South Plains College
Common Course Syllabus: CHEM 1412
Revised 08/17/2020

Department: Science

Discipline: Chemistry

Course Number: CHEM 1412

Course Section: 002

Course Title: General Chemistry II

Available Formats: FLEX Learning (Lecture Online, Lab Face to Face)

Campuses: Levelland

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

Office Hours:

Monday and Wednesday:	7:30 am ~ 8:00 am, 2:15 pm ~ 2:30 pm
Tuesday and Thursday:	7:30 am ~ 9:30 am
Friday:	7:30 am ~ 10:00 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: Raymond Chang & Jason Overby, Chemistry 13th Edition. (ISBN 978-1-259-91115-6) (Recommended)

Supplies: Required

- CHEM1412 lab manual
- Safety glasses/goggles
- 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: There will be THREE exams and they will be taken on *Blackboard*; 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 designated time to finish the exam. There will be no make-ups for lecture exams unless a student is hospitalized due to COVID. 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 12 and 13) 100 points
- Lecture exam 2 (Chapters 14 and 15) 100 points
- Lecture exam 3 (Chapters 16 and 17) 100 points

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

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 EXPERIMENTS/PRACTICES: Lab reports/practices 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 140 points of your final grade. We will have total 14 labs and worksheet assignments; 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.

FINAL EXAM: The final exam will cover chapter 18, 19 and 24, they will be taken on *Blackboard*. The schedule of the final exam is on the course schedule. There will be no make-up exam for the final exam. The final exam will count 100 points. The format will be multiple-choice, and a maroon scantron is required for the exam. Only the materials covered in the lectures will be on the exam and you will have designated class time to finish the exam. There will be no makeup for final exams; missed final exam will result in a grade of ZERO.

Grading based on percentage:

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

The grade distribution:

Lecture Exam 1:	100 points
Lecture Exam 2:	100 points
Lecture Exam 3:	100 points
Final Exam:	100 points
Lab Experiments:	140 points
Total Possible point:	**540 points**

Attendance Policy:
It is vitally important that you attend all lectures and labs in order to do well in this course. If you miss *TEN* or more assignments (lab experiments and exams), I will drop you from the course with a grade of X, F, or U. *If student is out due to COVID-19 or exposure to COVID-19, the appropriate equivalent arrangements will be made for that student to complete the assignments missed during quarantine period.*

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. 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. A student who does not meet the attendance requirements of a class as stated in the course syllabus and does not officially withdraw from that course by the official census date of the semester, may be administratively withdrawn from that course and receive a grade of "X" or "F" as determined by the instructor. Instructors are

responsible for clearly stating their administrative drop policy in the course syllabus, and it is the student's responsibility to be aware of that policy. 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. This ZERO will not be replaced at the end of semester.

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.

COVID-19
It is the policy of South Plains College for the Fall 2020 semester that as a condition of on-campus enrollment, all students are required to engage in safe behaviors to avoid the spread of COVID-19 in the SPC community. Such behaviors specifically include the requirement that all students properly wear CDC-compliant face coverings while in SPC buildings including in classrooms, labs, hallways, and restrooms. Failure to comply with this policy may result in dismissal from the current class session. If the student refuses to leave the classroom or lab after being dismissed, the student may be referred to the Dean of Students on the Levelland campus or the Dean/Director of external centers for Student Code of Conduct Violation.

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.

Diversity Statement: In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the larger world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it should and can be.

Disability Statement: Students with disabilities, including but not limited to physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Disability Services Office early in the semester so that the appropriate arrangements may be made. In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Disability Services Office. For more information, call or visit the Disability Services Office at Levelland (Student Health & Wellness Office) 806-716-2577, Reese Center (Building 8) 806-716-4675, or Plainview Center (Main Office) 806-716-4302 or 806-296-9611.

Nondiscrimination Policy: South Plains College does not discriminate on the basis of race, color, national origin, sex, disability or age in its programs and activities. The following person has been designated to handle inquiries regarding the non-discrimination policies: Vice President for Student Affairs, South Plains College, 1401 College Avenue, Box 5, Levelland, TX 79336. Phone number 806-716-2360.

Title IX Pregnancy Accommodations Statement: If you are pregnant, or have given birth within six months, Under Title IX you have a right to reasonable accommodations to help continue your education. To activate accommodations you must submit a Title IX pregnancy accommodations request, along with specific medical documentation, to the Director of Health and Wellness. Once approved, notification will be sent to the student and instructors. It is the student's responsibility to work with the instructor to arrange accommodations. Contact the Director of Health and Wellness at 806-716-2362 or email cgilster@southplainscollege.edu for assistance.

SAFETY RULES: *As a faculty member, I am deeply invested in the well-being of each student I teach. I am here to assist you with your work in this course. If you come to me with other non-course-related concerns, I will do my best to help. It is important for you to know that all faculty members are mandated reporters of any incidents of sexual misconduct. That means that I cannot keep information about sexual misconduct confidential if you share that information with me. Dr. Lynne Cleavinger, the Director of Health & Wellness, can advise you confidentially as can any counselor in the Health & Wellness Center. They can also help you access other resources on campus and in the local community. You can reach Dr. Cleavinger at 716-2563 or lcleavinger@southplainscollege.edu or go by the Health and Wellness Center. You can schedule an appointment with a counselor by calling 716-2529*

Course Schedule: CHEM1412.002

	Tue or Thurs	9:30 - 12:15
Week 1	08/25 or 08/27	No lab
Week 2	09/01 or 09/03	• Lab safety • Lab WS 1: Solutions • EXP 1: Boiling point elevation
Week 3	09/08 or 09/10	• Lab WS 2: Kinetics of bromine *(Homework Lab, email submit, will not meet in building)*
Week 4	09/15	**Exam 1** *On Blackboard/Online (please don't come to lab)* *Tuesday, 09/15, 9:30 AM – 12:30 AM* *It is 2 hour timed exam!*
Week 5	09/22 or 09/24	• EXP 2: Beer's law • EXP 3: Vitamin c tablets
Week 6	09/29 or 10/01	• Lab WS 3: Equilibrium • EXP 4: Acid-base titration
Week 7	10/06 or 10/08	• Lab WS 4: Acids and bases • EXP 5: Determination of Ka by half titration of a weak acid
Week 8	10/13	**Exam 2** *On Blackboard/Online (please don't come to lab)* *Tuesday, 10/13, 9:30 AM – 12:30 AM* *It is 2 hour timed exam!*
Week 9	10/20 or 10/22	• Lab WS 5: Common ion & Strong-strong titration • EXP 6: Buffers
Week 10	10/27 or 10/29	• Lab WS 6: Weak-strong titration
Week 11	11/03 or 11/05	• EXP 7: Buffer in lemonade
Week 12	11/10	**Exam 3** *On Blackboard/Online (please don't come to lab)* *Tuesday, 11/10, 9:30 AM – 12:30 AM* *It is 2 hour timed exam!*
Week 13	11/17 or 11/19	• EXP 8: Ksp determination
Week 14	11/24 or 11/26	*THANKSGIVING HOLIDAY*
Week 15	12/01 or 12/03	No lab
Week 16	12/08 Tuesday	**Final Exam** *On Blackboard/Online (please don't come to lab)* *Tuesday, 12/08, 10:00 AM – 1:00 PM* *It is 2 hour timed exam!*

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