

Graphing with Logger Pro 3.12 (Mac version)

0. GETTING STARTED

Open the *Logger Pro* program (if you have a version older or newer than 3.12, things may differ slightly in their appearance).

1. LABEL AXES OF THE GRAPH

Click on the *Data Table Window*

Double Click on the gray shaded area labeled x. A dialogue box called "Column Definitions" should appear. Make the appropriate modifications to "Name", "Short Name", and "Units". Exit the box by clicking <Done>. (Short name is the symbol for the name. For example, if the name is length, the short name or symbol is L) Repeat the above steps for the "y" column.

2. ENTER DATA

Click on the *Data Table Window*. Within the data table window, click on the space beneath the column labels you just changed. Experiment: how do the "tab", "enter", and "arrow" buttons move the cursor through this window? Input the appropriate data.

3. TITLING YOUR GRAPH and DISABLING "Connect Points" FEATURE

Double click on the *Graph Window*.

On the menu that opens up, make sure <Graph Options> is open.

In the dialogue box that appears, remove the "check" in the box next to "Connect Points" if it's there.

Check the "Point Protectors" box so that you can clearly see the points. Click on <OK>.

NOTE: Logger Pro. 3.10 and above will use the term 'error bars' instead of "Point Protectors"

You may also title your graph by placing the name in the "Title" box.

4. MODIFY SCALING ON GRAPH.

Click on the *Graph Window*.

Within the graph window, click on the label for the horizontal axis ("x", or other if you have changed it). Select "More".

A dialogue box appears: Experiment w/ settings in the dialogue box SO THAT

(i) left [or bottom] coordinate is zero, and

(ii) right [or top] coordinate is larger than the greatest data value for that axis.

Often choosing "Autoscale from 0" under the *Analyze* menu will achieve the same result for you.

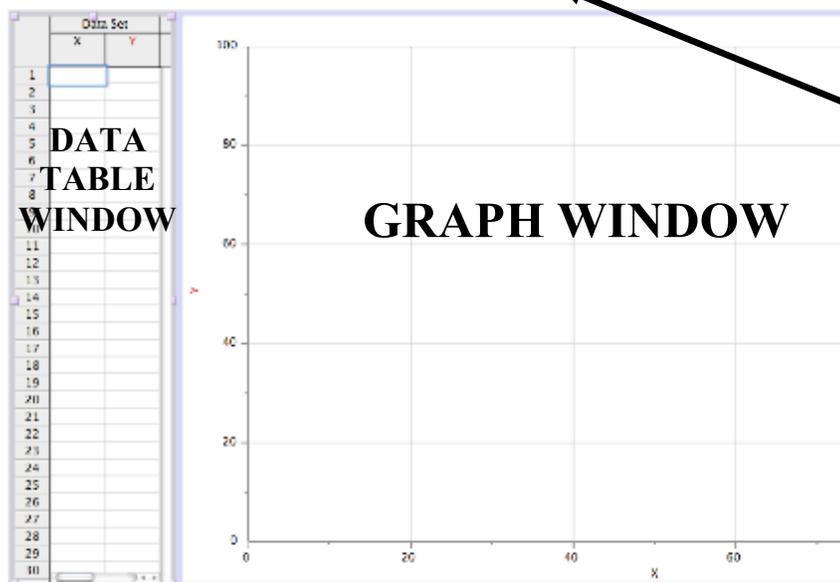
The "autoscale" button on the main menu is useful, but many times it will not autoscale from zero.

Repeat the above steps for the vertical axis ("y" or other if you have changed it)...

The scale of the graph can also be changed by clicking and dragging directly on the axis.



File Edit Experiment Data Analyze Insert Options Page Help



(Main Toolbar)

5. LINE OF BEST FIT:

Click on the *Graph Window*.

Inside the graph window, use the "click and drag" technique: use the mouse to highlight the data points you wish to be included in the line.

(If you don't select any points, it will use all of the points.)

Just below the main toolbar, click on the button third from the right that looks like:



Look at the Graph Window: There should be a "floating box" w/ an equation for the slope-intercept form of a line, numerical value of the slope, numerical value of vertical intercept, and correlation coefficient.

Click & drag the "floating box" to a location that does not cover the plotted points.

6. IF THE STRAIGHT LINE ISN'T A GOOD FIT . . .

You may need to modify the data to linearize the graph. Refer to your "Graphical Methods-Summary" handout to help you with this step. Find the curve that best matches your data on the handout. Make the appropriate modification as directed in the third column.

On the main toolbar, click on *<Data>*, and then *<New Calculated Column>*.

In the dialogue box that appears, enter the name, short name and units of the new column.

(Hint: To represent a squared variable, such as x^2 , click the arrow to the right and choose superscript, then 2.

In the equation field, you must type the equation needed to modify the variable.

For example, if you want to add 3 to all the x values:

- i. Choose the x column in the *<Variables (Columns)>* drop down menu.
- ii. Finish the equation by typing + 3 in the equation field.
- iii. Click *<Done>* and the calculated column will appear in the data table.
- iv. To square the data for a variable in equations, you need to use x^2

To graph the new calculated column, click on the axis label where you would like to graph it and choose the new calculated variable from the drop down menu.

Repeat step 5 to add the line of best fit.

NOTE: You may be tempted to use the "Curve Fit" button which looks like:

Please **do not** use this for now.

We'll discuss in class when it may or may not be appropriate to use this.



7. SAVE YOUR FILE

On the main toolbar, click on *<File>*, and chose *<Save As>* from the menu.

Choose a descriptive name and save the file to the desktop or flash drive.

The file can be modified or printed later if needed.

8. PRINT YOUR GRAPH

On the main toolbar, click on *<File>*, and explore the different printing options.

<Print> prints everything on the screen.

<Print Graph> prints just the graph.

In the Printing Options dialog box you may type your name and add information such as the date to the footer. Typing your name is a good way to avoid picking up the wrong graph from the printer.

NOTE: Icons and menus on other versions of LoggerPro or on the PC version may appear slightly different

Logger Pro is a very powerful program, which is why you are being trained how to use it. However, it doesn't work on Chromebooks or iPads. Therefore, please try out Graphical Analysis 4.0 there! Unfortunately, your Chromebooks and iPads can't print out a hard copy. However, you could take a screenshot from Graphical Analysis and/or save the graph as a picture. That's you call if you need to make a graph at home!