

# Organizing and Plotting Data in Excel

## Open a new Excel sheet

\*\*Anytime you are plotting data, make sure to save your file as an Excel file, NOT a .csv file (a .csv file won't save your plot)

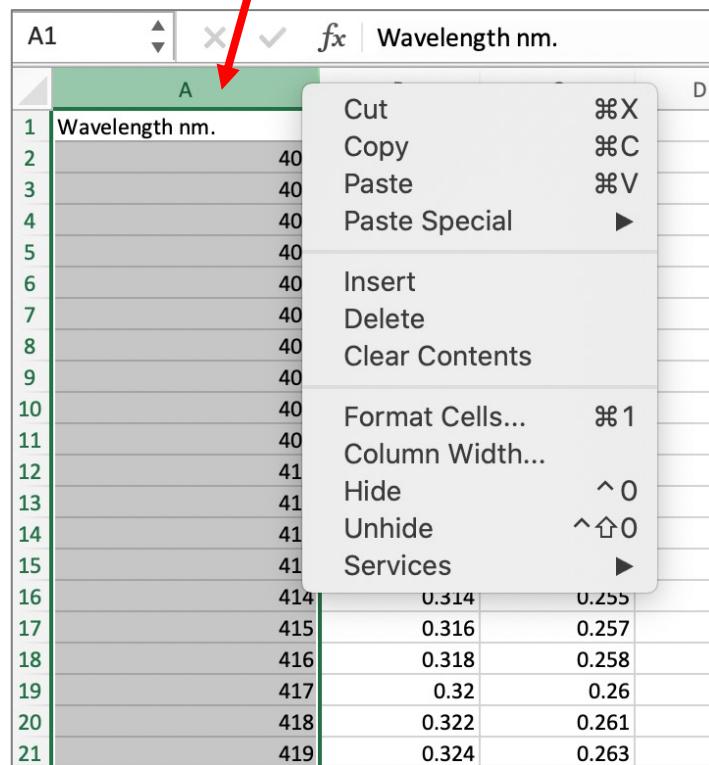
The screenshot shows the Microsoft Excel ribbon interface. The Home tab is selected, indicated by a green bar above the menu. The ribbon includes tabs for Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Acrobat, and Tell me. Below the ribbon is the formula bar with the cell reference A1. The main workspace shows a blank spreadsheet grid from row 1 to 17 and column A to Q. The top toolbar contains various formatting and data manipulation icons, such as Paste, Calibri (Body) font, font size 12, bold, italic, underline, alignment, and number format buttons.

# Copying data

## (1) Copy data from original spreadsheet

If you want to copy an entire column, click the letter label, and the entire column should be highlighted

\*\*You can also do this with multiple columns at once by holding "Shift" while clicking on columns

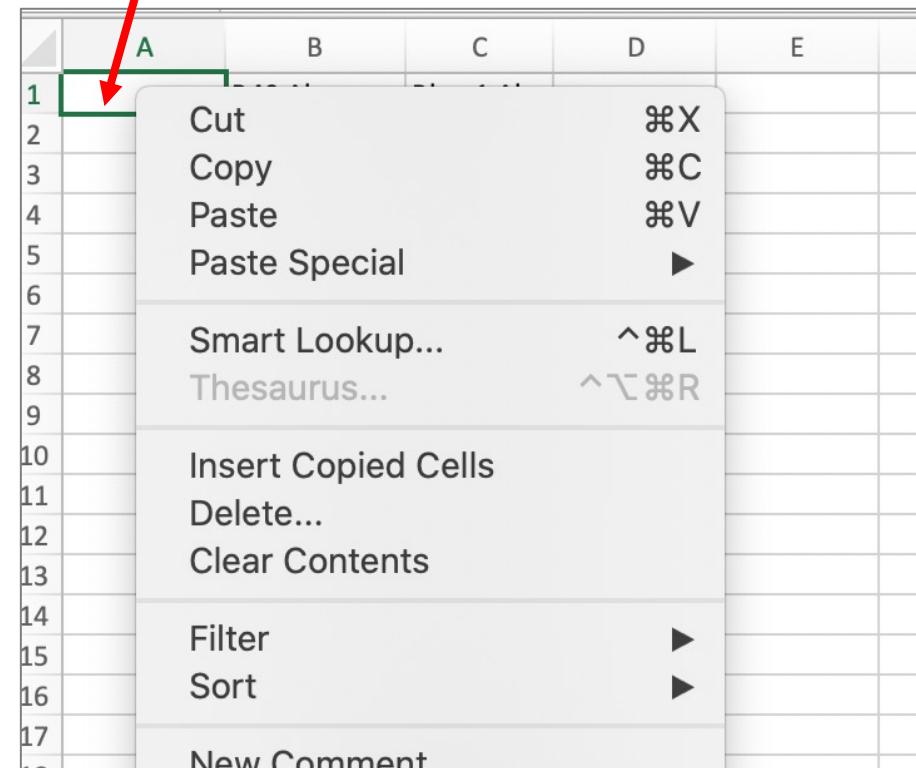


A screenshot of a spreadsheet application showing a context menu for column A. The menu includes options like Cut (⌘X), Copy (⌘C), Paste (⌘V), Paste Special, Insert, Delete, Clear Contents, Format Cells (⌘1), Column Width..., Hide (^0), Unhide (^↑0), and Services. The letter 'A' is highlighted in green above the column header, and a red arrow points to this highlight.

A1			D
1	Wavelength nm.	40	
2		40	
3		40	
4		40	
5		40	
6		40	
7		40	
8		40	
9		40	
10		40	
11		40	
12		41	
13		41	
14		41	
15		41	
16	414	0.314	0.255
17	415	0.316	0.257
18	416	0.318	0.258
19	417	0.32	0.26
20	418	0.322	0.261
21	419	0.324	0.263

## (2) Paste data into your new sheet

Select the top cell of the first column you'd like your data to print to and paste your data



A screenshot of a spreadsheet application showing a context menu for cell A1. The menu includes options like Cut (⌘X), Copy (⌘C), Paste (⌘V), Paste Special, Smart Lookup... (^⌘L), Thesaurus... (^⌥⌘R), Insert Copied Cells, Delete..., Clear Contents, Filter, Sort, and New Comment. The cell A1 is highlighted in green, and a red arrow points to this highlight.

1	A	B	C	D	E
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					

# Copying data

Repeat with remaining data you'd like to plot/organize in this Excel sheet

The screenshot shows a Microsoft Excel spreadsheet titled "Plotting Example". The ribbon menu is visible at the top, with the "Home" tab selected. The data is organized into three columns: "Wavelength (nm)" (Column A), "R40 Abs" (Column B), and "Blue 1 Abs" (Column C). The data starts from Row 1 and continues down to Row 17. A red arrow points from the text "Repeat with remaining data you'd like to plot/organize in this Excel sheet" to the "C" header in the first row.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Wavelength (nm)	R40 Abs	Blue 1 Abs														
2	400	0.288	0.142														
3	401	0.29	0.147														
4	402	0.292	0.151														
5	403	0.294	0.156														
6	404	0.296	0.16														
7	405	0.298	0.163														
8	406	0.3	0.166														
9	407	0.302	0.167														
10	408	0.303	0.168														
11	409	0.305	0.167														
12	410	0.307	0.164														
13	411	0.309	0.161														
14	412	0.311	0.157														
15	413	0.312	0.151														
16	414	0.314	0.145														
17	415	0.316	0.138														

# Plotting in Excel

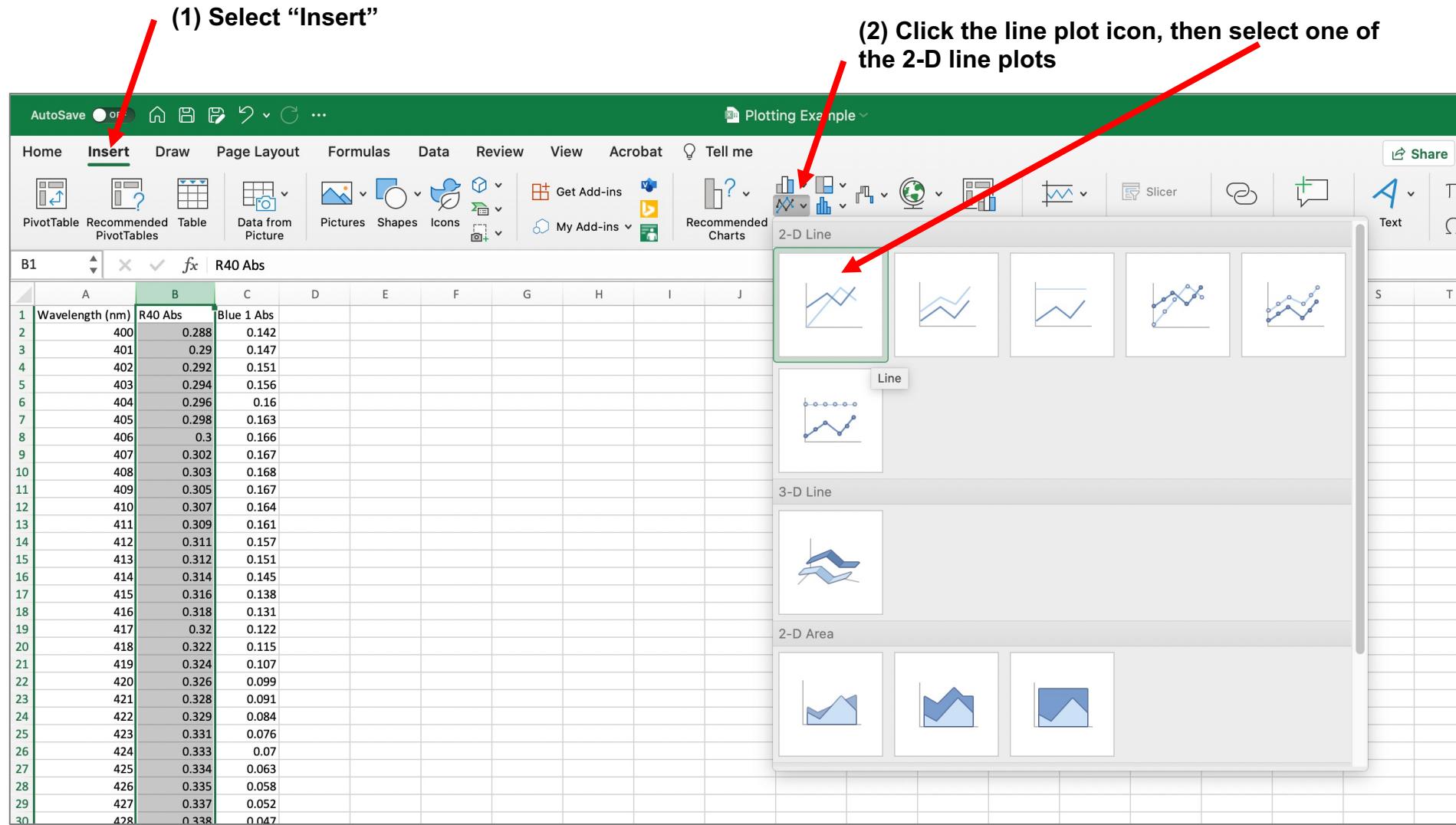
Select one of the columns containing absorbance data by clicking on the letter label of the column like you did before

The screenshot shows a Microsoft Excel interface with the following details:

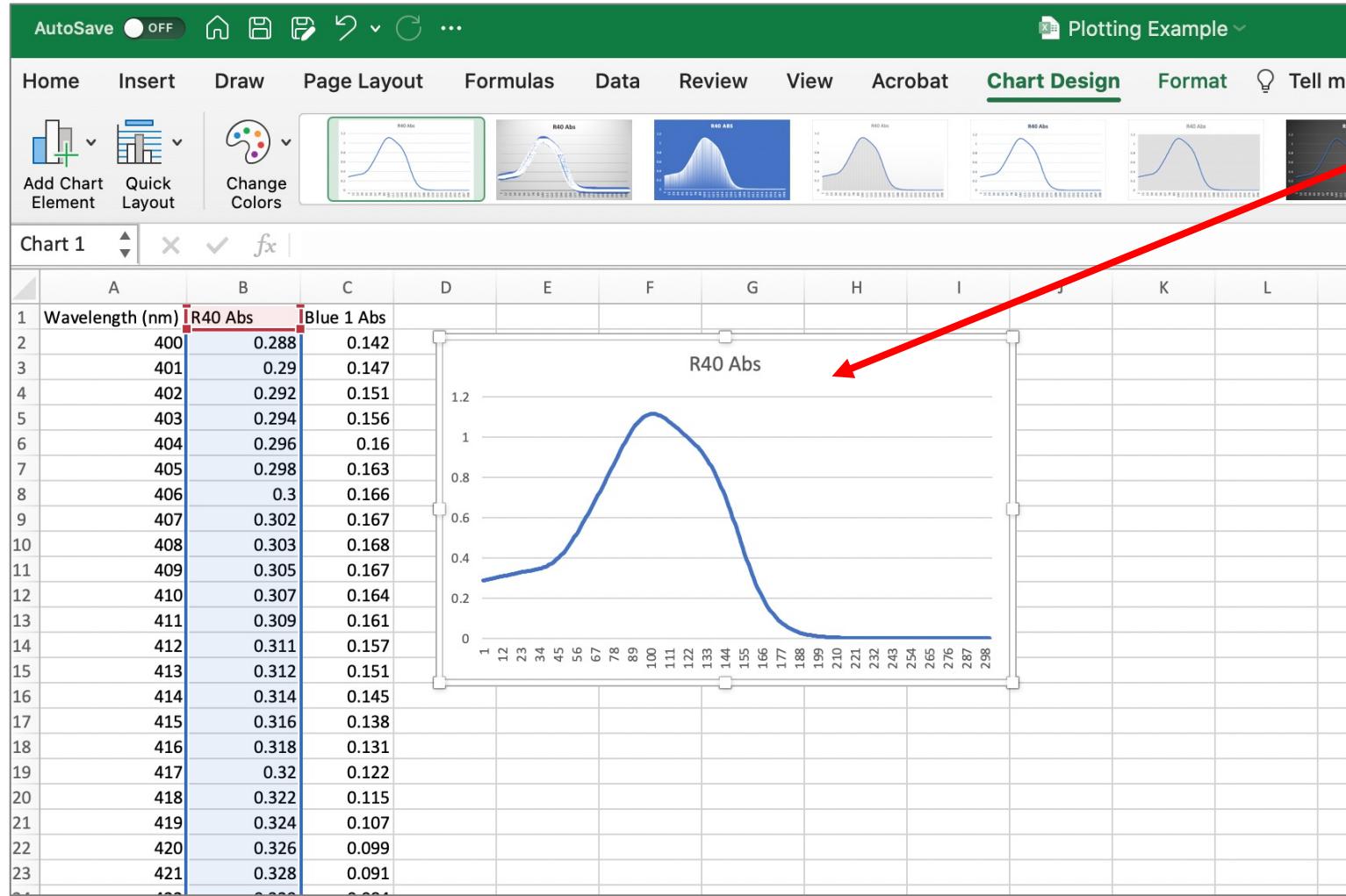
- Top Bar:** Shows 'AutoSave OFF', file icons, and a tab labeled 'Plotting Example'.
- Home Tab:** Selected tab, displaying various font and style tools.
- Formula Bar:** Shows cell reference 'B1' and formula 'R40 Abs'.
- Table Data:** A data table with columns A, B, and C. Column A is labeled 'Wavelength (nm)' and contains values from 400 to 415. Column B is labeled 'R40 Abs' and contains values from 0.288 to 0.316. Column C is labeled 'Blue 1 Abs' and contains values from 0.142 to 0.138.

	A	B	C
1	Wavelength (nm)	R40 Abs	Blue 1 Abs
2	400	0.288	0.142
3	401	0.29	0.147
4	402	0.292	0.151
5	403	0.294	0.156
6	404	0.296	0.16
7	405	0.298	0.163
8	406	0.3	0.166
9	407	0.302	0.167
10	408	0.303	0.168
11	409	0.305	0.167
12	410	0.307	0.164
13	411	0.309	0.161
14	412	0.311	0.157
15	413	0.312	0.151
16	414	0.314	0.145
17	415	0.316	0.138

# Plotting in Excel

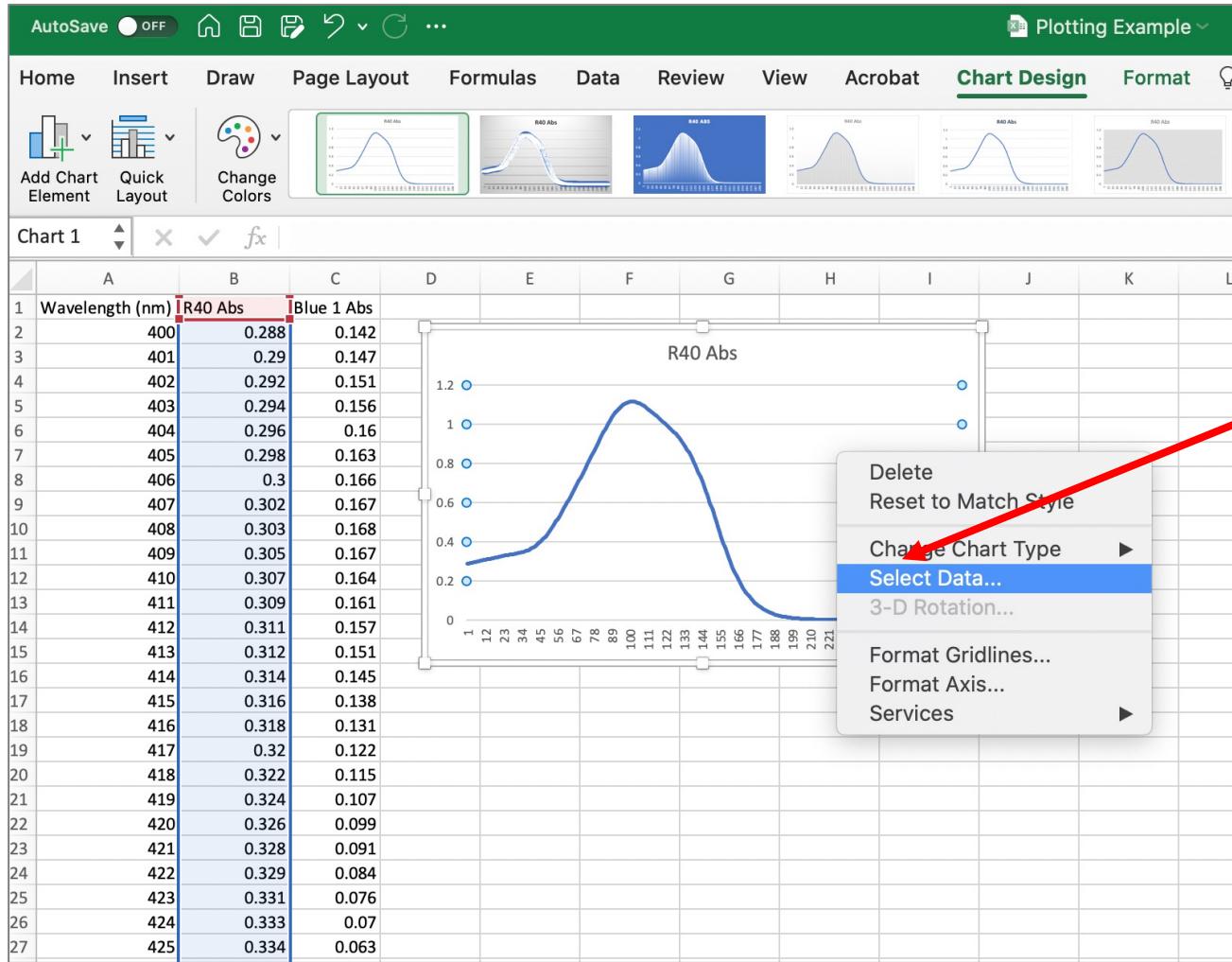


# Plotting in Excel



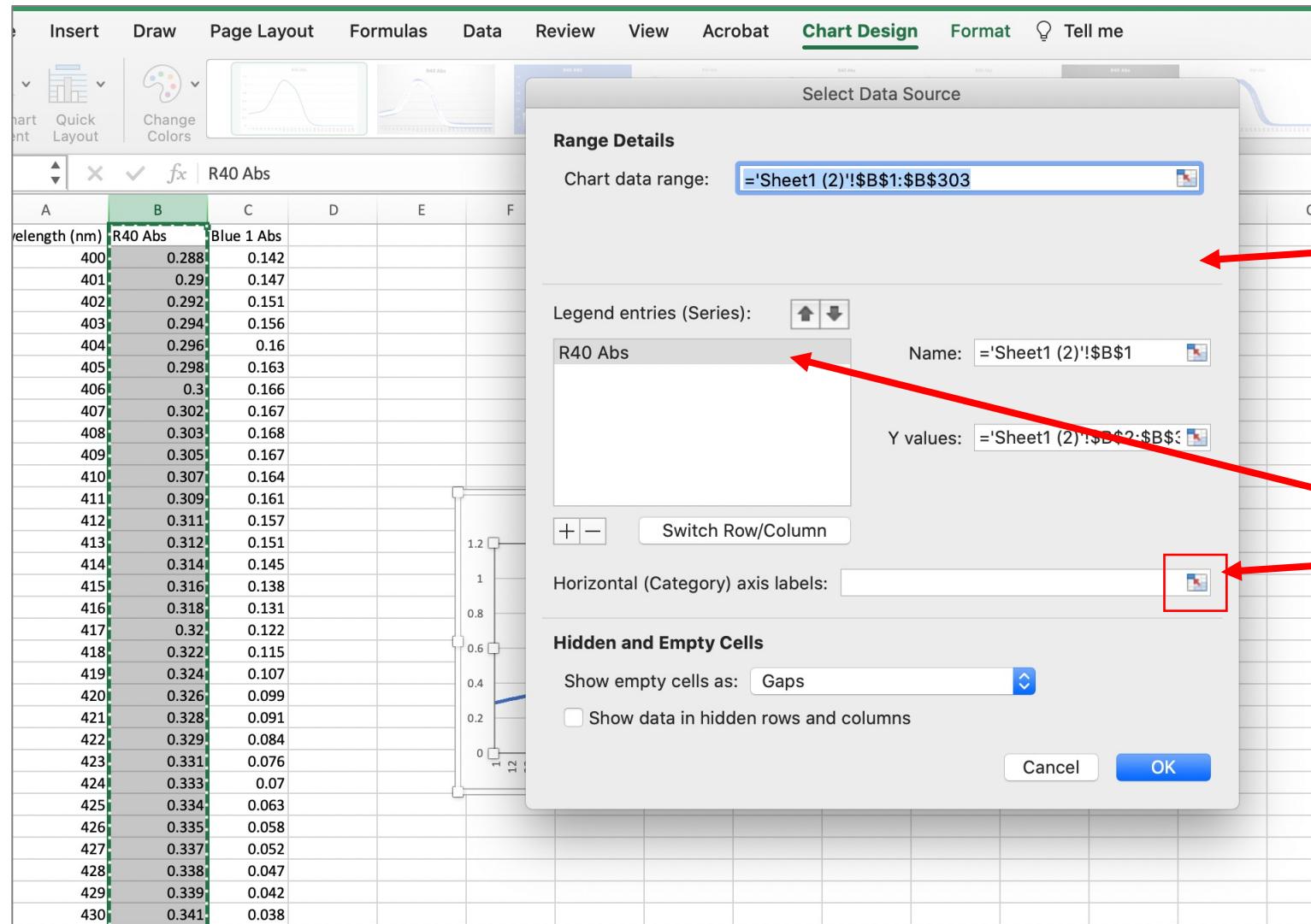
A line plot should appear with the general shape of your first absorbance spectra

# Plotting in Excel



Right click on your plot, then click on "Select Data..." to add additional data to your plot (here, we'll add (1) x-axis values and (2) the Blue 1 spectrum)

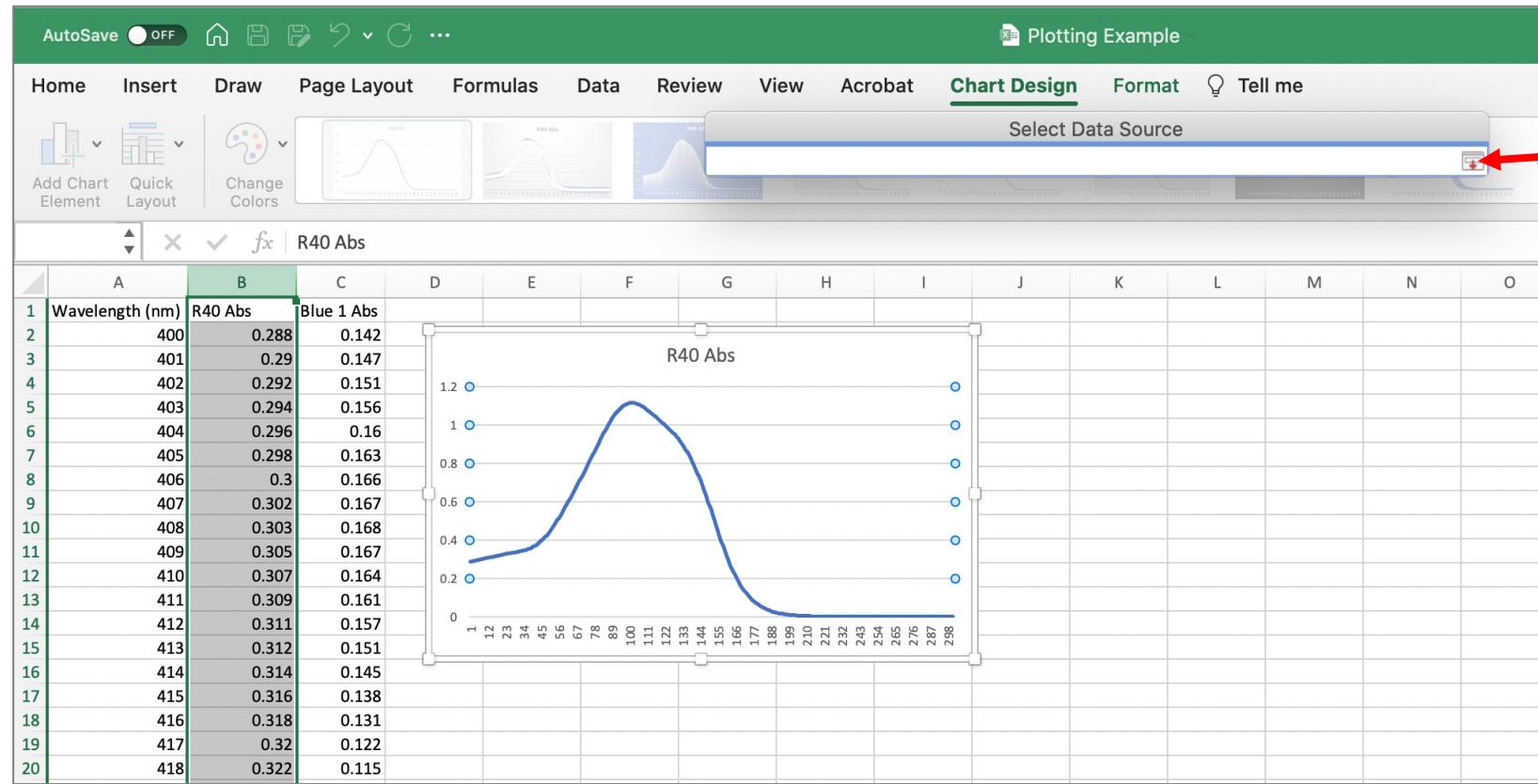
# Plotting in Excel



A menu will appear that allows you to add additional data to your chart

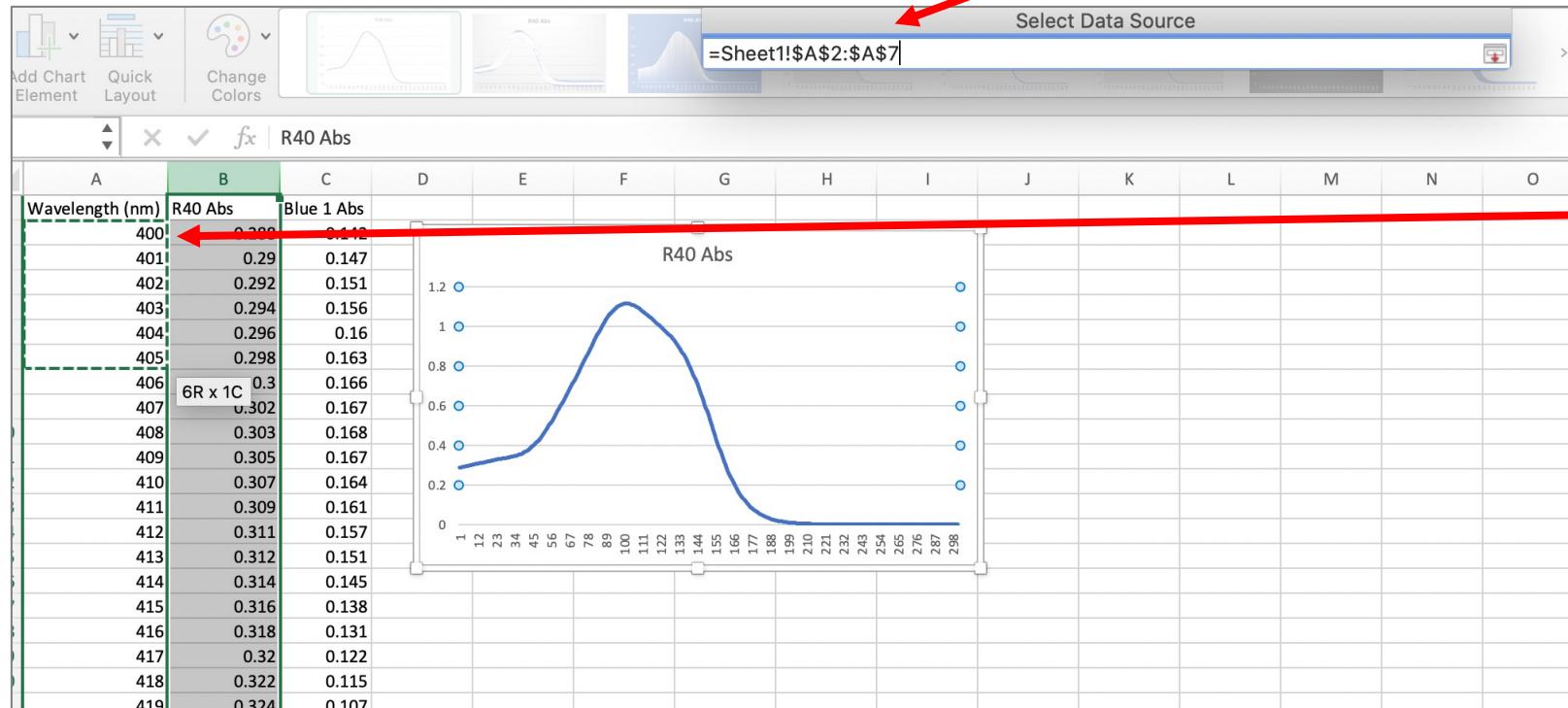
With the "Red 40 abs" data set selected (highlighted gray), click the icon to edit x-axis/vertical axis values

# Plotting in Excel



The data source menu will minimize and be blank before you select values

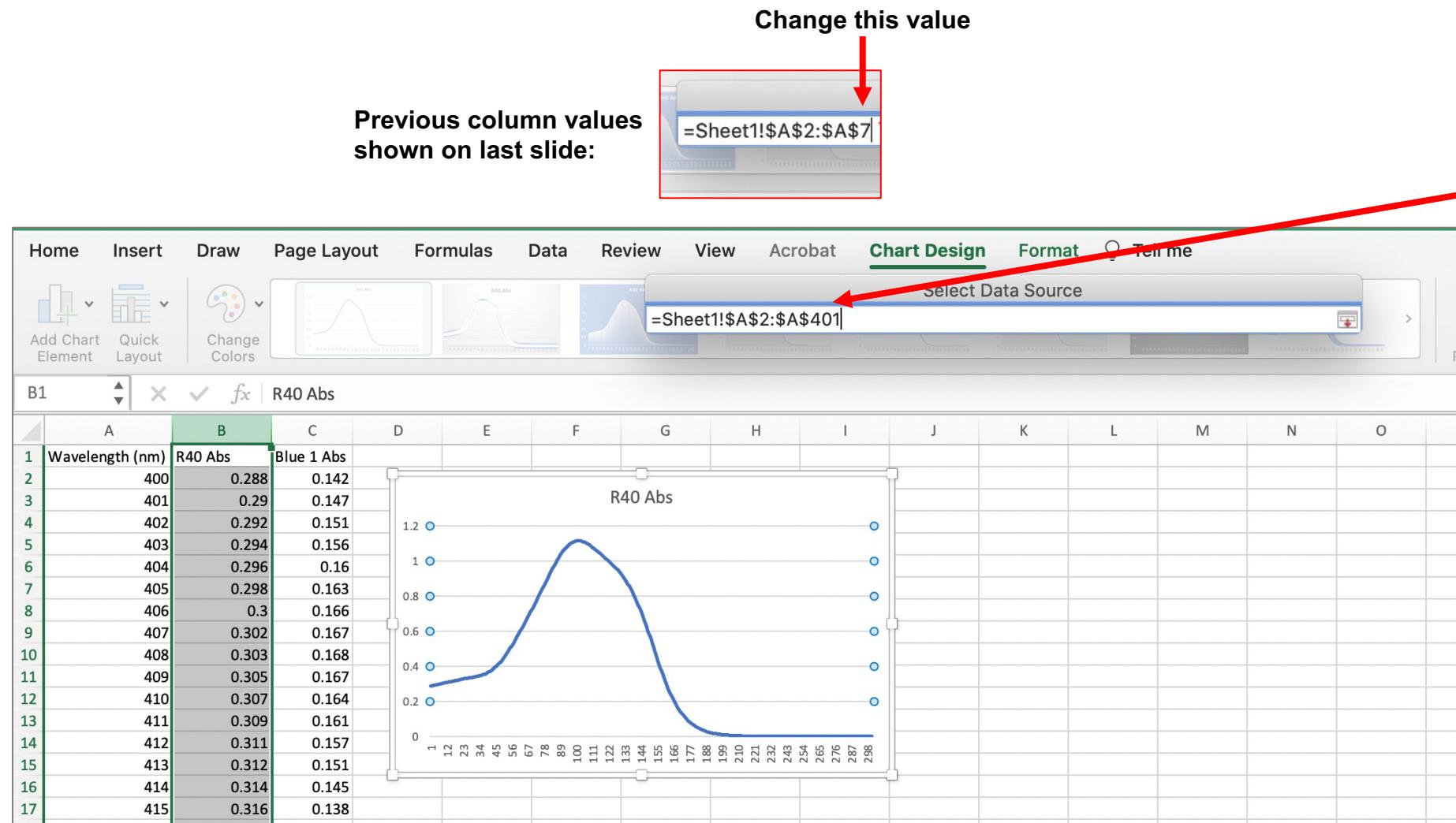
# Plotting in Excel



(2) After selecting values, they'll be listed in your minimized data source menu.

(1) Click and drag your cursor to select the first few values of the column containing values for your x-axis (here, wavelength). A green dotted line will appear around the selected values.

# Plotting in Excel

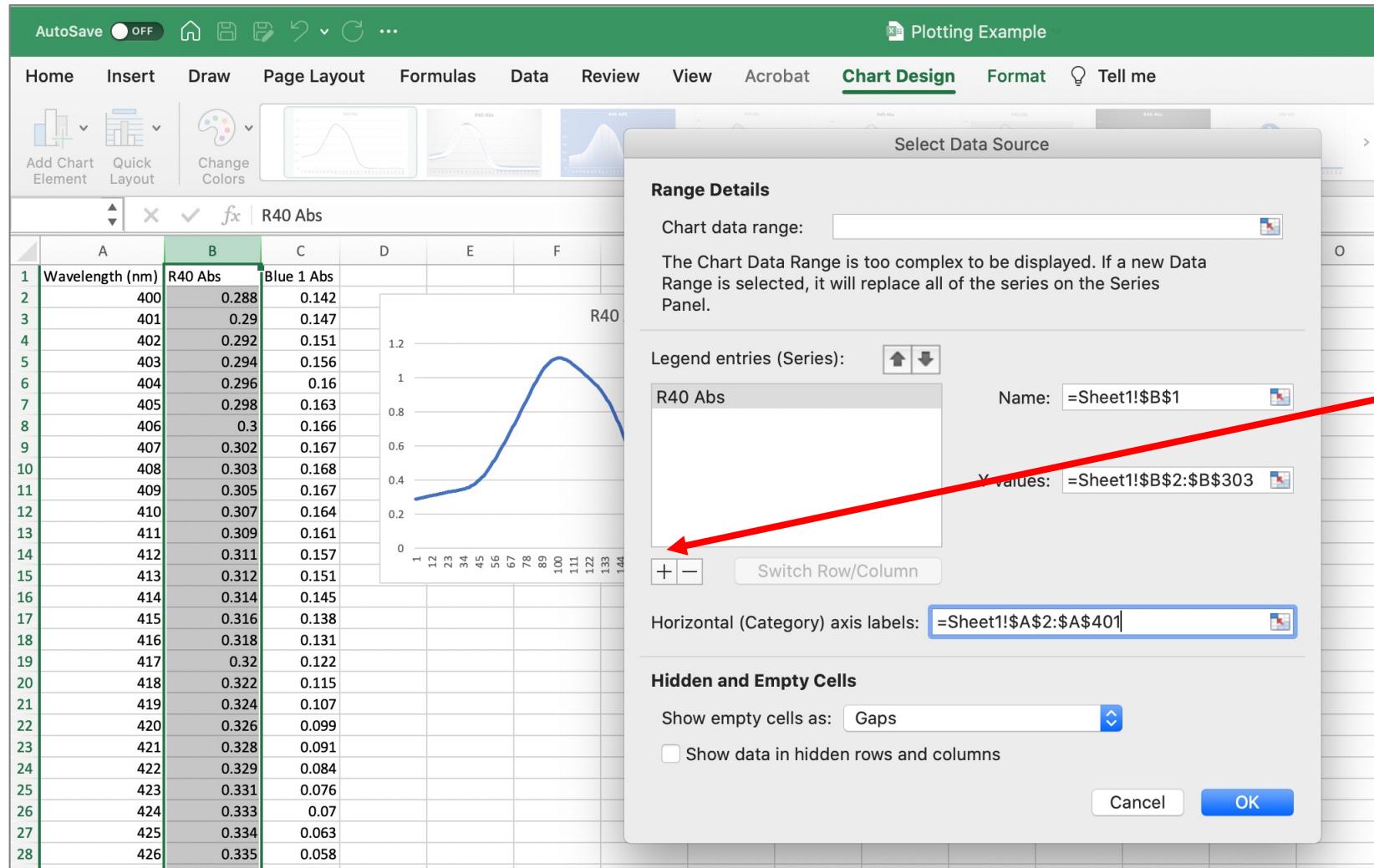


Change the final column value (by directly typing in a new value) so that it extends to the last row containing wavelength data (here, changed from "7" to "401")

Press enter/return when you are done

\*\*The data in these slides only contains values to 303, but we've used the value "401" to avoid confusion when plotting your data (which will extend down to row 401)

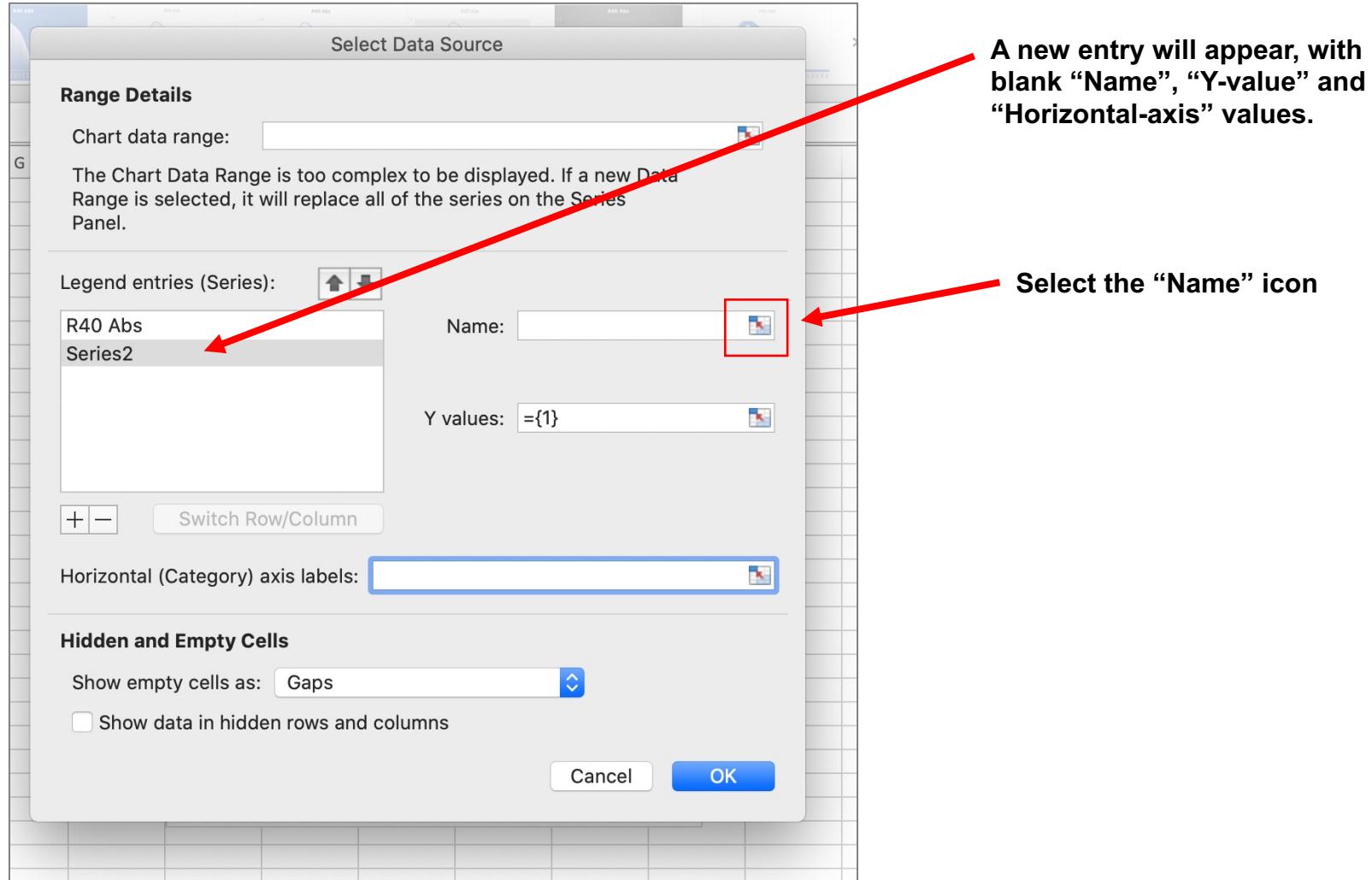
# Plotting in Excel



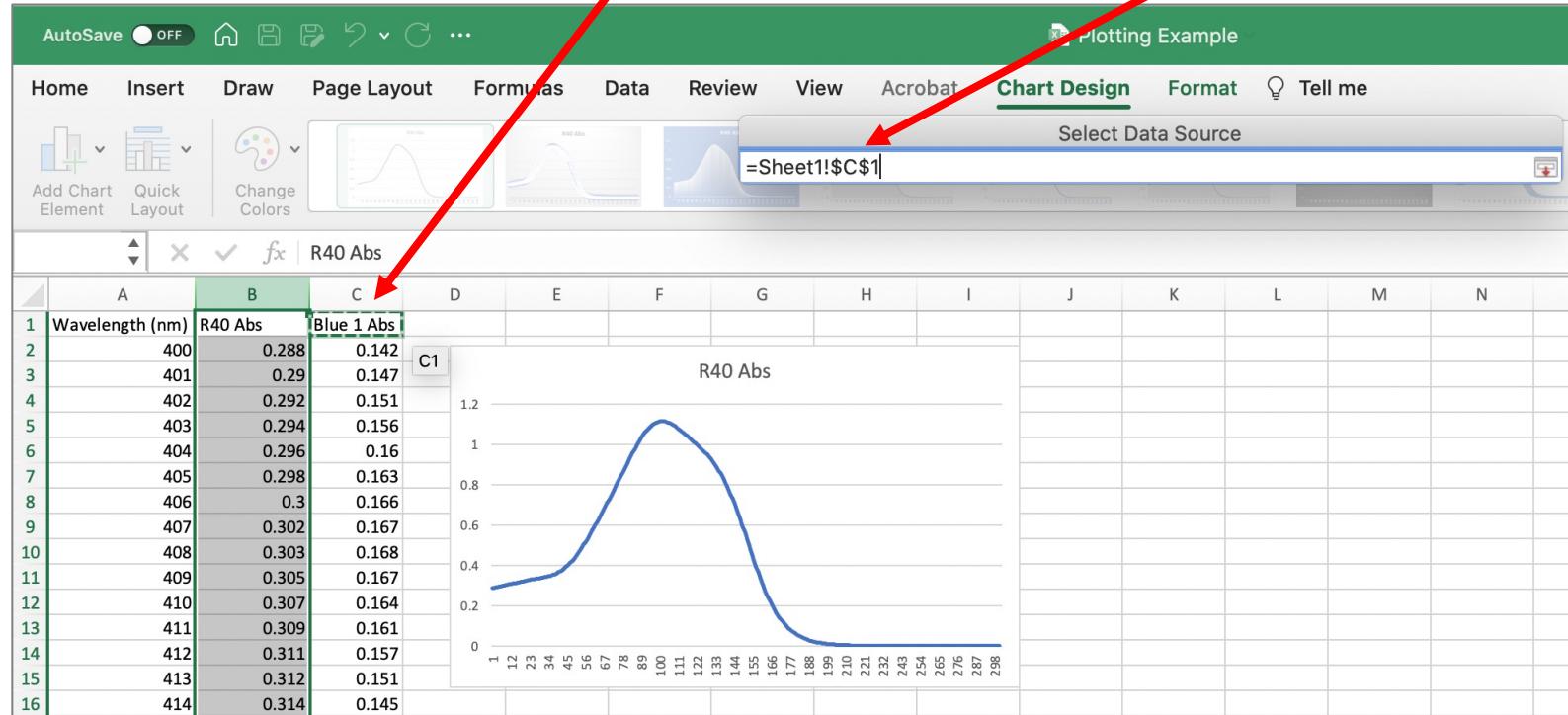
The full data source menu will appear again.

Click "+" to add another spectrum

# Plotting in Excel



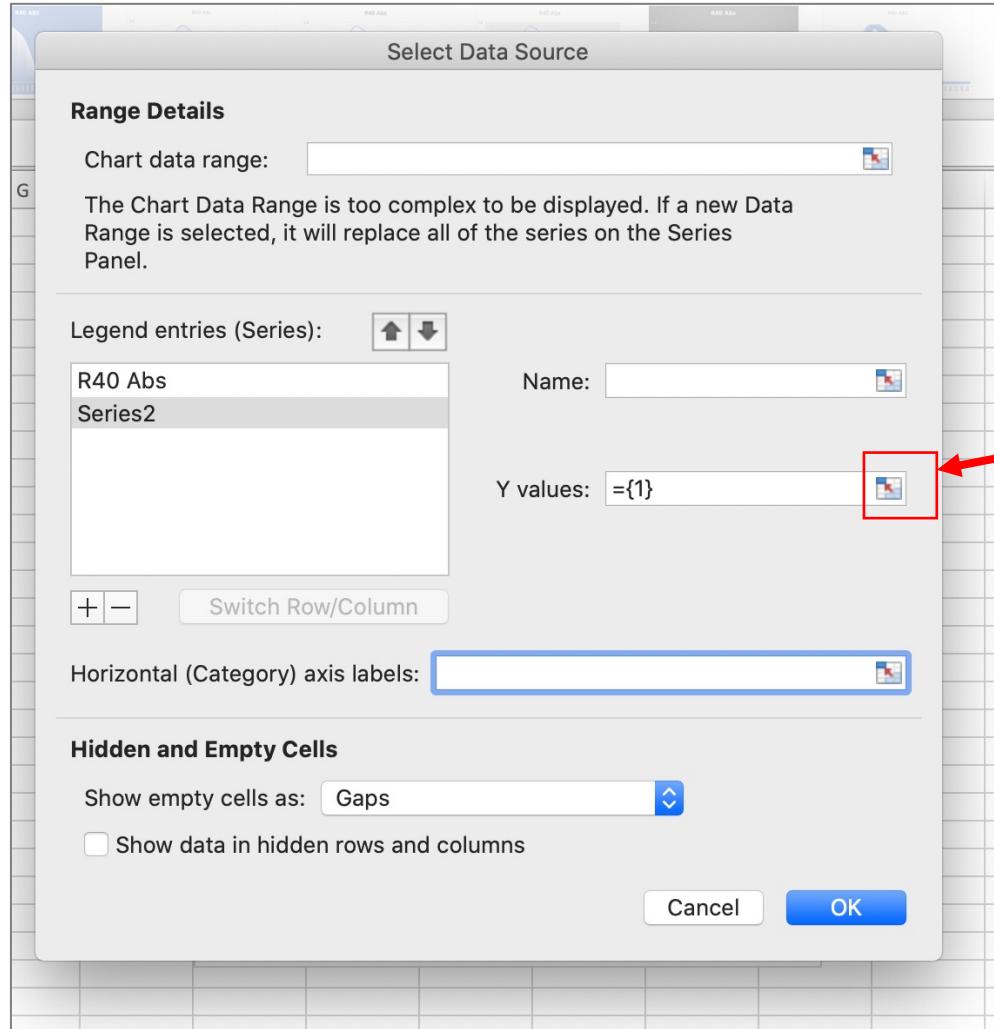
# Plotting in Excel



Click the cell containing the label for your next spectrum, then press enter/return

Cell title will populate in minimized data source menu

# Plotting in Excel



Select the “Y-values” icon

# Plotting in Excel

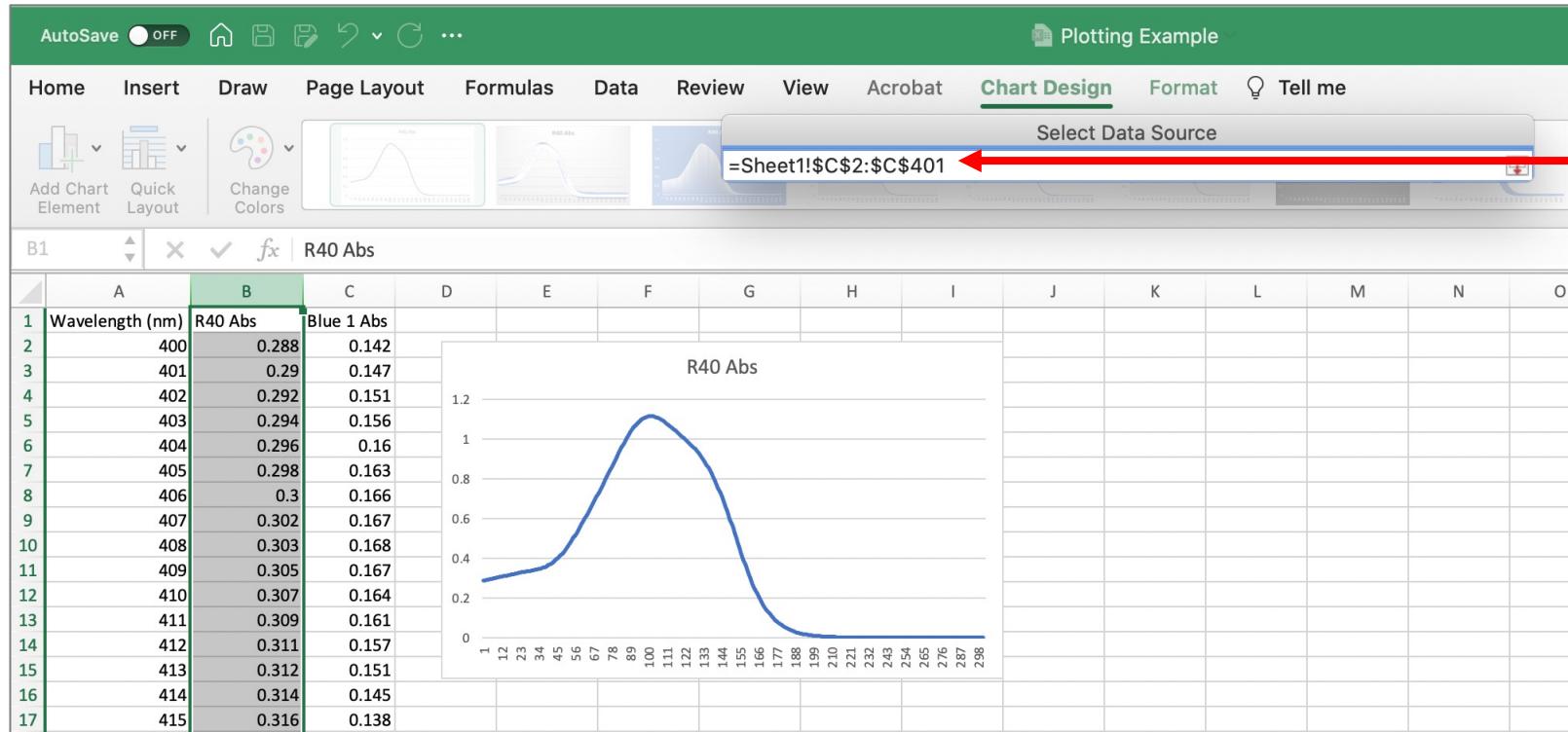
(1) Click and drag your cursor to select the first few values of the column containing values for your y-axis (here, Blue 1 absorbance). A green dotted line will appear around the selected values.

(2) After selecting values, they'll be listed in your minimized data source menu.

The screenshot shows a Microsoft Excel spreadsheet titled "Plotting Example". The ribbon is visible with the "Chart Design" tab selected. A chart titled "R40 Abs" is displayed, showing a blue line graph of absorbance versus wavelength. The x-axis ranges from 1 to 298 nm, and the y-axis ranges from 0 to 1.2. The data series is labeled "Blue 1 Abs". In the top-left corner of the chart area, the formula `=Sheet1!$C$2:$C$8` is displayed, indicating the selected data range. The data table below the chart lists wavelength in nm (A1:A20) and absorbance values for two series: "R40 Abs" (B1:B20) and "Blue 1 Abs" (C1:C20). A red arrow points from the text "(1) Click and drag your cursor to select the first few values of the column containing values for your y-axis (here, Blue 1 absorbance). A green dotted line will appear around the selected values." to the "Blue 1 Abs" column header. Another red arrow points from the text "(2) After selecting values, they'll be listed in your minimized data source menu." to the formula bar.

Wavelength (nm)	R40 Abs	Blue 1 Abs
400	0.288	0.142
401	0.29	0.147
402	0.292	0.151
403	0.294	0.156
404	0.296	0.16
405	0.298	0.163
406	0.3	0.166
407	0.302	0.167
408	0.303	0.168
409	0.305	0.167
410	0.307	0.164
411	0.309	0.161
412	0.311	0.157
413	0.312	0.151
414	0.314	0.145
415	0.316	0.138
416	0.318	0.131
417	0.32	0.122
418	0.322	0.115

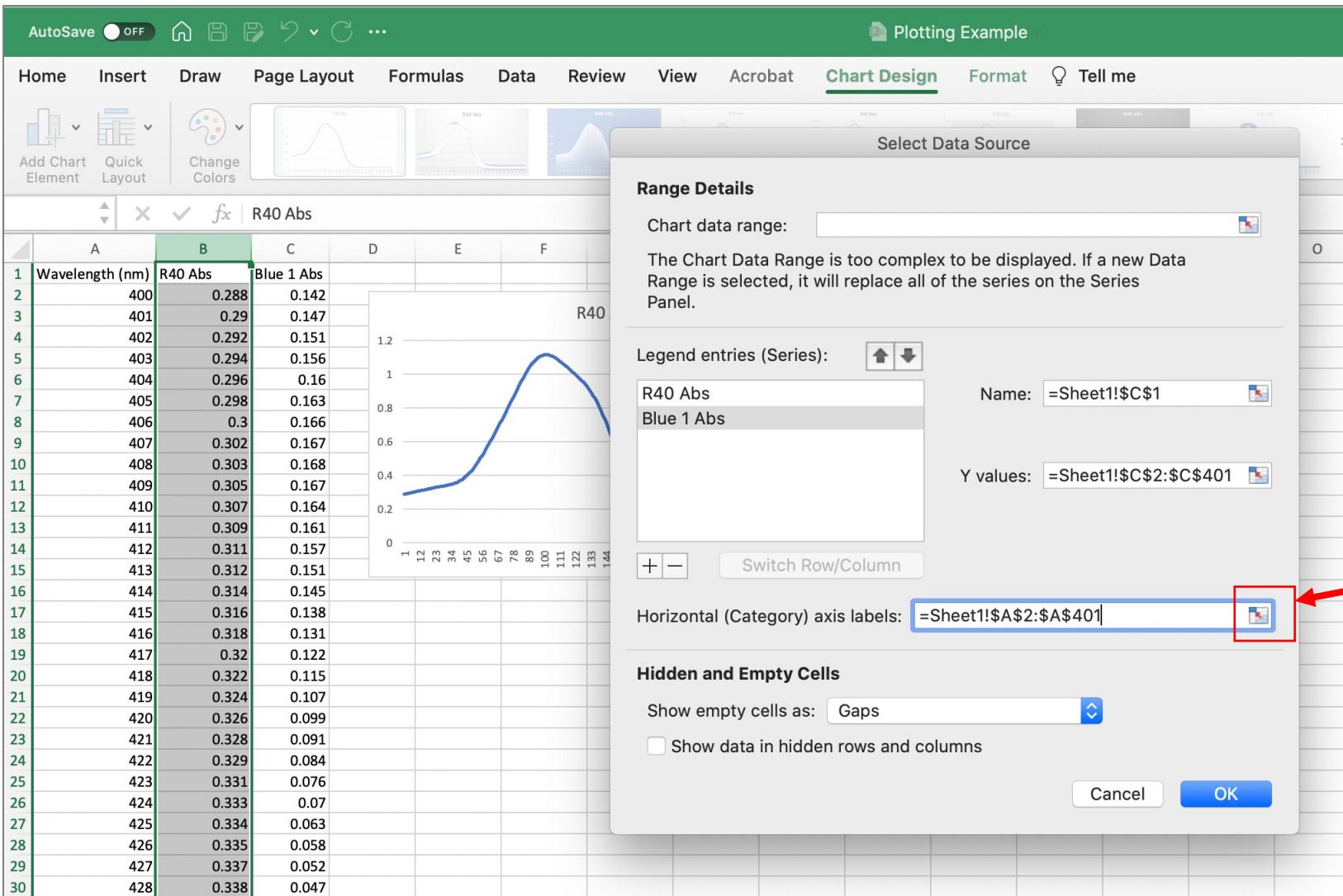
# Plotting in Excel



Change the final column value so that it extends to the last row containing wavelength data (here, changed from "8" to "401")

Press enter/return when you are done

# Plotting in Excel

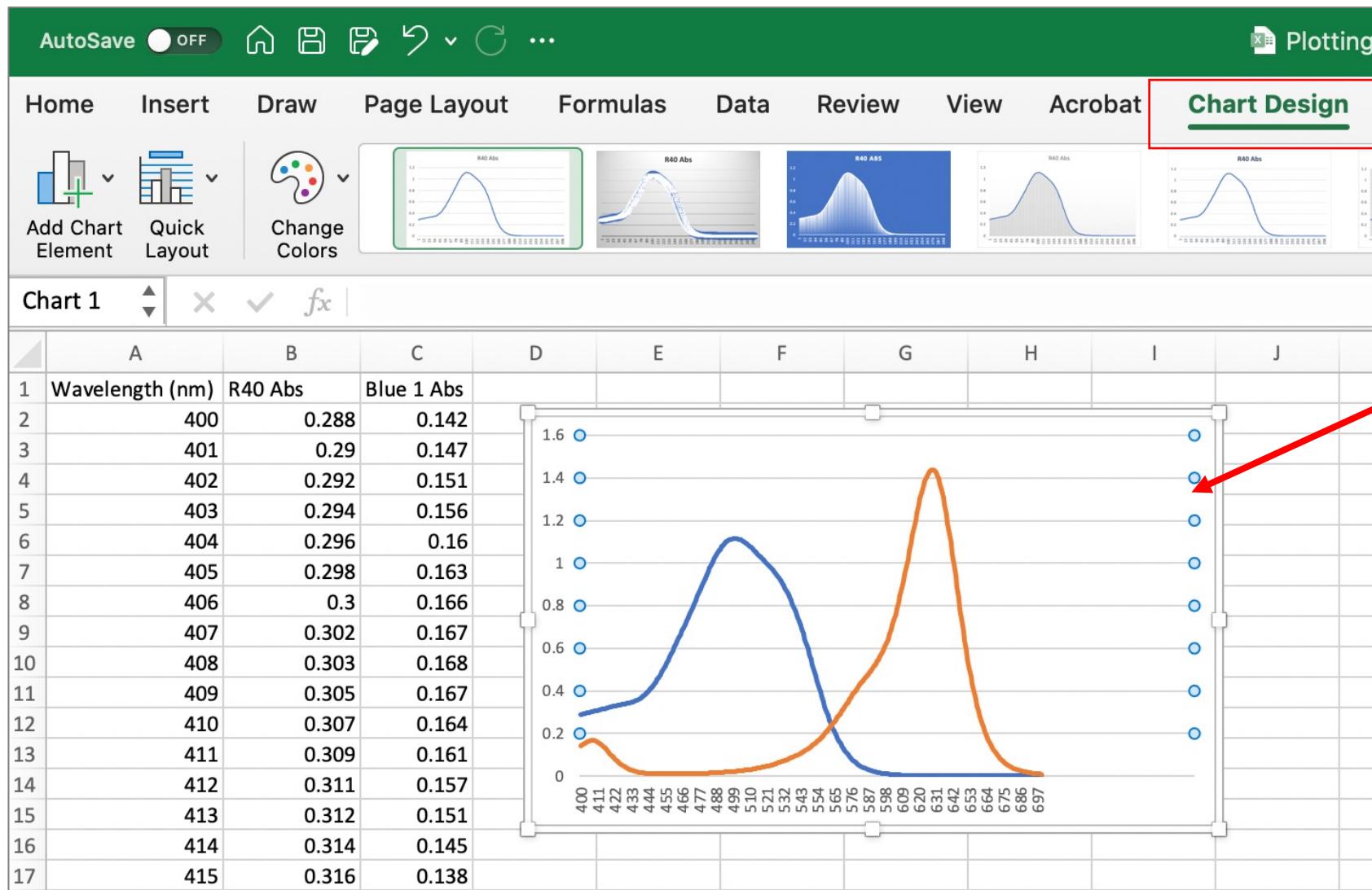


**Repeat for x-axis (just like you did for the Red 40 spectrum, slides 8 - 11)**

# Formatting Excel Plot

**\*\*Skip the remaining slides if you are just trying to take a quick look at your data (the remaining slides provide instructions for adding titles, legends, formatting, etc.)\*\***

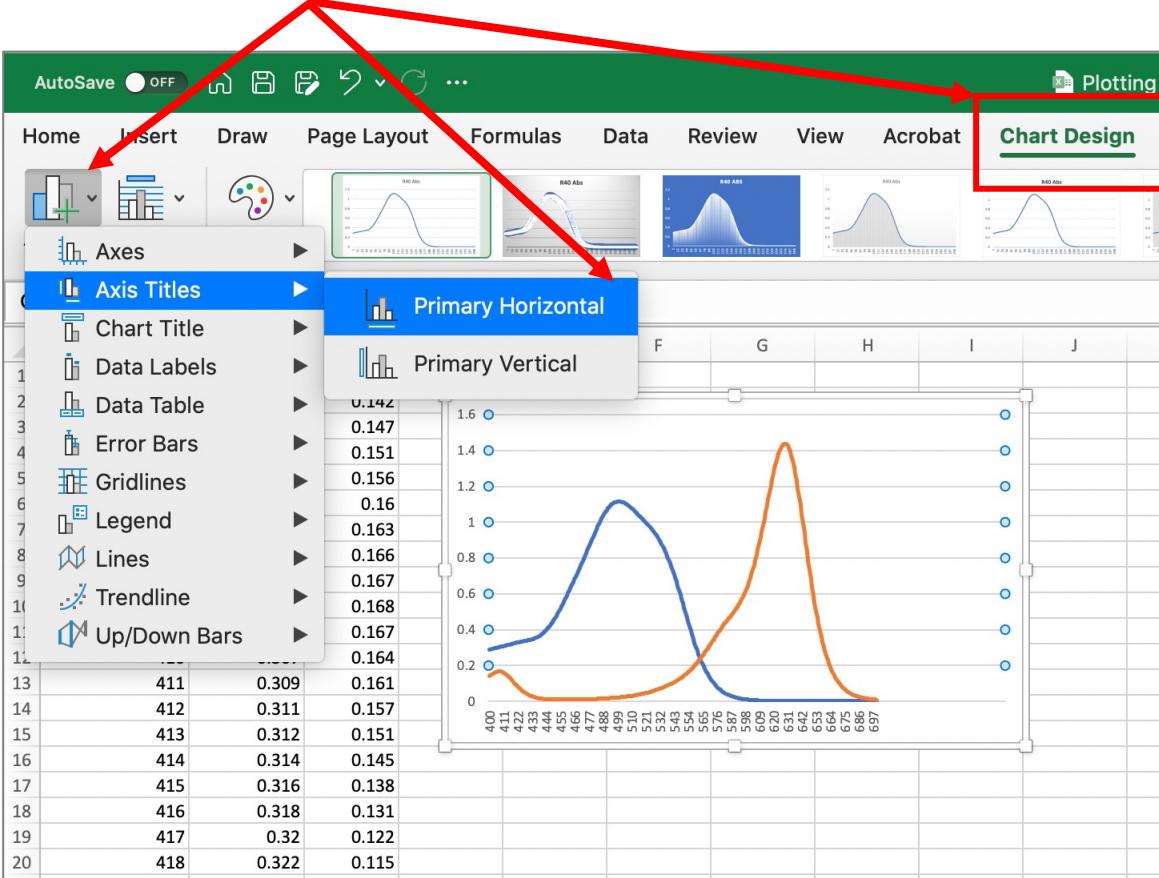
# Formatting Excel Plot



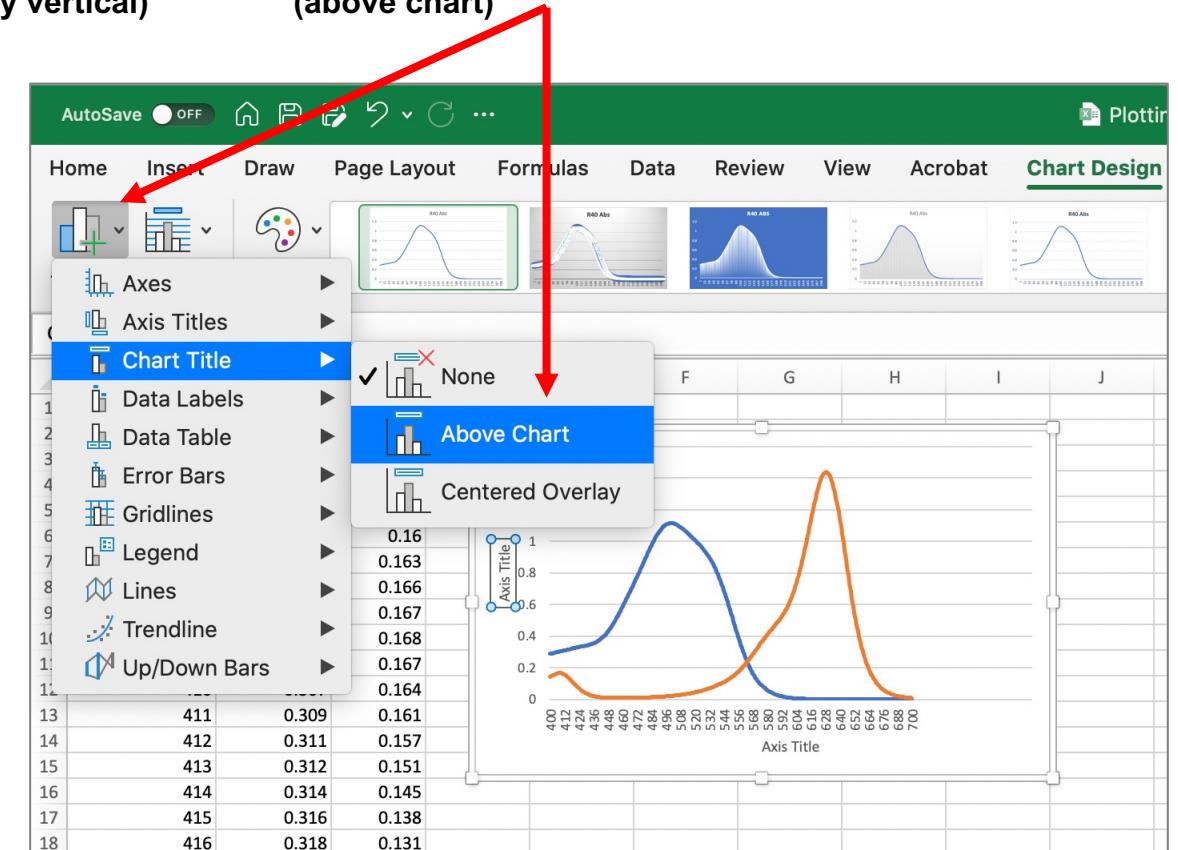
Click on your plot to allow the chart design menu to appear

# Formatting Excel Plot

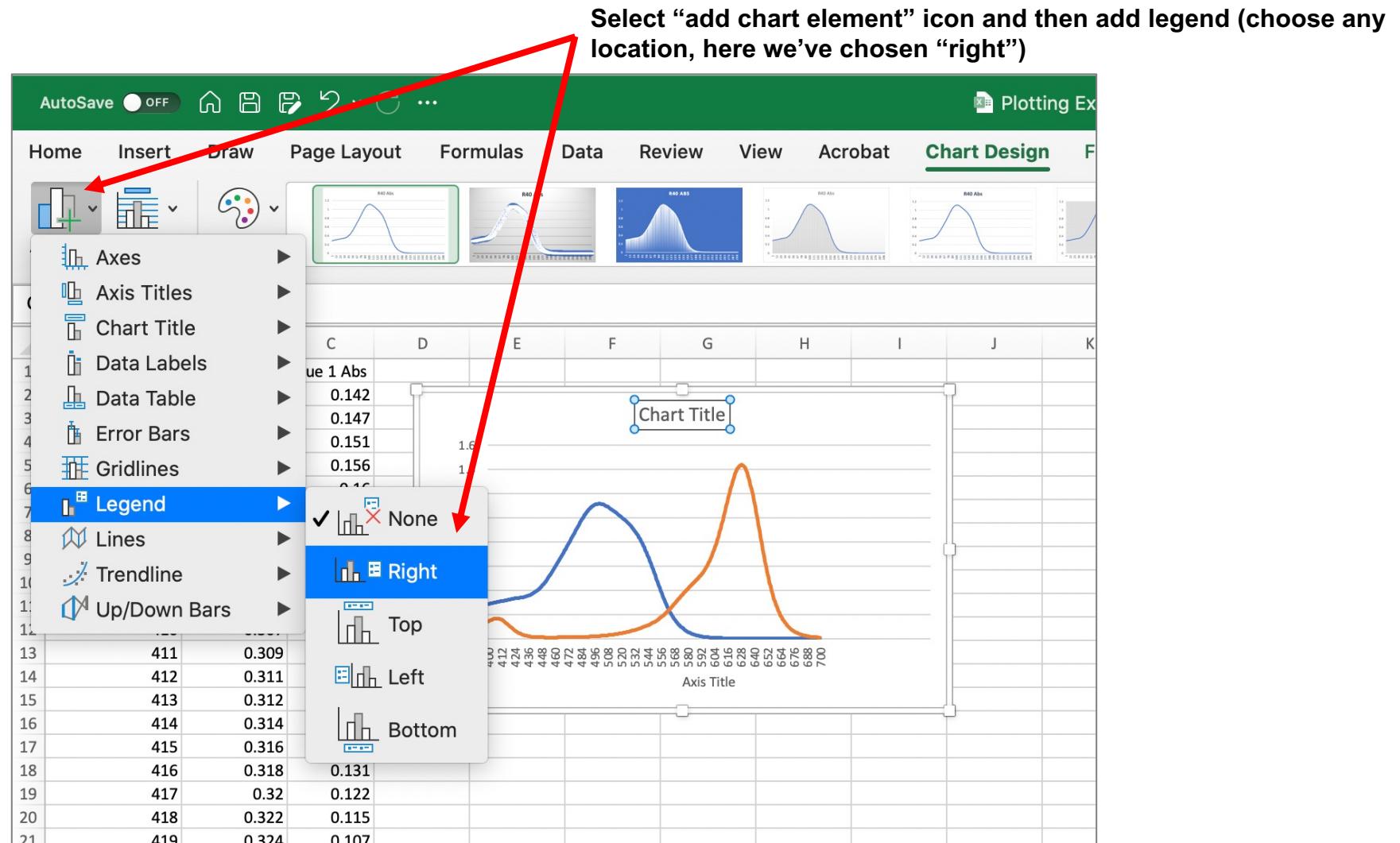
(1) Click “Chart Design” (shown below on the right in the first photo). Next, select the “add chart element” icon (on the left) and add x and y axis titles (primary horizontal and primary vertical)



(2) Select “add chart element” icon and then add title (above chart)

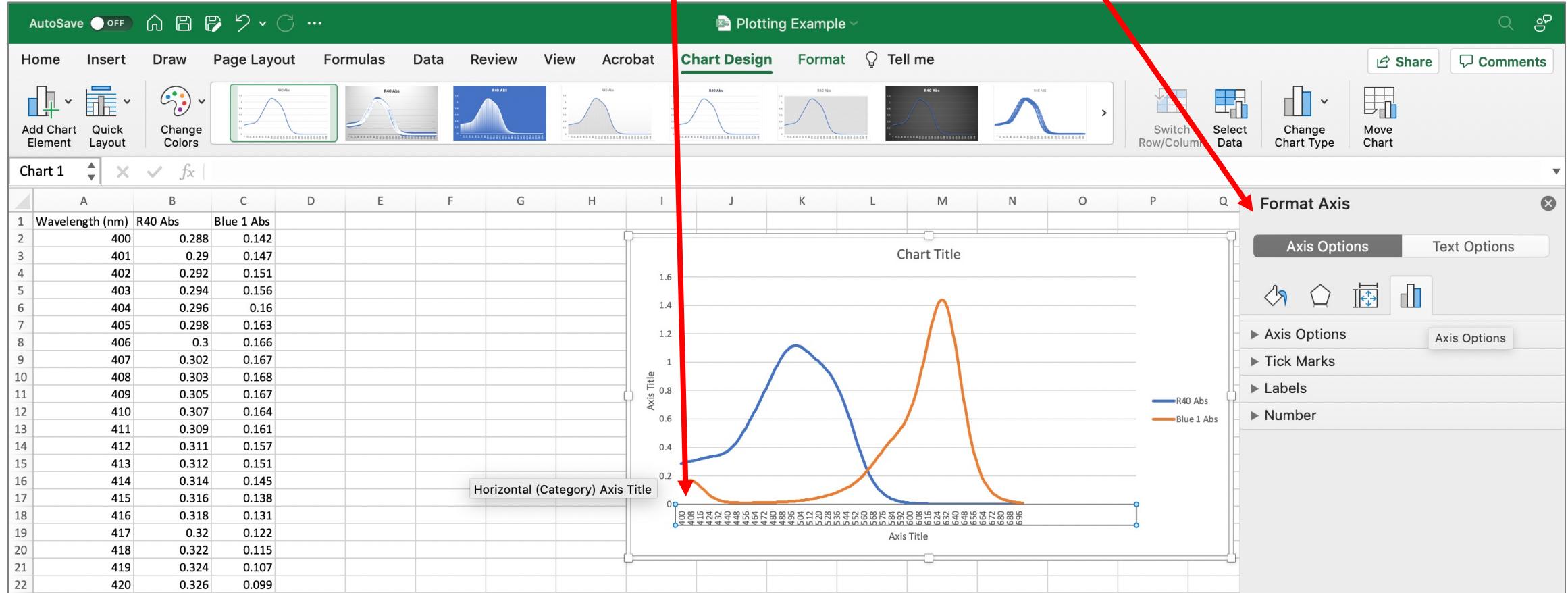


# Formatting Excel Plot



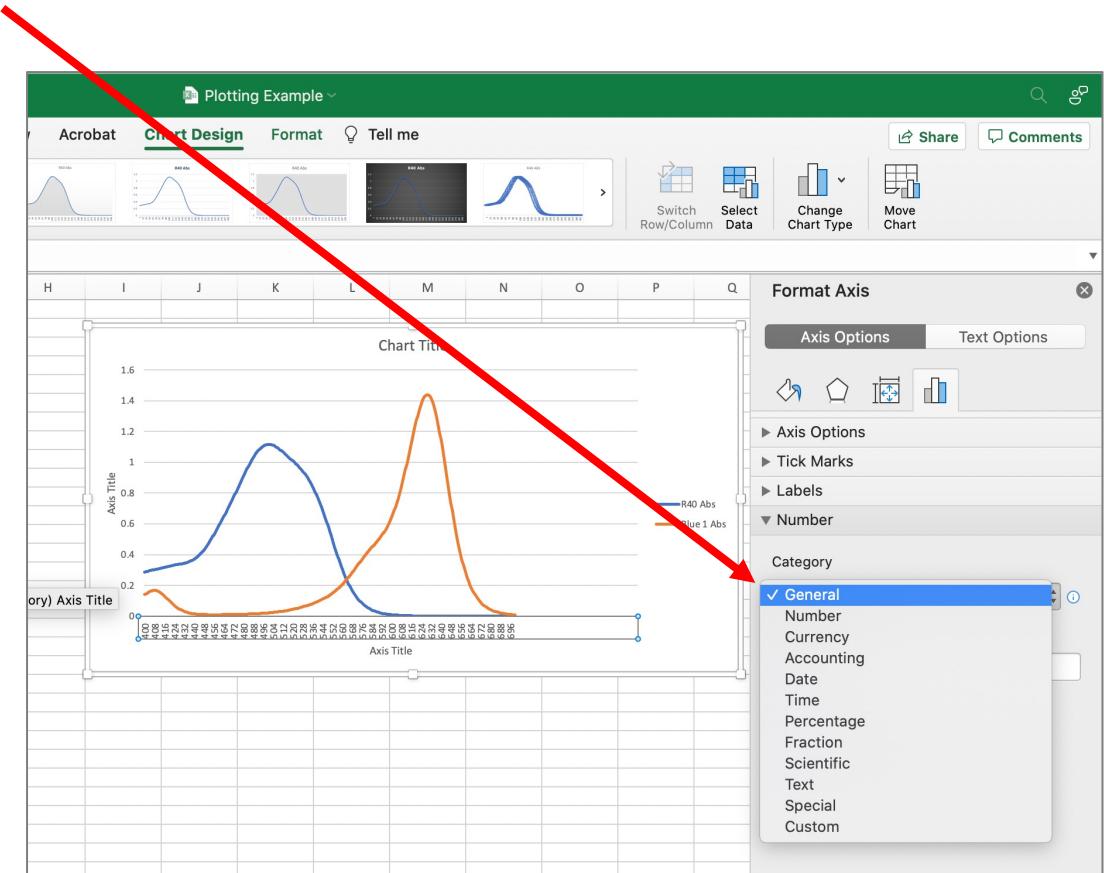
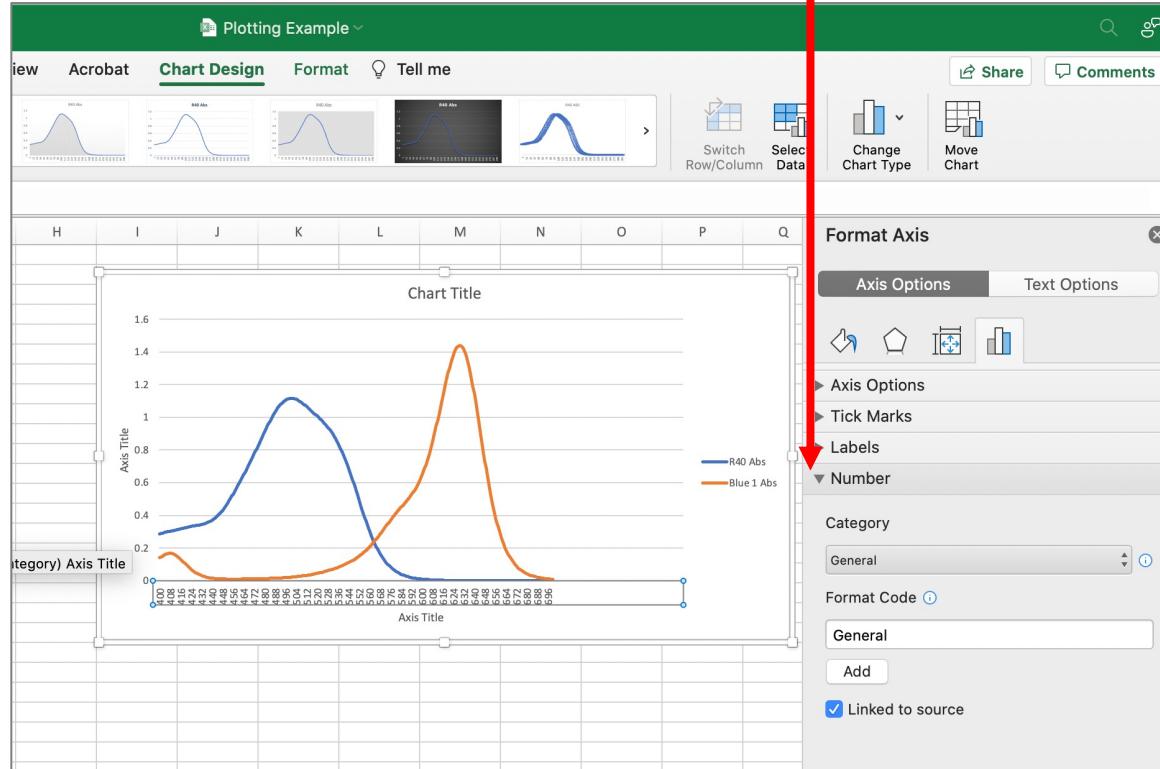
# Formatting Excel Plot

Double click on axis you'd like to edit, and “Format Axis” menu will appear to the right

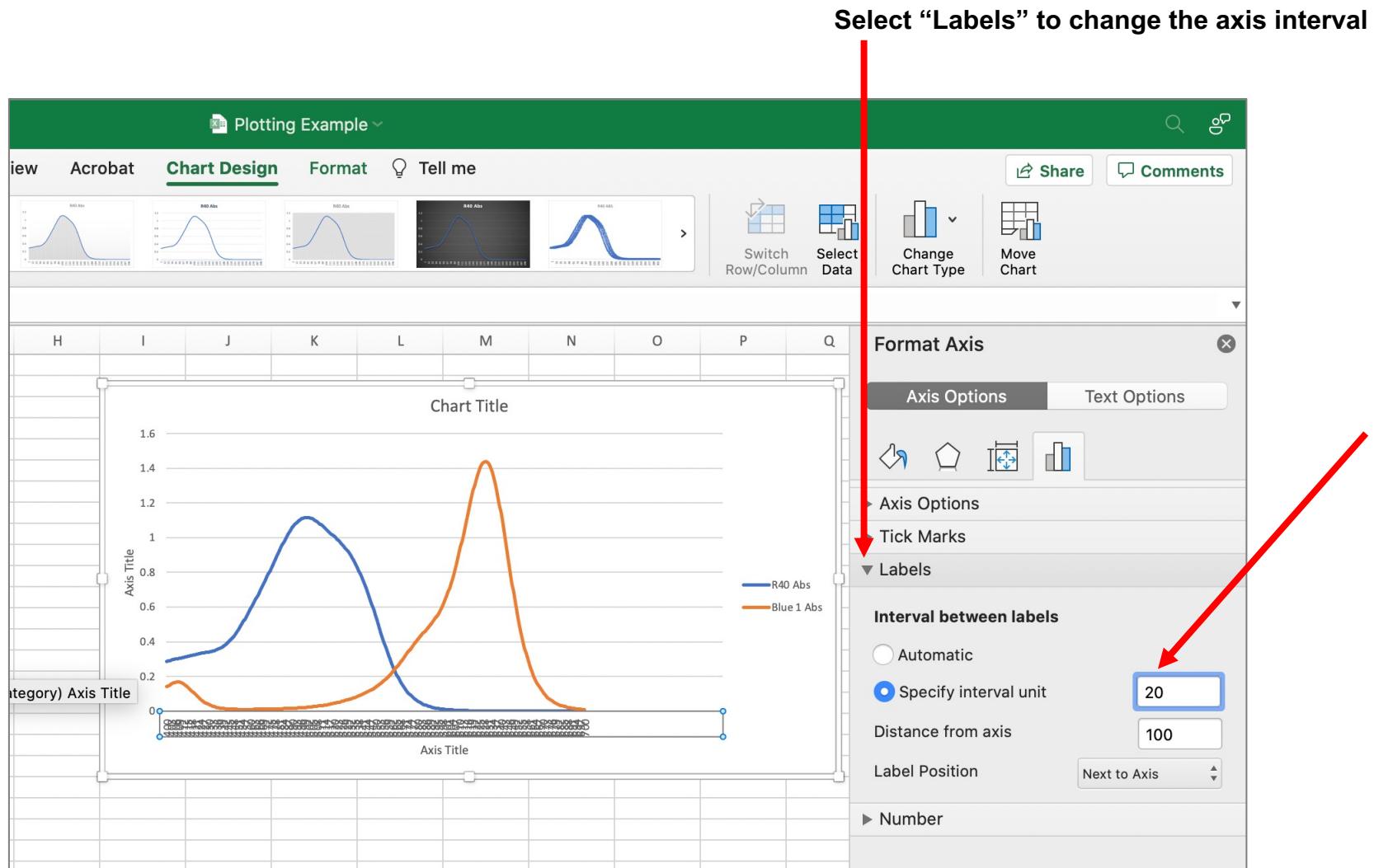


# Formatting Excel Plot

Select the number option and change to “General” if it is not already (your axis formatting may default to scientific notation depending on how the Trimontana data is formatted). Different formatting examples are shown in the second photo (on the right)

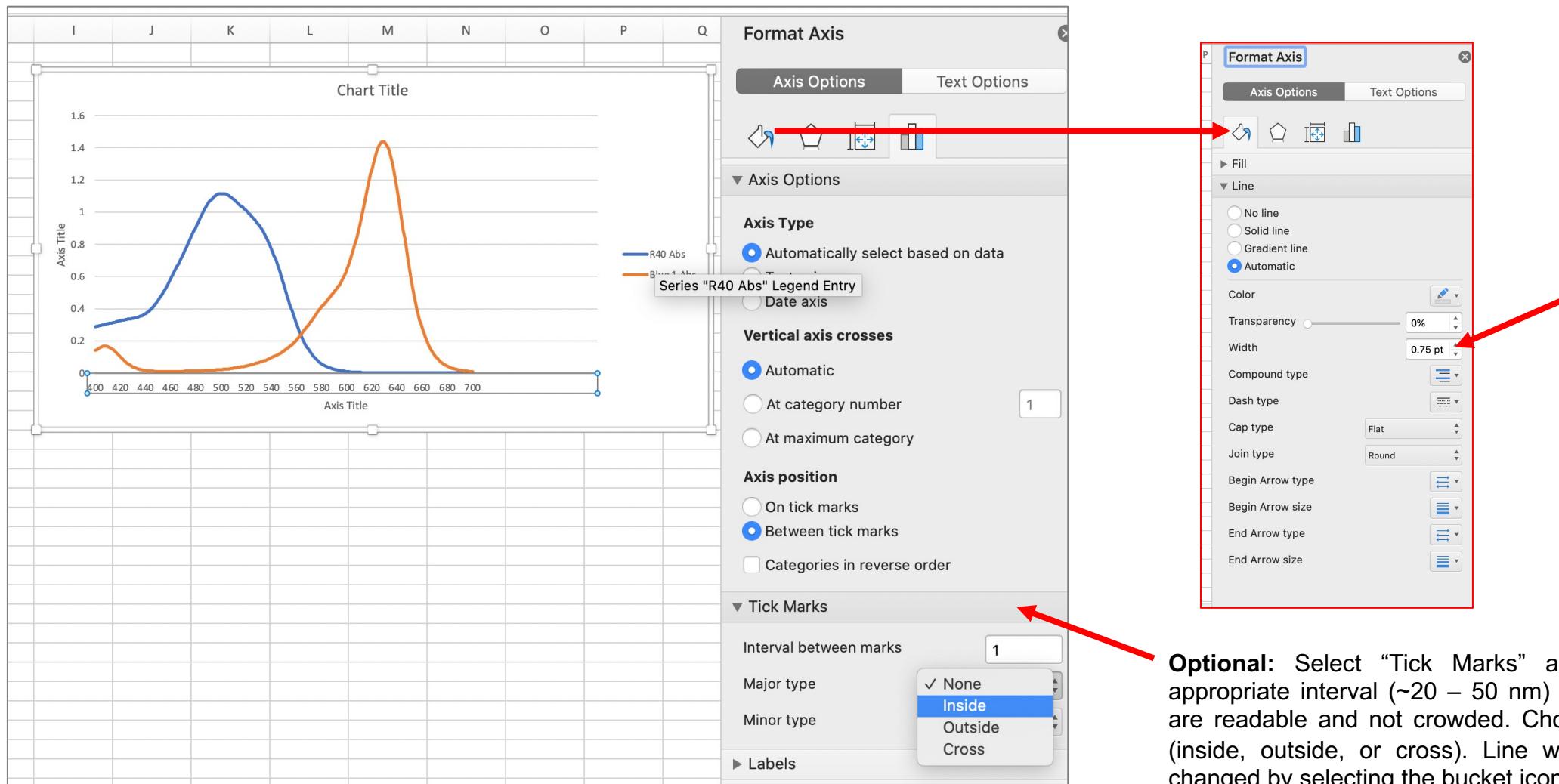


# Formatting Excel Plot



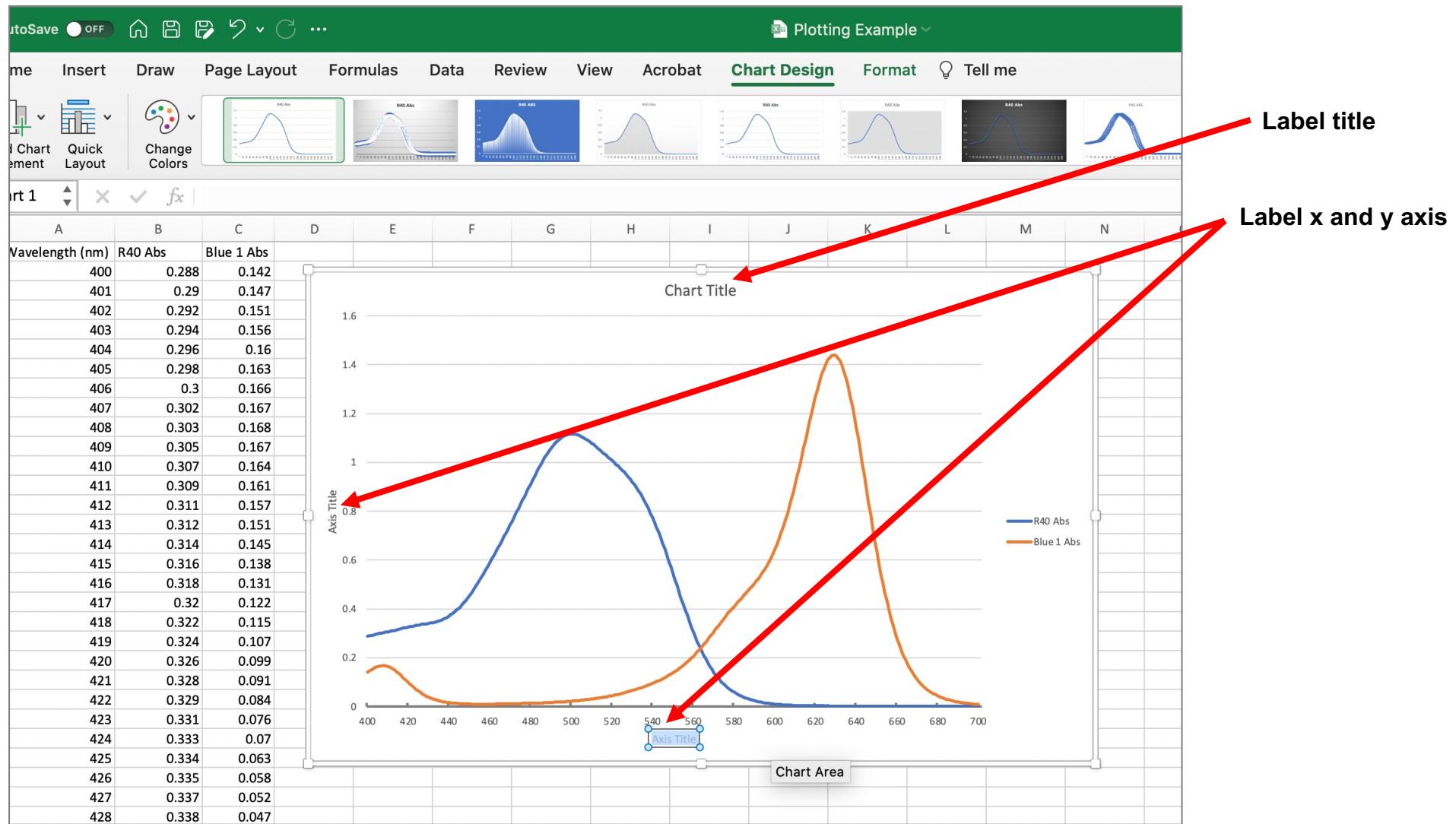
Select “Specify interval unit and” to change to an appropriate interval (~20 – 50 nm) so that your numbers are readable and not crowded (they are currently overcrowded in the photo show to the left, as the interval was set to “1”)

# Formatting Excel Plot



**Optional:** Select “Tick Marks” and change to an appropriate interval (~20 – 50 nm) so that your marks are readable and not crowded. Choose the mark type (inside, outside, or cross). Line weight/width can be changed by selecting the bucket icon (shown above).

# Formatting Excel Plot



# Formatting Excel Plot

Example of final plot below

