

# Astronomy 1 – Introductory Astronomy

## Spring 2014

Syllabus (v.3a)

**Week:** topics

Reading etc.

*Lab* (or not)

**Week 1:** angles, scale of the solar system

Reading etc: pp. 29-31; Powers of Ten

**Week 2:** light, inverse square law, thermal emission distance to Sirius, temperature of the Sun and Sirius

Reading etc.: Ch. 15 first few pages; Ch. 5, secs. 1 and 2

*Lab:* Inverse Square Law

**Week 3:** spectra, incl. stellar spectra, Doppler shift

Reading etc.: Ch. 5, secs. 3, 4, and 5

**Week 4:** gravity and orbits, Kepler's third law

Reading etc.: Ch. 4

*Lab:* Observing the Sky I (all four sections had to do Jupiter's Moons)

**Week 5:** masses of stars, structure of stars, energy sources of stars, spectral types, main sequence

Reading etc.: Ch. 15; Ch. 14, secs. 1 & 2

**Week 6:** HR diagram, star clusters, the evolution of stars

Reading etc.: Ch. 17

*Lab:* Jupiter's Moons and Kepler's Third Law (we'll try for Observing the Sky I, weather permitting; with the Seasons lab as the back-up)

**Week 7:** midterm 1 (Tue. Mar. 4); begin solar system

Reading etc.: Ch. 7

## **Break**

**Week 8:** solar system properties, formation

Reading etc.: Ch. 8

*Lab:* The Cause of the Seasons

**Week 9:** Exoplanets

Reading etc.: Ch. 13

**Week 10:** Exoplanet wrap-up; telescopes and detectors

Reading etc.: Ch 6 (first five pages, skim the rest); start reading Ch. 3

*Lab:* Observing the Sky II

**Week 11:** Historical development of modern astronomy

Reading etc.: Ch. 3, focusing on secs. 2 and 3; Ch. 2, sec. 4

**Week 12:** midterm 2 (Tue. Apr. 15); The Milky Way Galaxy

Reading etc.: Ch. 19

*Lab:* The Expanding Universe and Hubble's Law

**Week 13:** Other galaxies

Reading etc.: Ch. 20

**Week 14:** the expanding Universe and the beginning of time (and space)

Reading etc.: some of Ch. 23

Note: There will be the occasional additional topic with a small amount of accompanying reading thrown in; and there will also be a few observing exercises (as distinct from labs), which are not on the syllabus. And there are often short additional "readings" each week (often images or demos to study, rather than traditional reading).

Note also: When an outdoor lab (the two Observing the Sky labs) are up, we'll do them if weather permits, and if not, we'll do the next lab on the schedule and then try to do the observing lab at the next lab meeting.