IGOR Tutorial

IGOR is available on the computers in the lab for use by students. It is much more powerful than Excel. For example, it treats errors properly. It is therefore recommended for analyzing your data. However, at first encounter IGOR can be intimidating.   The online manual is some 1800 pages (!), and it uses rather arcane terminology, like "Waves" for data points.

Here we take you step-by-step through a simple example that will show you much of what you need to know. [This is generated on a Macintosh version of IGOR; the Windows version may be slightly different.]

First, open IGOR (which might be an icon on the desktop). You will see the beginnings of a spreadsheet that you can use to enter your data, similar to the top pane in the figure below.
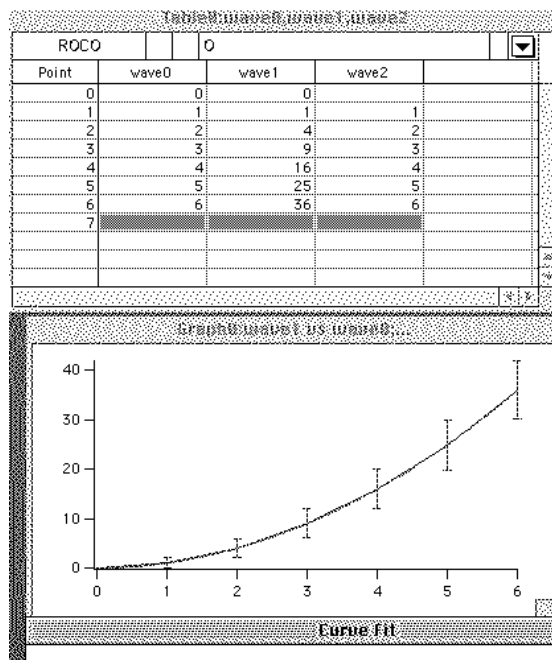
You can use the arrow keys to fill in your data. Here we've filled in our x-values in wave0, our y-values in wave1, and our y-uncertainties in wave2.

To graph the data, select New Graph under the Windows menu. Choose Columns for y, x data, *e.g.*, wave1 and wave0. Then hit Do It, and you should see a graph like the middle pane without the error bars.

To add the error bars, under the Graph menu, choose Modify Trace Appearance*. Click on Error Bars.   Choose +/– Wave under Y Error Bars. Then choose y+ and y– to be Wave 2. This will give you error bars corresponding to the entries in wave2. Click on OK and then Do It.

To fit a curve to your data, go to the Analysis menu and choose Curve Fitting. Under Function and Data, choose Power with 2 terms (for example) to get a power law. Choose wave1 for y-data, then Do It. This will get you the fitted curve on the graph. The chisquare, the coefficients and their errors will be given in the Command box

Now you can try editing your data and prettying up your graph using the various menus (often tucked away in odd places). It's also a good idea to try various fitting functions and defining your own fitting function. For more extensive data sets, you can paste the data from a text file or "Load Waves" from the Data menu. As always, you should save your "Experiment" occasionally with a name and place you can recognize later.   It's a good idea to copy the data to a memory stick so you can always find it. You can print a Table or Graph by clicking on it and choosing Print from the File menu. Once you get a configuration you like, you can use it as a template for future analyses. You can download a copy of IGOR for your own computer from their web site, http://www.wavemetrics.com, but unless you have a serial number, it will be a demo and you can't save your files.

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* If you choose Markers under Mode, you'll get little crosses instead of a continuous line.