

### Data Analysis Using Microsoft Excel

The Data Analysis Tool Pack must be installed if it has not been installed already. Go to Tools on the Menu bar. If the last item on the list says "Data Analysis" then it has already been installed. If not, go to "Add-Ins". When the dialog box appears place a check in the first box labeled "Analysis Tool Pack". Click OK. You will now see "Data Analysis" at the bottom of the Tools drop down list.

Open Microsoft Excel. Type in the following data. Use the Tab key to move across from cell to cell. Use the Enter key to move down from cell to cell.

Type the following:

	A	B	C	D	E	F
1	Effects of Fertilizer Concentration(mg/l) on <i>Brassica rapa</i> Growth(mm)					
2						
3	Control( 0 mg/l)	5 mg/l	10 mg/l	50 mg/l		
4	10	11	15	20		
5	11	12.3	14	22		
6	10	12	16.5	21.5		
7	12	14	14	24		
8	15	15.3	17	27		
9	9	10.5	12	18		
10	11.5	12	14	24		
11	11	12	14	23		
12	8.2	10	12	18		
13	7	10	13	18		

To obtain descriptive statistics:

1. Go to Tools – Data Analysis – Descriptive Statistics.
2. Next to "Input Range" click on the red arrow. Click and drag to select the column of data you want to obtain statistics for. You must include the title of the column. ( Ex. Control).
3. Click on the red arrow.
4. Select Labels by clicking in the box.
5. Select Summary Statistics by clicking on it.
6. Select Output range by clicking on it. Click on the red arrow and then click and drag in an empty area to select where you want the computer to put your data. If you do not do this it will overwrite your raw data.
7. Click on the red arrow. The click OK.
8. Your descriptive statistics will now be displayed.
9. You may get all groups at once by selecting all groups when you select the input range.

EXAMPLE:

<i>Control</i>	
Mean	10.47
Standard Error	0.701435
Median	10.5
Mode	10
Standard Deviation	2.218132
Sample Variance	4.920111
Kurtosis	1.10792
Skewness	0.522654
Range	8
Minimum	7
Maximum	15
Sum	104.7
Count	10

To obtain a P value using the t test:

1. Go to Tools – Data Analysis . Scroll down and click on "t test : Two Sample Assuming Unequal Variances".
2. Next to Variable 1 Range click on the red arrow. Click and drag to select the control group. You must include the title "control".
3. Click on red arrow.
4. Next to Variable 2 Range click on the red arrow. Click and drag to select the 5 ml group. You must include the title "5 ml".
5. Click on the red arrow.
6. Click in the box next to labels.
7. Click in the box next to output range. Click on the red arrow to select where you want to put your data. Click and drag in an open area in your spreadsheet.
8. Click on the red arrow. Then click OK.
9. Your t test results will now be displayed. The value to use is located next to P(T>=t) one-tail.

EXAMPLE:

t-Test: Two-Sample Assuming Unequal Variances  
Control/5 ml.

	<i>Variable 1</i>	<i>Variable 2</i>
Mean	10.47	11.91
Variance	4.920111	2.905444
Observations	10	10
Hypothesized Mean Difference	0	
df	17	
t Stat	-1.62781	
P(T<=t) one-tail	0.060977	
t Critical one-tail	1.739606	
P(T<=t) two-tail	0.121955	
t Critical two-tail	2.109819	