ADVANCED PLACEMENT CHEMISTRY SYLLABUS

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Course Website: Google Classroom

Advanced Placement Chemistry is designed to be the equivalent of the general chemistry course usually taken during the first college year. Our goals are to:

1. Provide college level chemistry instruction
2. Prepare students for the AP exam in such a way that they will have the best possible chance for success.

This course will require significant time commitment to prepare for the AP exam. **All students are required to take the AP exam on Friday May 7, 2019 at 8:00 am**. This is a very comprehensive and difficult test which demands thorough preparation that must start at the beginning of the course and continue consistently throughout. Careful study, completion of all homework assignments and working through assigned problems will boost your chances for success.

The prerequisite for this course is a grade of at least 90% in Chemistry 1 and teacher approval. AP chemistry is a 27 week course;

Course Materials:

1. **Textbook:** Chemistry by Julia Burdge, Second Edition, 2010. Please do not write in your book!

2. **Laboratory Manuals:**
   Vonderbrink, S.A. *Laboratory Experiments for Advanced Placement Chemistry*.
   Randall, Jack. *Advanced Chemistry with Vernier.*

Required Materials:

1. Scientific calculator that can do logarithms, exponent and scientific notation
2. Binder for handouts
3. Prep guide for exam (5 steps to a 5, Sterling Test Prep, Barron's Cracking the AP exam are good ones)

AP Resources and Supports:

1. **AP Classroom** is a dedicated online platform designed to support teachers and students throughout their AP experience. The platform provides a variety of powerful resources and tools to provide yearlong support to teachers and enable students to receive meaningful feedback on their progress. Students will be completing assessments and progress checks using this platform.

2. **Google Classroom** – site will contain materials used throughout the course such as notes, labs, etc

GradingScale

A 90-100%
B 80-89%
C 70-79%
D 60-69%
F Below

Points earned will consist of about 60-70% tests/quizzes, 20-25% laboratory work and 5-10% homework .Your final course grade will be based on the percentages that you earn each of the grading periods. The final exam is worth 20% of your final grade.

Expectations/Responsibiities

1. Please be on time and prepared to work!!
2. **Masks must be worn at all times unless directed by the instructor.**
3. **All surfaces must be disinfected before you leave the classroom.**
4. Be courteous of others – we are all in this together and will learn from each other.
5. Always ask questions if you do not understand something or need clarification. There is a direct relationship between participation and learning.
6. Extra help is available. Just see me to schedule.
7. If you are having a problem, communicate with me to see if we can find help before the issue becomes larger.
8. Regular attendance is imperative. It is your responsibility to get assignments and make up work. Solutions to the previous night's work will be posted on Google Classroom with assignments. Assignments not made up according to school policy will result in a zero.
9. If necessary email me at tslaven@canfieldschools.net or message through Google Classroom
10. Breaking of classroom rules/guidelines may result in point deductions from your grade as well as disciplinary action.

Note: The potential of risk is present in some lecture demonstrations and lab experiments. Accidents are rare, but have happened. Faculty and staff members exercise great care to minimize and when possible, eliminate all potential hazards. Additionally, minimization of risks requires that students come well prepared for each assigned exercise and are attentive in class.

Cheating/Plagiarism/Falsification of Information At Canfield High School cheating and plagiarism are two of the most serious offenses that threaten the educational goals of students. Cheating and plagiarism are defined as:

a. Using another person's work in any form as your own.
b. Copying or using another person's homework, test, book report, term paper, or any assignment or material used in the course.
c. Using as your own, any person's ideas, expressions, or words without giving the original author credit including downloaded material from the Internet.
d. Having in your possession or preparing to have any material or device which may give an unfair advantage.
e. Failing to follow any and all testing procedures or instructions announced by the instructor.
f. In any way taking unfair advantage to complete an assignment or any assessment.

A first offense will result in a grade of "zero" for the assignment or assessment. (Plagiarism of a research paper may result in course failure.) A second offense may result in removal from class and a letter grade of "F" for the final grade. All instances will also be put in a student's discipline file and could jeopardize the student's access to any and all academic honors and awards (NHS, Academic Banquets, etc...)

Course Framework

I. Science Practices

Practice 1 - Models and Representations Describe models and representations, including across scales.

Practice 2 - Question and Method Determine scientific questions and methods.

Practice 3 - Representing Data and Phenomena Create representations or models of chemical phenomena.

Practice 4 - Model Analysis Analyze and interpret models and representations on a single scale or across multiple scales.

Practice 5 - Mathematical Routines Solve problems using mathematical relationships.

Practice 6 - Argumentation Develop an explanation or scientific argument.

II. Big Ideas

BIG IDEA 1: SCALE, PROPORTION, AND QUANTITY (SPQ) Quantities in chemistry are expressed at both the macroscopic and atomic scale. Explanations, predictions, and other forms of argumentation in chemistry require understanding the meaning of these quantities, and the relationship between quantities at the same scale and across scales.

BIG IDEA 2: STRUCTURE AND PROPERTIES (SAP) Properties of substances observable at the macroscopic scale emerge from the structures of atoms and molecules and the interactions between them. Chemical reasoning moves in both directions across these scales. Properties are predicted from known aspects of the structures and interactions at the atomic scale. Observed properties are used to infer aspects of the structures and interactions.

BIG IDEA 3: TRANSFORMATIONS (TRA) At its heart, chemistry is about the rearrangement of matter. Understanding the details of these transformations requires reasoning at many levels as one must quantify what is occurring both macroscopically and at the atomic level during the process. This reasoning can be as simple as monitoring amounts of products made or as complex as visualizing the intermolecular forces among the species in a mixture. The rate of a transformation is also of interest, as particles must move and collide to initiate reaction events.

BIG IDEA 4: ENERGY (ENE) Energy has two important roles in characterizing and controlling chemical systems. The first is accounting for the distribution of energy among the components of a system and the ways that heat exchanges, chemical reactions, and phase transitions redistribute this energy. The second is in considering the enthalpic and entropic driving forces for a chemical process. These are closely related to the dynamic equilibrium present in many chemical systems and the ways in which changes in experimental conditions alter the positions of these equilibria.

III. Units

Units	Exam Weighting
Unit 1: Atomic Structure and Properties	**7–9%**
Unit 2: Molecular and Ionic Compound Structure and Properties	**7–9%**
Unit 3: Intermolecular Forces and Properties	**18–22%**
Unit 4: Chemical Reactions	**7–9%**
Unit 5: Kinetics	**7–9%**
Unit 6: Thermodynamics	**7–9%**
Unit 7: Equilibrium	**7–9%**
Unit 8: Acids and Bases	**11–15%**
Unit 9: Applications of Thermodynamics	**7–9%**

Review for the AP exam
Emphasis on reviewing the more difficult material and practice with review tests (including the released AP exams). Released questions are available on AP Classroom.

After school review sessions will also be held beginning in April. There is a strong correlation between attendance at the review sessions and exam performance!

Students who take the AP Chemistry course, designed with this curriculum framework as its foundation will develop a deep understanding of the concepts within the big ideas through the application of the science practices in the required laboratory component of the course. Students must complete a minimum of 16, hands-on lab investigations to support the learning objectives in the curriculum framework. At least six of the lab investigations must be guided inquiry-based labs. The result will be readiness for the study of advanced topics in subsequent college courses — a goal of every AP course.