

South Plains College
Common Course Syllabus: CHEM 1412
Revised Spring 2022

Department: Science

Discipline: Chemistry

Course Number: CHEM 1412-003

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 4:00 – 5:30

T 4:00 – 5:30

W 4:00 – 5:30

R 4:00 – 5:30

F 1:00 – 3:00

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:

- Chemistry, 13th Ed., R. Chang and J. Overby (**Recommended**)
- CHEM 1412 Lab Manual (**Required**)
- Safety Goggles/Glasses (**Required**)
- Scientific Calculator (**Required**)
- 4 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.

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 points

Lecture Exam 2: 100 points

Lecture Exam 3: 100 points

Practice Worksheets: 45 pts

Pre-lab Quizzes: 50 points

Post-lab Questions: 60 points

Final Exam: 100 points

Possible Bonus Points: 20 points

Total Possible points: 445 points

one lowest midterm exam and lab will be 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.

Lecture Exams: There will be 3 lecture exams and a final exam; 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. **All exams, including the final, are open-note.** This includes any notes, worksheets, or supplemental documents (some exclusions may apply). Lecture exams will generally be in a multiple-choice format, 25 questions in length, with the occasional free-response question. Only the materials discussed in the lectures will be on the exam. You will be given **1 hour and 15 minutes** to finish the exam. 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 (Chapter 12)
- Lecture exam 2 (Chapters 13 and 14)
- Lecture exam 3 (Chapters 15 and 16)
- Final exam (Chapters 17-19, and 24)

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 will be semi-comprehensive, covering chapters 17–19 and 24. The final exam will be 40 questions (mostly multiple choice). Only the materials covered in the lectures will be on the exam and you will have 2 hours to finish the exam. There will be no make-up for final exams, missed final exam will result in a grade of ZERO.

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 806-716-2362 or [email cgilster@southplainscollege.edu](mailto: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 1/17	MLK Day No Class	Intro/Syllabus
2 1/24	Chapter 12	Lab Worksheet 1 Pgs. 62-64
3 1/31	Exp. 1	Exam 1
4 2/7	Chapter 13	Exp. 2
5 2/14	Chapter 14	Exp. 3
6 2/21	Exam 2	Exp. 4
7 2/28	Chapter 15 Part 1	Chapter 15 Part 2
8 3/7	Exp. 5	Chapter 16 Part 1
9 3/14	SPRING	BREAK
10 3/21	Chapter 16 Part 2	Exp. 6
11 3/28	Lab Worksheet 3 Pgs. 70-71	Exam 3
12 4/4	Chapter 17	Exp. 7
13 4/11	Chapter 18 Part 1	Chapter 18 Part 2
14 4/18	Exp. 8	Chapter 19
15 4/25	Exp. 10	Chapter 24
16 5/2	Exp. 12	Final Exam Review

FINAL EXAM SCHEDULE:

Monday, May 9, 2022

1:00 – 3:00

Room: S119