PHYS 4211 How to Make a Plot

T.E. Coan
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You have all seen plots, graphs with dots on them and sometimes with a curve drawn through the dots. Experience shows though that most students can't seem to make one from scratch, even of the simplest sort. Here is how you do it.

1. Decide what 2 quantities you want to plot. **The independent variable is plotted along the horizontal axis.** Gee, where does the dependent variable go?

2. Pick scale type for both the horizontal and vertical scales. The scale can be linear or logarithmic and you are free to use a separate type for each axis.

3. Label each axis with the quantity being plotted. Use its standard abbreviation.

4. Next to each axis label **indicate the unit of the quantity** that is plotted. Yes, there is a difference between a centimeter and a kilometer and if you are confused about the quantity being plotted you can bet the reader is too. Place the unit in parentheses.

5. The markers indicating the individual data points can be of a wide variety: dots, circles, squares, triangles, etc. Use a size visible to the naked eye.

6. Indicate the error associated with each data point by an "error bar." This is a vertical line of a length equal to the uncertainty in the dependent variable. In some cases, the length will be less than the size of the marker used to indicate the data. Indicate the uncertainty in the independent variable by a horizontal line of length equal to the independent variable's uncertainty and that passes through the center of the data marker.