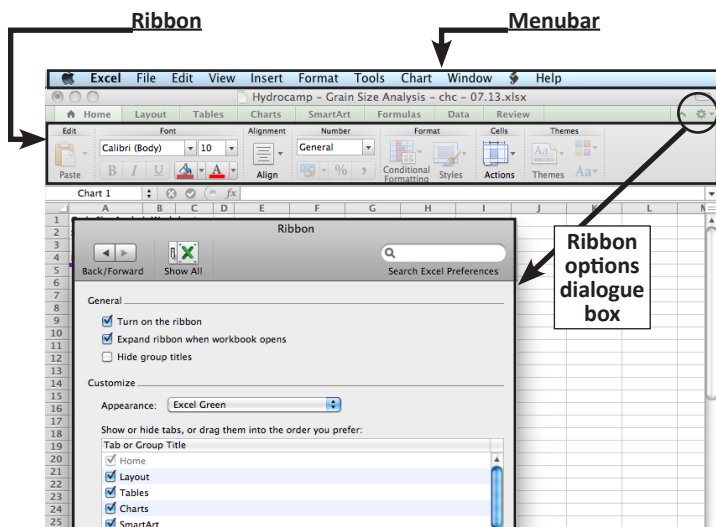


X-Y Scatter graphs (Excel)

The X-Y scatter plot allows us to view and compare the trends of two different data series relative to some other variable they have in common.

The spreadsheet below contains data of four series, relative to the common variable 'mesh size.' On the default X-Y Scatter graph generated from this data, the common variable (the first column, mesh size) plots on the horizontal or x-axis, while four data series (beta, gamma, alpha and an unnamed series) are plotted on the vertical or y-axis. Changing the default graph to a well-labeled, clear X-Y Scatter of only the Beta and Gamma series can be accomplished through a variety of steps described in this module.

Basic program interface



When Excel is the active program, the menubar across the top of the monitor presents a variety of dropdown options and serves as a portal to the program. Additionally, open files have a set of tabs across the top of the file window, and each tab opens a ribbon of options through which to interact with the program. In many cases, actions can be initiated through either the menubar or the ribbon bar. The menubar, tabs and ribbons are dynamic – changing as appropriate when a file is open and an object or cell is active (selected.) If things aren't working as described, first check that you have selected the item you want to be working on. The look of the interface differs slightly among Excel versions and operating systems. If you find this to be the case, click around within your menubar, tabs and ribbons and you'll find what you need.

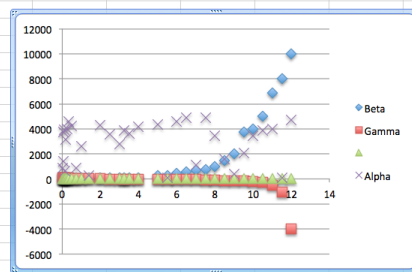
The spreadsheet

Sample	Mesh Size (mm)	Beta	Gamma	Alpha	
5	0	0	100	0	4728
6	0	0	100	0	569
7	0	1	99	0	400
8	0	1	99	0	538
9	0	2	98	0	2348
10	0	5	95	0	4014
11	0	14	86	0	592
12	0	26	74	0	4311
13	1	55	45	1	1422
14	1	93	7	1	751
15	1	98	2	1	3282
16	1	99	1	1	2132
17	2	99	1	2	1281
18	3	100	0	3	1811
19	3	100	-1	3	1155
20	3	100	-2	3	2352
21	4	101	-5	4	296
22	4	101	-10	4	4446
23	5	252	-12	5	3040
24	6	300	-20	6	16
25	6	450	-25	6	609
26	7	570	-34	7	3827
27	7	680	-56	7	3061
28	8	750	-75	8	2472
29	8	1000	-100	8	1994
30	9	1500	-125	9	2904
31	9	2000	-150	9	2674
32	10	3760	-175	10	2020
33	10	4000	-200	10	2842

The way you organize your spreadsheet data can affect the ease of generating and formatting a graph. Though not necessary, X-Y Scatter graphs are most easily generated from data laid out in columns, with your X-axis values in the first column, and labels across the first row.

To generate a default Excel graph, select the spreadsheet data cells as well as the header cells, as shown here in light blue. With these cells highlighted, choose menubar: **INSERT > CHART** and the Chart ribbon will be displayed. Click on the **INSERT CHART** icon, and scroll through the options to find and choose **MARKED SCATTER**.

A default graph will appear. In order for it to clearly reflect the information you want it to, you will need to modify it – maybe add or delete

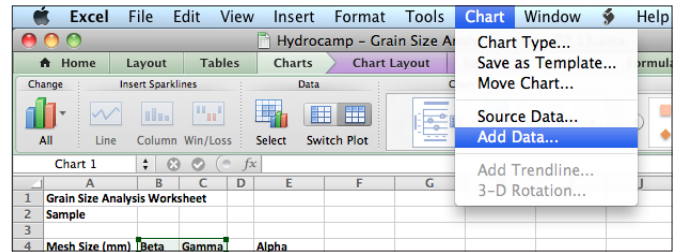
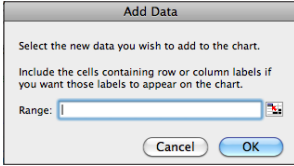


a data series (spreadsheet data column) to/from the graph, add labels to the axes and graph, make changes to the axes values and data point symbols, add lines or error bars, or change the background color. The next page addresses how to do these.

Adding / deleting data from the graph

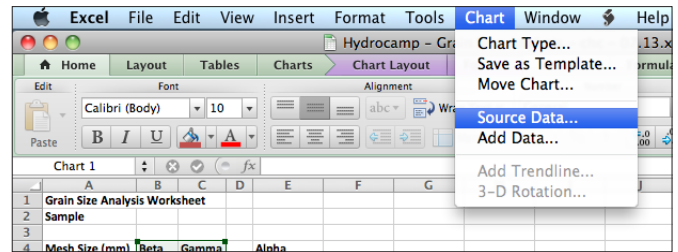
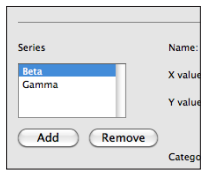
Adding new data

With the graph selected, choose menu bar: **ADD DATA**. In the dialogue box that opens, click the small icon to the right of the **RANGE** field. Go to the spreadsheet and click and drag across the data and header cells you want to add. Go back to the dialogue box and press **RETURN**, then **OK**.



Deleting unwanted data

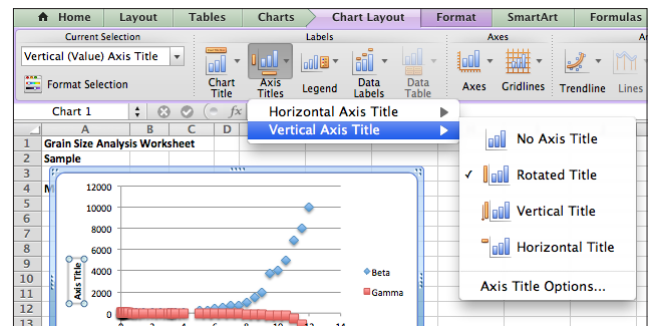
With the graph selected, choose menu bar: **CHART > SOURCE DATA**. In the dialogue box that open, the data series (spreadsheet columns) will be listed. Click on the unwanted series, press **REMOVE**.



Adding features to a graph

Labels, axes and gridlines

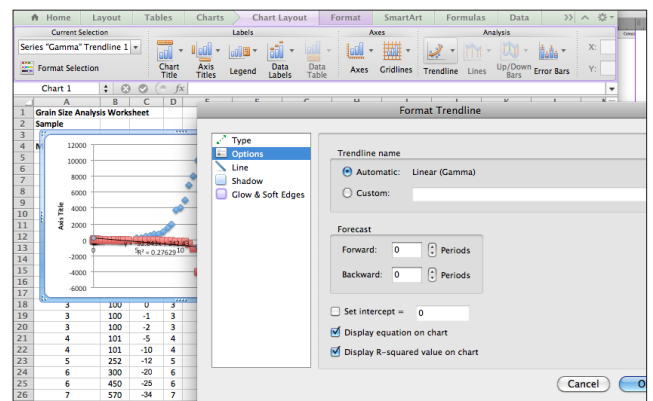
To add or change labels, axes or gridlines, select the whole graph, then choose the tab **CHART LAYOUT**. This example shows how to find the option to add a y-axis label. The new axis label will read 'Axis title.' To change it, click once in the text box and change it.



Trendlines and error bars

To add error bars or trendlines to a series of data points, select them, then choose the tab **CHART LAYOUT**.

Once trendlines or error bars have been added, format them by double-clicking on them and choosing the attribute you want to format. The option to add trendline equations and r^2 values is found in the **OPTIONS** attribute.



Modifying graphs

To reformat or change how a graph looks, double-click on the feature of the graph that you want to make changes to. A dialogue box specific to that feature will open, showing a list of attributes that can be changed. Choose the attribute, and apply changes as desired in the dialogue box fields.

Text boxes can be moved by selecting with the 4-way cursor and moving the box.

