CHEM 1411
SYLLABUS HIGHLIGHTS
Full syllabus available on Blackboard
SUBJECT TO CHANGE! Changes will be announced as we go along.

- **PREREQUISITES:** High School Chemistry, CHEM 1301 or equivalent, or instructor approval.

- **Instructor:** Dr. Laci Alexander, Office S116, 716-2322, email: lalexander@southplainscollege.edu

- **Materials:**
  - **To purchase**:
    - **Textbook** –**Recommended**, Principles of Chemistry by Tro; 3rd Edition
    - **Lab Manual – Required, CHEM 1411,** obtained from bookstore
    - **Safety Goggles – Required,** obtained from bookstore
    - **Calculator – Required,** must be scientific, **CELL PHONES NOT ALLOWED**
    - **Scantrons – Required,** will need 4 or 5 total
    - **MasterChemistry Access Code**
  - **To print from Blackboard:**
    - **Power Point Notes –** Optional but highly recommended
    - **Pre-Lab Exercises – Turn in on Blackboard**
    - **Periodic Table – Required**

- **Five Major Exams**
  - SCANTRON is required, available at the bookstore, Apperson form 29240
  - NO MAKEUPS
  - All Multiple Choice questions
  - Each Exam is worth 100 points with the possibility of bonus points
  - Calculators will need to have their memory cleared and proof of memory clearing must be shown to the instructor before the Exam can be started0
  - Cheating
    - If a student is caught cheating on any of the Major Exams they will receive a 0 for that Exam **and** be required to take the Final Exam regardless of absences or average. In the case of cheating, the Final Exam will **NOT** replace the lowest Exam score (the 0 stands and cannot be replaced)

- **Comprehensive Final Exam**
  - Possible Exemption
    - If you have 0 or 1 absence **AND** an 'A' or 'B' average, then you may opt-out of the Final Exam. If you have 2 or more absences or less than a 'B' average, then the Final Exam is required of you.
  - Replacement Option
    - If the final exam is taken it can replace the lowest exam score (In this option the Final Exam ends up counting twice)
  - 50 Multiple Choice questions, 100points with the possibility of bonus points
  - Scantron is required, available at the bookstore

- Notecards
  - A 3X5 notecard will be permitted for Exams 3-5 and a 4X6 notecard may be used for the final exam. Both sides of the notecard may be used and maybe handwritten or typed. Notecards should contain formulas, definitions, and constants, or any other information allowed by the instructor announced in class. Notecards CAN NOT contain any worked examples from class notes, in-class worksheets, practice problems, or any other examples found online. A student should also not write any questions on the notecard.

- For each unauthorized example found on the notecard points will be deducted from the exam. The length of the exam and the amount of unpermitted information will determine the number of points deducted. Any bonus points for that exam will also be deducted from the exam total. Any unauthorized material on the notecard is classified as cheating therefore the cheating policies in the syllabus will also be followed.

- **Pre-Lab Exercises, Lab Worksheets, Experiments**
  - **A student will NOT be able to enter the lab without the proper attire (closed toed shoes, long pants, shirts with sleeves, long hair pulled back, and safety goggles). A student that is not dressed appropriately for lab will not be able to perform the experiment and therefore will receive a 0 for that Lab Worksheet.**
  - Pre-Lab Exercises
    - Must be **Turned in on blackboard BEFORE** the Experiment can be done
    - Each Pre-Lab Exercise is worth 50 points.
  - Lab Worksheet
    - Each Lab Worksheet must be filled out during the Experiment and turned in before the student leaves the lab
    - Each lab group will turn in 1 Lab Worksheet with all group members name on it, all members will receive the same grade
    - Each Lab Worksheet is worth 50 points.
  - Experiments
    - The Pre-Lab Exercise plus the Lab Worksheet is what makes up the student's grade for that Experiment.
    - A missed Lab results in a **0** for the Lab Worksheet.
    - Make-Ups for missed Lab Experiments are **NOT** allowed.
  - Lowest Lab Grade Dropped
    - At the end of the semester the Instructor will automatically drop the lowest Lab Grade for each student.
- **Chapter Homework**
  - Each chapter will have a homework section on These will be turned in one to two class days after the chapter material has been finished. The date will be announced on the syllabus.
  - Lowest Homework Grade Dropped
    - At the end of the semester the Instructor will automatically drop the lowest homework grade for each student.

- **Cell Phone and Laptop Computer Policy**
  - Cell Phones and Laptops may be taken up and kept during lecture and lab if they are a distraction to the student, the instructor or the class
  - The only exception will be due to Special Services recommendations and those will be handled on an individual student to student basis

- **Attendance**
  - 4 absences max and I drop you with an '**F**'
  - Last Day to Drop is _____

- **Grading:**
  - Exams are 70%
  - Labs count 30%

- **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 through the Guidance and Counseling Centers at Reese Center (Building 8) 806-716-4606, or Levelland (Student Services Building) 806-716-2577.

- **Note to students with disabilities:** If you have a disability-related need for reasonable academic adjustments in this course, you must provide the instructor with a letter of accommodation from the Disability Services Office. If you need immediate accommodations or physical access, please arrange to meet with the Disability Services Office before the next class meeting.

CHEMISTRY 1411 (4:3:3)

GENERAL CHEMISTRY I

INSTRUCTIONAL AREA: CHEMISTRY

DEPARTMENT: SCIENCE

DIVISION: ARTS AND SCIENCES

SOUTH PLAINS COLLEGE

FALL 2017

INSTRUCTOR: L. ALEXANDER

Course Description

CHEM 1411: (4:3:3) Fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. 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 Pre-requisite: MATH 1314 (College Algebra) or equivalent academic preparation; high school chemistry is strongly recommended.

Instructor:

Dr. Laci Alexander
Office: S116, Science building
Phone: 716-2322
Email: lalexander@southplainscollege.edu
Office Hours: MW: 11:00 AM – 12:00 PM; 1:00 PM – 1:30 PM
TR: 8:30 – 9:30 AM
F: 9:00 AM – 12:00 PM

Tutor:

Room S121

Textbook:

HIGHLY RECOMMENDED
Available at the Bookstore
Principles of Chemistry, A Molecular Approach, 3rd Edition by Tro

Lab Manual:

REQUIRED
Available at the Levelland Bookstore
CHEM 1411 Lab Manual

Safety Goggles:

REQUIRED
Available at the Bookstore

Calculator:

REQUIRED
You will need a scientific calculator for this course. An inexpensive model will be just fine. You are responsible for learning how to use your

calculator. Cell phones **CAN NOT** be used for calculators. Calculators' memory **WILL** be cleared before an Exam can be taken! It is the student's responsibility to know how to clear the calculator's memory.

Scantrons:

5 or 6 REQUIRED

Apperson Form 29240

Available at the Bookstore

Power Point Notes:

OPTIONAL, BUT HIGHLY RECOMMENDED

To be printed off Blackboard

Chapter Homework:

REQUIRED

Each chapter will have a section on Mastering Chemsitry.

These will be turned in one to two class days after the chapter material has been finished. The date will be announced on the syllabus.

The lowest homework grade will drop at the end of the semester.

Practice Problems:

OPTIONAL, BUT RECOMMENDED

These are problems that I have designed for further practice and study before every exam. They are available to print off Blackboard.

Pre-Lab Exercises:

REQUIRED

To be obtained from Blackboard

These Pre-Lab Exercises must be turned in on Blackboard BEFORE the Experiment can be performed. A Pre-Lab that is not typed will not be accepted. Each Pre-Lab Exercise is worth 50 points.

Lab Worksheets:

REQUIRED

Provided by Instructor at Lab

These worksheets will be completed in groups during the lab time and turned in before the student leaves. Every member of the group will put their name on the worksheet and all members will receive the same grade.

Labs/Experiments:

You will perform a series of experiments and exercises in the lab, which are designed to reinforce the classroom material and give you hands-on experience of a chemical nature. A missed lab CANNOT be made up. Pre-Lab Exercises must be completed and turned in before the experiment is conducted. If a student is absent the day of the Experiment that student will receive a 0 for the Lab Worksheet. The student is still responsible for collecting any material that was given during the Experiment in order to be prepared for questions on the Exam that come from the Experiments. At the end of the semester the Instructor will automatically drop the lowest lab grade for the student. **A student will NOT be able to enter the lab without the proper attire (closed toed shoes, long pants, shirts with sleeves, long hair pulled back, and safety goggles). A student that is not dressed appropriately for lab will not be able to perform the experiment and therefore will receive a 0 for that Lab Worksheet.**

Periodic Table:

REQUIRED

One is available for print from Blackboard or your may purchase one if you wish.

Cell Phones/Laptop Computers:

Cell phones and Laptop Computers **CAN NOT** be used in Lecture or Lab. Cell phones **CAN NOT** be used for calculators. If you are caught using your cell phone during class or if the phone continuously rings during class the cell phone will be confiscated. Cell phones and Laptops **MUST NOT** be out on the desk or in your hands during class or lab, otherwise they may be taken up. If a cell phone or Laptop is confiscated it will be kept during Lecture and Lab. The only exception to this will be in the case of a Special Services recommendation, which will be handled on an individual student basis.

Major Exams:

There will be five major exams. Each exam is worth 100 points, with possibility of bonus points. Questions will be based on the material covered in class and lab. A missed exam will receive a score of zero. There will be **NO** make-ups. Each Major Exam will contain a portion of new material and a portion of comprehensive material. Reminder: Practice Problems can be turned in at the time of the major exam for 5 bonus points. Scantrons will be needed for the Exams. Calculators will have to have their memory cleared and proof shown to the instructor before the student can start the Exam. The student is responsible for knowing how to clear their calculator's memory.

Final Exam:

The final exam is comprehensive and is worth 100 points. The final must be taken on the scheduled day. **NO** make up is available for the final since it is scheduled at the very end of the term. Extenuating circumstances will be handled on a case-by-case basis.

Possible Exemption – If you have 0 or 1 absence **AND** an 'A' or 'B' average, then you may opt-out of the Final Exam. If you have 2 or more absences or less than a 'B' average, then the Final Exam is required of you.

Replacement Option – The Final Exam can be taken to replace the lowest exam score. In this option, the final ends up counting twice, by replacing one exam and counting as the final exam itself.

Cheating – If a student is caught cheating (see the full definition of cheating in the SPC catalog under Academic Integrity) on any of the Major Exams they will receive a 0 for that Exam **AND** be required to take the Final Exam regardless of absences or average. In the case of cheating, the Final Exam will NOT replace **ANY** Exam score.

Notecards:

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Lectures:

Classroom and laboratory lectures are intended to help you to better understand the subject matter. Lecture topics (classroom and lab) will serve as the basis for exam questions.

Attendance:

Class attendance is very important. Make every effort to be present. If you must miss a class or must leave early, please let me know about it **BEFORE** class begins or an unexcused absence will be given. You must attend the **FULL** time of class in order to be considered present. You will be counted absent if you leave during the scheduled class time.

If you are unable to complete this course, you must initiate a withdrawal (W) through the Registrar's Office before **November 15**. If you simply stop attending class without withdrawing, I will administratively drop you for excessive absences, and you will receive a grade of "**F**" at the end of the term, in accordance with policies set forth in the SPC General Catalog.

You are a candidate for an excess absence drop (**F**) if you miss 4 class days **total**, without clearing your absences with me. Two excused absences equal one unexcused absence and will count towards the 4 excess absences.

Grading Policy:

Exams	70%
Labs	30%

Grades will be assigned on the following basis:

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
< 60	F

Diversity Statement:

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From the General Chemistry I Common Course Syllabus

Core Objectives Addressed:

- **Communication 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 skills -** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork skills -** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Course Purpose: The purpose of the life and physical science component in the core curriculum is to enable the student to understand and apply relationships and theories of the natural sciences. Mastering general chemistry will enable the student to use the fundamentals to analyze, classify, and predict events based on chemical and physical properties.

Course Requirements:

1. The student should do each of the following:
    a. Read the assigned chapters in the textbook and laboratory manual.
    b. Attend all lectures and laboratory classes.
    c. Take notes in class.
    d. Participate in class discussions.
    e. Complete assigned outside reading material and homework.
    f. View audiovisual materials on selected topics.
    g. Use the computer software in the lab and/ or classroom as it is assigned.
    h. Complete the exams on the assigned dates; the exams may include essay questions.

2. For laboratory the student should:
    a. Complete the prelab assignment before going into lab.
    b. Read and Comprehend each experiment assigned in the laboratory manual.
    c. Successfully complete each experiment.
    d. Learn to use and/or analyze data from instruments or equipment needed to complete the experiments. (e.g. balance, pH meters, volumetric glassware)
    e. Complete the laboratory reports, including post lab calculations and discussion questions.

Student Learning Outcomes: Upon completion of the course, the student will show competence in the course objectives listed below:

From Lecture:

1. Define the fundamental properties of matter.
2. Classify matter, compounds, and chemical reactions.
3. Determine the basic nuclear and electronic structure of atoms.
4. Identify trends in chemical and physical properties of the elements using the Periodic Table.
5. Describe the bonding in and the shape of simple molecules and ions.

6. Solve stoichiometric problems.
7. Write chemical formulas.
8. Write and balance equations.
9. Use the rules of nomenclature to name chemical compounds.
10. Define the types and characteristics of chemical reactions.
11. Use the gas laws and basics of the Kinetic Molecular Theory to solve gas problems.
12. Determine the role of energy in physical changes and chemical reactions.
13. Convert units of measure and demonstrate dimensional analysis skills

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.

EXAM OVERVIEW

Exam 1

Lab Safety

Chapter 1: Chemistry: The Study of Change
Learning Objective Met: Lecture #1,#2, #13

Chapter 2: Atoms, Molecules, and Ions
Learning Objective Met: Lecture #2, #3, #5, #7, #9

Experiment 1: Introduction to Lab Equipment
Learning Objectives Met: Lecture #1, #13, all Lab LOs

Experiment 2: Measurements
Learning Objectives Met: Lecture #1, #13, all Lab Los

Experiment 3: Density
Learning Objectives Met: Lecture #1, #13, all Lab Los

Experiment 4: Atoms and Molecules
Learning Objectives Met: Lecture #3, #9, all Lab LOs

Exam 2

Chapter 3: Mass Relationships in Chemical Reactions
Learning Objective Met: Lecture #6, #7, #8, #10

Chapter 4: Reactions in Aqueous Solution
Learning Objective Met: Lecture #7, #8, #10, #12

Experiment 5: Determining the Mole Ratios in a Chemical Reaction
Learning Objectives Met: Lecture #7, #8, #12, all Lab LOs

Experiment 4: Hydrates
Learning Objectives Met: Lecture #2, #7, #12, all Lab LOs

Lab Worksheet 2: Precipitation Reactions
Learning Objectives Met: Lecture #7, #8, #9, #10, all Lab LOs

Experiment 7: Properties of Solutions: Electrolyte and Nonelectrolytes
Learning Objectives Met: all Lab Los

Experiment 8: Determine the Molar Mass by Titration
Learning Objectives Met: Lecture #6, #7, #8, all Lab LOs

Exam 3

Chapter 5: Gases
Learning Objective Met: Lecture #11

Chapter 6: Thermochemistry
Learning Objective Met: Lecture #10, #12

Experiment 9: Boyle's Law: Pressure-Volume Relationships in Gases
Learning Objectives Met: Lecture #11 , all Lab LOs

Experiment 10: Calorimetry of Metals
Learning Objectives Met: Lecture #12, all Lab Los

Experiment 11: Exothermic and Endothermic Reactions
Learning Objectives Met: Lecture #12, all Lab LOs

Exam 4

Chapter 7: Quantum Theory and the Electronic Structure of Atoms
Learning Objective Met: Lecture #3, #5

Chapter 8: Periodic Relationships Among the Elements
Learning Objective Met: Lecture #4

Experiment 12: Atomic Emission Spectroscopy
Learning Objective Met: Lecture #3, all Lab Los

Exam 5

Chapter 9: Chemical Bonding I: Basic Concepts
Learning Objective Met: Lecture #5

Chapter 10: Chemical Bonding II: Molecular Geometry and Hybridization of Atomic Orbitals
Learning Objective Met: Lecture #5

Experiment 13: Models (VSEPR)
Learning Objectives Met: Lecture #3, all Lab LOs

Final Exam

Comprehensive

COURSE SYLLABUS

We will follow this schedule as closely as possible; any changes will be announced as we go along.

Week	Day	First Hour	Second Hour	Homework
1	Monday August 27	Introduction	Lab Safety	
	Wednesday August 29	Chapter 1	Chapter 1	
2	3-Sep	**NO SCHOOL**	**LABOR DAY**	
	5-Sep	Chapter 1 HW	Experiment 1	
3	10-Sep	Chapter 2	Experiment 2	Chapter 1 HW
	12-Sep	Chapter 2	Experiment 3	
4	17-Sep	Chapter 2 HW	Experiment 4	
	19-Sep	**EXAM 1**		Chapter 2 HW
5	24-Sep	Chapter 3	Chapter 3	
	26-Sep	Chapter 3/ Chapter 3 WS	Experiment 5	
6	1-Oct	Chapter 4	Experiment 6	Chapter 3 HW
	3-Oct	Chapter 4	Lab Worksheet 2	
7	8-Oct	Chapter 4/ Ch 4 WS	Experiment 8	
	10-Oct	**EXAM 2**		Chapter 4 HW
8	15-Oct	Chapter 5	Chapter 5	
	17-Oct	Chapter 5	Chapter 5	
9	22-Oct	Chapter 5 WS	Experiment 9	

	24-Oct	Chapter 6	Chapter 6	
10	29-Oct	Chapter 6	Chapter 6	
	31-Oct	Chapter 6	Experiment 10	
11	5-Nov	Chapter 6 WS	Experiment 11	
	7-Nov	**EXAM 3**		
12	12-Nov	Chapter 7	Chapter 7	
	14-Nov	Chapter 7 WS		
13	19-Nov	Chapter 8	Chapter 8	
	21-Nov	**NO SCHOOL**	**THANKSGIVING**	
14	26-Nov	**EXAM 4**		
	28-Nov	Chapter 9/10	Experiment 13	
15	3-Dec	**EXAM 5**		
	5-Dec	**Final Exam Review Day**		
16	**Monday**	**FINAL EXAM**		
	10-Dec	**Section 001: 8:00-10:00 AM**		