

## Graphing Pre Lab

Some students collected data to measure the resistance of a piece of metal wire. They used an ammeter to measure the current through the wire, and measured the voltage across the resistor. The ammeter had markings every 0.5 A, so the students took the uncertainty of that to be 0.25 or about 0.3 A, and the voltmeter was a digital one with an accuracy of 0.01 V, which the students determined to be negligible. They put their data into a very nice data table. Isn't it such a nice data table? It is organized, it has units, and uncertainties. Such a nice nice data table.

Graph the data with error bars:

Voltage V / V $\Delta V \approx 0 \text{ V}$	Current I / A $\Delta I = \pm 0.3 \text{ A}$
1.00	0.4
2.00	1.0
3.00	1.3
4.00	2.0
5.00	2.4
6.00	2.8
7.00	3.4

Here's what to do.

1. Find the slope of the best fit line. From the slope calculate the resistance. (Remember – slope is  $1/R$ )
2. Find the maximum and minimum slope possible.
3. Express the resistance as a best guess + or – an uncertainty.

Do this by hand on graph paper.