

## Homework 2

Due Monday, January 26

Moore: Ch 2 # 1, 3, 5, 6, 9, 23, 30, 35, 37, 40, 42

SPSS Project: Brightest Stars

This problem uses the file `stars.sav` which contains data on the 300 brightest stars visible from the Earth.

(Source: [www.atlasoftheuniverse.com](http://www.atlasoftheuniverse.com)). Key:

BAYER\_NAME: The “Bayer” name of the star.

SPECTRAL\_TYPE: The spectral type of the star, which indicates both its temperature and color. From hottest to coolest, the types are:

W,O,B,A,F,G,K,M

VISUAL\_MAG: The brightness of the star as visible in Earth’s sky. Brighter stars have **lower** magnitude.

ABSOLUTE\_MAG: The brightness of the star to an observer near that star. Brighter stars have **lower** magnitude.

DISTANCE: The star’s distance from Earth, in light years.

1. Which star is the closest to Earth? Which star is the brightest as visible in Earth’s sky? Which star is actually the brightest on an absolute scale?
2. Make a histogram of ABSOLUTE\_MAG, and describe the distribution.
3. In a boxplot of ABSOLUTE\_MAG, SPSS identifies two outliers, one bright and one dim. Which stars are they (give the Bayer names).
4. Make a chart (choose an appropriate kind) that shows the proportion of different SPECTRAL\_TYPES in this sample of stars. Put the types in order. If you’re feeling ambitious, color the types from W, which is bluish, through F which is white, through M which is reddish.
5. Make a boxplot of ABSOLUTE\_MAG split into categories by SPECTRAL\_TYPE. What’s going on with type W? Ignoring type W, what type is the brightest (absolute magnitude)? Explain your choice.