# **Syllabus AP Chemistry 2016-2017**

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\*We are both generally available every day before and after school except for Wednesday morning. It is very important that you attend tutorials regularly if you do not understand the material.

Because of the nature of this course and the amount of new material that will be covered, a strong preparatory background in Chemistry is a requirement. If you had either of us for Pre-AP Chemistry you already have a strong background. The topics that we expect you to already know include:

* atomic structure
* electron configurations
* bonding
* VSEPR theory
* acid-base chemistry
* nuclear chemistry
* chemical names and formulas
* chemical reactions (balancing and completing)
* periodicity
* behavior of gases
* mole concept
* mole calculations
* stoichiometry
* making and interpretation of graphs
* making observations from laboratory situations

The nature of Chemistry requires the student to know certain basic facts that **MUST** be committed to memory. Mathematics is an integral part of this class. Problem solving strategies will be stressed through-out the year and this course requires the student be able to solve problems **WITH** and **WITHOUT** a calculator.

**TEXTBOOK:**

*Chemistry*, Zumdahl and Zumdahl., (publisher Cengage Learning) 9th Edition –©2013

**STRUCTURE OF THE COURSE:**

AP Chemistry is built around six big ideas and seven science practices. The big ideas are:

**Big Idea 1:** The chemical elements are fundamental building materials of matter, and all matter can be understood in terms of arrangements of atoms. These atoms retain their identity in chemical reactions.

**Big Idea 2:** Chemical and physical properties of materials can be explained by the structure and the arrangement of atoms, ions, or molecules and the forces between them.

**Big Idea 3:** Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.

**Big Idea 4:** Rates of chemical reactions are determined by details of the molecular collisions.

**Big Idea 5:** The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.

**Big Idea 6:** Any bond or intermolecular attraction that can be formed can be broken. These two processes are in a dynamic competition, sensitive to initial conditions and external perturbations.

Some of the big ideas will seem very familiar to you. The majority of big idea one, two and three were covered in Pre-AP Chemistry. However, big idea four, five and six were not covered in any great depth in Pre-AP Chemistry and will be new to you. Most of the time in this course will be spent working on the last three big ideas.

The science practices for AP Chemistry are the same for all AP science classes. The science practices are designed to get the students to think and act like scientists. As you read through this list, the concepts and practices that are listed below will seem second nature to you, since they were embedded in the laboratory investigations, problems and projects from Pre-AP Chemistry. The science practices are:

**Science Practice 1:** The student can use representations and models to communicate scientific phenomena and solve scientific problems.

**Science Practice 2:** The student can use mathematics appropriately.

**Science Practice 3:** The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.

**Science Practice 4:** The student can plan and implement data collection strategies in relation to a particular scientific question

**Science Practice 5:** The student can perform data analysis and evaluation of evidence.

**Science Practice 6:** The student can work with scientific explanations and theories.

**Science Practice 7:** The student is able to connect and relate knowledge across various scales, concepts, and representations in and across domains.

**Materials Needed**: The following are the materials needed for this class.

1. 3 inch 3 ring binder for AP chemistry only REQUIRED.
2. A graphing composition notebook.
3. Scientific Calculator (a graphing calculator is fine!)
4. Black or blue pens and #2 pencils with erasers.
5. Willingness to ask questions and participate in class.
6. An alert and active human brain

**GRADING:**

Grading will be in accordance with district/campus policies. We will expound upon this during the first week.

**Course Expectations**:

1. **ALL** students are expected to actively take notes during teacher presentation. Although a textbook will be given to students, some material will not be found in the book. It is important to pay attention in class **and** ask questions when you do not understand. The lecture notes are NOT A SUBSTITUTE FOR YOUR NOTES. They are an aid to help you, not the be all and end all.
2. **NO WORK-NO CREDIT- NO KIDDING!!!**
3. All tests are closed book and notes. As Chemistry is a course that builds upon itself, **tests are cumulative**. The only notes are your “AP sheets”.
4. Students are expected to take notes, be attentive, and contribute to the class. Students that honestly try and cooperate will **always** be given consideration when borderline grades occur.
5. Labs are very serious and each student is expected to follow the PFISD Laboratory Safety policies. Failure to do so will result in the removal of the student from the lab area and **alternative written work** will be assigned for the remained of the semester for each laboratory investigation.

1. Calculator use is a privilege, not a right. Using a calculator to cheat or damaging a calculator will result in loss of the calculator privilege.
2. Students not across the classroom door threshold when the tardy bell rings will be sent to the tardy table.
3. It is the student’s responsibility to obtain make-up work. **If absent on an A day pick up makeup work on the following B day. If absent on a B day pick up makeup work on the following A day.**
4. If students are absent the day before a scheduled test, they are expected to take the test the same day they return. In the case of sports or planned absences, work should be completed before leaving when possible.

**Points to Ponder:**

* WHY ARE YOU IN THIS CLASS?????
* Are you here to get college credit?
* Are you here to see the material before you get to college and take the class again?
* Are you here to get the T-shirt?
* What are your priorities?
* Please do not be afraid to make mistakes! If you were not supposed to make mistake, the erasers would not be on the pencils!
* We get paid to answer your questions…PLEASE make us earn our pay.
* This is a college course and as such, **IT IS HARD,** but not impossible to do well in.
* You will be expected to do a great deal of higher level thinking, and yes it will hurt your head sometimes.
* Please look at this course as a bridge between high school and college. You get college work and material…with all of the safety nets of high school.
* Do you have a STUDY GROUP? It is good to work homework together. If you just copy someone else’s homework, your homework may be right, but you will fail the quizzes and/or tests.
* To get a **FIVE** on the AP Chemistry exam 🡺 you need **75% correct** on the test!
* To get a THREE on the AP Chemistry exam 🡺 about **50% correct** on the test!
* Unlike us, you have a life outside of school. If you have something going on that will interfere with your ability to turn in work to us…let us know, we will try to work something out.
* Our expectation is that ALL of you will take the AP Chemistry EXAM at the end of the year.
* If it wasn’t for people like us, your parents would never know you are normal.

**SEQUENCE:**

* Review of Pre-AP Chemistry Big Ideas 1,2,3. F.Y.I. this material isn’t going away☺
* Thermodynamics
* Reactions
* Electrochemistry
* Kinetics
* General Equilibrium (hopefully we’ll be finishing this up around winter break)
* Acid/Base Equilibrium
* Solubility Equilibrium (hopefully we’ll be through this by spring break)
* Review for the first AP exam (May 2nd). This will be here sooner than you think