Astronomy 104: Spring 2013 Stars, Galaxies, and Cosmology

Class: M & W Lewis 101,
Instructor: James Hill jhill6333@gmail.com 662-547-6970 (H)
Office Hours: Kennon 1: MW 2:00-3:45
Lab section and hours TBA
Text: Cosmic Perspective, Bennett et al., 6th Ed

Learning Objectives: To learn how stars, galaxies, and the history of the Universe are currently understood and to find out how astronomers made these discoveries. To do astronomical experiments in the labs.

Assigned chapters to read and study before class. The schedule below is subject to adjustment.

Date	Subject	Chapter(s)
23 Jan	Introduction	Chap 1
28 Jan	Distances, light years, stars, constellations, galaxies	Chap 1 & 2
30 Jan	Star motion: daily/yearly, Angles, Sidereal Time	Chap 2
4 Feb	Longitude/Latitude, Right Ascension/Declination, RA/Dec	Chap S1
6 Feb	Kepler's 3 laws, Newton's Laws, Gravity, orbits	Chap 3 & 4
11 Feb	Matter, Energy, Temperature, Atomic energy levels	Chap 5
13 Feb	Light Wavelengths, Spectral Lines, Doppler Shift	Chap 5
18 Feb	Spectroscopes, Wien's Law, Black Body Radiation	Chap 5
20 Feb	Telescopes: Optical, Radio, X-ray...	Chap 6
25 Feb	FIRST HOUR TEST	Chapters 1-6
27 Feb	Why does the Sun shine? Sunspots, Neutrinos	Chap 14
4 Mar	Stars: Distances Luminosity Magnitudes Temperature Size	Chap 15
6 Mar	HR Diagram. Stellar Masses and Binary Stars.	Chap 15
18 Mar	Gas-> New Stars, Old stars Move off the Main Sequence	Chap 16
20 Mar	Variable Stars, Red Giant and White Dwarf Stars	Chap 17
25 Mar	Supernovae, Neutron Stars, Gravity Waves, and Black Holes	Chap 18
27 Mar	SECOND HOUR TEST	Chapters 14-18
1 Apr	Our Milky Way Galaxy, Globular Star Clusters	Chap 19
3 Apr	100 Billion Galaxies	Chap 20
8 Apr	Finding Distances with Cepheid Variables, Galaxies	Chap 20
10 Apr	Hubble's Law, Redshifts, and Distances	Chap 20
15 Apr	Quasars and Active Galaxies	Chap 21
17 Apr	Dark Matter in Galaxies and Galaxy Clusters	Chap 22
22 Apr	Cosmology, Expanding Universe, Big Bang, 3K Radiation	Chap 23
24 Apr	THIRD HOUR TEST	Chapters 19-23
29 Apr	Early Universe, Inflation, Big Bang, Sub-Atomic Particles	Chap S4
1 May	Search for Extraterrestrial Civilizations	Chap 24
6-10 May	COMPREHENSIVE FINAL EXAMS	
	10 May 4:00 pm class: exam 4:00 pm Friday	Chapters 1-6; 14-24
	6 May 5:00 pm class: exam 7:30 pm Monday	Chapters 1-6; 14-24

Semester Final Grading Algorithm
15% Homework/Quizzes
25% Labs:
12% 1st Test
12% 2nd Test
12% 3rd Test
24% Final Exam

Mid-term grade March 8 (1/3 quizzes, 1/3 labs, 1/3 test 1.)

Attendance at classes is expected. Copies of chapter outlines and homework/quizzes will be handed out at the end of classes. HW/quizzes will be given out at the end of most classes and Scantron answer sheets will be due at the end of the following class. You may only turn in your own Scantrons.

Chapter outlines and answers to previous HW/quizzes and tests will be posted on "Blackboard". Keep and use your corrected back quizzes and tests to use for review and as study guides for the final exam.

Missed HW/quizzes or tests must be made up within one week unless prior permission is obtained. Missed quizzes and tests can be made up during office hours in Kennon.

Labs Start: Jan 28. Maximum 3 labs can be missed and still pass the course
Lab Sections: for questions contact Tibor Torma.
Monday-Thursday 7-8:50 or 9-10:50 at Lewis 1 or Kennon Observatory
For information or to check lab grades: http://www.phy.olemiss.edu/~kakukk/Astro/Lab/Lab.html
Bring a scientific calculator (Texas Instruments TI-30Xa is a good choice) to labs/tests.

Please come to the lab night and time you have signed up for.
Labs are a required part of the course. You must do at least 70% of the labs to pass. Come to labs even if it is raining.

Reasonable accommodations for students with disabilities will be provided.

(stars/galaxy)(galaxies) = stars in the universe $10^{11} \times 10^{11} = 10^{22}$ stars in the observable universe.