AT652 Spring 2013
Basic Course Outline
Order may shift a bit!

- Introduction & Observing systems: Satellites vs. surface. Satellite orbits. Sources of radiation used (thermal emission, solar, active).

- E&M Radiation Review : Properties and treatment. (Main laws, polarization, brightness temperature, emissivity from surfaces)

- Composition & Structure of the atmosphere (gases, temp, clouds)
  Absorption by gases

- Emission Methods, Emission RT equation, applications.

- GPS & Ocean Altimetry

- Mie & Rayleigh Scattering, gases clouds & aerosol particles (extinction-based applications)

- Multiple scattering as a source of radiation.

- Intro to Optical Estimation/Retrieval Theory

- Passive remote sensing in the solar. Aerosols & Clouds.

- Passive remote sensing in the thermal IR: temperature and moisture sounding, trace gas measurements

- Passive remote sensing in the microwave: precip, clouds, water vapor, surface winds. + Scatterometry for wind speed & direction.

- Active Remote Sensing: Principles.
  Radar measurements of clouds & precipitation
  Lidar mesaurements of gases, clouds, and aerosols.

- Overview of NASA & NOAA datasets