

AP Chemistry 2020-2021

Teacher: Tristan Drusky, EdS

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Room: 206 (Science Hallway)

Class Website: www.fyestplanet.weebly.com

Remind: Get text messages to remind you of tests, quizzes or projects for students and/or parents. To join, TEXT 81010, message should say @druskyapch

Gradeline: Access through the school website <http://www.gulfbreezehighschool.com/>

Science Lab Fee: \$10.00, Please pay online at www.myschoolbucks.com! It is the same account as your school lunch.

Course Description:

The purpose of Advanced Placement Chemistry is to provide a college level course in chemistry and to prepare the student to seek credit and/or appropriate placement in college chemistry courses. Students are engaged in hands-on laboratory work, integrated throughout the course that accounts for more than 25% of the class time. Emphasis is placed on depth of understanding of a topic, rather than breadth of topics. Students will take several quizzes and exams that will test their overall knowledge and ability in this course. At the end of the school year, students will be required to write a research report and present a topic to the class. This report can be on any chemistry topic.

2022 Exam Date: May 2, 2022 @ 8:00 am

Objectives:

Students will:

1. Learn the inquiry process through numerous laboratory investigations.
2. Gain an understanding of the six big ideas as articulated in the AP Chemistry Curriculum Framework.
3. Apply mathematical and scientific knowledge and skills to solve quantitative, qualitative, spatial, and analytic problems.
4. Apply basic arithmetic, algebraic, and geometric concepts.
5. Formulate strategies for the development and testing of hypotheses.
6. Use basic statistical concepts to draw both inferences and conclusions from data.
7. Identify implications and consequences of drawn conclusions.
8. Use manipulative and technological tools including the Vernier Probes and Vernier's LoggerPro software.
9. Measure, compare, order, scale, locate, and code accurately.
10. Do scientific research and report and display the results of this research.
11. Learn to think critically in order to solve problems.

STRUCTURE OF THE COURSE

AP Chemistry is built around six science practices, four big ideas and nine units (which are broken down further into topics).

SCIENCE PRACTICES

The AP Chemistry science practices describe what a student should be able to do while exploring course concepts. These are categorized into skills, which form the basis of the tasks on the AP Exam.

Science Practice 1: *Models and Representations* - Describe models and representations across scales.

Science Practice 2: *Question and Method* - Determine scientific questions and methods.

Science Practice 3: *Representing Data and Phenomena* - Create models of chemical phenomena.

Science Practice 4: *Model Analysis* - Analyze/Interpret models on a single or across multiple scales.

Science Practice 5: *Mathematical Routines* - Solve problems using mathematical relationships.

Science Practice 6: *Argumentation* - Develop an explanation or scientific argument.

BIG IDEAS

BIG IDEA 1: SCALE, PROPORTION, AND QUANTITY

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

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. 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 3: TRANSFORMATIONS

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

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.

UNITS

The course content is organized into commonly taught units. The units have been arranged in a logical sequence frequently found in many college courses and textbooks. The nine units in AP Chemistry, as organized by the College Board, and their weighting on the multiple-choice section of the AP Exam, are listed below.

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%

NOTE - THIS IS THE COLLEGE BOARD'S WEIGHTING OF THE TOPICS ON THE EXAM. THERE WILL BE MORE THAN 9 UNITS OF CONTENT DELIVERED IN THE COURSE.

Course Topic Outline:

A detailed unit schedule will be provided to students and will be posted on the class website during the 2nd week of school. The following is the general breakdown of topics and the semester they are covered:

1 st Semester	2 nd Semester
Reintroduction to the Basics (Atomic Structure, Stoichiometry, Reactions)	Solids, Liquids, & Intermolecular Forces
Solutions & Descriptive Chemistry	Chemical Kinetics
Gases	Chemical Equilibrium
Thermochemistry	Acids & Bases
Quantum Mechanics & Periodic Table	Solubility Equilibria
Bonding	Organic Chemistry
	Electrochemistry

Textbook:

Zumdahl & Zumdahl, *CHEMISTRY: Advanced Placement Edition, 8th Ed.* Published by Brooks Cole Cengage Learning, 2010.

AP Chemistry Exam Prep Books: I have several prep books in class for student use. It is recommended that you purchase one of your own to study throughout the year.

Formal Laboratory Investigations:

All of the laboratory experiments in this course are hands-on. Students work in groups to collect, process, manipulate, and graph data from both qualitative and quantitative observations. Inquiry is emphasized in many of the experiments that students complete. The laboratory work requires students to design, carry out, and analyze data using guided inquiry principles. For all labs, students are required to report the purpose, procedure, observations, all data, data analysis, error analysis, results, and conclusions in a lab report that is submitted for grading. Students will maintain a report notebook for their labs. A minimum of 25% of student contact time will be spent doing hands-on laboratory activities and investigations.

A specific format will be given to the student for each lab. Students must follow that format and label all sections very clearly. AP Chemistry lab reports are much longer and more in depth than the ones completed in the first year chemistry course. Therefore, it is important that students don't procrastinate when doing pre-lab and post-lab work.

Classroom Requirements and Expectations

During the year, students will be required to **PAY ATTENTION** during class, carry out **CLASS ASSIGNMENTS**, do and bring in **HOMEWORK**, **STUDY** on a regular basis, and do several **LABS** for this course.

THINGS TO BRING TO CLASS

Students will be given a **REFERENCE TABLE** that needs to be brought to school every day. Any homework assigned must be brought to school the day it is due. Labs and class work should be completed by the day that they are due as well. Late labs and homework are worth ZERO points. No excuses will be accepted other than absence. Labs can NOT be emailed. ***Lastly, plagiarism is unacceptable. Any student caught copying or allowing others to copy their HW or labs will be given zeros for that assignment.***

LIST OF DAILY REQUIREMENTS

- 1) Notebook
- 2) Pens or pencils
- 3) Reference table
- 4) Calculator
- 5) HW and/or Labs for that day (when required)

Grading Policy

Class Participation: Students will be graded on their class participation and work completion.

Homework will be given on a regular basis. In this class, homework is used as a study aid. Homework will always be checked for completeness, but because of time constraints, every problem may not be gone over in class. Failure to do HW will result in loss of Class Participation points, and will lead to bad quiz and test grades. *Class Participation/Homework is 10% of the student grade.*

Quizzes: Quizzes are given whenever a sufficient amount of material is covered. Most quizzes are very short "checkpoints" that are assigned through the student's AP Classroom account and taken online. *Quizzes are 20% of the student grade.*

Tests: Tests are given when a larger section of material has been completed during the year and are used as a simulation of an actual AP exam. *Tests are 35% of the student grade.*

Labs: Labs are done every quarter in AP Chemistry. Except for absences, LATE labs are worth no points. Copying a lab from someone else is considered plagiarism. A ZERO will be given to any one that hands in a copied lab and to the student he/she copied from. LABS ARE NOT TO BE EMAILED. You must hand in a physical copy. *Labs are 35% of the student grade.*

Dear Parents/Guardians:

Thank you for taking the time to review your student's AP Chemistry syllabus for the year, which you can find online at www.fyestplanet.weebly.com. I look forward to helping your student succeed and enjoy learning this year. Feel free to contact me anytime with questions/concerns and remember you can always check your student's progress on the gradeline through Classlink on the school's website.

Please encourage your student to abide by the school's cell phone policy. In class is it to be stored in a bag unless specifically required for the day's work. I always love any parent involvement. I am looking for guest speakers if you or anyone you know works in any scientific fields. I am also in need of class supplies on occasion, so check my website for those needs. Please make a notation below in the comments if you can help in anyway.

Contact me anytime at DruskyT@santarosa.k12.fl.us. I am looking forward to a great and engaging year!

Sincerely,

Tristan Drusky, EdS

By completing the linked Google Form, I acknowledge I have read and understand the expectations of Chemistry class, in addition to approving the following:

Video Release:

Given the nature of our science content the video clips we work with are often considered PG or PG13. Sign below to give student permission to view PG/PG13 content. If you have any concerns please feel free to contact me.

*LINK ELECTRONIC VERIFICATION/CONFIRMATION OF SYLLABUS:

<https://forms.gle/Fdkf7zot4pdszVKAA>