

Python/IDL 3: Plotting Scatterplots and Histograms

For the assignment below you will use the data file you generated from the last programming assignment (Python/IDL 3). You will need to read from that file in order to make the plots below. The Python/IDL manuals will be helpful, especially the parts that discuss plotting and histograms. Note that it is possible to complete this assignment in ipython without writing a complete program, but I suggest you write a program for practice.

Print out a one-page postscript (.ps) or a portable data format (.pdf) file that contains the following four plots:

RA vs Dec scatterplot of bright stars (in decimal degrees)

- Right Ascension should be on the horizontal axis with 0 hours on the right side of the plot
- Declination should be on the vertical axis in degrees
- Label both axis and include the units in parentheses
- Include a title for the plot

A “color magnitude diagram” of the brightest stars (scatterplot)

- B-V color should be on the horizontal axis
- Absolute magnitude should be on the vertical axis (in reverse so that brighter stars will be toward the top of the plot – remember magnitudes are confusing!)
- Label both axis and include the units in parentheses
- Include a title for the plot.

Histogram of Star Distances

- The horizontal axis consists of bins of distances (in light years). Experiment with number of bins to make the plot look nice.
- The vertical axis should be a probability (or fraction). Hint: divide by the total number of stars in your sample.
- Label the axes.
- Include a title for the plot.

Histogram of Absolute Magnitudes

- The horizontal axis consists of bins of absolute magnitude. Experiment with number of bins to make the plot look nice.
- The vertical axis should be a probability (or fraction). Hint: divide by the total number of stars in your sample.
- Label the axes.
- Include a title for the plot.

The plots should be in two columns and two rows. Plot 1 should be in the top left corner, plot 2 in the top right corner, plot 3 in the bottom left corner, and plot 4 in the bottom right corner.

Due: October 22 by 5pm