Swihart Ch. 5 Main Concepts

Heating of planets from Sun

- Flux from Sun, power absorbed, planet albedo
- Power re-radiated, emission efficiency factor, greenhouse effect
- Planet emission conditions (fast and slow rotators, subsolar point)
- Equilibrium temperature and habitable zone

Planetary atmospheres

- Hydrostatic equilibrium, total mass of atmosphere
- Exponential structure of atmosphere (isothermal case), scale height

Atmospheric escape of gas

- Single particle energy condition (KE + PE)
- Ensemble of particles, Maxwell-Boltzmann distribution of speeds
- Exosphere, conditions for retention of gas

Radioactive dating

- Half-life, decay constant
- Parent and daughter nuclei, exponential decay

Rocky planetary interior

- Central pressure and temperature
- Specific heat capacity, internal thermal energy

Planet formation

- PE of sphere
- Mass accretion (on solid planet)
- Heating of surface (PE converted to radiation)
- Heating of gas planet (PE converted to internal gas energy)