

Astronomy S-120 Galaxies and the Universe  
2:00-3:45 MTWTh

Instructor: Robert Zinn  
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Classroom: to be determined

Textbook: Universe: Stars and Galaxies 5<sup>th</sup> E. **OR** Universe 10<sup>th</sup> Edition  
Roger A. Freedman Roger A. Freedman  
Robert Geller Robert M. Geller  
William J. Kaufmann III William J. Kaufmann III  
Publisher: W. H. Freeman Publisher: W. H. Freeman

Outline

Week 1: The motions of the planets  
Kepler's Laws, Newton's laws and theory of gravitation  
The Nature of Light and Matter  
Optics & Telescopes

Reading: Chapters 1, 4, 5, & 6

Week 2: Our Star, the Sun  
The Nature of Stars  
The Birth of Stars  
Stellar Evolution  
The Death of Stars  
Neutron Stars

Reading: Chapters 16, 17, 18, 19, 20, 21

Week 3: Black Holes  
Our Galaxy  
Galaxies

Reading: Chapters 22, 23, & 24

Mid-term Exam: Thursday, July 20

Week 4: Quasars, Blazars, & Active Galaxies  
Cosmology

Reading: Chapters 25 & 26

Week 5:       Cosmology Continued  
              Exploring the Early Universe

Reading:       Chapters 26 & 27

Final Exam:   Thursday, Aug. 3   Every student is expected to take the Final on this date

Grading:       33% Mid-term  
                  33% Final  
                  34% Homework

There will be approximately 8 homework assignments. One evening, the class will meet at the on-campus Observatory and Planetarium. It will view a planetarium show and view celestial objects through telescopes.

#### Homework Policy

1. To receive any credit for a homework problem, you must show how you arrived at your answer (the answers to some problems are given at the back of the textbook).
2. You may ask other students for help with the homework, but the work you hand in must be your own. (NO copying).
3. Late homework will be marked down 10 points for each class period that it is late. Homework later than two class periods will not be graded, and a zero will be recorded.
4. Homework will not be marked down if you are ill or have an emergency. Please notify me as soon as possible.