Chemistry Syllabus

Instructor Information
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Dear Students and Families,

My goal is to create a welcoming and engaging classroom where students feel safe to take academic risks. When students take risks like trying a challenging problem, asking a question they're unsure about, or attempting a new approach, they give themselves the opportunity to grow. Practice taking risks builds resilience and develops the problem-solving skills that lead to genuine success. High school is a critical time for refining these abilities, deepening understanding, and building confidence in their capacity to learn and achieve. I believe that students must experience what success feels like in order to recognize its value and turn it into a habit worth keeping, and I am committed to guiding them toward that feeling of success :)

Ms. Kimbrough

COURSE DESCRIPTION

This course provides an in-depth exploration of fundamental chemistry concepts, aligned with Missouri state standards and the Next Generation Science Standards (NGSS). Students will study atomic structure, the periodic table, chemical reactions, bonding, energy changes, reaction rates, equilibrium, and conservation of mass. The course integrates laboratory investigations, modeling, and real-world applications to develop scientific understanding and skills.

COURSE OBJECTIVES

By the end of the course, students will be able to:

- Use the periodic table to predict element properties based on electron configuration.

- Construct and balance chemical equations and explain reaction outcomes.
- Investigate physical and chemical properties of substances and relate them to particle interactions.
- Explain material properties based on bonding types and molecular structure.
- Model energy changes during chemical reactions, including exothermic and endothermic processes.
- Analyze factors affecting reaction rates and chemical equilibrium.
- Apply the law of conservation of mass in chemical reactions and stoichiometric calculations.

TEXTBOOK(S) / COURSE MATERIALS

Students are required to bring the following to class every day:

- Notebook and pencil
- Calculator
- Laptop and charger

Additional materials such as lab kits, safety gear, and online resources will be provided as needed.

GRADING PROCEDURE

Grades are based on the following approximate distribution:

- Homework: 15%
- Quizzes (including daily checks for understanding): 50%
- Tests (unit exams): 15%
- Lab reports: 20%

In-class assignments and practice activities are not graded but are essential for learning.

This course follows the conventional A–F grading system.

ACADEMIC INTEGRITY STATEMENT

Students are expected to do their own work and demonstrate honesty in all assignments. Cheating, copying, or plagiarism will result in an automatic failing grade ("F") for the assignment with no opportunity for a retake. The teacher will exercise discretion in determining academic dishonesty and will hold all involved students accountable.

FINAL EXAM

A comprehensive final exam will be administered at the end of the course. It will include multiple-choice questions and may also contain a lab practical component. The final exam grade will significantly impact the overall course grade.

TOPICAL OUTLINE

Unit 1: Introduction to Chemistry and the Periodic Table

- Atomic structure and subatomic particles
- Atomic number, mass number, isotopes
- Electron configuration
- Periodic table layout and trends

Unit 2: Chemical Reactions

- Types of reactions
- Balancing equations
- Energy changes in reactions
- Lab investigations

Unit 3: Properties of Substances

- Physical and chemical properties
- Laboratory measurements
- Real-world applications

Unit 4: Bonding and Structure

- Ionic, covalent, and metallic bonds
- Material properties based on bonding
- Modeling bonds in labs

Unit 5: Energy in Chemical Reactions

- Potential and kinetic energy
- Exothermic/endothermic reactions
- Activation energy and catalysts

Unit 6: Reaction Rates and Equilibrium

- Factors affecting rates
- Chemical equilibrium and Le Chatelier's Principle

Unit 7: Conservation of Mass

- Law of conservation of mass
- Stoichiometry and mole concept
- Balancing advanced chemical equations

CLASS RULES

Students are expected to embody the district's Portrait of a Graduate qualities:

- Change Agent: Stand for fairness and make a positive community impact.
- Collaborator: Work respectfully with diverse perspectives.
- College and Career Ready: Demonstrate skills and motivation for success.

- Communicator: Listen and express ideas clearly and respectfully.
- Competent: Apply knowledge, ask for help, and engage deeply.
- Critical Thinker: Analyze problems and create logical solutions.
- Culturally Aware: Respect and embrace cultural diversity.

TECHNOLOGY POLICIES

- Cell phones are not allowed in the building. If a phone is seen or suspected, security will be notified, and the student may be searched.
- Laptops must remain silent during class. Video/audio will only be played when the teacher permits and provides headphones if needed.
- Students must ask permission before using headphones or playing audio.

CONSEQUENCES

- Warning 1: Verbal redirection.
- Warning 2: Reminder of class expectations.
- Warning 3: Behavioral change implemented; repeated offenses may result in removal.
- After the third warning, security will be called and an incident report filed.
- Type I or II infractions threatening safety result in immediate disciplinary referral.
- Academic dishonesty results in an automatic failing grade for the assignment.

PASSES

Students should use good judgment when requesting to leave the classroom. Avoid asking during direct instruction or at times that disrupt the class. This does not apply to emergencies.

EXAMS

Unit exams will be given at the end of each unit and include multiple-choice, short answer, and possibly lab practical sections. Daily quizzes and checks for understanding will be frequent and count toward grades.

ABSENCES

Students are responsible for contacting the teacher to make up missed work. Supplemental videos and homework will be posted on the class Teams channel. Make-up quizzes must be scheduled within five school days of return. Failure to attend scheduled make-ups results in a zero.