South Plains College
Common Course Syllabus: CHEM 1412
Revised Spring 2023

Department: Science

Discipline: Chemistry

Course Number: CHEM 1412-002

Course Title: General Chemistry II

Available Formats: Conventional

Campus: Levelland

Classroom: S119

Instructor Information:
Shawn Horn, M.S.
Office: S107
E-mail: sthorn@southplainscollege.edu

OFFICE HOURS:

M	1:00 – 2:00
T	4:00 – 5:30
W	1:00 – 2:00
R	4:00 – 5:30
F	9:30 – 11:30, 1:00 – 2:00

Course Description: 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.

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

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

Purchases:

- General Chemistry, 1st Ed., S. Horn **(Required)**
  - Purchase instructions given in Course Resources section on Blackboard
- CHEM 1412 Lab Manual **(Required)**
- Safety Goggles/Glasses (**Required)**
- Scientific Calculator (**Required)**
- 5 Maroon Scantrons (**Required)**

This course satisfies a core curriculum requirement: Yes – Life and Physical Science

Core Objectives Addressed:

- **Communication 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 skills -** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **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

Student Learning Outcomes/Competencies:

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.

Course Evaluation:

A = 89.50 – 100%
B = 79.50 – 89.49%
C = 69.50 – 79.49%
D = 59.50 – 69.49%
F = below 59.49%

Lecture Exam 1: 100 pts
Lecture Exam 2: 100 pts
Lecture Exam 3: 100 pts
Lecture Exam 4: 100 pts
Pre-lab Quizzes: 50 pts
Post-lab Questions: 60 pts
Chapter Worksheets: 50 pts
Final Exam: 100 pts
Possible Bonus Points: 25 pts
Total Possible Points: 650
(One lowest lab dropped)

Attendance Policy: It is important that you attend all lectures and labs to do well in this course. Attendance will be taken in the form of grades for work completed in class. There will be no makeup exams or labs. You will receive a ZERO for any worksheets, labs, or exams missed. If you are unable to finish this course, complete a withdrawal slip at the registrar's office. Absences caused by official South Plains College activities or COVID will be excused.

Grading on a Curve: This course is graded on a curve, meaning that it is guaranteed that at least 70% of the students will pass with a C or better. Within this 70%, at least 15% will be A, 25% will be B, and 30% will be C. After each exam, results will be posted on the wall outside my office (S107) with your relative position in the class. This will represent the *minimum* grade you will receive in the course. If your current grade is higher than that, then you receive the higher of the 2 grades. The curve will be applied across all my courses, not just this section. Your position within the curve will change throughout the semester as your exam scores go up or down. Even if your grades look poor, you won't need to drop the course unless you are outside the curve. If more than 70% of students pass the course, then no curve will be applied. **In order to qualify for the curve, you must maintain an 80% homework and lab average.**

Lecture Exams: There will be 4 lecture exams; these exams will cover the materials discussed in the lectures, and the schedule of the lecture exams are on the course schedule along with lecture information. Some information will be given on each exam such as equations, charts, and tables. Lecture exams will generally be in a multiple-choice format, 33 questions in length, with the occasional free-response question. Only the materials discussed in the lectures will be on the exam. The first 25 questions will be over the 2 chapters just learned, while last 8 questions will be over previous chapters. You will be given the full **2 hour and 45 minutes** to finish the exam, but you should not need that much time. There will be a review packet for each exam. If the review is completed (by hand) and turned in at the exam time, **you can receive up to 5 bonus points** on your exam based on completion and effort (not accuracy).

- Lecture exam 1 (Chapters 11 and 12)
- Lecture exam 2 (Chapters 13 and 14)
- Lecture exam 3 (Chapters 15 and 16)
- Lecture exam 4 (Chapters 17 and 18
- Final exam (Chapters 11-20)

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

Final Exam: The final exam is cumulative of the full semester. It will be 40 questions in length. Each chapter will have 3 questions, except chapters 19 and 20, which will have 8 questions each. The final exam will carry the same weight as the lecture exams, but additionally it will serve as a lecture exam grade replacer. If your final exam score is higher than one of your lecture exams, it will count as the final exam score and replace that score. **This can only be used to replace your one lowest exam score.**

Lab Experiments: Students are expected to read the lab manual for the given experiment each week before coming to class. A pre-lab quiz will be given at the beginning of lab (5 pts). Lab data and calculations will be collected for grading at the end of each lab period (5 pts each).

Lab Safety: The chemistry laboratory is a potentially hazardous environment; therefore, all students must follow all of the safety rules passed out to you during the safety presentation. The students must also follow any specific safety rules listed in the lab manual and any that the instructor may announce during a lab period. A student not following the safety rules may be asked to leave the laboratory.

Safety Rules: These safety rules will be passed out in lab. The safety rules must be followed. Failure to do so can result in you being asked to leave the laboratory. You will be required to sign a sheet indicating you have read and agreed to follow the safety rules before being allowed to perform an experiment.

Academic Integrity: Cheating (as defined in the SPC General Catalog) will not be tolerated. If a student is caught cheating on an exam, a grade of ZERO will be given for that exam and that grade will NOT be dropped as lowest exam grade at the end of semester.

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.

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 806-716-2362or email cgilster@southplainscollege.edu for assistance.

SPC COVID Policy: If you are experiencing any of the following symptoms, please do not attend class and either seek medical attention or get tested for COVID-19.

- Cough, shortness of breath, difficulty breathing
- Fever or chills
- Muscles or body aches
- Vomiting or diarrhea
- New loss of taste and smell

Please also notify DeEtte Edens, BSN, RN, Associate Director of Health & Wellness, at dedens@southplainscollege.edu or 806-716-2376.

Absences due to COVID must be confirmed by Mrs. Edens. Without confirmation from her, absences will remain unexcused and grades from those absences will not be able to be made up.

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

Week #	Monday	Wednesday
1 1/16	MLK Day No Class	Intro/Syllabus
2 1/23	CHEM I Lecture Review	Chp 11
3 1/30	CHEM I Lab Review	Chp 12
4 2/6	Lab Worksheet 1 Pgs. 62-64	**Exam 1**
5 2/13	Exp 1	Chp 13
6 2/20	Exp 2	Chp 14
7 2/27	Exp 3	**Exam 2**
8 3/6	Exp 4	Chp 15
9 3/13	**SPRING**	**BREAK**
10 3/20	Exp 5	Chp 16
11 3/27	Lab Worksheet 3 Pgs. 70-71	**Exam 3**
12 4/3	Exp 6	Chp 17
13 4/10	Exp 7	Chp 18
14 4/17	Exp 8	**Exam 4**
15 4/24	Exp 10	Chp 19
16 5/1	Exp 12	Chp 20

FINAL EXAM SCHEDULE:
Monday, May 8, 2023
10:15 – 12:15
Room: S119