Chemistry 121 Exam 1 Review Sheet:
Bring a pencil, eraser, and non-graphing calculator to the exam.
No graphing calculators, no dictionaries, no phones.

Laboratory Experiment: Understand concepts and calculations from lab
- Measurements
- VSEPR

Chapter 1 (all sections)
- Understanding of chemical vs. physical, properties and changes
- Understanding of three states of matter (solid, liquid, gas)
- Understanding of basic SI units and ability to use them in calculations and conversions
- Equations and values you need to know and understand:
  1. density
  2. Celsius to Kelvin conversion
  3. conversions between SI decimal prefixes (Know: micro, milli, centi, and kilo)
  4. conversions between mass and volume using density
- Understanding of significant figures, how to determine and why
- Rounding rules
- Scientific notation and exponential notation

Chapter 2 (excluding sections 2.6 and 2.8B)
- Understand and ability to describe:
  atom, molecule, compound, element, mixture
- Recognize the names and shorthand letter symbols on the periodic table for groups 1A-8A and also the following transition metals: Cu, Zn, Ag, Au, Hg, Pt, Fe, Cr
- Understand atomic mass unit and how it is related to the carbon-12 isotope
- Understand isotopes and how they relate to average atomic mass of an element
- Ability to determine average atomic mass from isotopic mass and abundance
- Understand parts of an atom: nucleus, electrons, protons, neutrons
- Understanding of atomic number, mass number, and atomic symbol and ability to determine protons, neutrons and electrons from Atomic Symbol
- Chemical formulas and ability to determine covalent and ionic compounds from the elements in the formula
- Understand electronic structure, core electrons vs valence electrons
- Electron energy levels (shells), sublevels, and orbitals
- Ability to draw orbital shapes: s and p
- Ability to draw electron dot symbols for atoms
- Atomic size. Ability to describe the different factors that control the size of an atom going from left to right across the periodic table, versus controlling factor for size changes going down the periodic table.

Chapter 3 Ionic Compounds
- Ionic vs covalent bonds
- Ions
- Polyatomic ions
- Use periodic table to determine cation and anion charge
- Octet rule and exceptions
- Naming ionic compounds
- Properties of ionic compounds