

**ASTR 1200-001 Gen. Astronomy: Stars & Gals Spring 2018. Project 2.
Fri Feb 16.**

Scribe's name:

Names of other members of the group:

Stars

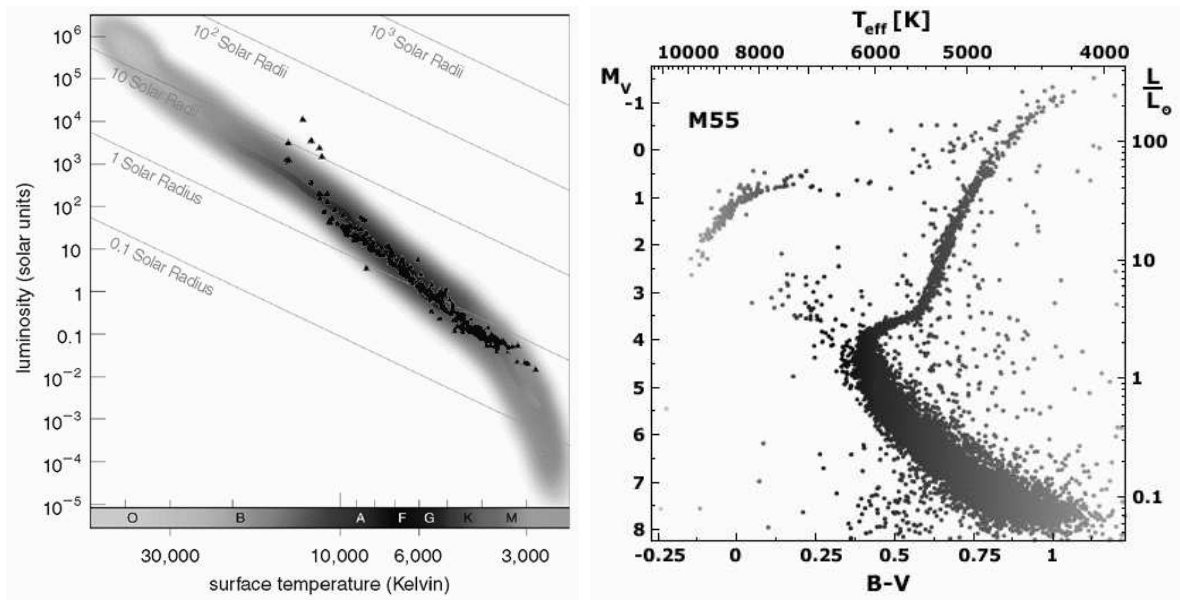
1. We normally think of red as hot and blue as cold, yet in this class you have learned that blue stars are hotter and red stars are cooler. Explain this apparent contradiction.

2. (a) Why is the name "main sequence" given to main sequence stars?

- (b) Why is the name "red giant" given to red giant stars?

- (c) Why is the name "white dwarf" given to white dwarf stars?

3. How do we know that the Sun is a main sequence star?
4. What property of a star is the most important in determining its fate? What principal effect does this property have on the internal structure of a star, that results in different fates?
5. If you wanted to plot the HR diagram of a star cluster, what measurements or observations of the cluster would you need to make? Explain.



6. Above are HR diagrams of two clusters of stars, an open cluster (Messier 45, the Pleiades), and a globular cluster (Messier 55). What property of the clusters causes the two HR diagrams to differ? Explain how this property causes the effect.

7. You observe a main sequence star, a red giant star, and a white dwarf star in a star cluster. Which star was originally the most massive, and which the least massive, when the star cluster first formed? Explain.

8. Study the spectral types listed in Appendix F of Cosmic Perspective for the 20 brightest stars, and for the stars within 12 lightyears. Why do you think the lists are so different? Explain.

9. When a gravitating system loses energy, it contracts, and increases its temperature. Explain how this effect comes into play when a main sequence star runs out of Hydrogen at its core.