

Course Syllabus

Description:

Chemistry I and Chemistry I Honors are rigorous and not intended for credit recovery. Students will be challenged and need to have 6-10 hours per week designated to be successful. It is designed as an interactive, 21st century course focusing on Chemistry. Topics include the composition, properties, and changes associated with matter and their applications.

This course is designed to serve as a foundation for the study of Chemistry. The utilization of scientific inquiry, web 2.0 tools, interactive experiences, higher order thinking, collaborative projects, real world application through labs and a variety of assessments 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 01: Chemistry and You

- 01.00 Welcome to Chemistry-Module One Pre-Assessment
- 01.01 Course Information
- 01.02 Chemistry and You
- 01.03 Scientific Method
- 01.04 Matter and Measurements
- 01.05 Energy and Temperature
- 01.06 Unit Conversion
- 01.07 Accuracy and Precision
- 01.08 Module One Discussion-Based Assessment
- 01.09 Module One Exam

Module 02: The Atom

- 02.00 Module Two Pre-assessment
- 02.01 Early Chemistry and Atomic Structure
- 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 Module Two Discussion-Based Assessment
- 02.08 Module Two Exam

Module 03: Compounds

- 03.00 Module Three Pre-assessment
- 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
- 03.06A Covalent Bonding and Lewis Structures
- 03.06B Intermolecular Forces
- 03.07 Intermolecular Forces
- 03.08 Naming Compounds
- 03.09 Molar Mass of Compounds
- 03.10 Module Three Discussion-Based Assessment
- 03.11 Module Three Exam

Module 04: Reactions

- 04.00 Module Four Pre-assessment
- 04.01 Chemical vs. Physical Properties and Changes
- 04.02 Balancing Equations
- 04.03 Chemical Reactions: Double and Single Replacement
- 04.04 Chemical Reactions: Synthesis and Decomposition
- 04.05 Chemical Reactions: Combustion
- 04.06 Stoichiometry
- 04.07 Limiting Reactant
- 04.08 Percent Yield
- 04.09 Module Four Discussion-Based Assessment
- 04.10 Module Four Exam
- 04.11 Segment One Exam

*Collaborative project: Students are required to submit one collaborative project in segment 1. There will be five different options throughout the segment to choose from.

Segment 2:

Module 05: Phase and Solution

- 05.00 Module Five Pre-assessment
- 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 Colligative Properties
- 05.09 Module Five Discussion-Based Assessment
- 05.10 Module Five Exam

Module 06: Thermochemistry and Rate

- 06.00 Module Six Pre-assessment
- 06.01 Thermochemistry
- 06.02 Endothermic and Exothermic
- 06.03 Calorimetry
- 06.04 Enthalpy, Entropy and Free Energy
- 06.05 Rate and Collision Theory

- 06.06 Module Six Discussion-Based Review
- 06.07 Module Six Exam

Module 07: Equilibrium and Redox

- 07.00 Module Seven Pre-assessment
- 07.01 Acids and Bases
- 07.02 Acid-Base Reactions
- 07.03 pH
- 07.04 Equilibrium
- 07.05 Le Châtelier's Principle
- 07.06 Oxidation and Reduction
- 07.07 Module Seven Discussion-Based Assessment
- 07.08 Module Seven Exam

Module 08: Bio Chemistry

- 08.00 Module Eight Pre-assessment
- 08.01 Half-Life and Radioactive Decay
- 08.02 Fission and Fusion
- 08.03 Renewable and Nonrenewable Resources
- 08.04 Energy and Society
- 08.05 Carbon Chemistry
- 08.06 Biochemistry and Technology
- 08.07 Module Eight Discussion-Based Assessment
- 08.08 Module Eight Exam
- 08.09 Segment Two Exam

*Collaborative project: Students are required to submit one collaborative project in segment 2. There will be five different options throughout the segment to choose from.

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.



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