

Introduction to Excel Workshop –

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Most spreadsheets begin as a series of data that either you were given or created yourself.

- Types of data include attendance records, personal finances, science experiments, etc.
- You use Excel to manipulate this data, gain results, and create presentations of said data and results in meaningful ways.
 - Types of results include averages, sorting and classification, etc.

Excel is organized into Columns (vertical, Letters in the heading) and Rows (horizontal, Numbers in the sidebar).

- These create Cells called LetterNumber (i.e. A1, Column A, Row 1)
 - Whenever you input information into a Cell, you are doing so through the Formula Bar near the top with the “fx” (for Function) in front of it.
- Cells can be selected by simply clicking on it with your mouse, or clicking and dragging to select groups of Cells.
 - Similarly you can select entire Columns or Rows by clicking on the appropriate heading or sidebar, i.e. clicking on the heading A will select all cells in Column A.
- When a Cell or group of Cells is selected, you can Copy all the data within those Cells by going to Edit → Copy, or holding down Ctrl + C.
 - You can then paste this data wherever you’d like by going to Edit → Paste or holding down Ctrl + V.
- Data in Cells can be deleted by pressing the Backspace or Delete key, or if you right click on a selected Cell you have the option to “Clear Contents.”
- To insert an extra row or column, right click on a heading letter or sidebar number and click on “Insert.”
 - Remember, Rows insert Above and Columns insert to the Left.

Basic mathematics is the simplest result Excel can give you, though complex formulas can be written as well.

- The basic mathematic functions all operate in a similar syntax manner, and in Excel are:
 - + for Addition, – for Subtraction, * for Multiplication, and / for Division
- Parentheses (), greater/less than > <, greater/less than or equal to >= <=, are examples of more complicated functions you can use.
 - Excel obeys all mathematical rules regarding orders of operation.
- All these functions can be nested together to create complex mathematic formulas, i.e. $2*(3/8+(1*2*3/7)-2)$, etc., and even more complicated still when variables are included.

Math in Excel can be ABSOLUTE or VARIABLE.

- Absolute math is how we normally think of math, i.e. one number plus another, $2 + 2 = 4$
- Excel is most powerful when you utilize Variable math, i.e. the contents of one Cell plus the contents of another Cell, i.e. $A1 + A2 = X$ (an unknown).
 - This means that regardless of what is in Cell A1 or A2, the result will always be their addition to one another. If A1 is 2 and A2 is 2, then the result is 4. If you change A1 to 4, the result automatically changes as well to 6.
- Let’s try an example.
 - Remember, all formulas in Excel begin with the equal “=” sign, because you are telling Excel that a particular Cell EQUALS the formula you are entering.
 - Enter 4 into Cell A1 and 2 into Cell A2.
 - In Cell A3, enter the Equals sign.
 - Click on Cell A1
 - You will see that it has been selected with a marching blue dashed box.
 - Type in your mathematical operator, the plus sign, and then click on Cell A2.
 - You will see that A2 is now selected in a similar fashion.
 - Hit enter to get your result, 6.

- Next change the value of A1 from 4 to 6, and you should see that A3 now shows 8 as your result.
- Excel remembers the RELATIVE positions of the Cells you are using in your mathematic formula, in this case, the Cell directly above and the Cell above that.
 - If you had data spanning the entire length of row 1 and 2, meaning data in Cells B1 and B2, C1 and C2, etc., you can copy the formula in Cell A3 and paste it into the entire row 3 to do the same calculation on the rest of your data.
 - For example, enter in any random two numbers into Cell B1 and B2.
 - Select Cell A3, then copy it, and paste it into Cell B3 to perform the same calculation, except now using the contents of Bells B1 and B2.

A couple of quick tips regarding graphing:

- No data needs to be selected before starting your graph.
- Clicking on the “Chart Wizard” button is probably the best way to start your graph.
- Instead of setting a “Data Range” then having Excel guess the best way to graph the selected Cells, it might be better to enter data one “Series” at a time.
- Clicking on the little button on the right hand side of the empty fields will bring you back to your spreadsheet and let you click and drag out the Cells you wish to utilize.
 - When adding a Series, the “Name” can literally be anything.
 - The “Values” is the set of data that you want to have graphed.
 - The “Category (X/Y) axis labels:” is how you want your data to be labeled.
 - For example, let’s say you wish to graph how much money was spent each month, for twelve months.
 - You have a Column of data that lists each month, January to December, and another Column that lists how much money was spent.
 - The “Name” field will be whatever you want it to be, i.e. “Expense.”
 - For the “Values” field, you will click on the button to the right of the field and select the Column with the data on how much money was spent.
 - For the “Category (X/Y) axis labels:” field, select the Column with all the months in it.
- Play around with all the graph options. There’s a lot of them, and they all work together to help you best present your results visually.