Excel Workshop

CHEM 2001, FALL 2014

Make some calculations

- Always begin a function with '='
- Multiply X and Y
- Multiply X by 50 (2 methods)
  - Absolute vs. Relative referencing
- Calculate the average of X
- Find functions in Excel

Insert a Scatter Plot

Scatter plots are useful for looking at the relationship between two variables.

a. Select the data.
b. 'Insert' tab, 'Scatter' drop-down box, select the 1st (a bunch of dots).
c. Name the data series by right clicking on the chart and choosing 'Select data...', then click on the 'Edit' button and type the name in the 'Series Name' text box.

Format the chart.

Formatting the chart makes the information clear.

1. Change the chart title and add axis titles.
2. Format the horizontal and vertical axes.
3. Add gridlines by right clicking on the axis and selecting ‘Add minor (or major) gridlines’
4. Change chart size.
5. Format the legend and plot area.
6. Format the data series.

Trendlines

Linear trendlines are useful for showing linear relationships between variables.

a. Select the scatter plot.
b. Insert the trendline by going to the 'Layout' tab in Chart Tools, 'Trendline', 'Linear'.
c. Format the trendline by right clicking on it and selecting 'Format Trendline'.
d. Add the equation of the line and R-squared.

Add a partial dataset

Sometimes you will want to look at part of a dataset in your graph. This also shows you how to add more data to your graph.

a. Right click anywhere on the chart and choose 'Select data...'.
b. Click Add. Type the series name or select a cell with the series name.
c. Select the series data. Click OK and OK again to close out of the Select Data dialogue box.

One more function: Linest

Linest is used to estimate the parameters of a line of best fit (the trendline!). It also gives us the standard errors for the parameters of the line (which the graph does not).

Linest is an array function so it acts a bit differently than the other functions we covered earlier. The next few slides unpack it in detail.

Linest: Getting the Function Right

- Select 4 cells in a 2 x 2 formation
- Start the function with '='
- Type Linest and follow the prompts in Excel:
  - Select your known y's
  - Select your known x's
  - For [const] type 1 (because you do NOT want to force the intercept to be 0)
  - For [stats] also type 1 (because you want the additional statistics)
- Press Ctrl + Shift + Enter; NOT just Enter!!!

Linest: Understanding the Output

After pressing Ctrl + Shift + Enter all 4 cells should have numbers in them. You will see the slope and intercept of the line and the corresponding standard errors below them.

	Linest Function	
	Slope	Intercept
	-0.5616415	0.80046869
Standard Errors	0.09166623	0.05376028

The Full Linest

- Instead of selecting 4 cells in a 2 x 2 formation, select 10 cells in a 5 x 2 formation (5 rows, 2 columns)
- Follow the previous instructions for inserting the function.
- The additional output is labeled here.

11	slope	2.628571	-3.32857	intercept
12	error	0.084997	0.409106	error
13	R-squared	0.995835	0.355568	standard deviation of y
14	F-statistic	956.3842	4	degrees of freedom
15	regression sum of squares	120.9143	0.505714	residual sum of squares

Copying & Pasting into Word

- Copying and pasting your charts into a Word document.

- Select the chart. Copy (CTRL C) & paste (CTRL V) it. Double check the formatting of your chart.

- DID THE FORMATTING CHANGE?
- Paste it as a picture in word. Right click on the Word document and under 'Paste Options' select 'Picture'.