

South Plains College
Common Course Syllabus: CHEM 1406
Revised Fall 2024

Department: Science

Discipline: Chemistry

Course Number: CHEM 1406-007

Course Title: Introductory Chemistry I

Available Format: Conventional

Campus: Levelland

Classroom: S101

Instructor Information:

Shawn Horn, M.S.

Office: S107

E-mail: sthorn@southplainscollege.edu

OFFICE HOURS:

M 1:00 – 2:00

T 9:00 – 11:00

W 1:00 – 2:00

R 9:00 – 11:00

F 1:00 – 3:00

Course Description: Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/ consumer chemistry. Designed for non-science and allied health students. Basic laboratory experiments supporting theoretical principles presented in lecture; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. Semester Hours: 4 Lecture Hours: 3 Lab Hours: 3 Note: This course may not be substituted for CHEM 1411.

Prerequisite: None

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

Purchases:

- Safety Goggles/Glasses (**Required**)
- Scientific Calculator (**Required**)

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. Convert units of measure and demonstrate dimensional analysis skills
2. Define the fundamental properties of matter and classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Distinguish between ionic and covalent compounds and name the different compounds.
5. Identify trends in chemical and physical properties of the elements using the periodic table.
6. Determine the role of energy in physical and chemical reactions.
7. Use the mole concept to determine the number of atoms, moles, grams, and solve elementary stoichiometry-based calculations.
8. Determine the concentrations of solutions using percentage and molarity designations.
9. Use various characteristics of a solution to identify it as an acid or base.
10. Identify and name various organic compounds.
11. Identify and explain the functions of carbohydrates, lipids, and proteins.

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:

A = 89.50 – 100%

B = 79.50 – 89.49%

C = 69.50 – 79.49%

D = 59.50 – 69.49%

F = below 59.49%

Elements Test: 20 pts

Polyatomics Test: 20 pts

Lecture Exam 1: 100 pts

Lecture Exam 2: 100 pts

Lecture Exam 3: 100 pts

Lecture Exam 4: 100 pts

Homework: 5 pts ea (55 pts)

Pre-Lab Quizzes: 5 pts ea (55 pts)

Post-lab Questions: 5 pts ea (55 pts)

Final Exam: 100 pts

Possible Bonus Points: 25 pts

Total Possible Points: 690 pts

*One lowest homework and
lab will be dropped*

Attendance Policy: It is important that you attend all lectures and labs in order 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 experiments. You will receive a ZERO for any homework, experiments, 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 will be excused. **If you miss 4 consecutive classes or 7 total classes, you may be dropped by the instructor with an X or F depending on your current standing.**

Lecture Exams: There will be 4 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. Lecture exams will generally be in a multiple-choice format, ~28 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.

All lecture exams will be **closed-note**. There will be some information given on the back page of each exam such as constants, conversions, charts, and tables. You will be informed ahead of time as to what will be given. **However, on Exams 2, 3, and 4, you will be allowed to use a 3x5 notecard.**

- Lecture Exam 1 (Chapters 1, 2, and 3)
- Lecture Exam 2 (Chapters 4 and 5)
- Lecture Exam 3 (Chapters 6 and 7)
- Lecture Exam 4 (Chapters 8 and 9)
- Final exam (Chapters 1 – 11)

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

Lab Experiments: Students are expected to **read and print** 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 graded at the end of each lab period (5 pts each). There will be NO make-up labs allowed. If a student misses a lab, the student will receive a grade of ZERO for the lab missed. If a student is causing disruptions, they will be sent home and given a ZERO.

Final Exam: The final exam comprehensive, covering chapters 1-11. The final exam will be 45 mostly multiple-choice questions. 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 make-up for final exams, missed final exam will result in a grade of ZERO. This exam is **open-note**. **This exam will have bonus questions for up to 10 points.** 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 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 ones 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.

For information regarding official South Plains College statements about intellectual exchange, disabilities, non-discrimination, Title IX Pregnancy Accommodations, CARE Team, and Campus Concealed Carry, please visit <https://www.southplainscollege.edu/syllabusstatements/>

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 # | Tuesday | Thursday |
|--------------------|-----------------------------------|---------------------------------------|
| 1 8/26 | Intro/Syllabus Periodic Table | Lab Safety |
| 2 9/2 | Chp. 1 Chp. 1 Lab | Chp. 1 Elements Test |
| 3 9/9 | Chp. 2 Exp. 1 | Chp. 2 Polyatomics Test |
| 4 9/16 | Chp. 3 Exp. 2 | Chp. 3 Exp. 13 |
| 5 9/23 | Chp. 4 No Lab | Exam 1: Chp. 1, 2, 3 |
| 6 9/30 | Chp. 4 Chp. 4 Lab | Chp. 5 Exp. 4 |
| 7 10/7 | Chp. 5 Exp. 5 | Chp. 6 Exp. 10 |
| 8 10/14 | Exam 2 Chp. 4, 5 | Chp. 6 Chp. 6 Lab |
| 9 10/21 | Chp. 7 Exp. 9 | Chp. 7 Exp. 7 |
| 10 10/28 | Exp. 16 in Class No Lab | Exam 3 Chp 6, 7 |
| 11 11/4 | Chp. 8 Chp. 8 Lab | Chp. 8 Chp. 8 Lab |
| 12 11/11 | Chp. 9 No Lab | Chp. 9 Chp. 9 Lab |
| 13 11/18 | Chp. 10 Exp. 12 | Exam 4 Chp. 8, 9 |
| 14 11/25 | Chp. 10 Exp. 6 | Thanksgiving No Class |
| 15 12/2 | Chp. 11 No Lab | Chp. 11 No Lab |

| Homework | Due Date |
|-----------------|-----------------|
| HW 1 | 9/10 |
| HW 2 | 9/17 |
| HW 3 | 9/24 |
| HW 4 | 10/3 |
| HW 5 | 10/10 |
| HW 6 | 10/22 |
| HW 7 | 10/29 |
| HW 8 | 11/12 |
| HW 9 | 11/19 |
| HW 10 | 12/3 |
| HW 11 | 12/10 |

FINAL EXAM SCHEDULE:

Date: Tuesday, December 10, 2024

Time: 1:00 – 3:00

Room: S101