

Course Syllabus

Description:

This course serves as a foundation for the study of Chemistry. The utilization of scientific inquiry, interactive experiences, higher order thinking, real world application all aid the student in ultimately demonstrating a vast understanding of the importance of Chemistry in the world around them; enabling them to apply these properties to their everyday lives.

Estimated Completion Time: 2 segments / 32-36 weeks

Major Topics and Concepts:

Segment I:

Module 00 Getting Started

- 00.01 Things to Know
- 00.02 Navigation
- 00.03 Lessons & Assessments
- 00.04 Course Specifics
- 00.05 Online Learning 101
- 00.06 Pace
- 00.07 Academic Integrity

Module 01 Chemistry and You

- 01.00 Module One Pretest
- 01.01 Chemistry and You
- 01.02 Matter and Measurements
- 01.03 Energy and Temperature
- 01.04 Unit Conversions
- 01.05 Accuracy and Precision
- 01.06 Discussion-Based Assessment and Module One Exam

Module 02 The Atom

- 02.00 Module Two Pretest
- 02.01 History of the Atomic Model
- 02.02 Properties of the Atom
- 02.03 Isotopes and Weighted Averages
- 02.04 The Mole and Conversion
- 02.05 Electron Arrangement and EMR
- 02.06 Electron Configurations
- 02.07 Discussion-Based Assessment and Module Two Exam

Module 03 Compounds

- 03.00 Module Three Pretest
- 03.01 History of Periodic Table
- 03.02 Group Names and Properties
- 03.03 Periodic Trends
- 03.04 Valence Electrons and Bonding
- 03.05 Ionic Bonding and Writing Formulas
- 03.06 Covalent Bonding and Lewis Structures

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- 03.07 Intermolecular Forces
- 03.08 Naming Compounds
- 03.09 Molar Mass of Compounds
- 03.10 Discussion-Based Assessment and Module Three Exam

Module 04 Reactions

- 04.00 Module Four Pretest
- 04.01 Chemical vs. Physical Properties and Changes
- 04.02 Balancing Equations
- 04.03 Types of Chemical Reactions
- 04.04 Stoichiometry
- 04.05 Limiting Reactant
- 04.06 Percent Yield
- 04.07 Discussion-Based Assessment and Module Four Exam
- 04.08 Segment One Exam

Segment II

Module 05 Phases and Solutions

- 05.00 Module Five Pretest
- 05.01 Four Phases of Matter
- 05.02 Phase Changes
- 05.03 Gas Laws
- 05.04 Gas Calculations
- 05.05 Mixtures and Solutions
- 05.06 Solubility and Concentrations
- 05.07 Molarity and Dilution
- 05.08 Discussion-Based Assessment and Module Five Exam

Module 06 Thermochemistry and Rate

- 06.00 Module Six Pretest
- 06.01 Thermochemistry
- 06.02 Endothermic and Exothermic
- 06.03 Calorimetry
- 06.04 Rate and Collision Theory
- 06.05 Discussion-Based Assessment and Module Six Exam

Module 07 Equilibrium and Redox

- 07.00 Module Seven Pretest
- 07.01 Acids and Bases
- 07.02 pH
- 07.03 Equilibrium
- 07.04 Le Châtelier's Principle

- 07.05 Oxidation and Reduction
- 07.06 Half-Life and Radioactive Decay
- 07.07 Fission and Fusion
- 07.08 Discussion-Based Assessment and Module Seven Exam
- 07.09 Segment Two Exam

Course Assessment and Participation Requirements:

To achieve success, students are expected to submit work in each course weekly. Students can learn at their own pace; however, “any pace” still means that students must make progress in the course every week. To measure learning, students complete self-checks, practice lessons, multiple choice questions, projects, discussion-based assessments, and discussions. Students are expected to maintain regular contact with teachers; the minimum requirement is monthly. When teachers, students, and parents work together, students are successful.