

Chemistry

Course Syllabus



Supervising Teacher

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Course Description:

Chemistry *2 semesters* *2 credits* *Grades 11 or 12*

Pre-requisite: Successful completion of Algebra 1 with a grade of C or better.

This course meets the graduation requirement for a laboratory science course.

Students will study major areas of chemistry including but not limited to: chemical reactions, chemical bonding, nuclear reactions, properties of elements, compounds and mixtures, organic chemistry, stoichiometric calculations, acids and bases, and more.

Textbook Options:

Harcourt-Holt Option

This option is the best for grade-level students. Lots of practice and review options.

Required Books:

HARCOURT - HOLT Chemistry Student edition 2006 Edition. Catalog #0000026221

HARCOURT - HOLT Chemistry Teacher Edition 2006 Edition. Catalog #0000026223

Highly Recommended Optional Items:

HARCOURT - HOLT Chemistry 2006 Problem Solving Workbook. Catalog #0000032563

HARCOURT - HOLT Chemistry 2006 Study Guide. Catalog #0000032564

McGraw-Hill Glencoe Option

This option is good for students who struggle with more difficult concepts and need more support – online tests and quizzes are available.

Required Books:

MCGRAW-HILL - GLENCOE Chemistry: Concepts and Applications SE 2005 Edition. Catalog #0000028414

MCGRAW-HILL - GLENCOE Chemistry: Concepts and Applications TE 2005 Edition. Catalog #0000028416

Highly Recommended Optional Items:

MCGRAW-HILL - GLENCOE Chemistry: Concepts and Application 2005 Chapter Review and Assessment. Catalog #0000017583

Course Evaluation:

A. Semester Examination: 12% of semester grade

A comprehensive semester examination will be given during exam week each semester. Semester examinations will be given by a supervising instructor at a previously agreed upon location, most often a resource center.

B. Home Participation and Portfolio: 60% of grade

Home participation is to be determined by the home educator. The participation may include, but is not limited to, textbook activities, quizzes, unit tests, projects, oral reports, or research papers. Grades for home participation will be submitted to the contact teacher who will then forward a copy to the supervising instructor for semester grade tabulation. A portfolio of student work which may include copies of some of the laboratories will be presented to the contact teacher once per semester.

C. Laboratory Expectations: 28% of grade

Students are expected to complete a minimum of 4 labs per semester chosen from a selection that cover the objectives for that semester's content. All laboratories must be completed only by the student and a full experiment write-up/report will be submitted to the supervising instructor by each anchor due date listed in the school calendar. All write-ups must contain at least one picture of the student performing the experiment, unless it is performed under supervision of an IDEA instructor at a local resource center. In the case of performing a supervised experiment, the supervising instructor's signature can substitute for the photographic documentation of student participation.

End of Course Assessment:

A comprehensive examination will be given each semester in addition to required laboratories and the student portfolio.

Pacing Guide

The topics and standards for this course have been divided between the two semesters.

Semester 1(Fall)	Semester 2 (Spring)
Understanding Scientific Investigation and the Nature of Science	Understanding Acids and Bases
Understanding Atomic and Molecular Structures	Understanding Solutions
Understanding Chemical Bonds and Reactions	Understanding Thermal Chemistry
Understanding Conservation of Matter	Understanding Reaction Rates and Equilibrium
Understanding Measurements and Calculations	Understanding Electrochemistry and Redox Reactions
Understanding Gases	Understanding Organic and Biochemistry
	Understanding Nuclear Chemistry

In order to fulfill this pacing requirement, the recommended texts have been broken down by chapter. Covering the chapters in the order listed will insure that all topics on the final exam will be covered during the appropriate semester.

Harcourt/Holt: Chemistry

Semester 1(Fall)	Semester 2 (Spring)
Chapters 1-2	Chapter 15
Chapters 3-4	Chapter 13
Chapters 5-6	Chapter 10
Chapter 9	Chapter 14
Chapters 8-9	Chapter 17
Chapters 11-12	Chapters 19-20
	Chapter 18

McGraw-Hill/Glencoe: Chemistry – Concepts and Applications

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapters 14-15
Chapters 2-3, 7-8	Chapter 13
Chapters 4-6, 9	Chapter 10
Chapter 12	Chapter 20
Chapter 12	Chapters 16-17
Chapter 11	Chapters 18-19
	Chapter 21

Additional Information from the Instructor:

Upon successful completion of chemistry, the student should be able to:

- *Utilize the scientific method of inquiry.*
- *Solve metric-to-English conversion problems and vice versa.*
- *Convert within the metric system.*
- *Solve algebraic equations related to chemistry.*
- *Use algebraic and/or dimensional analysis methods to solve chemistry problems.*
- *Apply the rules for significant figures to calculations.*
- *Classify matter.*
- *Convert between temperature scales.*
- *Perform calculations related to density, specific gravity, specific heat, kinetic energy, electromagnetic radiation, and chemical bonding.*
- *Perform calculations related to the mole concept.*
- *Balance a chemical equation.*
- *Calculate, when given a balanced chemical equation and the moles of a reactant, the moles of a product produced in the reaction.*
- *Calculate, when given a balanced chemical equation and the weight of a reactant, the weight of a product produced in a reaction.*
- *Identify the type of chemical bonds possessed by a molecule or compound.*
- *Memorize the symbols of 35 elements, 15 polyatomic ions and the prefixes mono- through deca-(i.e. 1 through 10).*
- *Describe the atomic structure of the atom at a minimum according to the Bohr Theory.*
- *Describe the shape of S and P orbitals.*
- *Use the periodic table to delineate for "A" group atoms the number of protons, neutrons, electrons, outer shell electrons, ion charge, and final characterization as a metal, nonmetal, or metalloid.*
- *Look up and use information from the periodic table.*

- Calculate the atomic weight of an atom.
- Describe what occurs during absorption and emission of radiation by molecules and atoms.
- Distinguish between physical and chemical properties and changes.
- Distinguish between endothermic and exothermic reactions.
- Discuss the laws of chemistry.
- Write formulas for compounds and molecules.
- Name compounds and molecules.
- Calculate the percent composition of a compound.
- Calculate the empirical and molecular formula of a compound.
- Draw electron-dot structures for molecules.
- Define an acid and a base.
- Distinguish between weak and strong acids and bases.
- Explain chemical equilibrium.
- Calculate the pH and pOH of a solution.
- Calculate $[H^+]$ or $[OH^-]$ given K_w .
- Explain the relationships between gas solubility and temperature and pressure.
- Explain the relationship between the solubility of an ionic solid and temperature.
- Calculate the concentration of a solution in percent and molarity.

I-DEA Student Honor Code:

With any form of valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions. Academic dishonesty could lead to a zero grade for the assignment or even failure for the entire course following consultation between the instructor, Secondary Supervisor, and Director.

All students must adhere to the **Honor Code**:

“On my honor, I will maintain the highest possible standards of honesty, integrity and personal responsibility. This means I will not lie, cheat or steal, and as a member of this academic community, I am committed to creating an environment of respect and mutual trust.”

Idaho Content Standards: Chemistry:

http://www.sde.idaho.gov/site/content_standards/science_standards_docs/IDAHO%20CONTENT%20STANDARDS%20-%20High%20School%20Chemistry.doc