

ASTR/PHYS 1060 Midterm 2 Study Guide

Stars

- What does the spectrum of a star look like?
- How do we identify the elements that make up a star?
- What determines how luminous a star is? How is luminosity related to color and size?
- What is parallax and how does it work?
- What is the H-R diagram?
 - Where do stars sit on the diagram during different phases of their life?
 - What fundamental property determines a star's position on the diagram and how it evolves?
- Why do stars shine?
- How long do different types of stars live?
 - What fundamental property determines their lifetimes on the main sequence?
 - What forces balance each other to keep stars stable on the main sequence? What generates those forces?

Low Mass Stars

- How is fuel burned in a star?
- What are the phases in the life of a low mass star? What process defines each stage?
- What elements are made over the course of their lives, and how do those elements get returned to gas in interstellar space?
- What is a white dwarf?
 - Why doesn't it collapse into a black hole?
 - What is the Chandrasekhar mass?
- In close binary stars, what is the Roche lobe?
- What happens when a star fills its Roche lobe if its companion star is a white dwarf?

High Mass stars and their Remnants

- What are the phases in the life of a high mass star? What process defines each stage?
- What elements are made over the course of their lives, and how do those elements get returned to gas in interstellar space?
- What is a neutron star? Why doesn't it collapse into a black hole?
- What is a pulsar? Why does it have a high rotation speed?
- What is a black hole? How massive can they get?
 - What is the event horizon?

- What is Hawking radiation?
- How do we observe black holes in the universe?

Measuring Galaxies

- What is the distance ladder? What are different methods for estimating distances in astronomy, and roughly over what distances do they work?
- What main types of galaxies are there? How are they different?
- What is Hubble's law, and what is it a measurement of?