AP Chemistry

Mr. Denniston

Course Description

This AP Chemistry course is designed to be the equivalent of the general chemistry course usually taken during the first year of college. For most students, the course enables them to undertake, as a freshman, second year work in the chemistry sequence at their institution or to register for courses in other fields where general chemistry is a prerequisite. This course is structured around the six big ideas, shown below, articulated in the AP Chemistry curriculum framework provided by the College Board. A special emphasis will be placed on the seven science practices, which capture important aspects of the work that scientists engage in, with learning objectives that combine content with inquiry and reasoning skills. AP Chemistry is open to all students that have completed the full Chemistry course and wish to take part in a rigorous and academically challenging course.

Big Idea 1: 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 2: 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.
Big Idea 3: Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.
Big Idea 4: Rates of chemical reactions are determined by details of the molecular collisions.
Big Idea 5: The laws of thermodynamics describe the essential role of energy and explain and predict the direction of changes in matter.
Big Idea 6: Any bond or intermolecular attraction that can be formed can be broken. These two processes are in a dynamic competition, sensitive to initial conditions and external perturbations.

Textbooks and Lab Books

Brown, Theodore and Eugene Lemay, et.al. Chemistry – The Central Science. Twelfth Edition. AP Edition. Pearson Prentice Hall, 2012.

Kemp, Kenneth and John Nelson, et.al. Laboratory Experiments – Chemistry – The Central Science. Twelfth Edition. Pearson Prentice Hall, 2012.

The College Board. AP Chemistry Guided Inquiry Experiments: Applying the Science Practices. 2013.

Flindt, Amy, and Freda Husic. Chemistry Through Inquiry. Pasco Scientific, 2009.

Required Materials

Scientific calculator, three-ring binder, Chromebook. Students will have access to PASCO Xplorer data loggers and associated chemistry probeware.

Laboratory Investigations

The laboratory portion of this class is designed to be the equivalent of a college laboratory experience. Because some colleges require proof of the laboratory portion of the course before granting credit, all students will keep a laboratory notebook. At a minimum, twenty-five percent of instructional time will be spent in the laboratory.

When students finish AP Chemistry, they are encouraged to take their laboratory notebook with them to college. It will include up to nineteen laboratory investigations. Six of the labs are guided inquiry-based. Each report in the student's laboratory notebook follows a specific format, outlined below.

Laboratory Report Format

1. **Title**
   The title should be descriptive. For example, "pH Titration Lab" is a descriptive title and "Experiment 5" is not. The title should be centered on the top line of the report, followed by the student's name centered on the second line. The date the student performed the experiment should be centered on the third line.
2. **Objectives**
   Objectives are statements summarizing the "points" of the lab.
3. **Equipment and Materials**
   Students will create a comma-separated listing describing the primary equipment and materials used in the lab.
4. **Procedure**
   Students need to write an outline of the procedure, using outline format to make it easy to read. If a student is doing a guided inquiry lab, they may be required to write a full procedure that they develop.
5. **Pre-Lab Questions**
   Students may be given some questions to answer before the lab is done. They need to either rewrite the question or incorporate the question in the answer. The idea here is that when someone (like a college professor) looks at a student's lab notebook, they should be able to tell what the question was by merely looking at their lab report. It is important to produce a good record of lab work.
6. **Data**
   Students will need to create data tables or charts necessary for data collection in the lab. All data should be labeled clearly and include proper units of measurement. Students should underline, use capital letters, or use any device they choose to help organize this section.
7. **Calculations**
   Students should show a sample calculation for every different type of calculation carried out. All formulas must be shown with data and units substituted in the proper place.
8. **Results**
   Using a bulleted list, this is a listing of the numerical findings after doing the calculations. Graphs may be included here. Graphs should be at least one-half page in size, should be titled, and axes labeled with units.
9. **Conclusions**
   Using paragraphs, these are brief statements about the results found during the experiment. Conclusions may include generalizations drawn from the results, application value of the results, and if applicable, the final relationship between dependent and independent variables.
10. **Discussion and Analysis**
    Any questions given in the lab handout should be answered here, using the same guidelines outlined in the pre-lab questions section. A paragraph discussing error analysis should also be included.

Course Structure

The units of study for this course are outlined in the next section. Each unit will typically consist of 2-3 homework sets, 1-2 labs and activities, and one exam. This course will be taught for one semester in the block schedule, consisting of five 85 minute blocks, along with one extra 43 minute period, per week.

AP Chemistry Unit Overview

Unit 1: Structure of Matter (Chapter 2)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Atomic Theory of Matter	1.B.1, 1.D.1, 1.D.2
2.	Discovery of Atomic Structure	1.B.1, 1.D.1, 1.D.2
3.	Modern View of Atomic Structure	1.A.3, 1.B.1, 1.D.1, 1.D.2
4.	Atomic Weights	1.A.1.a
5.	Periodic Table	1.C.1
6.	Molecules and Molecular Compounds	1.A.1.c
7.	Ions and Ionic Compounds	1.E.2.b
8.	Naming Inorganic Compounds	1.E.2.b
9.	Simple Organic Compounds	1.E.2.b
	Labs:	
	Separation of the Components of a Mixture	LO 1.2, LO 1.3, SP 2.2, SP 6.1

Unit 2: Electron Structure in Atoms (Chapter 6)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Wave Nature of Light	1.C.2.e, 1.D.3.a, 5.E.4.b
2.	Quantized Energy and Photons	1.D.3
3.	Line Spectra and the Bohr Model	1.B.1.d, 1.B.1.e, 1.D.3.b
4.	Wave Behavior of Matter	1.D.3
5.	Quantum Mechanics and Atomic Orbitals	1.C. 2.b, 1.C.2.c, 1.C.2.d
6.	Representations of Orbitals	1.B.2.c
7.	Electron Configurations	1.B.2.a
8.	Electron Configurations and the Periodic Table	1.C.1.a, 1.C.1.b, 1.C.1.d
	Labs:	
	Atomic Spectra and Atomic Structure	LO 1.12, SP 6.3

Unit 3: The Periodic Table (Chapter 7)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Development of the Periodic Table	1.C.1.a

2.	Effective Nuclear Charge	1.B.2
3.	Sizes of Atoms and Ions	1.C.1.c
4.	Ionization Energy	1.C.1.c
5.	Electron Affinities	1.B.2
6.	Metals, Nonmetals, and Metalloids	1.C.1.a
7.	Trends for Group 1A and 2A Metals	1.C.1.c
8.	Trends for Selected Nonmetals	1.C.1.c
	Activity:	
	Periodicity – Students graph values for several characteristics of elements to predict trends and explain the organization of the periodic table.	LO 1.9, LO 1.10, LO 1.11, LO 1.12, LO 1.13, SP 1, SP 5, SP 6

Unit 4: Chemical Reactions and Stoichiometry (Chapters 3, 4)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Chemical Equations	1.E.1.a, 1.E.1.c, 3.C.1.a, 1.A.3.a, 1.E.2.c, 1.E.2.d, 3.A.1.a
2.	Simple Patterns of Chemical Reactivity	3.A.1, 3.B.3.e, 3.C.1.d, 3.B.1.a
3.	Formula Weights	1.A.3.b, 1.A.1.c, 1.A.3.d
4.	Avagadro's Number and the Mole	1.A.3.b, 1.A.3.c, 1.A.3.d, 1.E.2.b
5.	Empirical Formulas	1.A.2.a, 1.A.2.b
6.	Quantitative Information from Balanced Equations	1.A.3.a, 1.E.1.b
7.	Limiting Reactants	3.A.2.a
8.	General Properties of Aqueous Solutions	2.A.3.h
9.	Precipitation Reactions	6.C.3.d
10.	Acids, Bases, and Neutralization Reactions	1.E.2.f, 3.A.2.c, 6.C.1.i, 6.C.1.j
11.	Oxidation-Reduction Reactions	3.C.1.d
12.	Concentrations of Solutions	1.D.3.c, 2.A.3.i, 2.A.3.j
13.	Solution Stoichiometry and Chemical Analysis	1.A.3.a, 1.E.1.b, 1.E.2.e
	Labs:	
	Chemical Reactions	LO 3.5, LO 3.6, SP 2.1, SP 4.2, SP 6.4, SP 2.2, SP 6.1
	Chemical Reactions of Copper and Percent Yield	LO 3.1, SP 1.5, SP 7.1
	Guided Inquiry: How Can Color Be Used to Determine the Mass Percent of Copper in Brass?	LO 1.16, LO 3.4, SP 4.2, SP 4.1, SP 2.2, SP 6.4

Unit 5: Chemical Bonding (Chapters 8, 9)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Lewis Symbols and the Octet Rule	2.C.4.a
2.	Ionic Bonding	1.B.1.b, 2.C.2
3.	Covalent Bonding	2.C.1
4.	Bond Polarity and Electronegativity	2.C.1.c, 2.C.1.e, 2.C.1.f
5.	Drawing Lewis Structures	2.C.4

6.	Resonance Structures	2.C.4.c, 2.C.4.d, 2.C.4.e
7.	Exceptions to the Octet Rule	2.C.4.f
8.	Strength of Covalent Bonds	2.C.4.e
9.	Molecular Shapes	2.C.4.b, 2.C.4.e
10.	The VSEPR Model	2.C.4.b, 2.C.4.e
11.	Molecular Shape and Polarity	2.C.4.b, 2.C.4.e
12.	Covalent Bonding and Orbital Overlap	2.C.4.h
13.	Hybrid Orbitals	2.C.4.g
14.	Multiple Bonds	2.C.4.h
15.	Molecular Orbitals	2.C.4.h, 2.C.4.i
	Labs:	
	Molecular Geometries of Covalent Molecules	LO 2.21, SP 1.4
	Actitivity:	
	Atomic Theory – Students make drawings of molecules and from those drawings predict geometry, hybridization, and polarity.	LO 2.21, SP 1, SP 6

Unit 6: Phases of Matter (Chapters 10, 11, 12)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Characteristics of Gases	2.A.2.d, 2.A.2.g
2.	Pressure	2.A.2.b
3.	Gas Laws	2.A.2.a, 2.A.2.c
4.	Ideal Gas Equation	2.A.2.a, 2.A.2.c
5.	Further Applications of the Ideal Gas Equation	2.A.2.a, 2.A.2.c
6.	Gas Mixtures and Partial Pressures	2.A.2.b
7.	Kinetic-Molecular Theory of Gases	2.A.2.d
8.	Molecular Effusion and Diffusion	
9.	Real Gases: Deviations from Ideal Behavior	2.A.2.f, 2.B.3.c, 2.B.3.d
10.	Molecular Comparison of Gases, Liquids, and Solids	2.A.1
11.	Intermolecular Forces	2.B.1, 2.B.2, 2.B.3
12.	Select Properties of Liquids	2.A.1
13.	Phase Changes	2.A.1.e
14.	Vapor Pressure	2.B.3.a
15.	Phase Diagrams	2.A.1.e
17.	Classifications of Solids	2.A.1.a
18.	Structures of Solids	2.A.1.a, 2.A.1.d, 2.C.2, 2.D.1.a, 2.D.2.a, 2.D.1.b, 2.D.3, 2.D.4
19.	Metallic Solids	2.D.2
20.	Metallic Bonding	2.C.3
21.	Ionic Solids	2.D.1
22.	Molecular Solids	2.D.4
23.	Covalent-Network Solids	2.D.3

	Labs:	
	Behavior of Gases: Molar Mass	LO 2.6, SP 2.2, SP 2.3
	Guided Inquiry: What's in that Bottle?	LO 2.22, LO 2.24, LO 2.28, LO 2.32, SP 4.2, SP 6.4, SP 1.1, SP 6.2, SP 7.1, SP 5

Unit 7: Solutions (Chapter 13)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Solution Process	2.A.3.g, 2.A.3.h
2.	Saturated Solutions and Solubility	6.C.3
3.	Factors Affecting Solubility	2.B.3.a
4.	Expressing Solution Concentration	2.A.3.i, 2.A.3.j
5.	Colligative Properties	
6.	Colloids	
	Labs:	
	Gravimetric Analysis of a Chloride Salt	LO 1.19, SP 4.2, SP 5.1, SP 6.4

Unit 8: Rates of Chemical Reactions (Chapter 14)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Factors that Affect Reaction Rates	4.A.1.c, 4.D.1, 4.D.2
2.	Reaction Rates	4.A.1.a, 4.A.2
3.	Concentration and Rate Laws	4.A.2
4.	Change of Concentration with Time	4.A.2.b
5.	Temperature and Rate	4.A.3.c, 4.B.3.c
6.	Reaction Mechanisms	4.B.1, 4.C.1, 4.C.2, 4.C.3
7.	Catalysis	4.D.1, 4.D.2
	Labs:	
	Rate and Order of H_2O_2 Decomposition	LO 4.1, LO 4.2, SP 4.2, SP 5.1, SP 6.4
	Guided Inquiry: How Long Will That Marble Statue Last?	LO 4.1, LO 4.2, SP 4.2, SP 5.1, SP 6.4, SP 3.1, SP 3.2, SP 4.1, SP 4.3, SP 5.2, SP 5.3, SP 6.1, SP 6.2, SP 7.1, SP 7.2
	Activity:	
	Kinetics – Using a web-based simulation, students will study the elementary steps of a mechanism and how it relates to reaction rate and collision theory.	LO 4.1, SP 1, SP 3, SP 6

Unit 9: Thermodynamics (Chapters 5, 19)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Nature of Energy	5.B.1, 5.B.2
2.	First Law of Thermodynamics	5.B.1, 5.E.2.a

3.	Enthalpy	5.B.1, 5.B.2
4.	Enthalpies of Reaction	3.C.2, 5.B.3.e, 5.B.3.f, 5.C.2
5.	Calorimetry	5.A.2, 5.B.2, 5.B.3.a, 5.B.3.b, 5.B.4
6.	Hess's Law	5.B.3.a
7.	Enthalpies of Formation	5.C.2.g
8.	Foods and Fuels	
9.	Spontaneous Processes	5.E.1
10.	Entropy and the Second Law of Thermodynamics	5.E.2, 5.E.3, 5.E.4
11.	Molecular Interpretation of Entropy	5.E.1
12.	Entropy Changes in Chemical Reactions	5.E.2, 5.E.3, 5.E.4
13.	Gibbs Free Energy	5.E.3, 6.D.1
14.	Free Energy and Temperature	5.E.3, 6.D.1
15.	Free Energy and the Equilibrium Constant	5.E.2, 6.D.1.b, 6.D.1.c, 6.D.1.d
	Labs:	
	Heat of Neutralization	LO 5.7, SP 4.2, SP 5.1, SP 6.4
	Guided Inquiry: Hand Warmer Design Challenge	LO 5.6, LO 5.7, SP 1.4, SP 6.4, SP 7.2, SP 4.2, SP 5.3, SP 2.2, SP 2.3, SP 5.1
	Activity:	
	Heating and Cooling Curve Simulation – Using an online simulation, students will heat an unknown and graph its temperature as it cools, giving them the ability to calculate the energy released.	LO 5.6, SP 1

Unit 10: Chemical Equilibrium (Chapter 15)

	Topics Covered:	**Curriculum Framework Articulation**
1.	Concept of Equilibrium	6.A.1, 6.A.3.a, 6.A.3.f
2.	Equilibrium Constants	6.A.2, 6.A.3, 6.A.4
3.	Working with Equilibrium Constants	6.A.2, 6.A.3, 6.A.4
4.	Calculating Equilibrium Constants	6.A.2, 6.A.3, 6.A.4
5.	Applications of Equilibrium Constants	6.A.2, 6.A.3, 6.A.4
6.	Le Chatelier's Principle	6.A.3.b, 6.B.1, 6.B.2, 6.C.3.e, 6.C.3.f
	Labs:	
	Chemical Equilibrium – Le Chatelier's Principle	LO 6.1, LO 6.3, LO 6.8, LO 6.9, SP 6.2, SP 7.2, SP 1.4, SP 6.4, SP 4.2
	Guided Inquiry: Can We Make the Colors of the Rainbow?	LO 6.9, SP 4.1, SP 4.3, SP 4.2, SP 5.1, SP 6.2, SP 6.4
	Activity:	
	Equilibrium – In this online inquiry activity students manipulate the environment and produce stresses that verify the tendency of Le Chatelier's principle.	LO 6.8, LO 6.9, SP 1, SP 6

Unit 11: Acid-Base Equilibria (Chapter 16)

	Topics Covered:	Curriculum Framework Articulation
1.	Acid and Base Review	
2.	Bronsted-Lowry Acids and Bases	6.C.1.g
3.	Autoionization of Water	6.C.1.b
4.	pH Scale	6.C.1.a
5.	Strong Acids and Bases	6.C.1.c, 6.C.1.d
6.	Weak Acids	6.C.1.e, 6.C.1.h
7.	Weak Bases	6.C.1.f
8.	Relationship Between K_a and K_b	6.C.1.g
9.	Acid-Base Properties of Salt Solutions	6.C.3.f
10.	Acid-Base Behavior and Chemical Structure	6.C.1
11.	Lewis Acids and Bases	
	Labs:	
	Determination of the Dissociation Constant of a Weak Acid	LO 6.16, LO 6.19, SP 2.3, SP 5.1, SP 6.4, SP 2.2

Unit 12: Aqueous Equilibria (Chapter 17)

	Topics Covered:	Curriculum Framework Articulation
1.	Common Ion Effect	6.C.3.e
2.	Buffered Solutions	6.C.2
3.	Acid-Base Titrations	6.C.1.i, 6.c.1.j, 6.C.1.k, 6.C.1.l, 6.C.1.m
4.	Solubility Equilibria	6.C.3.a, 6.C.3.b
5.	Factors That Affect Solubility	2.B.3.a
6.	Precipitation and Separation of Ions	
	Labs:	
	Determination of K_{sp} for a Sparingly Soluble Salt	LO 6.21, LO 6.22, LO 6.23, SP 2.2, SP 2.3, SP 6.4, SP 5.1
	Guided Inquiry: Preparation and Testing of an Effective Buffer	LO 6.18, LO 1.4, SP 1.4, SP 6.4, SP 7.1, SP 2.2, SP 2.3, SP 5.2, SP 5.3, SP 4.2, SP 4.3, SP 4.4
	Activity:	
	Titration – Using an online simulation, students will manipulate various factors and practice titration techniques.	LO 3.9, SP 1

Unit 13: Electrochemistry (Chapter 20)

	Topics Covered:	Curriculum Framework Articulation
1.	Oxidation States and Oxidation-Reduction Reactions	3.B.3
2.	Balancing Redox Reactions	3.B.3.a, 3.B.3.b, 3.B.3.c, 3.B.3.d

3.	Voltaic Cells	3.C.3
4.	Cell Potentials Under Standard Conditions	3.C.3.c
5.	Free Energy and Redox Reactions	3.C.3.e
6.	Cell Potentials Under Nonstandard Conditions	3.C.3.d
7.	Batteries and Fuel Cells	
8.	Corrosion	
9.	Electrolysis	
	Labs:	
	Electrolysis, the Faraday, and Avagadro's Number	LO 3.12, SP 2.2, SP 2.3, SP 6.4

AP Chemistry Labs

The following labs will be completed during this course.

Separation of the Components of a Mixture – Students will become familiar with the methods of separating substances using decantation, extraction, and sublimation techniques.

Atomic Spectra and Atomic Structure – Students will use spectroscopy to gain further understanding of the relationship between emission (line) spectra and atomic structure.

Chemical Reactions – Students will carry out typical types of chemical reactions, identify products, and summarize the chemical changes in terms of balanced chemical equations.

Chemical Reactions of Copper and Percent Yield – Students will gain familiarity with basic laboratory procedures, chemistry of a typical transition element, and the concept of percent yield.

Molecular Geometries of Covalent Molecules – Students will become familiar with Lewis structures, the principles of the VSEPR model, and the three-dimensional structures of covalent molecules.

Behavior of Gases: Molar Mass – Students will observe how changes in temperature and pressure affect the volume of a fixed amount of a gas, and determine the molar mass of a gas from knowing its mass, temperature, pressure, and volume.

Gravimetric Analysis of a Chloride Salt – Students will use typical techniques used in gravimetric analysis to quantitatively determine the amount of chloride in an unknown.

Rate and Order of H_2O_2 Decomposition – Students will determine the rate and order of reaction for the decomposition of hydrogen peroxide.

Heat of Neutralization – Using a calorimeter, students will measure the energy changes accompanying neutralization reactions.

Chemical Equilibrium – Le Chatelier's Principle – Students will study the effects of temperature and concentration on equilibrium positions.

Determination of the Dissociation Constant of a Weak Acid – Students will become familiar with the operation of a pH meter and quantitative equilibrium constants.

Determination of K_{sp} for a Sparingly Soluble Salt – Students will become familiar with equilibria involving sparingly soluble substances by determining the value of the solubility-product constant for a sparingly soluble salt.

Electrolysis, the Faraday, and Avagadro's Number – Using electrolysis, students will determine the values for the faraday and Avagadro's number.

AP Chemistry Guided Inquiry Labs

The following guided inquiry labs will be completed during this course.

Guided Inquiry: How Can Color Be Used to Determine the Mass Percent of Copper in Brass? – What are the relationships between color, wavelength, absorbance, and concentration? Students will need to understand these relationships in order to design an experiment that can quantitatively measure the absorption of light by a colored solution in order to determine the concentration of the absorbing species in that solution.

Guided Inquiry: What's in that Bottle? – Students are asked to determine the type of bonding in unlabeled chemicals using physical and chemical properties of substances with ionic, molecular, and metallic bonds.

Guided Inquiry: How Long Will That Marble Statue Last? – Students will investigate how the speed of the chemical reaction between solid calcium carbonate and a solution of hydrochloric acid is affected by changing variables relating to the two reactants, by first constructing, and then testing, a hypothesis.

Many historic buildings are made from limestone or marble, both of which contain large amounts of calcium carbonate. Since the industrial revolution, air pollutants, chiefly in the form of oxides of sulfur and nitrogen, have been absorbed into the atmosphere, leading to the production of rainwater that has become significantly more acidic. This acid rain will react with limestone structures, eroding the stone and causing disfigurement or damage.

As part of a whole group discussion, students will discuss the relationship between coal-burning power plants and the release of sulfur dioxide as a byproduct of burning the coal. Students will write a chemical reaction showing how pollutants in the air react with water to form acid rain, write a chemical reaction showing the reaction of acid rain with marble or limestone, and use their findings to determine how long it would take statues to disintegrate under specific conditions.

Guided Inquiry: Hand Warmer Design Challenge. – Students are challenged to use chemistry to design an effective, safe, environmentally benign, and inexpensive hand warmer.

Guided Inquiry: Can We Make the Colors of the Rainbow? – Students will 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 Le Chatelier's principle.

Guided Inquiry: Preparation and Testing of an Effective Buffer. – Students are asked to prepare and test a series of buffers to be used in an important biochemical project.

Class Policies

Classroom Behavior:
I have only one rule regarding classroom behavior: Show respect. This includes respecting other students, the teacher, the room, and the equipment. Respect includes not talking while someone else is talking, not laughing at other student's questions, etc.

Materials for class:

loose leaf paper	writing utensils
3-ring binder	calculator

Cell Phones:

Cell phones should be kept out of sight in my classroom. If your cell phone rings during class, or if you are observed texting or making a call, you will be disciplined according to school policy.

Cheating:

Students caught cheating on an assignment, test, etc., will receive between 0 and 50% of the possible points for the activity, to be determined at the instructor's discretion.

Attendance

Absences:

1. You are responsible for picking up any homework, making up quizzes &/ or tests, and turning in any assignments that were collected while you were gone.
2. It is your responsibility to schedule a time before or after school or possibly during PPT to make up quizzes or tests.
3. If you miss a lab, you will not be able to make up the lab. Rather, the score that you receive on the next lab for which you are present will apply to the missed lab as well.
4. Missed notes should be obtained from a classmate.
5. Ask me about missing assignments either before or after class, not during class time.

Assignments & Absences:

1. Extension time will be granted for excused absences only.
2. Students will have two days after the excused absence to turn in missed assignments.
3. If there is a special circumstance surrounding an absence or you know in advance you will be absent, please see me.

Tests

Tests and quizzes will account for 70% of a student's term (9 week) grade. Tests are weighted heavily so that a student's grade reflects what the student truly knows, rather than how much homework they can complete (or copy).

Late Work

No late work will be accepted unless it is late due to an excused absence (see above). However, each student will be allowed one "late-work coupon" per mid-term (4 ½ weeks). This coupon allows you to turn in an assignment one day late for full credit.

Grading

Scale:

A = 100- 94	B+ = 89 – 87	C+ = 79 – 77	D+= 69 – 67	F < 60
A- = 93 – 90	B = 86 – 83	C = 76 – 73	D = 66 – 63	
	B- = 82 – 80	C- = 72 – 70	D- = 62 – 60	

Breakdown of Term (9 Week) Grades:

Tests & Quizzes = 70%

Laboratory work = 15%

Includes lab write-ups, mini-labs, and lab worksheets

Homework = 15%

Includes worksheets, packets, questions assigned, video summaries, projects

Final term (9 week) grades are determined as follows:

Final Term Grade	
Term grade	95.0%
End of Term Exam	5.0 %