

Chapter 8

- electromagnetic radiation and atomic spectra
- quantum theory
- wave-particle duality
- wave functions and orbitals
- quantum numbers and orbital shapes
- electron configurations and orbital energies

Chapter 9

- periodic trends and their causes
- atom and ion size
- electron affinity
- ionization energy
- effective nuclear charge and shielding

Chapter 10

- ionic and covalent bonding
- electronegativity and polar bonds
- Lewis structures
 - resonance
 - exceptions
 - formal charge
- molecular shapes (VSEPR)
 - e⁻ pair vs molecular geometry
 - molecular polarity
- bond order and bond length
- bond energies and thermodynamics