

CHEM 210 • Skyline College • Exam #4 Review • Spring 2009

Notes:

- Exam 4 will include material from the covered sections of chapters 6-11.

Principle Topics & Concepts:

1. Thermochemistry (Chapter 6)
 - Hess's Law
 - $\Delta H_{\text{reaction}}$ from ΔH_f
 - *Applied Problems*: ΔH and Calorimetry
2. Electronic Structure of the Atom (Chapters 7 & 8)
 - Electromagnetic Radiation
 - Emission Spectra and the Bohr Model
 - Energy transitions and Quantum Theory
 - Wave / particle duality of light
 - Heisenberg Uncertainty Principle
 - DeBroglie Wavelength
 - Photons
 - Aufbau Diagrams
 - Aufbau Principle, Hund's Rule, Pauli Exclusion Principle
 - Quantum Numbers
 - Electron Configurations
 - Periodic Trends of Chemical Properties
3. Bonding and Molecular Structure (Chapters 9, 10 & 11)
 - Ionic Bonding
 - Covalent Bonding
 - Electron Dot Structures
 - Octet Rule (and exceptions)
 - Formal Charges
 - Resonance
 - Bond Order, Length, Energy
 - Bond Dissociation Energy and Heats of Reaction
 - VSEPR – Molecular shapes
 - Hybridization
 - Electronegativity
 - Polar Bonds and Molecules
 - Structural Formulas of simple organic molecules (containing CHNO)