ASTRONOMY 120
Review Sheet for Mid-Term Exam

Concepts, ideas and facts that you should know:

The scientific method: What is it? Give an example.
Distances, times and temperature in astronomy
Light-travel time: Define it. Why is it useful?
The celestial sphere – ecliptic, zenith, equinoxes, solstices, equator
The sidereal day and solar day: Definitions? Why are they different?

Movement of the Sun and the seasons: explain it all
The phases of the Moon: Explain them!!
Solar and Lunar eclipse: When, why, how?
The geocentric and heliocentric views of the universe
Kepler's Laws of planetary motion: What are they? Use them.
Newton's law of universal gravitation: Use it!
Mass and weight: How are they different?
The origin of tides
Definitions and uses of IAT, Coordinated UT, and LST
Right Ascension and Declination, Azimuth and Elevation
The electromagnetic spectrum
Wavelength and frequency of electromagnetic radiation
Wave and particle interpretation of light
Planck function: What is it? Be able to use it.
Wiens Law: What is it? Be able to use it.
Stephan-Boltzmann Law: what is it? Be able to use it.
Absolute and apparent brightness
Distance squared Law: What is it? Be able to use it.
Spectral lines in emission and absorption: How and why?
Velocity vector, proper motion, and radial motion
Doppler shift: What is it? Be able to use it.
What are the basic assumptions underlying special relativity?
Special Relativistic changes in time, length and mass.
Basics of reflection and refraction:Law of Reflection and Snell's Law
Focus length, image brightness, light gathering power: What are they?

Basics of refracting and reflecting telescopes

Atmospheric blurring and overcoming it

Why are telesopes at different wavelengths different?

Transparency of the Earth's Atmosphere.

What are the basic components of the Solar System?

Terrestrial planets and Jovian planets: What are they? How are they different?

Differentiation: What is it? Why is it important to planets?

Convection: What is it? Examples.

The Earth's interior:crust, mantle, core

Questions that you should think about:

How do astronomers learn about the Universe?

How would the seasons change if you altered the tilt of the Earth's axis? Changed the eccentricity of its orbit?

How would the sidereal day change if you changed the rotation period of the Earth? If you changed the orbital period?

How would eclipses change if you moved the Moon closer or farther? Changed the orbital plane of the Moon?

How would you calculate the mass of a planet or star from information like orbital radius and speed, or orbital speed and period?

How do you calculate your weight on different planets or moons?

When do you use the Planck function and when Stephan-Boltzman's law in the calculating energy emitted by an object?

What are the primary differences between a Geocentric and Heliocentric view of the Universe?

How does the apparent luminosity of a star depend on size, temperature, and distance?

Why are telescopes important instruments for astronomers?

What are the broad characteristics of the Solar System?

What are the forces that mould the terrestrial planets?

This sheet is available from the class web page. The web page address is "http://www.astro.umd.edu/ lgm/ASTR120".