

# ADVANCED PLACEMENT CHEMISTRY

Inquiring minds wanna know...

## About this course.

AP Chemistry is designed to be the equivalent of the general chemistry course usually taken during the first year of college. For some students, this course enables them to undertake, in their freshmen year, second year work in the chemistry sequence at their institution or to register in courses in other fields where general chemistry is a prerequisite. For other students, the AP Chemistry course fulfills the laboratory science requirement and frees time for other courses.

## What are the prerequisites?

AP students must complete one year of General Chemistry. AP students should have completed or be concurrently enrolled in Algebra II with a "B" average or higher

## How much time will we spend in class and outside of class?

The College Board expects that a minimum of 290 minutes per week in class and an hour per night at home be allotted for an AP course. Currently, ERHS has 55-minute class periods giving us 275 minutes in class. Of 275 minutes, the College Board suggests that we spend 90 minutes per week in the laboratory. Parents should expect their students to spend additional time outside of the scheduled class period before or after school: checking homework, asking questions, completing assessments, and working on laboratories and projects.

## About Textbooks.

We will be using Chemistry by Zumdahl, Zumdahl. There are other recommended texts that could be used as resources, see more information section.

## About the Exam.

AP exam is divided in to two parts. The exam takes 180 minutes total.

### ***Part I: Multiple Choice (90 min., 50% grade)***

60 multiple choice questions covering a broad range of topics. No calculators are permitted. The College Board explains that the exam must be broad enough to give every student who has covered an adequate amount of material an opportunity to make a good showing but comprehensive enough so that no student should expect a perfect score.

### ***Part II: Free Response Questions (i.e. Essay Portion) (90 min, 50% grade)***

The free-response section includes both Long Free Response Questions (3) and Short Free Response Questions (4). This portion of the exam will contain questions pertaining to experimental design, analysis of authentic lab data and observations to identify patterns or explain phenomena, creating or analyzing atomic and molecular views to explain observations, articulating and then translating between representations, and following a logical/analytical pathway to solve a problem. Students are allowed the use of a scientific calculator, periodic table, and a formula and constants chart. The free-response section gives you the chance to demonstrate your quantitative problem-solving skills, knowledge of chemical reactions, and ability to reason and explain ideas in a logical and coherent fashion.

## About Calculations.

We will learn how to master various problem types during the course of the year. We will also learn the appropriate way of documenting our calculations including significant figures, precision of measured values, and the use of logarithmic and exponential relationships. We will also be able to determine whether our calculated result is reasonable. Use this list to monitor our progress throughout the year.

- Percentage composition
- Empirical and molecular formulas from experimental data
- Molar masses from gas density, freezing-point, and boiling point measurements
- Gas laws, including the ideal gas law, Dalton's law, and Graham's law
- Stoichiometric relations using the concept of the mole; titration calculations
- Mole fractions; molar and molal solutions
- Faraday's laws of electrolysis
- Equilibrium constants and their applications, including their use for simultaneous equilibria
- Standard electrode potentials and their use; Nerst equation
- Thermodynamic and thermochemical calculations
- Kinetics calculations

## Hints for Success

- Maintain homework schedule and Practice, Practice, Practice!!!! Finish all daily assignments.
- Get Proactive! Keep track of questions in your notes, on your assignments, and be sure to ask them particularly after checking your assignments.
- Keep detailed and organized notes of topics covered during class time.
- Try difficult problems a couple of times to make sure you really understand how to complete them.
- For certain topics, study guides will be available, ask for one.
- Don't just try the homework problems, use the problems that aren't assigned to test your understanding.
- Get organized - purchase a three-ring binder and maintain it daily, see me for an example.
- Utilize your classmates - each of you have a unique interpretation of the material covered in class, your insights, approaches, etc. can help not only you but others understand chemistry better. Get together with friends and classmates after school and on weekends to study. (Warning: This works well for some people but may not work well for others.)
- Be flexible and tenacious. Encountering difficulty during class time, whether in laboratory or during classroom discussion, can be frustrating. Allow yourself the room to make mistakes and be flexible to find new routes to your desired outcomes. Often its that last ditch effort that can take you from just, "not getting it," to, "Ah hah!" As Dori would say in *Finding Nemo*, "Just keep swimming!"
- Check the class website <http://www.erschools.com/HighSchool/Directory/aweber/daily> for additional resources, practice problems, etc.
- Go above and beyond the call of duty.
- Get help BEFORE a test or quiz. Your homework is designed to indicate when you might need more help mastering a given topic. If you are having difficulty, seek help before you take a test or quiz. I am available before school (7:00 a.m.) and after school by appointment. To schedule a time to meet talk to me in class, e-mail me at [aweber@erschools.com](mailto:aweber@erschools.com), or call me at 264-8108 x 3107.

## Good News

You will save ~ **\$6906** (based on MSU's tuition for 2013). General Chemistry and Laboratory is ~8 credits at a University. That's BIG MONEY!

## More Information.

All the information in this flyer was obtained at the following link:

<http://apcentral.collegeboard.com/apc/public/repository/ap-chemistry-course-description.pdf>

In addition, I recommend you look at the resources available on the AP Chemistry home page:

<https://apstudent.collegeboard.org/apcourse/ap-chemistry?chem>

For parents, I recommend visiting this site: <https://bigfuture.collegeboard.org/get-started/for-parents>