

AP Chemistry

Mr. Daugherty

teach5460@gmail.com

501-281-6957

Welcome to AP Chemistry!

I hope you will enjoy this class and the challenges ahead of you.

Requirements:

- Scientific calculator – I recommend the TI 83-84 plus, or the 83-84 Plus Silver edition. I WILL NOT supply you a calculator. Don't even ask.
- Notebook, paper and a writing instrument. Please use three-ring paper. If you use spiral notebooks, trim the edges before turning it in. I detest untrimmed spiral paper for your assignments.
- Recommended ...Princeton Review Cracking the AP Chemistry test (\$14 cost to you)

Rules:

Be on time! I hate to deal with tardies and will not expend any effort to help you resolve these.

Show respect to each other as well as me. When we are in class please be quiet and attentive. Don't be rude to each other or show disrespect to me by interrupting class with talking or horseplay. You can expect me to treat you with respect and to teach and explain so that you may learn. You can expect to be challenged and expect to work.

Safety is the paramount issue in my classroom. Follow all lab guidelines. NO HORSEPLAY during lab activities.

Grading:

I grade on a very simple system. The points you have earned divided by the total points possible, multiplied by 100 equals your grade. Your grade will be almost completely from tests and quizzes. Homework contributes only insofar as it prepares you for the quizzes and tests, so it is important that you do all homework assignments. The homework and class activities will prepare you, but ONLY if you do your own work. Copying homework only hurts you. I reserve the right to take up homework from another class if you are working on it during my class.

Labs will generally be worth 25 points. 20% or 5 of these 25 points are earned for following proper lab safety rules. If any one person in a group violates safety rules, the entire group loses the five points. Watch out for each other and be safe!

This is a college preparatory class and I intend to challenge you in this class. Be prepared to learn.

AP Chemistry Course Outline

This course will begin with a review of the basic skills and general knowledge of our Pre-AP chemistry class and will cover the chapters and topics noted below. It will require extensive preparation, reading and commitment to be successful. Be prepared to work independently on absorption of basic information from notes and texts. I anticipate it will require a minimum of 2-4 hours per week of study time if you wish to be successful on the AP test. I provide notes directly from my web page at chsscience.homestead.com/homepage.html. If you lack Internet access, I will provide a copy of notes for your use. These notes are not exclusive! Your attention and note taking in class is essential. I also have my home email link, daugh@alltel.net on this site. You may email me at any time and I can usually answer any question before 10:00 on any given night.

Labs are much more complex than general chemistry and will require a lab report for each individual to earn a lab grade. These will use computers and technology extensively and a graphing calculator is a requirement.

I have 7th period plan and 2nd period lunch. I am usually at school by 7:30 and I anticipate staying after school until 4:30 for tutoring and individual help as needed. Feel free to ask for help or my time – it is what I am here for. Prior to the AP test, we may have night or evening study sessions if you wish.

Unit 1 Introduction and Review

- Measurement and Significant Figures*
- Classification and Properties of Matter*
- Atomic History and Structure*
- Periodic Table and trends*
- VSEPR Theory*
- Bonding and Hybridization*
- Formula and Nomenclature*
 - Molecular vs. Ionic*
 - Organic vs. Inorganic*

Unit 2 Stoichiometry and the Mole

- Chemical Reactions and Equations*
- Atomic and Molecular Masses*
- The mole and Stoichiometry*
- Empirical formula, limiting reagent, % yield, and theoretical yield*
- Gas Laws and gas Stoichiometry*

Unit 3 Aqueous and Solution Chemistry

- Electrolytes and Molecular solutions*
- Precipitation and Solubility rules*
- Solubility Constants*
- Colligative Properties*
- Acid/Base Solutions*

Redox and Net Ionic's
Moles, molarity and molality
Titration's

Unit 4 Kinetics

Reaction rates and factors affecting these Rates
Reaction Order
Half Life
Activation Energy
Mechanisms

Unit 5 Equilibrium

K_{eq} and the "RICE" Chart
 K_{eq} vs. Q
Le Chatelier's Principle and Applications

Unit 6 Acid-Base Chemistry

Definitions and History
Water and the ion-product constant
pH, pOH and concentration
 K_a , K_b , and K_w and the Henderson-Hasselbalch equation
Common Ion Effect
Buffers
Precipitation and Separation of Ions

Unit 7 Thermo chemistry

Enthalpy, Entropy, and Gibbs Free Energy
Laws of Thermodynamics
Delta G applications
Enthalpy and H_{rxn} calculations

Unit 8 Electrochemistry

Type of cells
Faraday's Laws and Stoichiometry
Reduction Potentials and the Activity Series
Nernst Equation