ASTR368
2nd Midterm Review

Equations to memorize:
Hubble's Law
Definitions: redshift, critical density, scale factor, Hubble parameter in terms of scale factor, scale factor in terms of redshift
Friedmann Equation (many forms, but all can be derived easily from one another)
Scaling of CMB temperature with scale factor
The deceleration parameter
Mean free path and interaction/collision timescale

Topics:
Structure of the Universe
Distance ladder – parallax, standard candles, expanding sources, luminosity distributions. Know methodology, objects used, rough distances to which method can be applied.
Redshift definition
Hubble's Law
Cosmological principle
Rough timeline of Universe incl. reionization, recombination, dark ages
Problems with cosmology that are solved by inflation
Effect of dark energy, matter on evolution of the Universe
Relationship between k and Ω for open, flat, closed universe models
Properties and observations of the CMB incl. how temperature is determined, how cosmological parameters are determined
Friedmann equation (know what it is and how to use/interpret it)
Radiation, matter, and cosmological constant dominated eras
The fate of the Universe with different parameters
Equation of state parameters
SN redshift results
Implications of the deceleration (using deceleration parameter) for various fundamental parameters
Evolution of the density parameter
Proper distance, angular diameter distance, comoving coordinates