The University of Texas at Austin
UT High School

073116

Course Syllabus
Chemistry Semester A

Course Description

Chemistry is the study of the atoms that make up every substance and material known to mankind. These atoms are composed of protons, electrons, and neutrons that combine to form a little over 100 different chemical elements. These 100 chemical elements can combine and bond together to form an almost infinite number of different compounds and materials that form the world around us. This course will focus on what elements are made of, how we can tell them apart from each other, the history behind our scientific understanding of the elements, and how and why they can form different substances. The second semester will focus on the processes and changes that occur when new substances are formed from elements.

Semester Topics

Semester A Topics	Semester B Topics
1. Introduction to Chemistry	6. The Mole and Stoichiometry
2. Matter and Properties	7. Solutions
3. Atomic Theory	8. Thermochemistry
4. The Periodic Table	9. Gases
5. Chemical Compounds	10. Nuclear Chemistry

Course Outline

5 Units with 3-5 lessons each
15 Graded Assignments
1 final exam (taken in-person)

Course Objectives

Upon completing this course you will be able to:

- Conduct laboratory experiments using safe, controlled, and ethical methods and practices.
- Use the scientific method to answer testable questions about chemistry.
- Use critical thinking, logical reasoning, and observational though process in order to make sound decisions inside and outside the classroom.
- Know the characteristics of matter and analyze the properties of this matter.
- Understand the historical development of the Periodic Table and its significance.
- Understand the historical development of atomic theory and its implications on the world today.
- Understand and identify the characteristics of ionic, covalent, and metallic bonding and the forces that hold the types of bonds together.

The 5 E Model

Each Unit Will Contain [4 to 5] lessons. Each Lesson will contain these "**5E**" components:

Engage – Introduces the topic of study and gives you a sense of why the topic is important.

Explore – Try some of the problems in a low-pressure situation. Do you already understand the topic? If your answers are not correct, that's okay too! This type of pre-work prepares you for what comes next.

Explain – Contains *Example* and *Check For Understanding* problems. The instructor may post a video or problems here showing the step-by-step process. Be sure to take notes and check your answers.

Elaborate – These pages delve more deeply into more challenging problems and explanations.

Evaluate – There are two types, graded and ungraded. You can think of ungraded assignments as homework and graded assignments as your tests. Both are important to try your best on. If you don't practice what you just learned, you will struggle to do well on the graded work and final exams.

Required Materials

Interactive Notebook	• A small composition notebook or a spiral notebook • Your instructor will instruct you to write in your journal from time to time • Review what you write in your journal and use it to help you complete graded assignments 
Pencil or Pen	• You must write out the problems- sometimes even the ones that are solved right in front of you- to do well in this course • I recommend pencil so you can erase a small portion rather than re-doing the whole line, but if a pen works for you, fine! • Just remember to keep lots of pens/pencils with you wherever you'll be when you're taking the course; at home, the library, or even on-the-go!
Calculator	• Purchasing a TI 84 plus, a TI 83 or similar is recommended.  • Free online calculators are available at https://www.desmos.com/calculator and https://wabbit.codeplex.com/, but you may not use these on the final exam. • You are required to bring a scientific or graphing calculator to your final exam so it is strongly recommended that you purchase or borrow one for this semester.
Internet Access	• Libraries and coffee shops often provide free Wi-Fi access

Software	• *Compatible web browser–*
	  ○ Mozilla Firefox
	  ○ Google Chrome
	  ○ Safari
	• *Adobe Reader* (or similar) is required to view pdf documents

Printer	• Several assignments require you to print out documents in order to keep them in your interactive notebook or manipulate them for an activity.

Final Examination

The final examination is comprehensive; it covers the material from all of the units. To pass the course, you must receive a grade of 70 percent or better. You can apply to take the Final Exam after 100 percent of your graded assignments have been submitted, and at least 70 percent have been graded and returned to you.

Format**:**	50 Multiple-choice questions
Time Allowed**:**	3 hours
Required Materials**:**	2 pencils and a scientific or graphing calculator

Need Help?

- Contact your instructor in the message center to ask questions.
- Review previous modules/lessons and re-read and/or re-copy your journal notes.
- Good chemistry simulations to assist in visualizing material:
  - http://phet.colorado.edu
- Try a web search. For a shortcut, highlight the word/phrase, then hold down the “ctrl” key while typing the letters “ctv”.