Course Syllabus
Agriculture Chemistry
Sonoma Valley High School
Grade Level: 10-12

Course Description

Agriculture Chemistry is a laboratory science course designed for the college bound student with career interests in agriculture. Students will be involved in hands on laboratory study and receive an in-depth look at various concepts in chemistry including: chemistry and its relationship to agriculture, matter and energy, the periodic table, bonding, chemical reactions, moles, gases and gas laws.

A. Instructional material:

B. California State Standards and Major Course Goals and Objectives:
• This course utilizes the California State Science Standards for the area of Chemistry
• This course utilizes the California Career Technical Education Curriculum Standards for grades 7-12 in the area of plant and soil science, and agriscience. This course also teaches the foundation standards for Career Technical Education in California.

C. Course Outline
1. Agriculture Chemistry
   a. Careers in Ag Chemistry
   b. How is chemistry used in agriculture?
   c. How does chemistry affect our daily lives?
2. Introduction to Chemistry
   a. Scientific Method and Agricultural Problems
   b. Accuracy and precision
   c. Safety in the Lab
   d. Chemistry and its relationship to Agriculture
3. Matter and Energy
   a. Properties of Matter SS# 1-a
   b. Chemical and Physical Change SS#1-a,b
   c. Atoms, Electrons, Compounds and Ions SS# 1-a,c
4. Atomic and Molecular Structure
   a. Periodic table.
   b. metals, semimetals, nonmetals, and halogens.
   c. alkali metals, alkaline earth metals and transition metals
   d. nucleus
   e. Protons SS#1-e
   f. Neutrons SS#1-e
5. Electrons and the Periodic Table
   a. Electron Energy Levels SS#2-a
   b. Electron Configuration SS#1-f
   c. Arrangement of Periodic Table SS#1-b,c
   d. Chemical Elements and Agriculture Products SS#1-b
6. Bonding
   a. Covalent and Ionic Bonding SS #2-a
   b. Electron Dot Structure SS #2-e
   c. Octet Rule SS #2
   d. Formulas SS #2-g
7. Chemical
   a. Conservation of mass and Atom SS# 3
   b. Writing Equation and Balancing Equations SS# 3-a
   c. Types of Reactions SS# 3-g
   d. Predictions of Reactions SS# 8-a,b,c
   e. Dangerous Reactions in an Agriculture Environment SS# 8-d
   f. Acids and Bases SS# 5-a,b,c,d
   g. Thermodynamics SS# 7-a,b,c
   h. Chemical Equilibrium SS# 9-a,b,c
8. Moles and Stoichiometry
   a. How many is a Mole? SS# 3-b,c
   b. Molecular Mass SS#3-c,d
   c. Mole Relationships SS# 3-c,d
   d. Empirical and Molecular Formulas SS# 3-e
   e. Stoichiomertry SS#3-e
   f. Mole- Mass Calculations SS# 3-d,f
   g. Mass- Mass Calculations SS#3-g
   h. Reactions in excess SS#3-g
9. Gases and Gas Laws
   a. Solids, Liquids and Gases SS# 4-a,b
   b. Pressure of Gases SS# 4-c
   c. Dalton's Law SS#-c,l
   d. Charles's Law SS# 4-d,e,f
   e. Boyle's Law SS# 4-c,d
   f. Ideal Gas Law SS# 4-c,h
   g. Gases used in Agriculture SS# 4-b,c
10. Solutions
    a. Characteristics of Solution SS# 6-a,b,d
    b. Parameters of Solubility SS# 6-c,e,f
11. Organic Chemistry and Biochemistry
    a. Carbon Compounds SS# 10-b
    b. Hydrocarbons SS# 11-a,c,d,e,f
    c. Biochemistry SS# 10-c,f
12. Nuclear Chemistry
    a. Radioactivity SS# 11-a,c,d,e,f
    b. Nuclear Energy SS# 11-b,g
13. FFA
    a. Leadership skills and public speaking
    b. Resume building
    c. Science fair projects
    d. SAE (supervised agriculture experience) projects

D. Assessments
   • written tests and quizzes for each unit
   • reading comprehension, short answer, essay, equations
   • data collection
   • laboratory reports
   • presentations of oral reports
   • practical applications
   • Agriscience fair project
   • Binder checks for organization and completeness
E. Key Assignments

- Each Unit may contain the following assignments:
  - Lecture/notes
  - Reading comprehension/response
  - Homework
  - Review assignments
  - Group projects
  - Laboratories

- Supervised Agriculture Experience Project (SAE)
  - Each student will have an agriculture related project outside of class time that is recorded into their FFA record book which is part of their grade. Students must record their time and money spent or earned on their project in the record book. There will be a final report regarding their SAE project. Such projects can include placement or ownership projects.

- Science Fair Project
  - Each student will complete an Agriscience project to be entered into the state level FFA competition. Students will display their boards at a school open house as well as to the class. This project will be based on an agriculture related science inquiry.

- Career Exploration Bulletin Board Project
  - Each student will research a career that involves agriculture. Students will present this project in on the class bulletin board.

F. Grading

Tests and Quizzes 30%
Classwork/homework/labs/ Agriscience Fair Project 50%
FFA Activities 10%
Participation 10%
G. Late Work Policy/Tardy Policy

Late Work- Students may turn in work late for half credit. Late work one week over the due date will not be accepted.

Tardy Policy- The classroom door will be locked at the sound of the bell, all tardy students will go directly to the attendance window for a tardy pass. Upon the third tardy, your grade will be reduced by 2%, and will continue to be reduced by 2% for each tardy thereafter for a maximum of 10% reduction in your grade. See the Tardy Policy in the School Wide Behavior Expectations Packet for further consequences.

H. Grading Scale/Format/Weight of Semester Final

•Grades are determined by total points earned and based upon these percentages:

A= 100 to 90%  B= 89 to 80%  C= 79 to 70%
D= 69 to 60%  F= 59 to 0 %

I. Required Materials

- Pencil and Pen (blue and black ink only)
- Highlighter (Any color of your choice)
- College Ruled binder paper
- Binder (1” or more) *This is a Chemistry only binder and will be checked periodically for organization and completeness.
- 5 Dividers
  Warm ups
  Notes
  Handouts
  Test/Quizzes
  Returned Work

Materials due by: ____________________________.
Worth 10 points.

========================================================================================================
Cut here

By signing below I acknowledge that I have read the syllabus with my parent/student for my understanding of the course and its contents.

Parent Signature_________________________________________ Date ________________
Student Signature________________________________________ Date ________________
Students Printed Name ____________________________________________