

AeroStem Chemistry Syllabus 2022-2023

J. Morse, Instructor

Welcome to Chemistry!

I. Course Description

Chemistry is an introductory course preparing the student for further studies in chemistry in college. It is directed toward explaining the composition of matter. Emphasis is placed on chemical principles and their application, problem solving, and the development of laboratory skills. **Suggested Prerequisite: Successful completion or, concurrent enrollment in Algebra II.**

Course Curricular Objectives

The Chemistry course at AeroStem Academy is vitally important in helping students experience the richness and excitement of knowing about and understanding the natural world.

- Appropriate scientific processes and principles in making personal decisions
- Effectively engage in public discourse and debate about matters of scientific and technological concern
- Increase in student's economic productivity throughout their careers through the use of the knowledge, understanding, and skills employed by the scientifically literate person

II. Course Materials and Preparation

We will use Google Classroom and Discovery Education as our learning platform on which announcements will be posted. The students will also be provided with other materials that review or enrich the content presented in class. In addition, students are expected to bring a **three ring binder** to organize all class notes or handouts, **loose-leaf notebook paper**, and a pen or pencil to class every day. You also need to purchase a two (2) **wide-ruled composition books**. One for Class Notes and one for Labs.

Students who review notes and complete assignments daily, utilize academic lab, and take advantage of retakes when available are most successful. Students need to be proactive and communicate with their teachers when they are confused or struggling.

III. Course Policies and Procedures

A. Behavior: Students will respect the rights of others in the classroom, and the school's equipment and facilities. All students will be required to pass a safety quiz and return a signed safety contract (student and guardian) in order to participate in labs. It is a privilege to do labs. They help to make learning meaningful, fun and exciting. For safety reasons, a student who behaves inappropriately during labs will not be allowed to finish the lab. If horseplay is involved, the student potentially endangers other students in class and will be referred to the office.

B. Absences: Daily attendance is **strongly recommended**. Make-up privileges will be as follows:

☐ • If you are **absent due to a school function** (extracurricular activities, field trips, etc.), you are expected to get your assignments **PRIOR** to your leave and complete them by the due date. It will be your responsibility to come in for any additional help as needed before/after school to get the work done on time.

• If you have an **Excused** absence, (not due to a school function), you are expected to see the teacher **before or after school on the day you return** to pick up or check Google Classroom to make-up work. Do not expect assignments to be given to you during valuable class time.

C. Homework Policy: Students will be given homework assignments to practice their skills. These assignments are crucial for students to expand their understanding, and will give both teacher and student an opportunity to check comprehension of the material before moving on. Homework assignments will be discussed and checked the next day in class, giving students the opportunity to ask questions to further increase their understanding. Homework is due at the start of the class period. Scoring on homework will be as follows:

- 10 All of the assignment is complete, and a **legitimate** attempt is shown on every problem
- 8 Most of the assignment has been attempted, but a few problems are missing
- 6 Half of the assignment is complete
- 5 One fourth of the assignment is complete
- 0 No homework assignment is turned in. Failure to turn in assignments on time may result in an academic referral.

Late homework will be accepted from a unit until the unit test is taken. Any missing assignments will become a zero the day of the test. Late homework has an automatically point reduction.

D. Testing and Retake Policy: Make-up and retakes tests or quizzes will be given during the lunch period of after school, or at another time arranged with another teacher. If you miss the day before the test or quiz, you will be expected to take the test or quiz on the scheduled date. Students will have the option to retake the test or quiz if their score falls below mastery (80%), and provided all homework for the unit has a score of "6." The retake must be completed prior to the next test, and the second test or quiz will be recorded in the grade book.

E. Lab Policy: Students are expected to do all lab activities. All students are required to keep a Lab Notebook. Students must record the purpose, procedure, safety precautions, and data tables if there are any in their Lab Notebook **prior** to coming to lab.

F. Academic Dishonesty: Cheating on tests or homework will result in:

- A zero grade for the entire test or assignment.
- Parental notification if caught cheating on a test or assignment
- Notification to the appropriate principal if caught cheating on a test.

G. Technology: Electronic devices will be used for academic purposes only. Cell phones will not be needed for class and are expected to be put away for the entirety of the class period.

IV. Grading Procedures:

Quarter grades will be calculated from cumulative points per quarter from weighted categories. Semester grades will be calculated with each quarter being 40% and the final being the remaining 20%. Letter grades are assigned based on the scale listed below:

A = 90% - 100%	Quarter 1	= 40%	Assessments	= 35%
B = 80% - 89%	Quarter 2	= 40%	Classworks & HW	= 30%
C = 70% - 79%	Final Exam	= 20%	Labs/Simulations	= 20%
D = 60% - 69%			Participation	= 15%
F = 50% - 59%	Total	= 100	Total	= 100%

V. Course Procedures

- Students need to be in their seats at the beginning of class and begin working on the daily opener question.
- Chemistry class is to be used for the study of chemistry. You will not be allowed to work on homework from any other class unless your chemistry work is complete. Any homework from other classes that is out when you should be working on chemistry will be confiscated.
- Daily participation in chemistry is expected. We do a lot of calculations and problems together as a class. If you do not participate, your grade will suffer.
- Labs need to be cleaned up appropriately before the end-of-class. No late passes will be written. There should be no used paper towels or lab materials left on the floor or counters, the sinks and strainer should be clean, and lab equipment returned to the proper place.
- Students must be in their seats at the end of class in order to be dismissed. The teacher will dismiss the students, not the bell. **You will not be permitted to line up at the door before the end of class.**

VI. Communication Statement

My intent is to help all students be successful and to facilitate a positive learning environment. I am easy to get along with, but I have high expectations for all of my students. I will not accept anything less than your best and you shouldn't either. I am at school by 8:00 a.m. and stay until at least 3:45 p.m.; I am willing to stay later if a student needs help. I am available before and after school in my room. Don't hesitate to ask for help or to discuss grades! Communication is key.

I provide students with printed and highlighted grade reports per unit, indicating progress and missing work.

VII. Contact Information

Parents are welcome to contact me through the school through email at jmorse@aerostem.org

CHEMISTRY 2017-2018

Student and Parent Signature Form:

I _____ (student name

and block), have read and understand the course expectations, prerequisites, recommendations and policies outlined in this syllabus. My signature indicates that I will use classroom resources with respect and understand and will comply with course policies as I put forth my best efforts to be successful in this class.

I _____ (parent or guardian), have read and understand the course expectations, prerequisites, recommendations and policies outlined in this syllabus.

August 9-10

Class Introduction and Orientation

1. Teacher Introduction
2. Classroom and Learning Rules
3. Grading System
4. White Board and Cabinets Orientation
5. Chrome Books Sites we will use.
6. Classroom Contracts

August 11-12

Chemistry Pre-Test (Scientific Reasoning Assessment)

Laboratory Orientation

1. Safety Scenario
2. Article in Lab Safety
3. Becoming Familiar with Lab Equipment
4. Laboratory Safety and Contract
5. First Assignment

August 16-19

Define chemistry.
List advantages and disadvantages of chemicals to our lives.
Distinguish between pure and applied science.

August 23-26

Measuring Systems
Metric System
Dimensional Analysis

August 30-Sept 2

The Scientific Method
Lab: Scientific Method

No School Sept 5

Sept 6-9

Matter And Movement

Sept 13-16

The Atom, Molecule, and Ions
Electron Arrangement

****Quarter Quiz****

Sept 20-23 --Grades Go In

The Periodic Table Families

No School Sept 27-30

Oct 4-7

The Periodic Table
Groups, Atomic #, Mass #

Oct 11-14

Electronic Structure and The Periodic Table

Oct 18-21

Mass Relations In Chemistry
Measurements & The Mole
Avogadro's #

Oct 24-28

The indicators of a Chemical Reaction
Reactions in Aqueous Solutions
Lab: Reaction or Not

Nov 1-4

Types of Reactions
Lab: Reactions What?

Nov 8-10 --No School on the 11th

pH Scale
Reactions in Aqueous Solutions
Precipitate, Oxidation-Reduction
Water
Perspective Lab: Life without Water
Lab: Rust

Nov 15-18

Gases, Noble Gases, Helium 3
Chemical Equations & Reaction Rates

Nov 21-25 Thanks Giving Break

Nov 29 - Dec 2

The ideal Gas Law
Stoichiometry of Gases
Lab: Ideal Gas Law Excercises

Dec 6-9

Stoichiometry & Heat Transfer
Gas Mixtures, Partial Pressure, Mole Fractions
Perspective Lab: Green House Effect Global Warming

Dec 13-16---Grades Go In

****1. Pre Test Midterm****
****2. Midterm****

Dec 19 - Jan 6 Winter Break

SECOND SEMESTER

Jan 10-13

Light, photons and Energy
The Hydrogen Atom
Electron Configuration

Jan 17-20

Covalent Bonding
Lewis Dot, the Octet Rule
Covalent vrs Ionic Bonding
The Polarity of Molecules

Jan 24-27

Solutions
Types of solutions

Jan 31 - Feb 3

Concentrations
Solubility
Colligative Properties.
Perspective Lab: Oceans

Feb 7-10

Rate of Reactions
Concentration, Rate, and Time
Activation

******Quarter Quiz******

Feb 14-17 Grades Go In

Reaction and Temperature,
Catalysts
Perspective Lab: Ozone

*****Feb 21-24 Presidents Week*****

Feb 28-Mar 3

Equilibrium
 N_2O_2 Equilibrium System
Equilibrium Constant and K

Mar 7-10

Acids and Bases
Bronsted-Lowry Model
Water Dissociation Constant
Ionic Bonding
Salts
Lab: phenolphthalein

Mar 14-17

Ionic & Covalent Substances
Lab: Define an atom and give the name of the scientist
who first named the atom.

Mar 21-24

Summarize Dalton's atomic theory.
Distinguish between protons, electrons, and neutrons in
terms of their symbols, relative masses, charges, and
scientific discoverer.
Lab: Complete the Table of Elements

Mar 28-31

Complex Ions
Naming Complex Ions

April 4 - 6 --No School on the 7th

*****April 10 -14 Easter Break*****

April 18-21

Electro Chemistry
Standard Voltages
Electrolytic Cells
Commercial Cells
Lab: Make a Battery

April 25-28

Nuclear Reactions
Stability and Radio Activity
Fusion verses Fission
Perspective Lab: China's Fusion Reactors

May 2-5

The Diamond Battery
Carbon Dating

May 9-12

The Chemistry of Metals
Metallurgy
Alkali and Alkali Earth Metal Reactions
Lab: Ghost Busters Building
Perspective Lab: Metals in Nutrition

May 16-19

The Chemistry of Non Metals
The Elements
Hydrogen Compounds of Nonmetals
Oxygen Compounds of Nonmetals

May 23-26

Review

May 30- June 2 -- Grades Go In

*******Final Pre Test*******

*******Final*******