

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: Internet

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
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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 PDF files provided to you on BlackBoard.

Supplies:

1. Scientific Calculator
2. Computer
3. Safety Glasses(should be in your lab kit)
4. Carolina Distance Learning Lab Kit (**this is an actual, physical, touchable lab kit that you will order and a box will be shipped to you**)

Two ways to order the lab kit:

1. Buy directly from Carolina Distance Learning using link below. Cost is \$170 plus around \$20 shipping, so around \$190 or so.

<https://www.carolina.com/catalog/detail.jsp?prodId=583009&orgid=1904740&cid=1>

2. You can buy a voucher at the Levelland or Reese bookstore if you wish to use financial aid. At the bookstore it is a total of around \$290. The voucher will contain a code and link for you to go online and order. Then the box will be shipped to you.

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 and due dates for the chapter exams is given at the end of this course information sheet. 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.

Lab Experiments: The lab experiment portion of this class will be comprised of topic discussion, homework problems practice; and most commonly, lab experiments. The lab portion of this course will consist of individual work. The lab portion will be conducted at your home.

Lab Grade: The lab grade will come from experiment report grades. You will have 10 lab experiments to perform at your home. 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. **All Experiment reports are due December 6 at 11 PM.**

In all, you will have a total of 10 experiment reports.

Experiment 1 Report	10 points
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Experiment 2 Report	10 points
Experiment 3 Report	10 points
Experiment 4 Report	10 points
Experiment 5 Report	10 points
Experiment 6 Report	10 points
Experiment 7 Report	10 points
Experiment 8 Report	10 points
Experiment 9 Report	10 points
Experiment 10 Report	10 points

10 Experiment Reports at 10 points each: 100 points total

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

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

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 given to you in the Carolina safety presentation. The students must also follow any specific safety rules listed in the lab manual and any that the instructor may announce.

Safety Rules: These safety rules will be given to you on BlackBoard. The safety rules must be followed. You will be required to sign a sheet indicating you have read and agree 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.

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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 experiment report or an exam, contact me immediately so that I can reset the experiment 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.

ALL EXPERIMENT REPORTS DUE DECEMBER 6 BY 11 PM				
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 (OPENS SEP 11 AT 8 AM)	CHAPTER 1 EXAM DUE SEP 18 BY 11 PM	
4	SEPTEMBER 18	CONTINUE WITH CHAPTERS 1, 2, AND 3; TAKE CHAPTER 2 EXAM (OPENS SEP 18 AT 8 AM)	CHAPTER 2 EXAM DUE SEP 25 BY 11 PM	SEND COURSE MESSAGE WITH SIGNED SHEET
5	SEPTEMBER 25	BEGIN CHAP 4; TAKE CHAPTER 3 EXAM (OPENS SEP 25 AT 8 AM)	CHAPTER 3 EXAM DUE OCT 2 BY 11 PM	EXPERIMENT 1 REPORT ON BLACKBOARD
6	OCTOBER 2	BEGIN CHAP 5		EXPERIMENT 2 REPORT ON BLACKBOARD
7	OCTOBER 9	BEGIN CHAP 6; TAKE CHAPTER 4 EXAM (OPENS OCT 9 AT 8 AM)	CHAPTER 4 EXAM DUE OCT 16 BY 11 PM	EXPERIMENT 3 REPORT ON BLACKBOARD
8	OCTOBER 16	BEGIN CHAP 7; TAKE CHAPTER 5 AND 6 EXAMS (OPENS OCT 16 AT 8 AM)	CHAPTER 5 AND 6 EXAMS DUE OCT 23 BY 11 PM	EXPERIMENT 4 REPORT ON BLACKBOARD
9	OCTOBER 23	BEGIN CHAP 8		EXPERIMENT 5 REPORT ON BLACKBOARD
10	OCTOBER 30	BEGIN CHAP 9; TAKE CHAPTER 7 EXAM (OPENS OCT 30 AT 8 AM)	CHAPTER 7 EXAM DUE NOV 6 BY 11 PM	EXPERIMENT 6 REPORT ON BLACKBOARD
11	NOVEMBER 6	CONTINUE WITH CHAPTERS 7, 8, AND 9; TAKE CHAPTER 8 EXAM (OPENS NOV 6 AT 8 AM)	CHAPTER 8 EXAM DUE NOV 13 BY 11 PM	EXPERIMENT 7 REPORT ON BLACKBOARD
12	NOVEMBER 13	BEGIN CHAP 10; TAKE CHAPTER 9 EXAM (OPENS NOV 13 AT 8 AM)	CHAPTER 9 EXAM DUE NOV 20 BY 11 PM	EXPERIMENT 8 REPORT ON BLACKBOARD
13	NOVEMBER 20	BEGIN CHAP 11		EXPERIMENT 9 REPORT ON BLACKBOARD
14	NOVEMBER 27	BEGIN CHAP 12; TAKE CHAPTER 10 EXAM (OPENS NOV 27 AT 8 AM)	CHAPTER 10 EXAM DUE DEC 4 BY 11 PM	EXPERIMENT 10 REPORT ON BLACKBOARD
15	DECEMBER 4	CONTINUE WITH CHAP 10, 11, AND 12; TAKE CHAPTER 11 EXAM (OPENS DEC 4 AT 8 AM)	CHAPTER 11 EXAM DUE DEC 13 BY 11 PM	
16	DECEMBER 11	TAKE CHAPTER 12 EXAM (OPENS DEC 11 AT 8 AM)	CHAPTER 12 EXAM DUE DEC 13 BY 11 PM	

All Experiment reports are due Dec 6 at 11 PM.

All Experiment reports are due Dec 6 at 11 PM.

LAB EXPERIMENT SCHEDULE CONDUCTED AT YOUR HOME				
WEEK	WEEK OF	EXPERIMENT	EXPERIMENT REPORT	
1	AUGUST 28			
2	SEPTEMBER 4			
3	SEPTEMBER 11			
4	SEPTEMBER 18	SAFETY RULES	SEND COURSE MESSAGE WITH SIGNED SHEET	
5	SEPTEMBER 25	EXPERIMENT 1: MEASUREMENTS AND UNCERTAINTY	EXPERIMENT 1 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
6	OCTOBER 2	EXPERIMENT 2: EXPLORING DENSITY	EXPERIMENT 2 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
7	OCTOBER 9	EXPERIMENT 3 : INTRODUCTION TO MOLECULES	EXPERIMENT 3 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
8	OCTOBER 16	EXPERIMENT 4: EXPLORING PHYSICAL AND CHEMICAL CHANGES	EXPERIMENT 4 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
9	OCTOBER 23	EXPERIMENT 5: INVESTIGATING CHEMICAL REACTIONS	EXPERIMENT 5 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
10	OCTOBER 30	EXPERIMENT 6: SINGLE REPLACEMENT REACTION STOICHIOMETRY	EXPERIMENT 6 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
11	NOVEMBER 6	EXPERIMENT 7: MOLAR MASS BY FREEZING POINT DEPRESSION	EXPERIMENT 7 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
12	NOVEMBER 13	EXPERIMENT 8: THE FUNDAMENTALS OF CALORIMETRY	EXPERIMENT 8 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
13	NOVEMBER 20	EXPERIMENT 9: DETERMINATION OF IDEAL GAS LAW CONSTANT	EXPERIMENT 9 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
14	NOVEMBER 27	EXPERIMENT 10: DETERMINATION OF ACETIC ACID CONCENTRATION	EXPERIMENT 10 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.	
15	DECEMBER 4			
16	DECEMBER 11			