

**South Plains College**  
**Common Course Syllabus: CHEM 1406**  
**Revised January 9, 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: [jheh@southplainscollege.edu](mailto: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 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 120 minutes to finish the chapter exam. You may only open the chapter exam once, and it must be finished in one sitting.

<b>Chapter Exam 1 (Chapter 1):</b>	<b>40 points</b>
<b>Chapter Exam 2 (Chapter 2):</b>	<b>40 points</b>
<b>Chapter Exam 3 (Chapter 3):</b>	<b>40 points</b>
<b>Chapter Exam 4 (Chapter 4):</b>	<b>40 points</b>
<b>Chapter Exam 5 (Chapter 5):</b>	<b>40 points</b>
<b>Chapter Exam 6 (Chapter 6):</b>	<b>40 points</b>
<b>Chapter Exam 7 (Chapter 7):</b>	<b>40 points</b>
<b>Chapter Exam 8 (Chapter 8):</b>	<b>40 points</b>
<b>Chapter Exam 9 (Chapter 9):</b>	<b>40 points</b>
<b>Chapter Exam 10 (Chapter 10):</b>	<b>40 points</b>
<b>Chapter Exam 11 (Chapter 11):</b>	<b>40 points</b>
<b>Chapter Exam 12 (Chapter 12):</b>	<b>40 points</b>

**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 120 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 May 4 at 11 PM.

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

<b>Experiment 1 Report</b>	<b>10 points</b>
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<b>Experiment 2 Report</b>	<b>10 points</b>
<b>Experiment 3 Report</b>	<b>10 points</b>
<b>Experiment 4 Report</b>	<b>10 points</b>
<b>Experiment 5 Report</b>	<b>10 points</b>
<b>Experiment 6 Report</b>	<b>10 points</b>
<b>Experiment 7 Report</b>	<b>10 points</b>
<b>Experiment 8 Report</b>	<b>10 points</b>
<b>Experiment 9 Report</b>	<b>10 points</b>
<b>Experiment 10 Report</b>	<b>10 points</b>

**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](mailto: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.

**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, Lubbock Centers (located at the Lubbock Downtown Center) 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 [dburleson@southplainscollege.edu](mailto:dburleson@southplainscollege.edu) for assistance.

**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.

**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 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.

WEEK	WEEK OF	LECTURE	EXAMS DUE	EXPERIMENT REPORTS DUE
1	JANUARY 16	BEGIN CHAP 1		
2	JANUARY 23	BEGIN CHAP 2		
3	JANUARY 30	BEGIN CHAP 3; TAKE CHAPTER 1 EXAM (OPENS JAN 30 AT 8 AM)	CHAPTER 1 EXAM DUE FRIDAY FEB 3 BY 11 PM	
4	FEBRUARY 6	CONTINUE WITH CHAPTERS 1, 2, AND 3; TAKE CHAPTER 2 EXAM (OPENS FEB 6 AT 8 AM)	CHAPTER 2 EXAM DUE FEB 10 BY 11 PM	SEND COURSE MESSAGE WITH SIGNED SHEET
5	FEBRUARY 13	BEGIN CHAP 4; TAKE CHAPTER 3 EXAM (OPENS FEB 13 AT 8 AM)	CHAPTER 3 EXAM DUE FEB 17 BY 11 PM	EXPERIMENT 1 REPORT ON BLACKBOARD
6	FEBRUARY 20	BEGIN CHAP 5		EXPERIMENT 2 REPORT ON BLACKBOARD
7	FEBRUARY 27	BEGIN CHAP 6; TAKE CHAPTER 4 EXAM (OPENS FEB 27 AT 8 AM)	CHAPTER 4 EXAM DUE MAR 3 BY 11 PM	EXPERIMENT 3 REPORT ON BLACKBOARD
8	MARCH 6	BEGIN CHAP 7; TAKE CHAPTER 5 AND 6 EXAMS (OPENS MAR 6 AT 8 AM)	CHAPTER 5 AND 6 EXAMS DUE MAR 10 BY 11 PM	EXPERIMENT 4 REPORT ON BLACKBOARD
9	MARCH 20	BEGIN CHAP 8		EXPERIMENT 5 REPORT ON BLACKBOARD
10	MARCH 27	BEGIN CHAP 9; TAKE CHAPTER 7 EXAM (OPENS MAR 27 AT 8 AM)	CHAPTER 7 EXAM DUE MAR 31 BY 11 PM	EXPERIMENT 6 REPORT ON BLACKBOARD
11	APRIL 3	CONTINUE WITH CHAPTERS 7, 8, AND 9; TAKE CHAPTER 8 EXAM (OPENS APR 3 AT 8 AM)	CHAPTER 8 EXAM DUE APR 6 BY 11 PM	EXPERIMENT 7 REPORT ON BLACKBOARD
12	APRIL 10	BEGIN CHAP 10; TAKE CHAPTER 9 EXAM (OPENS APR 10 AT 8 AM)	CHAPTER 9 EXAM DUE APR 14 BY 11 PM	EXPERIMENT 8 REPORT ON BLACKBOARD
13	APRIL 17	BEGIN CHAP 11		EXPERIMENT 9 REPORT ON BLACKBOARD
14	APRIL 24	BEGIN CHAP 12; TAKE CHAPTER 10 EXAM (OPENS APR 24 AT 8 AM)	CHAPTER 10 EXAM DUE APR 28 BY 11 PM	EXPERIMENT 10 REPORT ON BLACKBOARD
15	MAY 1	CONTINUE WITH CHAP 10, 11, AND 12; TAKE CHAPTER 11 EXAM (OPENS MAY 1 AT 8 AM)	CHAPTER 11 EXAM DUE MAY 5 BY 11 PM	
16	MAY 8	TAKE CHAPTER 12 EXAM (OPENS MAY 1 AT 8 AM)	CHAPTER 12 EXAM DUE MAY 9 BY 11 PM	

All Experiment reports are due May 4 at 11 PM.



All Experiment reports are due May 4 at 11 PM.

LAB EXPERIMENT SCHEDULE CONDUCTED AT YOUR HOME			
WEEK	WEEK OF	EXPERIMENT	EXPERIMENT REPORT
1	JANUARY 16		
2	JANUARY 23		
3	JANUARY 30		
4	FEBRUARY 6	SAFETY RULES	SEND COURSE MESSAGE WITH SIGNED SHEET
5	FEBRUARY 13	EXPERIMENT 1: MEASUREMENTS AND UNCERTAINTY	EXPERIMENT 1 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
6	FEBRUARY 20	EXPERIMENT 2: EXPLORING DENSITY	EXPERIMENT 2 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
7	FEBRUARY 27	EXPERIMENT 3 : INTRODUCTION TO MOLECULES	EXPERIMENT 3 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
8	MARCH 6	EXPERIMENT 4: EXPLORING PHYSICAL AND CHEMICAL CHANGES	EXPERIMENT 4 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
9	MARCH 20	EXPERIMENT 5: INVESTIGATING CHEMICAL REACTIONS	EXPERIMENT 5 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
10	MARCH 27	EXPERIMENT 6: SINGLE REPLACEMENT REACTION STOICHIOMETRY	EXPERIMENT 6 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
11	APRIL 3	EXPERIMENT 7: MOLAR MASS BY FREEZING POINT DEPRESSION	EXPERIMENT 7 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
12	APRIL 10	EXPERIMENT 8: THE FUNDAMENTALS OF CALORIMETRY	EXPERIMENT 8 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
13	APRIL 17	EXPERIMENT 9: DETERMINATION OF IDEAL GAS LAW CONSTANT	EXPERIMENT 9 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
14	APRIL 24	EXPERIMENT 10: DETERMINATION OF ACETIC ACID CONCENTRATION	EXPERIMENT 10 REPORT ON BLACKBOARD. SHOULD BE COMPLETED THE SAME WEEK AS THE EXPERIMENT.
15	MAY 1		
16	MAY 8		