Chem 30A

Chapter 10:

- Nuclear nomenclature

- Nuclear stability
  - $^{56}\text{Fe}$, the most thermodynamically stable nuclide
  - Fission and fusion reactions
  - Magic numbers
  - Even and odd numbers of nucleons
  - The belt of stability

- Three types of radioactive decay
  - Alpha
  - Beta ($\beta^-$, e.c., $\beta^+$)
  - Gamma
  - Decay series
  - Properties of emitted particles

- $\frac{1}{2}$ Lives
  - Using the definition
  - Using the equation
  - $^{14}\text{C}$ Dating

- Nuclear medicine (diagnostic/imaging)
  - Radioactive tracers
  - Magnetic Resonance Imaging (MRI)

- Nuclear medicine (therapeutic)
  - Radiation therapy

- Radiation safety:
  - Background radiation
  - Factors effecting danger level
  - Detecting exposure (film badges)
  - Units

- Binding energy
  - Mass defect and $E = mc^2$

- Fission chain reactions
  - Subcritical, critical, and supercritical masses
  - Nuclear energy

Manage your time wisely as you study. Cover all the basic concepts before delving too deeply into any one topic. If you have a specific question, you can e-mail me at albi.romero@cabrillo.edu I will reply to e-mails several times the night before an exam. Continue to study other topics while you wait for a response.