Chapter 22 – Nuclear Chemistry:

- Know atomic number and mass number
- Know all five types of radiation (3 major and 2 other types)
  - Be able to write nuclear reaction
- Be able to do first order and second order decay calculations (equations on equation sheet, except) $\boxed{Ln\left(\frac{N_t}{N_o}\right) = (-\ln 2)\left(\frac{t}{t_{½}}\right)}$
  - See notes, GW #7, and the practice problem on my website
- Be able to predict the type of decay an isotope will undergo looking at the neutron to proton ratio
- Know the nuclear stability generalizations (Example: even number of neutrons)
- $E = mc^2$
  - Know equation
  - Be able to calculate mass defect & binding energy
- Fission & Fusion:
  - Know the difference
  - Lighter – fusion (sun)
    - Temperature and E_a
  - Heavier – fission (bomb ☺)
    - Know that an incidental neutron is needed and 3 more neutrons are produced
    - Know what critical mass is
    - Know why nuclear power plants can't become a bomb
- What is transmutation – what elements are man-made?
- Ways to measure radiation
- Application of radiation – dating materials, health, …