

EXCEL INSTRUCTION SHEET:

Note... the screenshots used are from a Mac. The commands for a PC are the same, but they might look a little different or be in a different place.

The Excel spreadsheets you will be working with have A LOT of data. So... you will need to find ways to make patterns and relationships in the data stand out. In other words, you will need to make Excel do a lot of the work for you, because you can't go through this much data number by numbers. Fortunately, Excel has many useful functions for data analysis, and many ways you can organize your data and look for patterns.

Selecting data chunks:

You might choose, for example, to look at years separately. A simple way to do this is simply to select all the data for one year by clicking in the first box for that year and dragging your cursor over all the cells for the entire year (a slow process, but it works). Then you can just use cut and paste commands from the edit menu. Cut these data, then go to the bottom of the spreadsheet and click on the + sign to add a new sheet. Paste the data into the new sheet. You can do this to separate out any chunk of data you want to look at.

If you are working in a group, you might to choose assign different years to different people. You might also decide that you don't need to look every year. You might choose, for example, to select the three years with the highest average and/or total precipitation, and then the three lowest, and then compare them. To do this, you would need to figure out average and sum totals for different data fields.

Average and sum:

To calculate averages for a variable, select the entire variable data set by clicking in the top box of that column. For example, if I want to get the average for TP, total phosphorous, I hover my mouse over the E at the top of the column and click. This will highlight the whole column.

phosphorous load	
	E
	TP - total phosphorous load
8	2.06387362
3	1.36586995



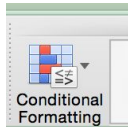
Then go up to the function tool:

Click on this and you will have the option to calculate the average or the sum (as well as other functions) for this variable. The result of this function will appear at the bottom of the column.

You can also calculate averages for smaller ranges of data, for example for one month or one year. To do this, select and highlight the range you want to look at, click on the function symbol and then select average. The result will appear at the very bottom of the column. If you do more than one calculation, the results will be in the order of your calculations.

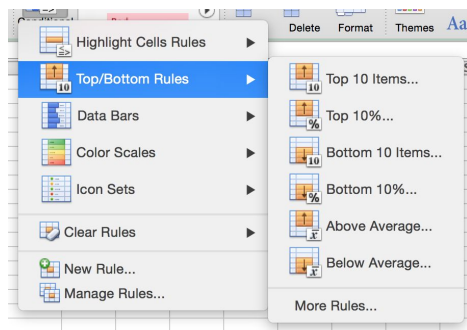
Top 10% (or 5%, or 1%):

To find the top 10% of any one variable (for example the top 10% of days for precipitation, which would be the days with the highest precipitation), you will use the Conditional Formatting



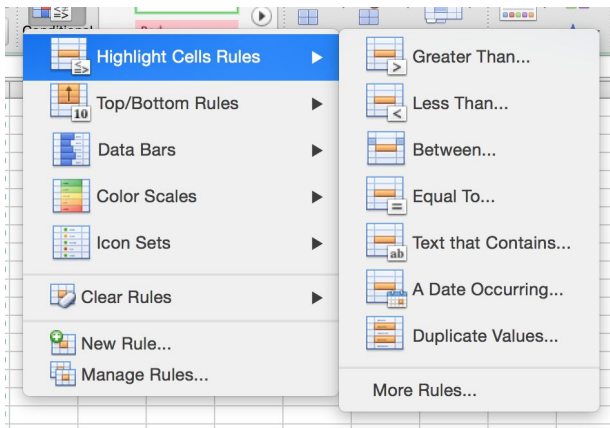
tool.

Again, click on the letter box that is at the top of the column for the variable you want to analyze. That should highlight the entire column for that variable. Then click on the Conditional Formatting tool. You will get a box like the one below. Then click on Top/Bottom Rules, and then on Top 10%. Another box will pop up where you can decide to look at the top 10%, or change it to another number like to 5%, and then choose the color for highlighting. When you hit OK, it will then highlight the top 10% cells for that particular variable. You can also choose to highlight Above or Below Average. If you do this for multiple variables, you will be able to visually scan the data for patterns and relationships between the variables at their highest levels.



Identifying days with high levels of rainfall:

You might also choose to select and highlight days that had very high levels of precipitation to see what happened to the other variables on those days. To do this, you would again select a variable by highlighting the whole column for that variable. You would next click on the Conditional Formatting box, and then click on Highlight Cells/Rules. You then click on Greater Than, and in the box that pops up, you would put the desired amount. For this analysis, you might choose to put 24 in that box, and this will then highlight days that have an inch or more of rain in one day.



With these days of heavy precipitation highlighted, you can look to see how the other variables change or not. You might also look at the 2-3 days after these days for lasting effects. You could then compare the levels of different indicators on these high precipitation days to their overall averages across the years.

Final tip:

Don't try to look at everything! Figure out one or two patterns you want to look for, then figure out which operations in Excel can you help find them, then dig in and look!