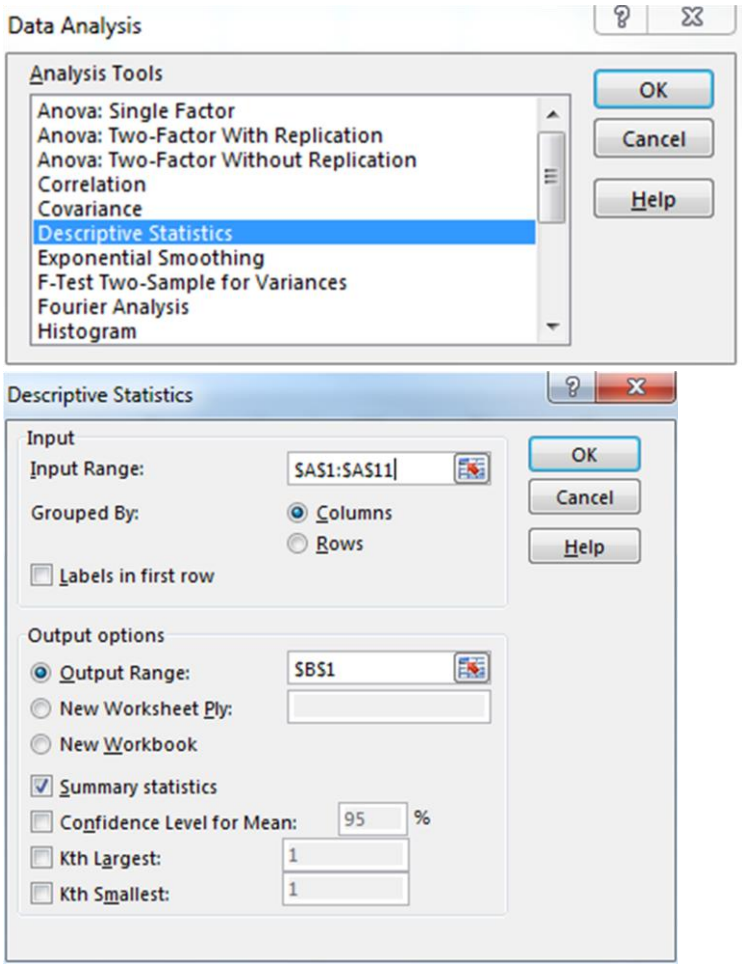
Lab 8 – Statistics II

This lab will cover how to do statistical analysis on data using the Data Analysis tool. The practice assignment (which is highly recommended) will then examine different data distributions.

Lab 8 Quick View

- The "Data Analysis" button can be found under the "Data" menu. If you can't find it, you may need to install it; refer to appendix A.
- Select "Descriptive Statistics" and press "OK". Select the data you want to analyze in the top bar, indicate where you want the results to appear, and make sure "Summary Statistics" are selected.



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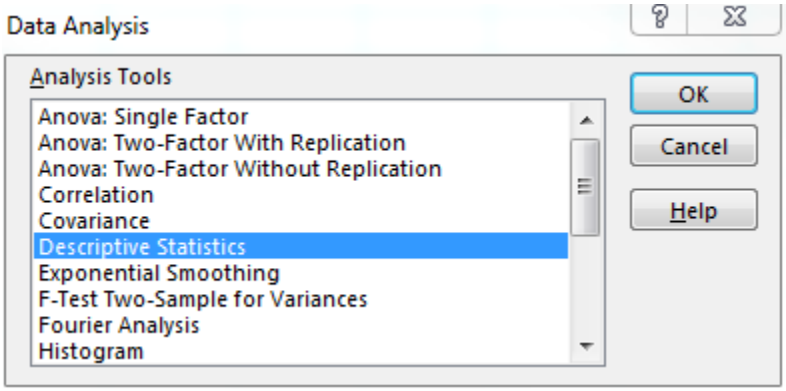
A) Using the Data Analysis Tool

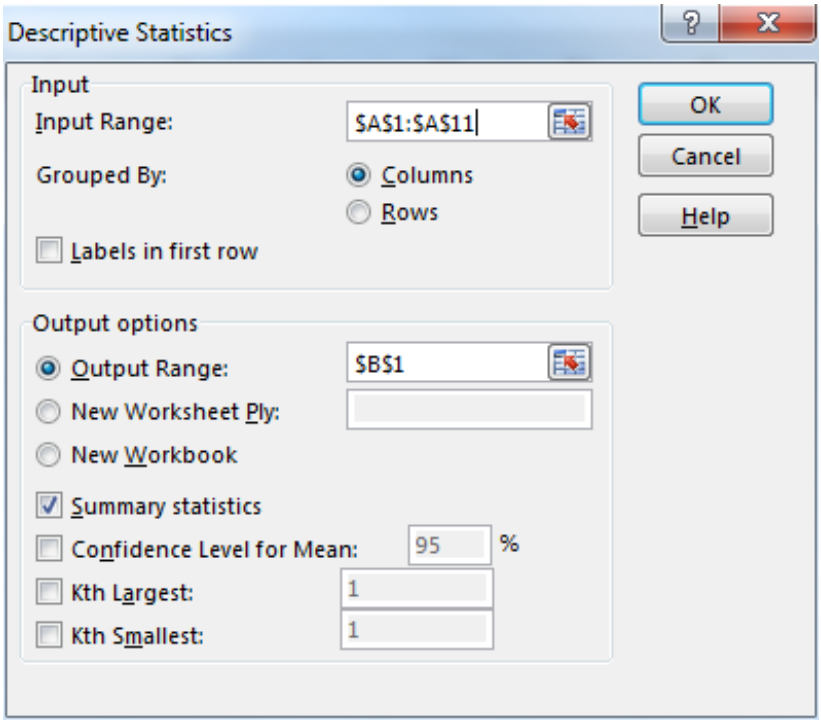
The “Data Analysis” button can be found under the “Data” menu. If you can’t find it, you may need to install it; refer to appendix A.

To begin, simply click on the “Data Analysis” button.

B) Selecting Descriptive Statistics

When the “Data Analysis” box opens, select “Descriptive Statistics” and press “OK”. Select the data you want to analyze in the top bar, indicate where you want the results to appear, and make sure “Summary Statistics” are selected. All the relevant statistics of the data you have highlighted will be displayed.





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C) Statistics and Distribution Graphs

As seen last lab, you can use excel to create distribution graphs associated with the data and statistics. It is HIGHLY RECOMMENDED that you do the following practice lab to gain practice with statistics and different distributions.

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Econ 299 Practice Lab 8

A) Download (highly recommended) or copy the following Data Sets into excel:

Sample Normal		Grades A	Grades B
-3	0.004432	60.86047	62.44795
-2.9	0.005953	61.90968	62.88122
-2.8	0.007915	60.31856	53.5515
-2.7	0.010421	56.41834	56.17649
-2.6	0.013583	62.58067	63.34905
-2.5	0.017528	61.97464	59.67693
-2.4	0.022395	66.03416	65.65271
-2.3	0.028327	58.53026	60.35796
-2.2	0.035475	63.49502	55.3605
-2.1	0.043984	58.95054	66.33189
-2	0.053991	61.34525	59.69853
-1.9	0.065616	64.00098	48.64807
-1.8	0.07895	63.81526	61.01121
-1.7	0.094049	61.24498	55.4177
-1.6	0.110921	60.99187	73.18807
-1.5	0.129518	62.19394	66.45635
-1.4	0.149727	60.45174	62.61245
-1.3	0.171369	61.47558	60.63273
-1.2	0.194186	62.38072	62.13276
-1.1	0.217852	62.3068	62.68866
-1	0.241971	61.57644	58.15622
-0.9	0.266085	65.02113	62.19379
-0.8	0.289692	62.99405	66.35142
-0.7	0.312254	65.62249	66.79126
-0.6	0.333225	57.24275	61.13455
-0.5	0.352065	65.18169	59.61976
-0.4	0.36827	63.11761	56.84461
-0.3	0.381388	65.38685	70.49537
-0.2	0.391043	61.58038	64.34149
-0.1	0.396953	61.04852	58.52377
1.53E-15	0.398942	66.1788	63.79475
0.1	0.396953	65.82011	53.59772
0.2	0.391043	64.34318	63.54769
0.3	0.381388	59.53082	63.30919
0.4	0.36827	62.46788	58.33784
0.5	0.352065	62.53234	61.91354
0.6	0.333225	66.978	61.89333
0.7	0.312254	59.05301	65.12013
0.8	0.289692	59.91217	65.6438
0.9	0.266085	55.92623	76.71893
1	0.241971	63.06782	60.46325
1.1	0.217852	61.25256	65.62548

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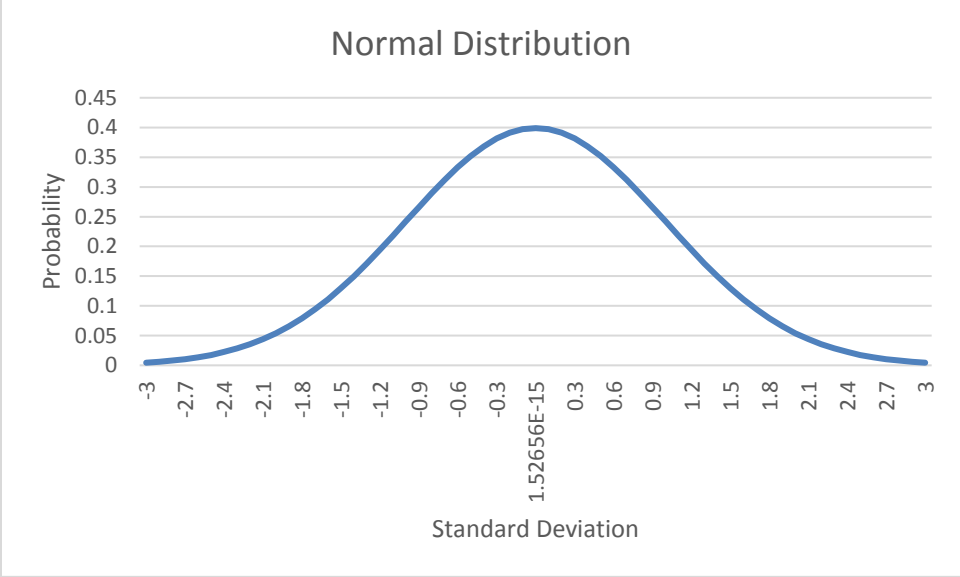
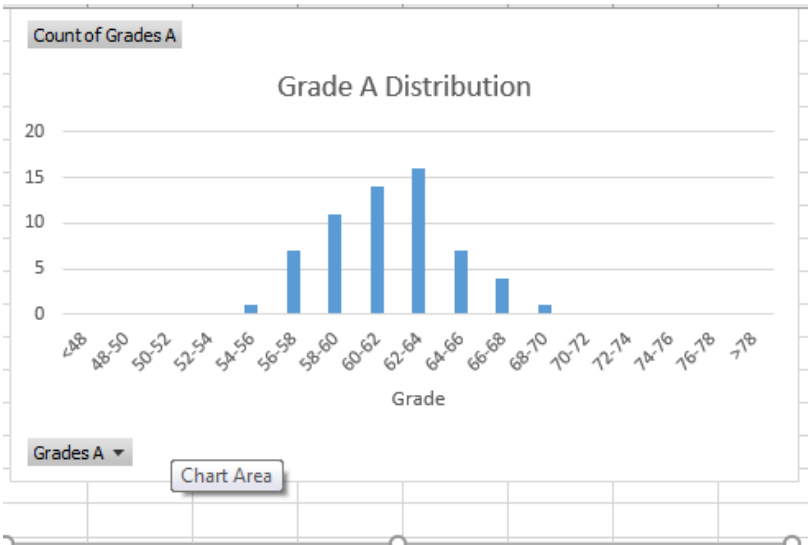
1.2	0.194186	60.85578	64.35946
1.3	0.171369	56.70744	64.24739
1.4	0.149727	58.43395	66.09602
1.5	0.129518	63.62189	63.23573
1.6	0.110921	59.81248	68.46329
1.7	0.094049	68.47095	64.00166
1.8	0.07895	62.74366	60.04726
1.9	0.065616	56.99913	71.19028
2	0.053991	63.12081	55.96049
2.1	0.043984	57.22736	63.38768
2.2	0.035475	62.56571	48.91259
2.3	0.028327	59.33284	60.00777
2.4	0.022395	57.98952	56.28011
2.5	0.017528	66.13623	52.44881
2.6	0.013583	57.31246	65.19903
2.7	0.010421	62.6698	64.61817
2.8	0.007915	59.22163	55.29817
2.9	0.005953	59.72472	61.00009
3	0.004432	58.36893	61.97875

B) To create a sample normal distribution (normal bell curve), highlight the first two "sample normal" columns, then under "Insert", choose "Recommended Charts" then "Line" to produce the following sample normal distribution. Edit titles as needed:

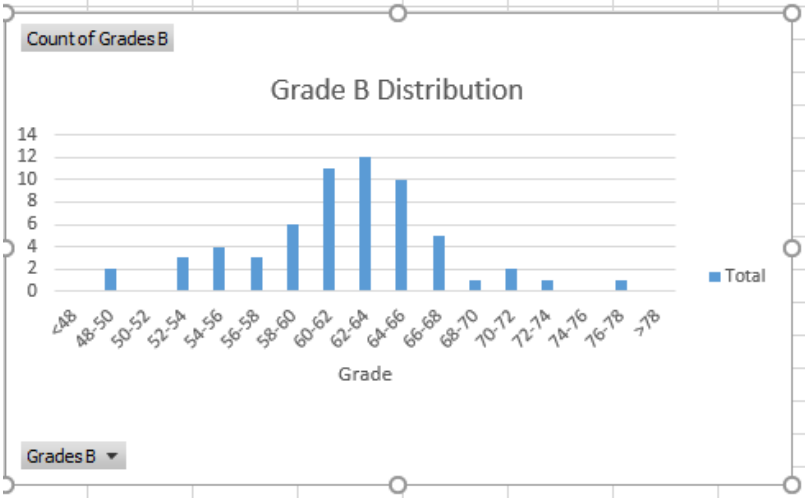


C) For both Grades A and Grades B, use a pivot chart to show each class' distribution (using a histogram), starting at 48%, ending at 78%, and with 2% groups. Also use the data analysis option to show each class' descriptive statistics.

D) After formatting the graphs and titles, your results should look like the following:



Grade A Statistics	
Mean	61.61360008
Standard Error	0.369319577
Median	61.58037961
Mode	#N/A
Standard Deviation	2.884478107
Sample Variance	8.32021395
Kurtosis	-0.473892735
Skewness	0.059633912
Range	12.54472409
Minimum	55.92623067
Maximum	68.47095476
Sum	3758.429605
Count	61



Grade B Statistics	
Mean	61.79382613
Standard Error	0.672438162
Median	62.19379229
Mode	#N/A
Standard Deviation	5.25190994
Sample Variance	27.58255802
Kurtosis	0.934446628
Skewness	-0.063053986
Range	28.07086275
Minimum	48.64807208
Maximum	76.71893484
Sum	3769.423394
Count	61

E) Notice that both classes have almost the same mean and both are somewhat normally distributed. (They were both created using normally distributed random variable generation). However, class B's results are more spread out, seen both in the distribution graphs and by the fact that class B has a higher deviation and variance.