

Astronomy 104 Fall 2014 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., 7th Ed.
 Lab 1: September 3, Wednesday 7- 8:50 Lewis Hall 1 TA: Matthew Possehl
 Lab 2: September 3, Wednesday 9-10:50 Lewis Hall 1 TA: Matthew Possehl
 Lab 3: September 4, Thursday 7- 8:50 Lewis Hall 1 TA: Matthew Possehl
 Lab 4: August 26, Tuesday 9-10:50 Lewis Hall 1 TA: Tiffany Claire
<http://www.phy.olemiss.edu/~ttorma/Astro/Lab/Lab.html>
 ASTR 104 Lab Manual: Buy at Rebel Graphics, Sam-Gerard Hall Chapters
 Date Subject to read before class

| | | |
|--------|--|------------|
| 26 Aug | Introduction | |
| 28 Aug | Distances, light years, stars, constellations, galaxies | Chap 1 & 2 |
| 2 Sep | Star motion:daily/yearly Transits Angles Sidereal Time | Chap 2 |
| 4 Sep | Longitude/Latitude, Right Ascension/Declination, RA/Dec | Chap S1 |
| 9 Sep | Kepler's 3 laws, Newton's Laws, Gravity, orbits | Chap 3 & 4 |
| 11 Sep | Matter, Energy, Temperature, Atomic energy levels | Chap 5 |
| 16 Sep | Light, Wavelengths, Spectral Lines, Doppler Shift | Chap 5 |
| 18 Sep | Spectroscopes, Wien's Law, Black Body Radiation | Chap 5 |
| 23 Sep | Telescopes: Optical, Radio, X-ray... | Chap 6 |
| 25 Sep | FIRST HOUR EXAM | |
| 30 Sep | Why does the sun shine?, Sunspots, Neutrinos | Chap 14 |
| 2 Oct | Stars: Distances Luminosity Magnitudes Temperature Size | Chap 15 |
| 7 Oct | HR Diagram. Stellar Masses and Binary Stars. | Chap 15 |
| 9 Oct | Gas --> New Stars, Old stars Move off the Main Sequence | Chap 16 |
| 14 Oct | Variable Stars, Red Giant and White Dwarf Stars | Chap 17 |
| 16 Oct | Supernovae, Neutron Stars, Gravity Waves, and Black Holes | Chap 18 |
| 21 Oct | Crab Nebula | Chap 18 |
| 23 Oct | SECOND HOUR EXAM | |
| 28 Oct | Our Milky Way Galaxy, Globular Star Clusters | Chap 19 |
| 30 Oct | 100 Billion Galaxies | Chap 20 |
| 4 Nov | Finding Distances with Cepheid Variables, Galaxies | Chap 20 |
| 6 Nov | Hubble's Law, Redshifts, and Distances | Chap 20 |
| 11 Nov | Quasars and Active Galaxies | Chap 21 |
| 13 Nov | Cosmology, Expanding Universe, Big Bang, 3K Radiation | Chap 22 |
| 18 Nov | Early Universe, Inflation, Big Bang, Sub-Atomic Particles | Chap 22 |
| 20 Nov | THIRD HOUR EXAM | |
| 2 Dec | Dark Matter in Galaxies and Galaxy Clusters | Chap 23 |
| 4 Dec | Search for Extraterrestrial Civilizations | Chap 24 |
| 11 Dec | COMPREHENSIVE FINAL EXAM, 12:00 noon, Thursday, not earlier! | |

| | | Sections: 1-3 | Section:4 |
|---------|-------------|---------------|----------------------------------|
| Grading | 1st Exam | 12% | 7% Save all exams. |
| Scheme | 2nd Exam | 12% | 7% |
| | 3rd Exam | 12% | 7% |
| | FINAL EXAM | 24% | 14% Bring a picture ID to tests. |
| | Pop Quizzes | 15% | 15% Save all quizzes. |
| | Lab | 25% | 35% |
| | Project | -- | 20% |

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.

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

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.