

Dougherty High School AP Chemistry Syllabus

AP[®] Chemistry Class Policy

Mark Your Calendars! AP Chemistry Test Date → TUESDAY MAY 5th, 8am

- **Instructor:** Mrs. Farmer **Mrs. Farmer's website:** www.mychemistryclass.net **Email:** sfarmer@srvusd.net
- **Sign up for REMIND APP:** download REMIND APP to join @apchemfarm class (or txt @apchemfarm to 81010)

CLASS RULE

Don't make anyone unhappy! That includes the teacher, your classmates, visitors, and yourself.

CLASS EXPECTATIONS

<u>GENERAL:</u>	<u>EVERY DAY:</u>	<u>CLEAN UP:</u>	<u>EFFORT:</u>
1) Safety	1) Warmup	1) Desks	1) Work
2) Respect	2) Lesson	2) Benches	2) Questions
3) Hard work	3) Clean up	3) Floors	3) Participate

SCHOOL POLICIES & PROCEDURES – All policies, procedures, rules, and disciplinary actions will be followed from the DVHS Student Handbook. Please see the student handbook for further information.

ACADEMIC HONESTY AND ETHICS POLICY

Honest behavior is an expectation at DVHS. The purpose of the policy is to create and maintain an ethical academic atmosphere in which strong behavioral consequences will be enforced. **Cheating, plagiarism, violation of test procedures will not be tolerated. Violations of academic ethics will be dealt with according to Board Policy, the California Education Code, and the [DVHS student handbook](#).**

LINE OF COMMUNICATION

Any questions or concerns regarding student progress in a class should be addressed through the following process per the student handbook:

1. Student communicating with teacher
2. Parent communicating with teacher
3. Parent/Student communicating with counselor
4. Parent/Student communicating with Assistant Principal
5. Parent/Student communicating with Principal

STAFF COMMUNICATION POLICY

Email is typically the fastest and best way to reach me. As a guideline, any communication to staff, via email or telephone, should receive a response within 48 hours (excluding weekends and holidays). If there is no response within 48 hours, please email or call again stating this is the second attempt. Thank you for understanding that the 48-hour guideline may be affected by illness, conferences, or technology problems.

EXTRA HELP and REMINDER

Some of the best ways to be successful are to ask questions, take notes, participate in discussions, spend time using your resources, work as many problems as possible - over and beyond those assigned for homework, and attend and actively utilize Student Support Period. Problem solving is a skill that can only be improved by practice and exposure to lots of examples. If you do not do the work, you will not be successful. I am excited about this year. I love chemistry and my hope is for you to love it as well. Do not hesitate to ask for help. I am here to help you!

Perseverance

Keep calm → Track down mistakes → Learn → Improve

HELPFUL WEBSITE

Please visit www.mychemistryclass.net for links to the notebook pages, class calendar, extra resources, etc.

NOTEBOOKS and SUPPLIES

We use a composition notebook for warmups and taking notes. We use a 3-ring binder with 5 tab dividers for our reference sheets, study materials, and worksheets. Your notebook/binder will be graded on a regular basis and will be a portion of your class grade. There will be announced and unannounced checks. It is expected that you put **SIGNIFICANT EFFORT** into your notebook. More information will be given about these items when we begin to use them.

This class will use the following supplies. If you cannot obtain the supplies for any reason, the supplies can and will be provided.

STRONGLY RECOMMENDED – Will be used in class	Highly suggested	Optional, but fun!
<ul style="list-style-type: none">• Wooden pencils for quiz/test days• Composition Notebook• 3-ring binder with 5 divider tabs• Colored pencils or skinny markers• Glue stick NOT tape!!!• Red ball point pen• NON-graphing scientific calculator*• Small scissors• Highlighter• Black/ Blue pen AND two pencils	<ul style="list-style-type: none">• Small ruler• Small pencil sharpener that can collect the shavings• Small Post-it Notes	<ul style="list-style-type: none">• Stickers• Glitter pens• Small envelopes

* I HIGHLY recommend the Texas Instruments "Ti-30x IIS". This is the calculator that I will be using in class, and I find it to be the easiest (and most logical) to use. You may use a different one but I am not familiar with how to use every calculator out there, and I may not know how to help you with it! Please note you are required to use the teacher provided calculator during all quizzes and assessments if/when we are in school physically.

TEXTBOOK

Chemistry, A Molecular Approach 4th Ed.

– Tro – Pearson Prentice Hall – etext

Mastering Chemistry – Online supplement to the course

HOMEWORK

Dougherty Valley High School will be following the District Homework Policy (AR 6154 and BP 6154), please see the Homework Policy on the District Website as well as the Dougherty Valley High School Web Site. **Please be advised that this policy is/can be different for Honors/AP Courses.**

All homework assigned will be due at the start of the next class period unless otherwise noted. If an assignment is collected digitally (example: Google Classroom or Infinite Campus) the due dates may also have a time component (example: 8am). Not every homework assignment will be collected or graded. Some assignments are graded for accuracy, some for completion, and some will only have select problems graded.

EXAMS - QUIZZES and TESTS

Exams may be: closed or open note/book, announced or unannounced. If an exam is announced, it will be announced in class and/or on the class website/calendar. Exams may contain questions on prior units. Quizzes may be given mid unit, and/or after a unit. Tests may cover several units at a time. For test security purposes, cell phones, any device capable of recording or taking photos, or any other electronic devices (such as "smart watches"), are not permitted on your person during an exam. All electronic devices will be placed in a "cell phone holder" at the front of the classroom until the end of the exam. Your belongings will be stored away from your person during the exam. If you are found with an electronic device, or any unauthorized materials, during the exam it will be assumed it was used inappropriately, and you will receive a permanent zero on the assessment and your Assistant Principal will be notified. The infraction will be logged in your Infinite Campus behavioral record.

LABORATORY EXPERIMENTS

The lab experiments represent a collection from various sources
-Flinn Scientific Inc. Advanced Placement Chemistry Laboratories
-College Board AP® Chemistry: Guided-Inquiry Laboratories
-Juniata College, Science in Motion, Advanced Placement Labs
-Advanced Chemistry with Vernier

LAB ASSIGNMENTS and SAFETY

Separate handouts concerning laboratory procedures and safety will be passed out in class. All students are required to have a **laboratory notebook**. Lab notebooks will be provided. Lab notebooks may be collected and graded. Written lab work may include the following sections. You will be told each time which sections are required. **You will not be allowed to perform a given experiment if any of the safety rules or any additional rules subject to teacher discretion are not followed. Safety means being prepared, dressed safely, and ready. That includes completing the prelab assignment before the lab starts.**

- Prelab Qs
- Purpose/Goal/Q's
- Hypothesis
- Materials
- Reagent Table
- Procedure Flow Chart
- Data Tables
- Calculations
- Post Lab Qs/Report

DVHS and CLASS GRADING POLICY

The following grading scale will be used for this course.

	B+ 87 – 89%	C+ 77 – 79%	D+ 67 – 69%	
A 93 – 100%	B 83 – 86%	C 73 – 76%	D 63 – 66%	F 0 – 59%
A- 90 – 92%	B- 80 – 82%	C- 70 – 72%	D- 60 – 62%	

Grades on all assignments, assessments, and overall class grades are final, unless otherwise stated by your teacher. Grades are not determined on a curve. Grades are not rounded. DVHS has a school-wide policy of no extra credit. Grades are weighted based on the following categories.

% of Grade	Category
45%	Unit Tests, Mid-Terms, Mock Exam
20%	Lab Work, Extended Assignments
15%	Quizzes
15%	Final Exam
5%	Short Term Assignments (Class/Homework)

**Be on task, productive, engaged ...
those are all part of doing your work!**

TARDIES, ATTENDANCE and MAKEUP WORK

Tardies are disruptive and interrupt the progress of other students. Be sure to come to class on time, ready to learn. Tardiness will be addressed in accordance with school policy as specified in the DVHS handbook. Please see the Dougherty Valley High School Webpage for the make-up work policy. If you have a legally excused absence, it is **YOUR RESPONSIBILITY** to find out what the missed class work and homework assignment(s) was and to complete it.

UNEXCUSED and CUT absences – You will not be permitted to earn credit for work due, or exams given on days you have unexcused or cut absences. Please be aware of the school's requirements and timeline for clearing absences to be unexcused, and for what types of reasons are classified as unexcused.

EXCUSED absences – You get the number of days absent to complete make-up work. Assignments subject to change at teacher's discretion. If you were only gone for the day of the exam, you will take it upon your return to school unless other arrangements have been made with the teacher in advance. This includes missing the exam due to field trips, sports, or other school events. If you are missing work due to field trips, sports, or other school events you must get the absent work ahead of time. Since you are not home ill in bed unable to work, you are expected to do the that evening. It is important not to fall behind. Missed exams will be made up during class, unless I allow you to make it up during Student Support period with prior approval. If you are absent for an exam, for any reason, you will be given a make-up version. It will cover the same material but can be different questions or a different format. Students are not entitled to an exam format of their preference. If a pattern arises where a student repeatedly misses class (including excused absences) on an exam day, a referral to administration will be given on the third occurrence to discuss the concerning pattern.

ADDING TO THE CLASS AFTER THE START OF THE YEAR

Students who add to the class after the start of the year will have their grade from their previous chemistry class transferred as an equal percentage. For example – if you exit your old class with an 85.6% you will start your new class with an 85.6%. Your grade will be transferred regardless of whether you transferred from another school, from one teacher to another teacher, or you transferred from an honors to regular level chemistry class or vice versa.

OVERVIEW OF AP CHEMISTRY PROGRAM

The class meets four (4) days a week, three 50 min periods and one 85 minute block period. Throughout the school year, 25%+ instructional time will be devoted towards laboratory experiments, inquiry and normal experiments. The other days are lectures, practice problems, experiment continuation, and interactive activities.

- AP Chemistry is a 2nd-year course. You should have already completed Honors Chemistry
- The expectation is that all AP Chemistry students will sign up and take the AP Chemistry Exam

COURSE DESCRIPTION

AP Chemistry is designed to be the equivalent of the general chemistry course usually taken during the first year of college. The goal is to provide the student with a strong background in many of the basic topics covered in chemistry. The objective of this class is to prepare each and every student to be successful on the AP Chemistry Exam given by the College Board in May. **Please note, an actual college chemistry class would involve more hours of instruction time per week than our current schedule, to compensate, additional time, outside of scheduled class time, will be required. This includes two Saturdays in April prior to the exam. Finally, in order to be successful in this class you must have several hours each week to devote to lab reports, homework, and studying.**

This is a 2nd year class - Students should have strongly knowledge these topics from 1st year Honors Chemistry:

- Atomic Theory
- e- configuration
- Periodicity
- Bonding/VSEPR
- IMFs
- Gas Laws
- Thermochem
- Solutions
- Kinetics
- Equilibrium
- Acid Base

These topics will either increase in complexity during AP, or were not covered in Honors and will be covered in AP:

- Thermochemistry
- Thermodynamics
- Kinetics
- Equilibrium
- Atomic Structure
- Bonding
- Gas Laws
- IMFs
- Solutions
- Acid Base
- Electrochemistry

DVHS SCHOOL LEARNER OUTCOMES

At Dougherty Valley High School, students will:

- Communicate effectively
- Become critical thinkers and problem solvers who support ideas with reliable evidence
- Practice integrity, honesty, and ethical behavior as a global citizen
- Be a responsible partner in the learning process
- Take ownership of individual growth

Syllabus is subject to change at teachers' discretion. It is possible there will be adjustments made to syllabus and/or grade categories. If this occurs you will be notified.

Donations

Individual courses are no longer asking for/or collecting donations.

PLEASE support our class and your student(s) by donating to the DVHS Education Fund.

More information can be found on the DVHS website under the "students/families" tab at the top of the home page (direct link [HERE](#)). **Thank you** for your continued support of DVHS academics!

Syllabus Acknowledgment Google Form

Students - you need to fill this google form out with your Parent/Guardian acknowledging that you read the syllabus and understand the general class guidelines discussed in the form.

<https://forms.gle/2WgTadhX5QY2D5uT6>

Summer Assignment

Due Monday of the 2nd Week of School.

<https://tinyurl.com/yckh87u6>

It is a required assignment that will count towards your grade. The school sends home communications regarding the summer assignment, and it is also posted on the school website, so you will not be excused or receive an extension due to claiming you "didn't know" there was a summer assignment.

Please know the intention of the summer assignment is to:

- Help you retain all the prior knowledge you are required to know entering this class.
- Improve the speed and proficiency of your skills due to the challenging time restraints on AP exams – all class exams are given under the AP timing!
- Address the fact that there are not enough days on the calendar to review the Honors Chem material and finish the AP Chemistry material before the AP Exam in May.

Students should understand that we have a huge task in front of us to complete this class by May, and the summer assignment is the first step in setting yourself up for success all year long! I REALLY want you to be successful, so please complete the summer assignment with the thought and care intended behind this assignment.

EXPECTATIONS OF THE STUDENTS

Behavioral Expectations

All students are expected to be respectful to the other students and teachers while in this class. There will be zero tolerance for students disrespecting each other or teachers. All students are expected to be honest at all times. Students will be expected to work together in cooperative groups. Each student should participate in group discussions, as well as actively listen while the teacher is giving a lesson or instructions. Every student should come to class on time and be ready to learn for the full class period!

Google Classroom & Infinite Campus

All students are expected to use Google Classroom and Infinite Campus to access information about upcoming events and assignments, class materials, view scores, and check current grades. If you are having trouble signing in, please let me know as soon as possible.

Responsible Use Agreements

Students are responsible for their own ethical and educational use of the SRVUSD technology resources. Please see the [SRVUSD Responsible Use Agreements webpage](#) for more information.

Guiding Principles for AI Use

Students are responsible for their own ethical and educational use of Artificial Intelligence (AI). Please see the [SRVUSD Guiding Principles for AI Use](#) for more information.

PLEASE NOTE - Using AI to complete any portion of an assignment turned in for credit will not be allowed unless the instructions for an individual assignment given by the instructor clearly says otherwise. There are ways to use AI to help you study, but AI may not be used to complete any part of any work turned in for credit. Unauthorized use of AI will result in a zero for the entire assignment.

Student Support

All students are expected to sign up for both Student Support sessions during Homeroom each week and attend them regularly. While a teacher may assign you to a specific session for a particular purpose, you may also have some flexibility in choosing where to go. You are encouraged to select the session that will best support your academic success. If you do not sign up for a session, one will be assigned to you. Attendance at Student Support is mandatory, just like any other class on your schedule. Failure to attend will result in a "CUT" and may also result in disciplinary consequences.

Cell Phone Policy

Per SRVUSD Board Policy and Administrative Regulation 5151.8, all DVHS classrooms will enforce the following expectations:

- Students will store their cell phones and other mobile communication devices in caddies during all class periods and in Student Support.
- Cell phones and other mobile communication devices will stay in the caddies at all times during the class period, including restroom and other breaks.
- Cell phones and other mobile communication devices that are out and being used without explicit teacher permission may be collected and sent to the office for the remainder of the school day.

There are some more "official" College Board Required elements of the syllabus after this page. The other pages are the ones that have the information you are probably most interested in for this course 😊

Course Outline (approximate, subject to change)

Semester 1			Semester 2		
DVHS Unit	Textbook Chapters	Corresponding AP Unit from Below	DVHS Unit	Textbook Chapters	Corresponding AP Unit from Below
Honors Review	1 – 4	I	Gas Laws	5	II
Thermochemistry	6	III	IMFs	11	VI
Thermodynamics	18	XI	Solutions	13	VII
Kinetics	14	VIII	Acid Base	16, 17	X
Mid-Term Exam			Electrochemistry	19	XII
Equilibrium	15	IX	Mock AP Exam (mid-term)		
Atomic Structure	7, 8	V	If time – Projects		
Bonding	9, 10	IV, VI	If time – Organic	21	
Final Exam			Final Exam		

Unit	Description, Content Skills	HW	Labs/Activities Δ =Inquiry \otimes =Normal
I: Review Unit Ch. 1, 2, 3, 4 2 weeks	<u>Unit 1 is a review unit:</u> Material covered in Honors Chem and by the summer assignment. <u>Matter & Measurements:</u> Classifying matter, dimensional analysis, significant figures <u>Atoms, Molecules, Ions:</u> Atomic structure, formulas, nomenclature, oxidation states, etc. <u>Stoichiometry:</u> Mole, atomic weight, molecular formula, balancing eqs, limiting reagents, empirical formulas, % comp, % yield, and solution <u>Aqueous Reactions and Solution Stoichiometry:</u> Precipitation (net ionic), acid-base, redox, concentrations.	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	\otimes Analysis of Silver in an Alloy – Exp. 2 FLINN Δ #3: <u>What makes Hard water Hard?</u> – You will design and perform an experiment using gravimetric analysis to determine the stoichiometry of the reaction. You will create a precipitate in a chemical reaction, which you will separate from the solution via vacuum filtration using Buchner funnels (SP 1-7) <u>Chemicals Reactions Video Activity (BI - #3):</u> You will make a narrated video for chemical reactions, showing how atoms are rearranged and/or reorganized
II: Gases Ch. 5 1.5 weeks	<u>Gases:</u> Ideal gas law, van der Waal's equation, Avogadro's Law, STP, Dalton's Law, Graham's Law, kinetic theory of gases, real vs. ideal gases, etc... • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	\otimes #5: <u>The molar Volume of a Gas</u> – You will react Mg ribbon with HCl in a eudiometer tube to collect gas in that sealed tube over water. Taking measurements of mass, volume, and temperature, you will then determine what is the dry molar volume of that gas (SP 1-7)
III: Thermochemistry Ch. 6 1 week	<u>Thermochemistry:</u> The nature of Energy, Enthalpy, Thermodynamics of Ideal Gases, Calorimetry, Specific Heat, Hess's Law, Standard Enthalpies of Formation (but not calculating ΔH_{rxn} from them) • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	\otimes #13 <u>Determine the Enthalpy of a Chemical Reaction</u> – You will use computer temperature probes to measure that heat released from 3 chemical reactions that you will perform. Two of those reactions can be added in some way on paper to get the 3 rd reaction. You will verify that Hess's Law holds by comparing your heats of reaction from 2 of the reactions to the heat of reaction of the 3 rd since the 1 st two should add up to equal the 3 rd . (SP 1-7) Δ #12: <u>The Hand Warmer Challenge</u> – Design and perform an experiment using knowledge of calorimetry to design a hand warmer that will release energy based on given specifications using ionic compounds that are soluble in water (SP 1-7)
IV: Bonding and Molecular Structure Ch. 8 + 9 2 weeks	<u>Chemical Bonding:</u> Chemical bonds, Electronegativity, Bond polarity and Dipole moments, Ions: E.C. (but not the exceptions), and sizes, formation of Binary ionic compounds, partial ionic character of covalent bonds. The covalent chemical bond: A model, covalent bond energies and chemical reactions, the Localized electron bonding model, lewis structures, resonance, exceptions to the octet rule, molecular structure: The VSEPR model. Hybridization (not including 'd' orbitals) • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	<u>VSEPR Activity (BI - #2):</u> You will be given a list of chemical formulas and prepare 3D models to the various electro pair arrangements, and complete a table, which shows the Lewis Structure, electron-pair geometry, molecular structure, and use that information to predict the presence or absence of a dipole moment. You will build the molecules using gumdrop candy and toothpicks, taking into account how the lone pairs of electrons affect the shape.
V: Periodic Table, Atomic	<u>Atomic Structure:</u> Atomic spectra, Bohr atom, quantum numbers, molecular geometry, hybrid orbital's,	~20 - 30 Book Q's per week	<u>Periodic Trends Graphing Activity (BI - #1)</u> – You will graph "Atomic number vs XXXX" and interpret several data sets on atomic properties. Student will then discuss trends as they contribute to PES diagrams in identification of compounds.

<p>Structure Ch. 7 1.5 weeks</p>	<p>electron configurations, periodic table, trends in the periodic table in terms of physical and chemical properties</p> <ul style="list-style-type: none"> • Chemical Reactions 	<p>Worksheets practice problems</p> <p>Old FRQ's</p>	<p><u>Spectroscopy and Electron Configuration</u>. Students will perform flame tests of various ionic compounds to see with spectrosopes the spectra that the metal elements produce. You will record those spectra, calculate their frequencies and energies, and determine the identity of an unknown by comparing to the spectral fingerprints you have recorded. (SP 1-7)</p> <p><u>Δ #1: What is the relationship between the concentration of a solution and the amount of Transmitted light through the solution</u> – You will design and/or interpret the results of an experiment regarding the absorption of light to determine the concentration of an absorbing species in a solution (SP 1-7)</p>
<p>VI: Inter-molecular Forces, Solids, Liquids Ch. 10 2 weeks</p>	<p><u>Intermolecular Forces, Liquids, and Solids:</u> Dipole–dipole interactions, hydrogen bonding, London forces, liquid state, types of solids, metallic bonding, network solids, vapor pressure, change of state, phase diagrams</p> <ul style="list-style-type: none"> • Chemical Reactions 	<p>~20 - 30 Book Q's per week</p> <p>Worksheets practice problems</p> <p>Old FRQ's</p>	<p><u>Δ #5: Sticky Q: How do you separate molecules that are attracted to one another?</u> – You will design and/or interpret the results of a separation experiment in terms of relative strength of interactions among and between the components.(SP 1-7)</p> <p>⊗ <u>Determining Melting Temperature</u> - You will use a Vernier Melt Station to determine the melting temperature of a solid substance. Your sample will be one of several possible pure compounds. On subsequent trials you will be able to accurately determine the melting temperature of your sample, thus identifying the compound (SP 1-7)</p>
<p>VII: Properties of Solutions Ch. 11 2 weeks</p>	<p><u>Properties of Solutions:</u> Electrolytes and non-electrolytes, molarity, molality, mole fraction, colligative properties, Raoult's Law, Henry's law, freezing point depression, boiling point elevation, and osmotic pressure.</p> <ul style="list-style-type: none"> • Chemical Reactions 	<p>~20 - 30 Book Q's per week</p> <p>Worksheets practice problems</p> <p>Old FRQ's</p>	<p><u>Δ #4: Using Freezing-Point Depression to Find Molecular Weight</u> – You will determine the molar mass of a solute by Freezing it. From the Freezing point depression and knowledge of the molality of the solution you will be able to calculate the molar mass of the solute compound (SP 1-7)</p> <p>⊗ Identification of Solutions – Juniata</p>
<p>VIII: Chemical Kinetics Ch. 12 2 weeks</p>	<p><u>Chemical Kinetics:</u> Reaction Rates, Rate laws: an introduction, determining the form of the rate law, the integrated rate law, rate laws: a summary, reaction mechanism, the steady-state approximation, a model for chemical kinetics, catalysis</p> <ul style="list-style-type: none"> • Chemical Reactions 	<p>~20 - 30 Book Q's per week</p> <p>Worksheets practice problems</p> <p>Old FRQ's</p>	<p><u>Δ #11: What is the rate law of a the fading of Crystal Violet using Beer's Law</u> – You will use computers with spectrameters to observe that progress of a chemical reaction that involves a color change. By monitoring that rate of change in the absorbance's of light through the reaction sample and using Beer's Law, you will design how to determine the rate of the reaction and its order and perform the experiment (SP 1-7)</p> <p>⊗ <u>Iodination of Acetone</u> – The purpose of this reaction is to determine the orders for the reactants, the rate expression, and the rate constant for the reaction between iodine and acetone. – Junitata</p> <p><u>Kinetics Graphing Activity (BI - #4)</u> – You will determine the order of a reaction, rate law, rate constant, and half-life through the graphing of given concentration vs. time data for a reaction</p>
<p>IX: Chemical Equilibrium Ch. 13 2 weeks</p>	<p><u>Chemical Equilibrium:</u> Equilibrium constant, equilibrium expressions, calculations of K and equilibrium concentrations, Le Chatelier's principle, and how equilibrium is shifted by temperature, concentration, ICE tables, intro to complex ions, etc...</p> <ul style="list-style-type: none"> • Chemical Reactions 	<p>~20 - 30 Book Q's per week</p> <p>Worksheets practice problems</p> <p>Old FRQ's</p>	<p><u>Equilibrium "Red Rover" Activity (BI - #6)</u> – You will play a "game" in which the parts of the class (separated initially into 2 groups), switch places based on different conditions called out</p> <p><u>Δ #13: Can we make the colors of the rainbow?</u> – You will design and perform an experiment to investigate Le Chatelier's principle by testing several systems at equilibrium and then selecting specific ones to produce the colors of the rainbow based on specific applications of this principle (SP 1-7)</p> <p><u>Δ #15: To what extent to common household products have buffering activity?</u> (SP 1-7)</p> <p>⊗ #10: Determination of K_{eq} for $FeSCN^{2+}$ - you will prepare a new series of solutions that have varied concentrations of the Fe^{3+} ions and the SCN^{-} ions, with a constant concentration of H^{+} ions. You will use the results of this test to accurately evaluate the equilibrium concentrations of each species. (SP 1-7)</p>
<p>X: Acid / Base Ch. 14 + 15 2.5 weeks</p>	<p><u>Acids-Bases:</u> pH, K_a and K_b expressions, titration, degree of ionization, K_w expressions, indicators, equivalence points, Arrhenius, Brønsted-Lowry and Lewis acid theories, and salt hydrolysis</p> <ul style="list-style-type: none"> • <u>Aqueous Equilibria:</u> Common-ion effect, buffers, factors affecting solubility • Chemical Reactions 	<p>~20 - 30 Book Q's per week</p> <p>Worksheets practice problems</p> <p>Old FRQ's</p>	<p>⊗ #8: <u>An Oxidation-Reduction Titration:</u> The Rx. Of Fe^{2+} and Ce^{4+} - You will conduct an oxidation-reduction reaction in this experiment in order to determine the amount of iron (II) ions in a solid sample of ferrous ammonium sulfate hexahydrate. (SP 1-7)</p> <p>⊗ #23: <u>Determination of the Solubility Product of $Ca(OH)_2$</u> – Your primary objective in this experiment is to test a saturated solution of calcium hydroxide and use your observations and measurements to calculate the K_{sp} of the compound. You will do this by titrating the prepared $Ca(OH)_2$ solution with a standard hydrochloric acid solution. (SP 1-7)</p> <p>⊗ <u>Determination of the Lead Content in Water.</u> You will add varying amounts of potassium iodide in water from different sources to determine the concentration of lead ions originally dissolved within. Analysis will require performing calculations with the K_{sp} of the slightly soluble</p>

X continued...			lead iodide precipitate. (SP 1-7) <u>Whole-Class Discussion of the Societal Impact of Lead Content in Water (Societal Impact of Chemistry)</u> . You will research and use that research in a whole-class discussion regarding the societal impact of lead content in water (tied in with the experiment described in the previous bullet).
XI: <i>Chemical Thermodynamics</i> Ch. 16 2 weeks	<u>Chemical Thermodynamics:</u> Spontaneous process and entropy, isothermal expansion and compression of an ideal gas, entropy and physical changes, entropy and the 2 nd law. The effect of T on spontaneity, entropy changes in chemical reactions, the dependence of free energy on P, free energy and equilibrium • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	⊗ #26 <u>The Enthalpy of Neut. Of H₃PO₄</u> "Spontaneous or Not? Activity (BI - #5. – You will be given a set of data and will practice predicting and justifying the signs of ΔH_{rxn} , ΔS_{rxn} , and ΔG_{rxn} . You will also determine the effect of varying temperature on those signs
XII: <i>Electrochemistry</i> Ch. 17 2 weeks	<u>Redox & Electrochemistry:</u> Oxidation and reduction half-cells and equations, electrolysis, electrochemical (voltaic) cells, standard voltages, standard voltages from a table, Nernst equation, Faraday's laws, writing redox equations, and balancing equations in acid/base solutions • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	⊗ <u>Electrochemistry: Voltaic Cells:</u> You will construct voltaic cells to use voltmeters to determine the cell potentials for a series of metals and compare them to what your calculations of redox potentials say the potentials should be (SP 1-7) Δ #8: <u>How can we determine the Actual %'age of H₂O₂ in a Drugstore Bottle of H₂O₂?</u> (SP 1-7) ⊗ Electroplating a Nickel ⊗ Electrolysis of KI
XIII: <i>Nuclear Chemistry</i> Ch. 18 <1 week	<u>Nuclear Chemistry:</u> Nuclear Stability & Radioactive Decay, Nuclear Transformations, Thermodynamic Stability of the Nucleus, fission & fusion. • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	Alpha, Beta, Gamma Activity
XIV: <i>Organic Chemistry</i> Ch. 22 <1 week	<u>Organic Chemistry:</u> Naming, alkanes, alkenes, alkynes, functional groups, reactions involving hydrocarbons • Chemical Reactions	~20 - 30 Book Q's per week Worksheets practice problems Old FRQ's	Nomenclature, drawing compounds, model building
XV: <i>Review for AP Test</i>	In the weeks prior to the exam the students will their final exam (currently the released exams) to get students acquainted with the test and to evaluate their knowledge. Review sessions include practicing FRQ from previous years.	Review	

From the AP Course Setting - Comparability Studies

The AP Program periodically conducts college score comparability studies in all AP subjects. These studies compare the performance of AP students with that of college students in the courses for which successful AP students will receive credit. In general, the AP composite score cut-points are set so that the lowest composite score for an AP score of 5 is equivalent to the average score for college students earning scores of A. Similarly, the lowest composite scores for AP scores of 4, 3, and 2 are equivalent to the average scores for students with college scores of B, C, and D, respectively.

Students who earn AP Exam scores of 3 or above are generally considered to be qualified to receive college credit and/or placement into advanced courses due to the fact that their AP Exam scores are equivalent to a college course score of "middle C" or above. However, the awarding of credit and placement is determined by each college or university and students should check with the institution to verify its AP credit and placement policies.