**Atomic Structure**

* Components of the Atom and their placement and charges
* Atomic Symbols
* Mass number vs. atomic number
* Calculating Atomic mass and the number of neutrons
* Ions and Isotopes (cations vs anions)
* Bohr Diagrams of atoms and electron shells/energy levels (quantum n)
* Number of electrons that can fit in each energy level (2n2)
* Excited vs. ground state electrons/light emission by noble gases in neon signs
* Radioactive decay and half-lives
* Alpha, Beta and Gamma Radiation
* Infrared, UV and Visible light radiation from the sun
* Fission vs. Fusion
* How the sun does fusion
* Use of fission in nuclear power plants
* How do we capture the sun’s energy and what forms of energy do we turn solar energy into?
* Law of Conservation of Energy

**Periodic Table**

* Development of the Periodic Table of Elements (Mendeleev vs. Mosely)
* Periodic Law (Periodicity) and Trends
  + Electronegativity
  + Ionization energy
  + Atomic radius
  + Atomic number
  + Atomic mass
  + Energy levels
  + Number of valence electrons
* What are the main A groups?
* What are Periods? Groups?
* Electron Configurations (s, p, d, f orbitals)
* Abbreviated Electron Configurations

**Chemistry A – 2018 – Final Exam Review**

**Measurement**

* Scientific Method
* Metric System
* Scientific Notation
* Precision & Accuracy
* Significant Figures

**Matter**

* Physical Properties (extensive & intensive)
* Density Calculations (D=m/v)
* Mass is in grams or kilograms
* Volume measurements (either mL, cm3 or by displacement of water in a cylinder)
* Pure substances vs. Mixtures
* Homogeneous versus Heterogeneous
* Solution, Suspension or Colloid?
* Elements vs Compounds/molecules
* Which mixtures exhibit the Tyndall Effect?
* Which mixtures can be separated by filtration?
* Chemical Properties and signs of chemical reactions/changes

**Phase changes & Kinetic Theory**

* States of Matter
* Phase Changes in Matter
* Endothermic versus Exothermic (phase changes and graph)
* Kinetic Theory – what happens to matter when this energy is increased? Decreased?
* Relationships of Pressure, Volume, Temperature to gases.
* Law of Conservation of mass and matter