grade of zero.

- Lecture exam 1 (Chapters 11 and 12) 100 points
- Lecture exam 2 (Chapters 13 and 14) 100 points
- Lecture exam 3 (Chapters 15 and 16) 100 points
- Final exam (Chapter 17, 18 and 19) 100 points

The materials scheduled for each lecture exam by subject to change, this change will be announced in advance if necessary.

EVIDENCE PORTFOLIO REVIEWS: Evidence portfolio will be assigned as extra credit for each exam worth 3 points. Students will complete this by themselves as homework, and this work is due on the day of the exam. This assignment is designed to help students understand what their strong and weak points are for the upcoming exam. Only the students who completed the assignment and turned in on time will receive 3 extra points to the exam.

EXAM PRACTICE REVIEW: There will be FOUR exam practice reviews, sole purpose of exam practice review is to help prepare for the exam, and it does not count towards the total grade. Highly recommend students spend quality time with the exam review as it will prepare you for the exam.

LAB ASSIGNMENTS: Lab assignments will be collected for grading at the end of each lab experiment day. Students will complete the lab assignments for grading before leaving the lab. Each lab assignment will be worth 10 points, which will add up to 150 points in your final grade. We will have a total of 18 assignments (labs and worksheets); The laboratory portion of this class will be comprised of topic discussion, practice worksheets and lab experiments. The lab portion of this course will consist of group work to perform lab experiments. There will be no make-up labs for the missed lab; students will receive ZERO for the lab section if missed.

Grading based on percentage:

A = 90 – 100%
B = 80 – 89%
C = 70 – 79%
D = 60 – 69%
F = below 60%

The grade distribution:

Total Exams:	400 points
Total Labs:	150 points
Total Possible point:	**550 points**

Attendance Policy:
It is vitally important that you plan your time and study lectures notes and attend all the laboratory experiments in order to do well in this course. ***Attendance will be taken until the census date (first 12 days of class). 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.***

Students are expected to attend all classes in order to be successful in a course. The student may be administratively withdrawn from the course when absences become excessive as defined in the course syllabus. When an unavoidable reason for class absence arises, such as illness, an official trip authorized by the college or an official activity, the instructor may permit the student to make up work missed. It is the student's responsibility to complete work missed within a reasonable period of time as determined by the instructor. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Should a student, for any reason, delay in reporting to a class after official enrollment, absences will be attributed to the student from the first-class meeting.

It is the student's responsibility to verify administrative drops for excessive absences through MySPC using his or her student online account. 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.

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 will result in a grade of ZERO for the assignment and can result in an F for the course if circumstances warrant.

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

1. Turning in a paper that has been purchased, borrowed, or downloaded from another student, an online term paper site, or a mail order term paper mill;
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.

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.

Email: When you have questions, problems, or comments, you can e-mail me directly to *bwang@southplainscollege.edu*. Please refrain from using the BlackBoard Course Messages tool to message me. I will respond to your email in a timely manner (within 24 hours), emails received after 10:00 PM on Monday through Thursday will receive a response next morning. Emails received on Friday through Sunday will get a response usually same day email received, unless email was sent after 10:00 PM. I generally will not check my email often during the weekend, but I will reply to your email in a timely manner when I see them.

Expectations when Corresponding: Please be polite, courteous, and respectful when communicating. Do not use profanity under any circumstances. Do not write disrespectful, insulting, mean, rude, profane, insensitive, or other hurtful messages or comments under any circumstances. Failure to abide by this policy will result in the appropriate disciplinary actions.

Online Disclaimer: This is to notify you that materials you may be accessing in chat rooms, e-mails, discussion forums or unofficial web pages are not officially sponsored by the instructor or South Plains College. The United States Constitution rights of free speech apply to all members

of our community regardless of the medium used. The instructor and South Plains College disclaim all liability for data, information or opinions expressed in these forums.

Minimum Computer Requirements:

1. Personal computer
2. Web Browser: Google Chrome works best
3. A high-speed internet connection
4. Microsoft Word and Microsoft PowerPoint software (a recent version)
5. Software or Program to read PDFs
6. A good soundcard and functioning speakers
7. Knowledge of how to navigate web pages and how to deal with pop-up blockers and other devices and warnings on your browser
8. Knowledge of how to download files from the internet and find them on your computer once they are downloaded
9. Knowledge of basic operations of Microsoft Word and Microsoft PowerPoint
10. Knowledge of how to view and adjust videos

Copyright Notice: All material presented by the instructor in this online class is copyright protected. The material presented by the instructor may not be modified or altered in any way. You have permission to print out **one** copy of any material presented by the instructor in this online class (course syllabus, lecture notes, lab experiments and exam reviews). The one copy must only be used for your personal educational use during this semester. The material may not be altered or modified in any way. The material may not be distributed in any way. You have permission to download the same material to your computer hard drive or other medium in order to print out the material. Any material downloaded must only be used for your personal educational use. The downloaded material may not be altered or modified in any way. The downloaded material may not be distributed in any way.

Computer Problems or Blackboard Server Problems: If a student's internet connection goes down, or a student's computer crashes or otherwise becomes inoperable for Blackboard, it is the responsibility of the student to have their internet connection and/or computer repaired as soon as possible in order to avoid getting behind in the class. While the computer and/or internet connection is being repaired, the student should seek an alternate computer. This could be a friend's computer, a relative's computer, a computer at a library, or a computer at the computer lab on the Levelland or Reese campuses. It will be the student's responsibility to find an alternate computer to avoid getting behind in the class. Internet problems and/or the crash or inoperability of a computer will not be an acceptable excuse for being late with any assignments or getting behind with the chapter modules*. It is the responsibility of the student to have a backup plan in place.* If the Blackboard server goes down, the appropriate time extensions on any quizzes will be determined and announced by the instructor.

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.

For information regarding official South Plains College statements about **Intellectual Exchange, Disabilities, Non-discrimination, Title IX Pregnancy Accommodations, CARE Team, Campus Concealed Carry, COVID-19, Student Identification Verification Pictures, and Artificial Intelligence Statement please visit** https://www.southplainscollege.edu/syllabusstatements/.

Course Schedule

Week of		Monday Lecture	Monday Lab	Wednesday Lecture	Wednesday Lab
#1	01/12	Introduction	No lab	Chapter 11	No lab
#2	01/19	***MLK Holidays***		Chapter 11	Lab safety
#3	01/26	Chapter 11	Lab WS #1: Solutions	Chapter 12	Exp 1: Boiling point elevation
#4	02/02	Chapter 12	Exp 2: Using freezing point depression.	Chapter 12	Lab WS #2: Kinetics of Br_2
#5	02/09	***Exam 1***		Chapter 13	Exam 1 correction
#6	02/16	Chapter 13	Exp 12: The base hydrolysis of ethyl acetate	Chapter 13	Exp 3: Beer's law
#7	02/23	Chapter 14	Lab WS #3: Equilibrium	Chapter 14	Exp 5: Acid base titration
#8	03/02	Chapter 14	Lab WS #4: Acid & base	***Exam 2***	
#9	03/09	Chapter 15	Exam 2 correction	Chapter 15	Exp 7: Buffers
Spring Break					
#10	03/23	Chapter 15	Lab WS#5: Common ion & strong acid titration	Chapter 15	Exp 6: Determination of Ka by half-titration
#11	03/30	Chapter 16	Lab WS#6: Weak-strong titration	Chapter 16	Exp 8: Determination of Ksp of NaCl
#12	04/06	Chapter 16	Lab WS#7: Thermodynamics	***Exam 3***	
#13	04/13	Chapter 17	Exam 3 correction	Chapter 17	Exp 11: Liquid chromatography
#14	04/20	Chapter 17 & 18	Lab WS#8: Redox Reactions	Chapter 18	No lab
#15	04/27	Chapter 18 & 19	Lab WS#9: Nuclear reactions	Chapter 19	No lab
#16	05/04	***Final Exam*** *Monday 05/04 at 10:15am ~ 12:15pm in our classroom*			

Note: Final exam time maybe different from normal lecture exam time