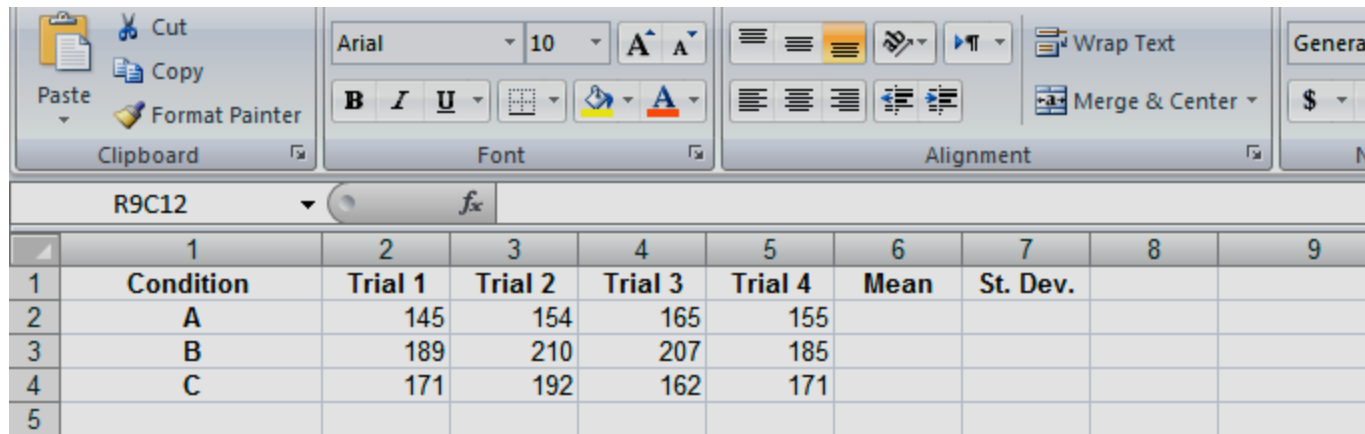


Graphing using Microsoft Excel 2007

Tutorial #2- Calculating Mean and Standard Deviation

1. Open Microsoft Excel 2007 (see tutorial #1).
2. Enter data on the spreadsheet as the example shown here
3. Label columns for Mean and for Standard deviation as shown below.



The screenshot shows the Microsoft Excel 2007 ribbon with the Font and Alignment tabs active. Below the ribbon, the spreadsheet is visible with the following data:

	1	2	3	4	5	6	7	8	9
1	Condition	Trial 1	Trial 2	Trial 3	Trial 4	Mean	St. Dev.		
2	A	145	154	165	155				
3	B	189	210	207	185				
4	C	171	192	162	171				
5									

In this data set, four trials (labeled Trial 1 through Trial 4) were carried out under each of three conditions (labeled A through C).

Finding mean and standard deviation values

4. Click on the box below “Mean”

5. Click of the “fx”
6. In the pop-up window, select AVERAGE, then click “OK”

The screenshot shows an Excel spreadsheet with the following data:

	1	2	3	4	5	6	7	8	9
1	Condition	Trial 1	Trial 2	Trial 3	Trial 4	Mean	St. Dev.		
2	A	145	154	165	155				
3	B	189	210	207	185				
4	C	171	192	162	171				

The 'Insert Function' dialog box is open, showing the 'AVERAGE' function selected. The dialog box contains the following text:

Search for a function:
Type a brief description of what you want to do and then click Go
Go

Or select a category: Most Recently Used

Select a function:
AVERAGE
SUM
IF
HYPERLINK
COUNT
MAX
MIN

AVERAGE(number1,number2,...)
Returns the average (arithmetic mean) of its arguments, which can be numbers or names, arrays, or references that contain numbers.

Help on this function

OK Cancel

Microsoft Excel

7. Ignore the new pop-up window, and simply select the data of which you wish to determine the average. Do this by left clicking, holding, and dragging over the appropriate boxes.

8. Select OK. The mean value will appear.

To determine standard deviation of this same data follow the same steps as above, except choose STDEV in step 6.

The screenshot shows the Microsoft Excel interface. The spreadsheet has the following data:

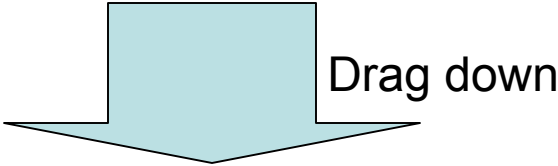
	1	2	3	4	5	6	7	8	9
1	Condition	Trial 1	Trial 2	Trial 3	Trial 4	Mean	St. Dev.		
2	A	145	154	165	155	=AVERAGE(RC[-4]:RC[-1])			
3	B	189	210	207	185				
4	C	171	192	162	171				

The 'Function Arguments' dialog box is open, showing the AVERAGE function with the following details:

- Function: AVERAGE
- Number1: {145, 154, 165, 155}
- Number2: number
- Result: = 154.75
- Formula result = 154.75

9. Rather than following this procedure for all rows of data, simply select the first cell in the column, and move your mouse pointer over the lower right corner until a cross appears. Now, simply left click (but don't release) and drag down complete the table.

	1	2	3	4	5	6	7
1	Condition	Trial 1	Trial 2	Trial 3	Trial 4	Mean	St. Dev.
2	A	145	154	165	155	154.75	
3	B	189	210	207	185		
4	C	171	192	162	171		
5							



	1	2	3	4	5	6	7
1	Condition	Trial 1	Trial 2	Trial 3	Trial 4	Mean	St. Dev.
2	A	145	154	165	155	154.75	
3	B	189	210	207	185	197.75	
4	C	171	192	162	171	174.00	
5							
6							
7							

Now use the same procedure to determine the standard deviation for all rows of data