

Course Schedule for Descriptive Astronomy Spring 2010

<i>Week</i>	<i>Topics</i>	<i>Read before class</i>
1	Introduction. What is science? What is astronomy? [Friday only]	Syllabus
2	[MLK Jr Holiday, Monday 1/18] What first meets the eye: “naked eye” astronomy; ancient astronomy Angles and angular motion; Celestial coordinates	Ch. 1*, Ch 2
3	Seasons, cycles, and time Shadows in the sky Measuring the earth, sun, and moon the same way a good roofer plans a job (trigonometry); Distances, powers of ten	Ch 3
4	The motions of the planets Laws of motion and gravity (two lectures)	Ch 4
5	Gravity, motion, time, and geometry review Exam#1, Wednesday, February 10 (in class) What we know about light (first of three lectures)	Ch 5
6	What we know about light (two more lectures) About telescopes	Ch 6
7	Better eyes: photography and spectroscopy Different eyes: Radio telescopes Eyes from other sciences: “Nuclear astronomy” and the solar system	Ch 8 (also Ch 7 as needed)
8	Origin and development of solar system(s) Extrasolar planets Why does the sun stay hot? A model of the sun	Ch 16, sec 1-3 (sec 5-10 optional)
9	Sun, planets, telescopes, and light review EXAM #2, Wednesday, March 10 (in class) What we know about stars (first of three lectures)	Ch 17
A	(spring break)	
10	What we know about stars Nuclear astronomy and the heavy elements; Supernovae Very different eyes: Neutrino astronomy	Ch 20, and Ch 16 sec 4
11	Special theory of relativity General theory of relativity Black holes	Ch 22

* Re-read chapter 1 sections 5, 6, and 7 and boxes 1, 2, and 3 as often as necessary.

Week	Topics	Read before class
12	What we know about our galaxy What we know about other galaxies More about our galaxy and other galaxies	Ch 23 Ch 24
13	Our galaxy, relativity, nuclear astronomy, and stars review EXAM #3, Wednesday, April 14 (in class) The distance ladder	Ch 26, sec 1
14	The Hubble Law, and large scale structure Olber's paradox: how can the sky stay dark? The Big Bang (Can we still see it?)	Ch 26
15	High precision measurements as a grand new eye: the shape and content of the entire universe What we know about the early universe and what has happened since then (and how we know it) Distance ladder, cosmic expansion, and cosmology review	Ch 27
16	Extraterrestrial life and intelligence Comprehensive review; General Q and A; Conclusion.	Ch 28

FINAL EXAM (comprehensive): Monday, May 10, 4:10 PM - 6:00 PM.

Homework and on-line responses to pre-lecture guide questions are due every Monday *at least 30 minutes before class*. Feel free to submit the homework a day or three earlier if you like. Be sure to *start the homework before Friday morning* so you can ask questions about it during class or office hours.

See the course website and <http://www.nckas.org/> for the schedule of observing sessions.

See the course syllabus for my scheduled office hours and other information.