Astronomy 104 Spring 2018 Instructor: Dr. Don Summers 915-7032
Lewis 101 TTh 1:00-1:50 Office Hours: Lewis 221 TThF 2-3
Lab Starts Text: Cosmic Perspective, Bennett et al., 8th Ed.
Lab 1: January 31, Wednesday 7- 8:50 Kennon Observatory TA: Dripta Bhattacharjee
2: January 31, Wednesday 9-10:50 Kennon Observatory TA: Dripta Bhattacharjee
3: February 1, Thursday 7- 8:50 Kennon Observatory TA: Dripta Bhattacharjee
4: February 1, Thursday 9-10:50 Kennon Observatory TA: Sumeet Kulkarni
http://www.phy.olemiss.edu/Astro/Lab/Lab.html
104 Lab Manual: Buy at Rebel Graphics, Sam-Gerard Hall

Date	Subject	Chapters to read before class
23 Jan	Introduction	
25 Jan	Distances, light years, stars, constellations, galaxies	Chap 1 & 2
30 Jan	Star motion:daily/yearly Transits Angles Sidereal_Time	Chap 2
1 Feb	Longitude/Latitude, Right Ascension/Declination, RA/Dec	Chap S1
6 Feb	Kepler's 3 laws, Newton's Laws, Gravity, orbits	Chap 3 & 4
8 Feb	Matter, Energy, Temperature, Atomic energy levels	Chap 5
13 Feb	Light, Wavelengths, Spectral Lines, Doppler Shift	Chap 5
15 Feb	Spectroscopes, Wien's Law, Black Body Radiation	Chap 5
20 Feb	Telescopes: Optical, Radio, X-ray...	Chap 6
22 Feb	FIRST HOUR EXAM	
27 Feb	Why does the sun shine?, Sunspots, Neutrinos	Chap 14
1 Mar	Stars: Distances Luminosity Magnitudes Temperature Size	Chap 15
6 Mar	HR Diagram. Stellar Masses and Binary Stars.	Chap 15
8 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
22 Mar	Supernovae, Neutron Stars, Gravity Waves, and Black Holes	Chap 18
27 Mar	Crab Nebula	Chap 18
29 Mar	SECOND HOUR EXAM	
3 Apr	Our Milky Way Galaxy, Globular Star Clusters	Chap 19
5 Apr	100 Billion Galaxies	Chap 20
10 Apr	Finding Distances with Cepheid Variables, Galaxies	Chap 20
12 Apr	Hubble's Law, Redshifts, and Distances	Chap 20
17 Apr	Quasars and Active Galaxies	Chap 21
19 Apr	Cosmology, Expanding Universe, Big Bang, 3K Radiation	Chap 22
24 Apr	Early Universe, Inflation, Big Bang, Sub-Atomic Particles	Chap 22
26 Apr	THIRD HOUR EXAM	
1 May	Dark Matter in Galaxies and Galaxy Clusters	Chap 23
3 May	Life in the Universe	Chap 24
10 May	COMPREHENSIVE FINAL EXAM, 12:00 noon, Thursday, not earlier!	

Grading Scheme			
	1st Exam	12%	Save all exams to study for the final.
	2nd Exam	12%	
	3rd Exam	12%	
	FINAL EXAM	20%	Bring a picture ID to tests.
	Pop Quizzes	15%	Save all quizzes.
	Lab	25%	
	Attendance	4%	Scan your ID card at the start of each class

Bring a scientific calculator (e.g. Texas Instruments TI-30Xa) 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. Grading is +/-.

$$10^{11} \times 10^{11} = 10^{22}$$

stars/galaxy x galaxies = stars in the universe

Reasonable accommodations for students with disabilities will be provided.
Learning Objectives: To learn how stars, galaxies, and other wonders of the Universe work and to find out how astronomers made these discoveries and to do some of the actual experiments.