

# Introduction to Excel

Before we begin, I should mention that the most important thing when working with spreadsheets is to **stay organized!**

## Key Features in Microsoft Excel

### Basic Commands

Command	What it does	When you would use it
=average(RANGE)	Gives the mean (average) of a selected range of data.	With numerical data: what's the course average?
=median(RANGE)	Returns the median (middle value) of a selected range of data.	With numerical data: how tall is the person in the 50 <sup>th</sup> percentile?
=mode(RANGE)	Returns the most common value of a selected range of data.	With numerical data: what is the most common age?
=min(RANGE)	Returns the minimum value of a selected range of data.	With numerical data: what is the lowest mark in the class?
=max(RANGE)	Returns the maximum value of a selected range of data.	With numerical data: what is the highest mark in the class?

### More Advanced Commands

Command	What it does	When you would use it
=countif(RANGE, CRITERIA)	Returns the frequency of a particular value / range / response in a range of data.	With any type of data  How many people said they love / like / dislike pizza? =countif(RANGE, "love")  How many people are 18? =countif(RANGE, 18)
=countifs(RANGE1, CRITERIA1, RANGE2, CRITERIA 2)	Returns the frequency of the co-occurrence of a particular combination of values / responses.	With any type of data  How many people said they loved horses and disliked dogs? =countifs(RANGE1, "love", RANGE2, "dislike")  *It is very important to keep your data organized when using this function.
Find and Replace (ctrl+f)	Finds all occurrences of a particular value and replaces them as you specify.	If you want to change "Agree / Like / Dislike / ..." to represent a number.
\$	Locks a column or row when using various commands.	To save time, LOTS of time! ☺
Click and drag.	Copies your formulae / commands to multiple cells.	When you want to perform a similar function on several columns / rows of data.

## Types of Graphs

Type	When you would use it	Example
Pie Graph	To display percent occurrences of a value or response. (ONE-VARIABLE DATA)	What percent of people Agree, Disagree, ... with a particular statement.
Scatter Plot	To show a relationship between two numerical variables.	What is the relationship between absences and grade?
Bar Graph	To display frequency data.	Used in same circumstances as a pie graph, but when we aren't interested in the "percent".
Multi-Bar Graph	To display relationships between multi-variable data (including qualitative data)	How do males vs. females feel about action movies? (love, like, dislike)
Bubble Chart	To display the co-occurrence of certain values or response.	To display the relationship between individual's answers to multiple questions. Do people that like cats, dislike dogs? Do people that dislike cats love dogs, ... <b>*Qualitative values MUST be converted to numerical data first!</b>

Note: For most graphs, you will need to perform some commands on your data before graphing is possible,

You will likely need to create a table within your data set to keep track of the frequencies of particular responses.

In addition, if you collected data that is expressed in words (Agree / Disagree etc...) you will need to re-code the values into numbers.

## Formatting Graphs

Depending on your version of Microsoft Excel, formatting your axes etc... may be different.

Typically, you will find something to do with "Layout" in the menu bars at the top of your screen.

Be sure that you include a title, axis labels and a legend if required. Also, ensure that your values match up with your variables, especially when using categorical (qualitative) variables.