**South Plains College**

**Common Course Syllabus: CHEM1406**

**Fall 2025**

**Department:** Science

**Discipline:** Chemistry

**Course Number:** CHEM1406

**Course Title:** Introductory Chemistry

**Available Formats:** Conventional (Fully Face-to-Face)

**Campus:** Dual Credit – Plainview Collegiate High School (Lab at SPC Extension Center in Plainview)

**Instructor:** Tracy Dawson; [tracy.dawson@plainviewisd.org](mailto:tracy.dawson@plainviewisd.org); Room: PCHS 103/SPC 117; 806-293-6005.

**Course Description:** Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for allied health students and for students who are not science majors. 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. This course may not be substituted for CHEM 1411.

**Prerequisite:** None

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

**Textbook:** No textbook required**;** SPC CHEM 1406 Laboratory Manual

**Supplies:** 3-ring binder, index cards, map colors, CHEM1406 lab manual (printed and online), scientific calculator (cell phones cannot be used as a calculator).

**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, 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, and 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:** Grading Scale: A – 90-100, B – 80-89, C – 70-79, D – 60-69, F – 0-59

Grading Categories: Lecture exams – 50%,

Labs – 15%

Quizzes – 15%

Final Exam – 20%

Students will be evaluated through weekly quizzes, lecture exams, and laboratory performance. Typically, weekly quizzes and exams will be administered on either Fridays or Mondays, and lab exercises are conducted on Wednesdays of each week. Labs will be due the following Wednesday. Lab assignments will NOT be accepted late. If you are absent for a quiz, the makeup must be completed by 4:30 pm on the following Thursday (if the quiz was given on Monday) and due on the following Tuesday (if the quiz was given on Friday), as the feedback will be posted on Blackboard at that time. A zero will be given if the quiz is NOT taken by that time. There will be five forty-five-minute exams and a final exam.

Exams cover 1/5 of the class material. The lowest Exam grade will be dropped near the end of the semester. One of your lowest quiz and lab grades will be dropped at the end of **each** six weeks. All grades will be dropped before the last day to drop the course, so you can decide whether you need to drop the course or not. The final will be comprehensive, covering the entire semester's worth of material. There will be no retake opportunities for quizzes/exams. If you find that you cannot sit an exam for a valid reason (as decided by me), you must inform me as soon as possible before the exam. If you do not sit the exam without first contacting me, you will receive a score of zero for that exam, with no opportunity for a makeup. No assignment may be completed after feedback has been posted on Blackboard. If AI is used on any assignment, plagiarism is discovered, or cheating is attempted, a grade of zero will be given; the second occurrence will result in the student being withdrawn from the course with no credit. It is imperative that you study the content throughout the semester to be successful in chemistry. If you are suspected of academic dishonesty for any of the following reasons: involving the use of AI, using your phone for answers, finishing an quiz/exam in a short amount of time, writing in a form that does not match your abilities, or any other forms of suspected of academic dishonesty, you will receive a zero on the assignment/quiz/lab/exam. If you choose to recover that grade, you can schedule an oral assignment/quiz/lab/exam with me within a week of when you receive your grade.

**Attendance Policy:** Lecture and laboratory attendance are mandatory. If you miss 5 classes throughout the semester, you may be dropped from the course. If you miss 3 consecutive classes for any reason, you may be dropped from the course. Class participation is not a grade requirement. I encourage you to ask questions during class. You are expected to take notes and be attentive to classroom instruction.

**Dropping a Course:** Students may drop courses through Texan Connect, the Admissions and Records Office, or the Advising and Testing Center through the late registration period. After late registration has closed, a student must complete the online [Student Initiated Drop Request](https://forms.office.com/Pages/ResponsePage.aspx?id=ZrGRbWrP6UWeIqAmJdCCqVjMnZs6h15Nrs0pqCo_sElUODExTUFXS0JOODhJOTlYM0NEV1kzRk9GMSQlQCN0PWcu) to drop a course.

Students may also drop courses in person at any campus location by completing a Student Initiated Drop Form. Complete a [Student Initiated Drop Form](https://forms.office.com/Pages/ResponsePage.aspx?id=ZrGRbWrP6UWeIqAmJdCCqVjMnZs6h15Nrs0pqCo_sElUODExTUFXS0JOODhJOTlYM0NEV1kzRk9GMSQlQCN0PWcu) and return the signed form to the Levelland Admissions and Records Office, the Student Support Center at the Lubbock Downtown Center, the Lubbock Career and Technical Center, or the Plainview Center. You must have a picture ID to complete the drop.

A mark of “W” will be given for student-initiated drops that occur before and through the last day to drop, as shown in the online Academic Calendar found here: <https://www.southplainscollege.edu/academiccalendar/index.php>.

Please discuss dropping the course first with the instructor and then visit with the PCHS counselor.

**Syllabus Statements:** For information about Artificial Intelligence, Disabilities, Non-Discrimination, Intellectual Exchange, Title IX Pregnancy Accommodations, CARE (Campus Assessment, Response, and Evaluation) Team, Campus Concealed Carry, and COVID-19, please use this link: <https://www.southplainscollege.edu/syllabusstatements/>. PCHS Honor code and AI policy may be found in SPC Blackboard course.

**Plagiarism and Cheating:** Students are expected to do their work on all projects, quizzes, assignments, examinations, and papers. Failure to follow this policy may result in an F for the assignment and can result in an F or X for the course if circumstances warrant.

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

1. Submitting work bought, borrowed, or downloaded from another student or an online term paper site.
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.
5. Violating the Artificial Intelligence policy, as outlined in the syllabus. For more information on AI, please reference this in the syllabus statements: <https://www.southplainscollege.edu/syllabusstatements/>

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 an 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.

#### Exam Schedule

EXAM 1. Sept. 8th Chapters 1&2 Cumulative Final: December 11th, 8:00 am cafe.

EXAM 2. Sept. 23rd Chapter 3 (Dec. 4th - last day to drop a course)

EXAM 3. October 27th Chapter 4

EXAM 4. November 17th Chapters 5&6

EXAM 5. December 5th Chapter 7&8

**Schedule**

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| **Week** | **Date** | **Topic** |
| Week 1 | August 12 | Introductions/go over syllabus/lab notebook/Blackboard/element list/supplies, check personal email for Bb login, Scavenger Hunt for Syllabus assignment |
|  | August 13 | Chap1 Slides 1-12,39-40 metric system & prefixes |
|  | August14 | Access SPC Bb if possible; Chap1 Slides 13-27; measured numbers, sig figs (can use reference sheet for rules); short Sig fig POGIL activity - complete in groups |
|  | August 15 | Counting sig figs worksheet for HW; watch video if you need more instructions |
| Week 2 | August 18 | **Open Note Quiz #1 (Slides 1-12,39-40, 13-27); complete element flash cards** |
|  | August 19 | Chap1 Slides 28-38 (add/sub&mult/div of sig figs); worksheet sig figs calculations (x/+-) HW |
|  | August 20 | Log in to the Wi-Fi for SPC if able; Lab #1 Safety - Lab procedures/draw and label safety equipment in lab room, attach drawing to Bb assignment name Lab #1 Safety |
|  | August 21 | Slides 41-62; Equalities, conversions, conversion worksheet HW |
|  | August 22 | Complete conversion worksheet for HW; see video on Bb if needed |
| Week 3 | August 25 | **Open Notes Quiz #2 (Slides 28-38, lab safety/equipment, 41-62); check personal email for Bb login** |
|  | August 26 | Practice conversions/go over the worksheet |
|  | August 27 | Lab #1 due; Lab #2 Measurement Lab (Experiment #2 in lab manual) |
|  | August 28 | Chap2 Slides 21-35 complete atomic structure worksheet for HW |
|  | August 29 | Chap2 Slides 36-42; Isotopes; isotope worksheet for HW; watch video for added instruction to begin class |
| Week 4 | September 1 | **Labor Day Holiday (SPC & PISD); Quiz on Tuesday ENJOY YOUR DAY!** |
|  | September 2 | **Open Note Quiz #3 (Chap2 Slides 21-42); Chap**2 Slides 43-52 EMR, EMS, Energy Levels, Energy Shell Arrangement; handout Lecture Exam review |
|  | September 3 | Lab #2 due; Lab #3 Color periodic table activity (Chap2 Slides 1-20); activity on PowerPoint |
|  | September 4 | Chap2 Slides 43-52 EMR, EMS, Energy Levels, Energy Shell Arrangement |
|  | September 5 | Lecture exam Chapter 1&2 review |
| Week 5 | September 8 | **Exam 1 (Measurement & Atoms/Elements) for this Exam and ONLY this exam can use colored PT** |
|  | September 9 | Chapter 3 Notes will be POGIL Coulombic Attraction & Periodic Trends |
|  | September 10 | Lab #3 due; Lab #4 ID and use of equipment/lab probes with sensors/Scale/Burets/Bunsen burner; Official census day |
|  | September 11 | Coulombic Attraction POGIL - Models 1-2; Certify rosters!!! |
|  | September 12 | Coulombic Attraction Model 3-4 & extension |
| Week 6 | September 15 | **Open Notes Quiz #4 (Coulombic Attraction); Periodic Trends video and worksheet** |
|  | September 16 | Periodic Trends POGIL (pg. 1-3) |
|  | September 17 | Lab 4 due; Lab #5 Flame tests; Official census day |
|  | September 18 | Periodic Trends POGIL (pg. 4-5) |
|  | September 19 | Review for Exam 2 POGIL Coulombic attraction and Periodic Trends |
| Week 7 | September 22 | **Open Notes Quiz #5 (Periodic Trends); NOT an SPC holiday (PISD holiday); Quiz will be at home and open from 8:00-4:00; Feedback will post at 5:00 pm** |
|  | September 23 | **Exam 2 Periodic Table, Coulombic Attraction and PT Trends** |
|  | September 24 | Lab 5 due: Lab #6 density (Teach during lab time) |
|  | September 25 | Chap4 Slides 1-19; Ion Worksheet for HW |
|  | September 26 | Chap4 Slides 21-31; Positive Ion (Cation) worksheet for HW |
| Week 8 | September 29 | **Open Notes Quiz #5 (Slides 1-19&density); Write the sentence for multiple charges until memorized!** |
|  | September 30 | Chap 4 Slides 32-37: Cations with Multiple charges worksheet |
|  | October 1 | Lab #6 due; Lab #7 Atoms & Molecules (Experiment #5) no naming on formula section until Tuesday |
|  | October 2 | Chap4 Slides 38-43; Covalent Bonding; worksheet |
|  | October 3 | Chap4 Slides 44-49; Multiple Bonds and naming covalent; watch video/worksheet for HW |
| Week 9 | October 6 | **Open Notes Quiz #6 (Slides 21-43); Quiz will be taken at home and open from 8:00-4:00; Feedback will be posted at 5:00 pm. Chap4 Slides 52-58; Types of Bonds (Polar covalent/nonpolar covalent/ionic); video NOT SPC holiday; PISD holiday** |
|  | October 7 | Slides 59-69 Polyatomic Ions Video; worksheet HW **NOT SPC holiday; PISD holiday** |
|  | October 8 | Home Lab #8 Slides 70-83 <https://contrib.pbslearningmedia.org/WGBH/arct15/SimBucket/Simulations/chemthink-ionicbonding/content/index.html>Lab #8 VSEPR lab Experiment 6 (Slides 70-83); |
|  | October 9 | Chap4 (Slide 83-87); polar and nonpolar molecules and continue with VSEPR; work on lab **NOT SPC holiday; PISD holiday** |
|  | October 10 | Make polyatomic ion flashcards, **NOT SPC holiday; PISD holiday** |
| Week 10 | October 13 | **Open Note Quiz #7 (Slides 44-87); Quiz will be taken at home and open from 8:00-4:00; Feedback will be posted at 5:00 pm, NOT SPC holiday; PISD holiday** |
|  | October 14 | Types of Bonds Combined worksheet/video |
|  | October 15 | Home lab #8 Lab #8 VSEPR lab Experiment 6 (Slides 70-83); must build structures, can work on the rest during the week |
|  | October 16 | Naming Practice Combined worksheet/video |
|  | October 17 | **SPC Fall Break NO ASSIGNMENT** |
| Week 11 | October 20 | **Open Note Quiz #8 (Slides 1-83); Quiz will be 20 questions** |
|  | October 21 | Formula Writing Combined worksheet |
|  | October 22 | [Lab #10; PHET activity https://phet.colorado.edu/services/download-servlet?filename=%2Factivities%2F3478%2Fphet-contribution-3478-6102.docx](https://phet.colorado.edu/services/download-servlet?filename=%2Factivities%2F3478%2Fphet-contribution-3478-6102.docx) |
|  | October 23 | Naming/Writing Formulas /Drawing practice |
|  | October 24 | Review for Exam 3: Compounds and Their Bonds |
| Week 12 | October 27 | **Exam 3 Compounds (Compounds and Their Bonds)** |
|  | October 28 | Chap5 (Slides 1-10); physical/chem change/writing a chem rxn/symbols; worksheet |
|  | October 29 | Lab #11 Chemical Reactions Lab (use later for balancing) - just look for identifiers in this lab |
|  | October 30 | Chap 5 (Slides 11-20); Balancing chemical equations; worksheet |
|  | October 31 | Chap5 (Slides 21-37); Types of chemical reactions; worksheet continued (complete reaction from lab)/video of types of reactions |
| Week 13  WORK! | November 3 | **Open Note Quiz #9 (Slides 1-37); Mole notes (Slides 45-56); video on mole/Avogadro's number** |
|  | November 4 | Chap5 (Slides 57-65); using molar mass as a conversion factor and mole factors; worksheet |
|  | November 5 | Lab #12 Experiment 7 Determining Mole Ratios |
| OFF | November 6 | Chap6 (Slides 1-14) PE/KE, specific heat |
|  | November 7 | Quiz #9 corrections; Chap6 (Slides 15-18) Heat calculations; worksheet/video |
| Week 14 | November 10 | **Open Notes Quiz #10 Slides Chap5 Slides 57-65, Chap6 Slides (1-18); hand out Exam 5 review** |
|  | November 11 | Chap6 (Slides 19-31); State of Matter (s,l,g) and attractive forces (IMF's) |
|  | November 12 | Lab #13 Endothermic/Exothermic Lab |
|  | November 13 | Chap6 (Slides 32-34); changes of state/heating curve; worksheet |
|  | November 14 | Quiz #10 corrections; Exam 5 Review Registration for Spring 2024 begins |
| Week 15 | November 17 | **Exam 4 Chemical Reactions and Energy** |
|  | November 18 | Chap7 (Slides 1-9;12-17) Boyles Law; worksheet |
|  | November 19 | Lab #14 Experiment #9; Boyles Law |
|  | November 20 | Chap7 (Slides 18-25) Charles Law; worksheet |
|  | November 21 | Chap7 (Slides 26-30) Gay-Lussac's Law; worksheet |
| Week 16 | November 24 | **Open Notes Quiz #11 Slides 1-30 (PISD holiday, NOT SPC) Quiz will be taken at home from 8:00 am - 4:00 pm (NOT SPC Holiday, PISD holiday)** |
|  | November 25 | **(NOT SPC Holiday, PISD holiday)Combined Gas Law video:**  Chap7 (Slides 31-33); Combined Gas Law worksheet |
|  | November 26 | **SPC Thanksgiving Break NO ASSIGNMENT** |
|  | November 27 | **SPC Thanksgiving Break NO ASSIGNMENT** |
|  | November 28 | **SPC Thanksgiving Break NO ASSIGNMENT** |
| Week 17 | December 1 | Chap7 (Slides 31-33); Combined Gas Law worksheet |
|  | December 2 | Chap8 (Slides 1-13) water/solvent/solute/like dissolves like/formation |
|  | December 3 | Lab #15 Mini Lab Gas Laws |
|  | December 4 | Chap8 (Slides 14-19, 25-33); electrolytes/solubility - solubility graph worksheet; **(LAST DAY TO DROP)** |
|  | December 5 | **Exam 5: Gases and Solutions Exam** |
| Week 18 | December 8 | Review for semester exam |
|  | December 9 | Review for semester exam |
|  | December 10 | Review for semester exam |
|  | December 11 | Final Exam Fall 2024 in the cafeteria (all classes) at 8:00 am |
|  | December 12 | Final grades due BEFORE 10 am |

This document is a fluid document and may be modified to benefit the students.