

Exam 3: Friday, December 7**Topics: Chapters 8, 9, 10, 13**

- nomenclature and net ionic equations
- electron configurations (complete configurations and with core notation) and Aufbau principle, Hund's Rule, Pauli Exclusion Principle
- periodic trends: atomic & ionic size, Z_{eff} , ionization energy, electron affinity
- bonding
 - ionic vs. covalent bonding
 - bond strength (ionic & covalent)
 - Lewis dot structures for atoms and molecules
 - electronegativity
 - bond order, bond strength and bond length, bond character (covalent to ionic), bond polarity
 - enthalpies from bond energies
 - formal charge and resonance structures
- molecular shapes
 - VSEPR (electronic & molecular geometries)
 - approximate bond angles
 - overall polarity and dipole moments
- valence bond theory
 - hybridization
 - sigma and pi bonding
- molecular orbital theory (diatomic molecules only)
 - paramagnetism/diamagnetism in diatomic molecules
 - bond orders
 - filling out molecular orbital energy diagrams
- colligative properties
- intermolecular forces
- phase diagrams
- vapor pressures of liquids and heats of vaporization

- anything from lab
- anything from the previous exam

(Disclaimer: This is intended to be a helpful checklist in preparation for exam #3. While effort has been made to be complete here, this is not guaranteed and it remains the student's responsibility to completely prepare for the exam.)