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Course Description:

This is an advanced placement course designed to prepare students for the AP Chemistry exam, and covers the equivalent of one full year of college level general chemistry. It is a rigorous math-based course, with a strong laboratory component. It is intended for students who have demonstrated a willingness to commit considerable time to studying and completing assignments outside of class, and who have successfully completed a prior course in chemistry during high school. The primary goal of the course is for students to understand the basic principles of modern chemistry—including stoichiometry, reactions, kinetics, equilibrium, thermodynamics, electrochemistry, and more—while also demonstrating the ability to use that understanding in the solution and meaningful communication of mathematically based laboratory and textbook problems.

Generalized Course Objectives:

(For a detailed outline see course syllabus or go to mrthaler.net.)

The content of this course has been established by the College Board and the major topics covered in AP Chemistry include:

- I. **STRUCTURE OF MATTER:** The chemical elements are fundamental building blocks of matter, and all matter can be understood in terms of arrangements of atoms. These atoms retain their identity in chemical reactions.
- II. **PROPERTIES OF MATTER:** 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.
- III. **CHEMICAL REACTIONS:** Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
- IV. **RATES OF CHEMICAL REACTIONS:** Rates of chemical reactions are determined by details of the molecular collisions.
- V. **THERMODYNAMICS:** The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
- VI. **EQUILIBRIUM:** Any bond or intermolecular attraction that can be formed can be broken. These two processes are in dynamic competition, sensitive to initial conditions and external perturbations.

Methods of Evaluation:

Students will be evaluated by using, but not limited to, the following strategies:

- Teacher-constructed examinations and quizzes
- Standardized examinations
- Laboratory exercises and scientific-formatted lab reports (for student portfolios)
- Homework and class work
- Classroom participation

Grading Policy:

I estimate 1000 points per semester. Cumulative available points equal 100 percent. A test point is weighted no more nor less than any other point. The following scale will be used for assigning letter grades:

A = 100 - 90% B = 89 - 80% C = 79 - 70% D = 69 - 60%.

A **C minus** (70-73%) is considered in danger of failing, as is anything in the **D** range. An **F** is, of course, failing. Bonus points may be available on rare occasion at teacher's discretion.

Textbooks:

Zumdahl, S.S., S.A. Zumdahl, and D.J. DeCoste (2018). Chemistry, 10th ed. Boston, MA: Cengage Learning.

Chang, R. (2002). Chemistry, 7th ed. New York: McGraw Hill.

Laboratory Manual:

Nelson, J. H., and Kemp, K. C. (2003). Laboratory Experiments: Chemistry, The Central Science, 9th edition. Upper Saddle River, NJ: Pearson Education.

Vonderbrink, S. A. (2001). Laboratory Experiments for Advanced Placement Chemistry. Batavia, IL: Flinn Scientific.

Classroom Rules:

I expect students to be studious and courteous at all times in my class:

1. OUR PRIMARY GOAL IN THIS CLASS IS TO LEARN CHEMISTRY. Students will respect the rights of others to learn in a safe, enlightening, and productive environment.
2. STUDENTS ARE REQUIRED TO FOLLOW DIRECTIONS IN CLASS, or there will be consequences. Such directions include wearing goggles during labs, turning in homework pages in order, being silent when the tardy bell rings, etc. These directions exist for safety and organizational purposes, as well as fairness and equity.
3. BE ON TIME! Otherwise, consequences will not be pleasant. For example, I may hold your work for the days you are tardy in the make-up folder until such time as I see fit to grade it.
4. NO CELL PHONES, IPODS, HEADPHONES, SMART WATCHES, ELECTRONIC DEVICES OF ANY SORT, BOOKS OTHER THAN CHEMISTRY, ETC.—If I see one of these items out in class, I will take it away. This goes for using a phone's calculator, too. Use a calculator. Anyone in possession of a phone, etc. during a testing period will receive a zero on that test.
5. IT IS STRONGLY RECOMMENDED THAT YOU GET A SCIENTIFIC CALCULATOR. You'll need one. (They typically range from \$10 to \$15.) Graphing calculators are fine, too!
6. COME TO CLASS WITH YOUR TEXTBOOK, A PEN AND/OR A PENCIL, A NOTEBOOK—standard equipment—plus any necessary supplementary materials, and be prepared to take notes.
7. BE PREPARED TO PARTICIPATE in class discussions, which will be based on the reading and/or homework.
8. RAISE YOUR HAND if you wish to add something to lectures or discussions. Otherwise, when I am addressing the class—that is, lecturing—PLEASE DON'T TALK.
9. NO LATE WORK WILL BE ACCEPTED, other than makeup work for a justified absence on the day it was due. You will have one day for every day an assignment or due date was missed, beginning with the day you return to school from an excused absence, to hand in homework or make up quizzes and tests for credit. So if you are absent the day that something is due, you hand it in the day you return. LABORATORY EXERCISES MAY NOT BE MADE UP. I have measures in place for genuinely unavoidable absences, however.
10. PLAGIARISM is defined as the practice of taking someone else's work or ideas and passing them off as your own. There will be zero tolerance for plagiarism in this class, in accordance with SVUSD policy. Lab reports are to be written independently, unless otherwise directed.

Laboratory Rules:

Same as classroom rules, plus:

IMPORTANT: There will be zero tolerance for behavior by any student that infringes upon the right of other students to learn and experience chemistry. This especially applies to the laboratory, where bad behavior can endanger other students. I will take any measures necessary to eliminate disruptive elements from my classroom or laboratory.

Students and their parents will be required to sign a laboratory safety contract before students will be allowed to do lab work.

Assignments and Points:

All assignments will be announced in class as they come up, and will be posted on mrthaler.net and/or Aeries. If you do not have internet access, then you had better pay close attention when I am giving out homework. (By the way, everyone on the SSHA campus should have internet access, for example, the library.)

Homework assignments will typically be worth 10 points each. Lab reports (for which you will use a rubric)—will be worth 32 points each. AP Chem lab reports (the ones that I require, at least) differ from those of CP Chemistry only in the addition of an Abstract and Original Data section.

There will be frequent quizzes on most topics (10-20 points, each), exams on approximately every unit (40-60 points, each), and a semester-cumulative final exam at the end of the first semester.

IT IS UNLIKELY THAT YOU WILL PASS THIS CLASS IF YOU FAIL TO CONSISTANTLY DO THE HOMEWORK AND LAB REPORTS. (However, you might still pass the AP exam.)

I have read, understand, and agree to abide by the rules and regulations detailed above and on the preceding page.

Student _____ Date _____

Sign and print.

Parent/Guardian _____ Date _____

Sign and print.

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