

South Plains College
Common Course Syllabus: CHEM 1406
Revised August 22, 2023

Department: Science

Discipline: Chemistry

Course Number: CHEM 1406

Course Title: Introductory Chemistry I

Available Formats: conventional, internet, flex, dual credit

Campus: Online Dual Credit, Lab at local High School

Internet Dual Credit: This course is an internet dual credit course with in-person lab experiments conducted at your high school. That means all of the lecture portion of the class is online. Exams will be conducted in person at your high school. The lab experiment portion will be in person at your high school.

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. Semester Hours: 4 Lecture Hours: 3 Lab Hours: 3 Note: This course may not be substituted for CHEM 1411.

Prerequisites: None

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

Instructor: John Heh
Phone: 806.716.2323
E-mail: jheh@southplainscollege.edu

E-mail: When you have questions, problems, or comments, you can e-mail me through BlackBoard Course Messages. Please use the BlackBoard Course Messages tool to e-mail me. Do not use my South Plains College e-mail address unless it is an emergency. I will respond to your e-mail within one business day (excluding holidays). I generally will not check my e-mail from 12:00 noon on Friday to 8:00 AM Monday of the following week. I generally will not check my e-mail during holidays. Therefore, there will usually be no response during those times.

Expectations when Corresponding: Please be polite, courteous, and respectful when using BlackBoard Course Messages, e-mail, discussion forums, and chat rooms. 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. Students are expected to maintain a pleasant learning environment for themselves as well as for their classmates. Therefore, if, in the view of the instructor, a student is disrupting the class, the appropriate disciplinary action will be taken.

Online Disclaimer: This is to notify you that materials you may be accessing in chat rooms, emails, 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.

Textbooks:

1. CHEM 1406 Textbook by John Heh. All lecture material, including this textbook is provided to you in BlackBoard on PowerPoints, Word files, PDF documents, and videos.
2. The Lab Manual will be in a PDF file provided to you on BlackBoard.

Supplies:

1. Scientific Calculator(recommended)
2. Computer(recommended)
3. Safety Glasses(recommended)

Minimum Computer Requirements:

1. Personal computer
2. Web Browser: Google Chrome must be used.
3. A high-speed internet connection
4. A webcam on your computer
5. Microsoft Word and Microsoft PowerPoint software (a recent version)
6. Software or Program to read PDFs (Acrobat Reader)
7. A good soundcard and functioning speakers
8. Knowledge of how to navigate web pages and how to deal with pop-up blockers and other devices and warnings on your browser
9. Knowledge of how to download files from the internet and find them on your computer once they are downloaded
10. Knowledge of basic operations of Microsoft Word and Microsoft PowerPoint
11. Knowledge of how to view and adjust videos

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:

Chapter Exams: This course has 12 chapters for the lecture portion. Once you finish each chapter, there will be an exam over that chapter. There will be 12 chapter exams covering the material that is discussed in each chapter. The schedule for the chapter exams is given at the end of this course information sheet. The schedule indicates what week you will take each chapter exam. Your facilitator will determine what day during the indicated week you will take the chapter exam. Each chapter exam will count 40 points. The chapter exams will be approximately 20 questions. The format will be multiple choice. The chapter exams will be conducted on BlackBoard. Exams will be timed. You will have 60 minutes to finish the chapter exam. You may only open the chapter exam once, and it must be finished in one sitting.

- Chapter Exam 1 (Chapter 1): 40 points**
Chapter Exam 2 (Chapter 2): 40 points
Chapter Exam 3 (Chapter 3): 40 points

Chapter Exam 4 (Chapter 4):	40 points
Chapter Exam 5 (Chapter 5):	40 points
Chapter Exam 6 (Chapter 6):	40 points
Chapter Exam 7 (Chapter 7):	40 points
Chapter Exam 8 (Chapter 8):	40 points
Chapter Exam 9 (Chapter 9):	40 points
Chapter Exam 10 (Chapter 10):	40 points
Chapter Exam 11 (Chapter 11):	40 points
Chapter Exam 12 (Chapter 12):	40 points

12 Chapter Exams at 40 points each: 480 points total

The material scheduled for each chapter exam is subject to change. Changes will be announced if necessary.

There will be no make-ups for chapter exams unless a student is hospitalized. This will require documentation to be provided to the Dean of Students and/or the Associate Director of Health & Wellness. All other missed chapter exams will receive a grade of zero.

Homework: Homework will be in the form of practice problems on the PDFs. The practice problems will not be collected and graded. It is essential that the practice problems be completed, as the practice problems will be very similar to the types of problems encountered on the chapter exams.

In-Person Lab Experiments: The in-person lab experiment portion of this class will be comprised of topic discussion, homework problems practice; and most commonly, lab experiments. The in-person lab portion of this course will consist of group work. The in-person lab portion will be conducted at your High School and be monitored by your lab facilitator.

Lab Grade: The lab grade will come from experiment report grades. You will have 12 lab experiments to perform at your high school. Your high school lab facilitator will have you perform the experiments following the schedule in this syllabus. The high school lab facilitator may alter the schedule. Any changes will be announced by your lab facilitator at your high school. After you perform the experiment, there will be an experiment report for you to complete on BlackBoard. The schedule and due dates for the experiment reports is given at the end of this course information sheet. Each experiment report will count 10 points. The experiment reports will be approximately 5 questions. The format will be multiple choice. The experiment reports will be conducted on BlackBoard. Experiment reports will be timed. You will have 60 minutes to finish the experiment report. You may only open the experiment report once, and it must be finished in one sitting.

In all, you will have a total of 12 experiment reports. Out of all of the 12 experiment reports, the 2 lowest experiment report grades will be dropped. Only 2 grades will be dropped. For instance, if the lowest grades are a 2, 4, and 4; then the 2 and **only one** of the 4's will be dropped. Or if the lowest grades are 2, 2, 2, and 2; then only 2 of the 2's will be dropped. Therefore, 10 experiment reports will count in the final grade calculation.

Experiment 1 Report	10 points
Experiment 2 Report	10 points
Experiment 11-A Report	10 points

Experiment 3 Report	10 points
Experiment 4 Report	10 points
Experiment 5 Report	10 points
Experiment 6 Report	10 points
Experiment 10 Report	10 points
Experiment 9 Report	10 points
Experiment 7 Report	10 points
Experiment 8 Report	10 points
Experiment 12 Report	10 points

10 Experiment Reports (after the lowest 2 are dropped) at 10 points each: 100 points total

The material scheduled for each lab is subject to change. Changes will be announced if necessary.

If a student is absent during the lab day, arrangements can be made with the lab facilitator to make up the lab. Any lab make-up must be completed the same week as the lab experiment is originally scheduled.

There will be no make-ups for the experiment reports unless a student is hospitalized. This will require documentation to be provided to the Dean of Students and/or the Associate Director of Health & Wellness. All other missed experiment reports will receive a grade of zero.

Final Course Grade: At the end of the semester, all of your points earned will be added together. Your final course grade will come from your point total. The point totals and their corresponding final course grades are listed below:

Point total:	Final Course Grade:
516 and above	A
458 – 515	B
400 – 457	C
342 – 399	D
0 – 341	F

Your High School may want your grade in the form of a numerical grade. If that is the case, at the end of the semester, I will take your point total and divide that by 580 and then multiply by 100. For instance, if you have 522 total points at the end of the semester, then I will take $522/580$ which equals 0.90 and multiply by 100 to make it a 90 as the numerical grade.

Attendance Policy: Students are expected to login frequently in order to be successful in this course. Students are officially enrolled in all courses for which they pay tuition and fees at the time of registration. Students who enroll in a course but have “Never Attended” (by not logging into this course on BlackBoard) by the official census date, as reported by the faculty member, will be administratively dropped by the Office of Admissions and Records. 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. This is in accordance with the policies set forth in

the SPC General Catalog. This course information sheet contains the schedule of lectures and labs. If you are unable to finish this course, complete a withdrawal slip at the registrar's office.

SPC Tutors: Tutoring is FREE for all currently enrolled students. Make an appointment or drop-in for help at any SPC location or online! Visit the link below to learn more about how to book an appointment, view the tutoring schedule, and view tutoring locations.

<http://www.southplainscollege.edu/exploreprograms/artsandsciences/teacheredtutoring.php>

Tutor.com

You also have 180 FREE minutes of tutoring with Tutor.com each week, and your hours reset every Monday morning. Log into Blackboard, click on the tools option from the left-hand menu bar. Click on the Tutor.com link and you will automatically be logged in for free tutoring. You may access tutor.com tutors during the following times:

Monday – Thursday: 8pm-8am

6pm Friday – 8am Monday morning

For questions regarding tutoring, please email tutoring@southplainscollege.edu or call 806-716-2538.

Plagiarism and Cheating: Students are expected to do their own work on all projects, quizzes, assignments, examinations, and papers. Cheating will not be tolerated. If a student is caught cheating on an exam or lab report, a grade of zero will be given for that exam or lab report.

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.

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/>.

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 at your high school. 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.

BlackBoard: The lecture portion of this course is completely online and is conducted through BlackBoard. BlackBoard may be accessed at <https://southplainscollege.blackboard.com/> For help concerning the use and features of BlackBoard you can access the help menu at the left side of each BlackBoard page that you visit.

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 (class information sheet, course orientation, and chapter PowerPoint or PDF presentations). 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. If your computer crashes during a lab report or an exam, contact me immediately so that I can reset the lab report or exam for you. 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 experiment reports or chapter exams 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.

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

CHAPTER EXAMS WILL BE CONDUCTED ON THE WEEK INDICATED IN PERSON AT YOUR HIGH SCHOOL.				
YOUR FACILITATOR WILL DETERMINE WHAT DAY DURING THE WEEK THE EXAM WILL BE GIVEN. THE CHAPTER EXAMS				
MUST BE TAKEN DURING THE INDICATED WEEK BY THE FRIDAY OF THAT WEEK.				
WEEK	WEEK OF	LECTURE	EXAMS DUE	EXPERIMENT REPORTS DUE
1	AUGUST 28	BEGIN CHAP 1		
2	SEPTEMBER 4	BEGIN CHAP 2		
3	SEPTEMBER 11	BEGIN CHAP 3	TAKE CHAPTER 1 EXAM	
4	SEPTEMBER 18	CONTINUE WITH CHAPTERS 1, 2, AND 3	TAKE CHAPTER 2 EXAM	EXPERIMENT 1 AND 2 REPORTS
5	SEPTEMBER 25	BEGIN CHAP 4	TAKE CHAPTER 3 EXAM	
6	OCTOBER 2	BEGIN CHAP 5		
7	OCTOBER 9	BEGIN CHAP 6	TAKE CHAPTER 4 EXAM	
8	OCTOBER 16	BEGIN CHAP 7	TAKE CHAPTER 5 AND 6 EXAMS	EXPERIMENT 11, 3, 4, AND 5 REPORTS
9	OCTOBER 23	BEGIN CHAP 8		
10	OCTOBER 30	BEGIN CHAP 9	TAKE CHAPTER 7 EXAM	
11	NOVEMBER 6	CONTINUE WITH CHAPTERS 7, 8, AND 9	TAKE CHAPTER 8 EXAM	
12	NOVEMBER 13	BEGIN CHAP 10	TAKE CHAPTER 9 EXAM	EXPERIMENT REPORTS 6, 10, 9, AND 7
13	NOVEMBER 20	BEGIN CHAP 11		
14	NOVEMBER 27	BEGIN CHAP 12	TAKE CHAPTER 10 EXAM	EXPERIMENT REPORTS 8 AND 12
15	DECEMBER 4	CONTINUE WITH CHAP 10, 11, AND 12	TAKE CHAPTER 11 EXAM	
16	DECEMBER 11		TAKE CHAPTER 12 EXAM	

ALL EXPERIMENT REPORTS ARE DUE DEC 6 BY 11 PM

LAB EXPERIMENT SCHEDULE CONDUCTED AT YOUR HIGH SCHOOL			
YOUR HIGH SCHOOL LAB FACILITATOR WILL PERFORM THE EXPERIMENT ON THEIR CHOICE OF DAY DURING THE LISTED WEEK			
WEEK	WEEK OF	EXPERIMENT	EXPERIMENT REPORT
1	AUGUST 28	SAFETY RULES	
2	SEPTEMBER 4	EXPERIMENT 1: MEASUREMENTS	EXPERIMENT 1 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
3	SEPTEMBER 11	EXPERIMENT 2: DENSITY	EXPERIMENT 2 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
4	SEPTEMBER 18	EXPERIMENT 11-A (1406): ATOMIC EMISSION SPECTROSCOPY	EXPERIMENT 11 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
5	SEPTEMBER 25	EXPERIMENT 3: ELEMENTS AND COMPOUNDS	EXPERIMENT 3 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
6	OCTOBER 2	EXPERIMENT 4: DETERMINING THE MOLE RATIOS IN A CHEMICAL REACTION	EXPERIMENT 4 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
7	OCTOBER 9	EXPERIMENT 5: HYDRATES	EXPERIMENT 5 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
8	OCTOBER 16	EXPERIMENT 6: DETERMINATION OF MOLAR MASS BY TITRATION	EXPERIMENT 6 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
9	OCTOBER 23	EXPERIMENT 10: ENDOTHERMIC AND EXOTHERMIC REACTIONS	EXPERIMENT 10 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
10	OCTOBER 30	EXPERIMENT 9: CALORIMETRY OF METALS	EXPERIMENT 9 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
11	NOVEMBER 6	EXPERIMENT 7: BOYLE'S LAW	EXPERIMENT 7 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
12	NOVEMBER 13	EXPERIMENT 8: PRESSURE-TEMPERATURE RELATIONSHIP OF GASES	EXPERIMENT 8 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
13	NOVEMBER 20		
14	NOVEMBER 27	EXPERIMENT 12: HOUSEHOLD ACIDS AND BASES AND TITRATION	EXPERIMENT 12 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
15	DECEMBER 4		
16	DECEMBER 11		