Making a Graph in Excel

Enter data into excel. It is best to have the variable names at the top, and the values in columns underneath.

When you have the data in Excel insert a chart (scatter plot)
1. From the “Insert” menu, click on “Chart”
2. Choose a “Scatter Plot” where we have only points (no connecting lines)
3. Highlight and click “Next”

4. Excel tries to anticipate what you would like to graph. Sometimes it is right, and sometimes it is not. If you like the graph that is displayed, go to step 10.
5. Delete elements in the data range by highlighting and clicking the delete key
6. You can choose the data you wish to graph in one of two ways…
   a. With the cursor clicked in the “Data Range” cell, move the mouse to the uppermost left cell in your data range. Left click, and drag the mouse to the right most bottom corner of your data range. (This works well when you do not have multiple columns, and your data is well organized)
b. –or– Click on the “Series” tab at the top of the dialogue box. Click on “Add”. You can name the series if you like by clicking in the “Name” box and typing in the name. Click in the “X Values” box. These are your horizontal values. Click on the top most cell in the column you wish, and drag to highlight all cells. Go to the “Y Values” box and repeat with the vertical values. Repeat this process if you have more than one series.

7. Click on “Next”. Title the chart, and x and y axes if you wish.
8. Click on “Next”. Click on the button “As an object in” if you wish to display the chart right on the page, or “As a new sheet” if you wish to display the chart on a new page

9. Congratulations, you now have your chart!
10. You can format the chart any way you like. Many of the elements of the chart can be formatted by right clicking on that element.
    a. For example, if you right click on the values on the y axis, you can change the range of data, increments, line type, font, etc.
Adding A Linear Approximation

1. Right click on any data point for the series you wish to add a linear approximation
2. Choose “Add Trendline”
3. Click on the box for “Linear”
4. Go to the “Options” tab
5. Check the box “Display equation on chart” so you can see the equation of the line
6. Click on “Display R Squared Value”. This is the RMSR value we studied previously
7. Click “OK”
8. Excel will add the line (solid black) and display the equation somewhere on the screen. You can click on the equation, make it larger/smaller and move it around the chart area
9. Also, if you right click on the equation you can click on “Format Data Labels” and increase the precision under the “Number” tab
10. This method also works for adding other approximations such as: exponential, log, polynomial, etc
Adding Your Own Line, and Using it to Predict Values

1. Now that you have the equation of the line, you may want to graph it as another series, and take the values further out to predict future values.
2. Click on an empty cell on the same row as your first data point.
3. Type “=m \times (x \text{ cell reference}) + b”, where
   a. \( m \) is the slope of the line you found.
   b. \( x \text{ cell reference} \) is the cell location of your corresponding \( x \) value.
   c. \( b \) is the \( y \) intercept of the line you found.
4. Hit “enter”. The value here is now the approximate value for 1896.
5. Copy and paste this value into the cells below using “copy” and “paste”.
6. If you wish to extend the domain further, continue copying for as many extra values as you wish. Don’t forget to enter these values in the domain column.
7. Now if you wish to graph this instead of your trendline:
   a. Delete the trendline (click on it and press the delete key).
   b. Right click on the graph and click “Source Data”.
   c. Go to the “Series” tab.
   d. Click on “Add”.
   e. Go to the “X Values” line, click on it, go over to the \( x \) values you wish to use and highlight them.
   f. Follow the same procedure by entering the “Y Values”.
   g. Click “OK”.
   h. Most of the time it is standard to use a line (instead of data points) for your approximation. Change this by right clicking on any data point, click on “Format data series” and click on “Automatic” under “Line” and “None” under “Marker”.

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