**Chemistry 112**

**Midterm Review**

Matter

* Definition
* Characteristics of solids, liquids and gases
* Physical and chemical properties
* Classification system
  + Substances (elements and compounds) mixtures (heterogeneous and homogeneous)
    - Examples
* The law of conservation of matter
* Atom
  + Subatomic particles
    - Protons, neutrons and electrons
    - Location within the atom
    - Atomic number
    - Mass number
    - Isotopes
    - Quantum mechanical model
* Periodic Table
* Organization
* Groups/periods
* Family names
* Representative/transition elements
* Electron configurations
  + Orbitals, principal energy levels, sublevels
  + Three rules governing electron configuration
    - Aufbau, Hund’s Rule, Pauli exclusion principle
  + Noble gas notation
  + Octet rule
  + Atom and ion configurations
* Ionic Compounds
  + Metal and nonmetal characteristics
  + Cations and anions
  + Ionic bonds
  + Chemical formulas of ionic compounds - examples
  + Electron transfer
* Molecular Compounds
  + Nonmetal combinations
  + Diatomic molecules
  + VSEPR theory
  + Polar vs. nonpolar molecules