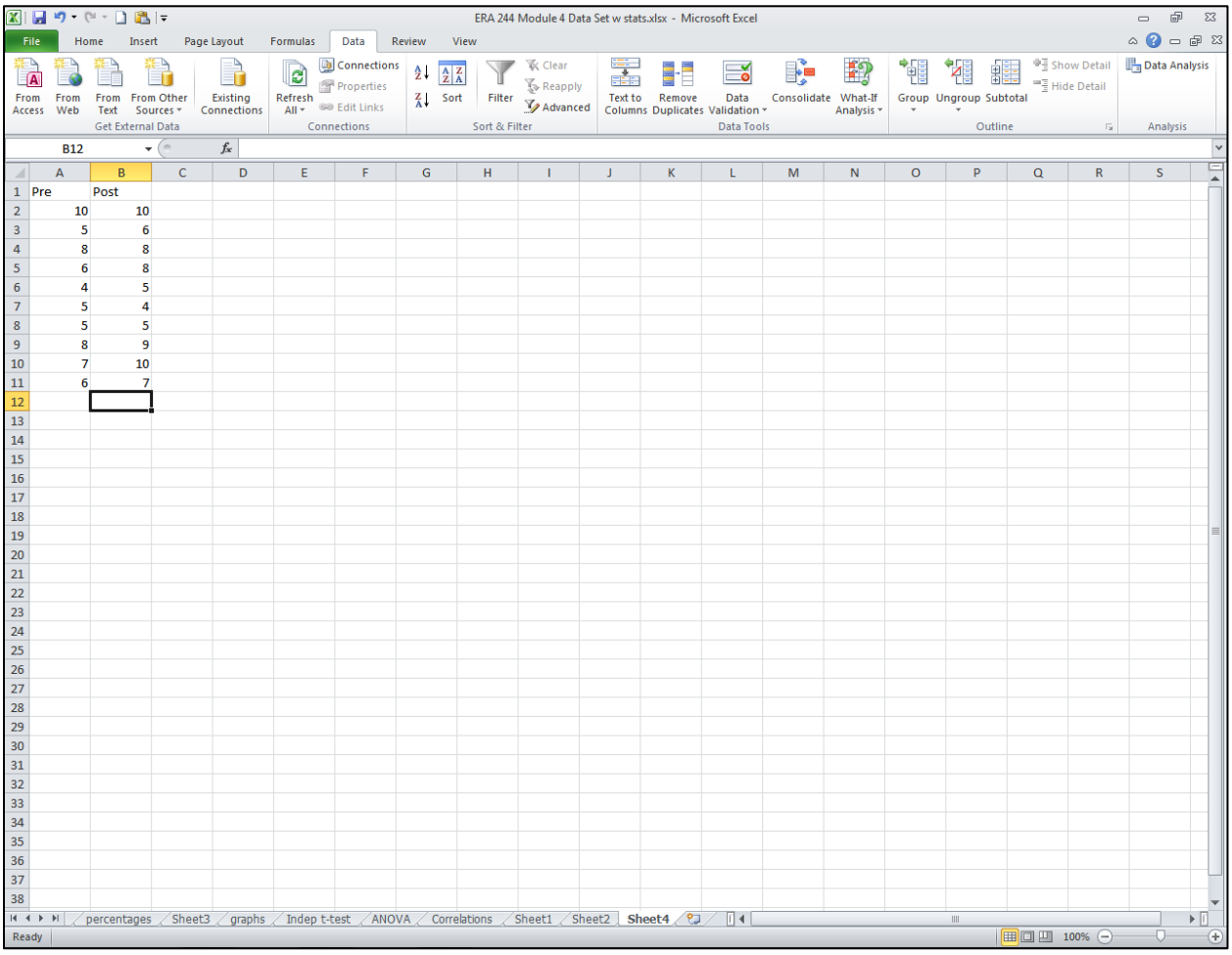
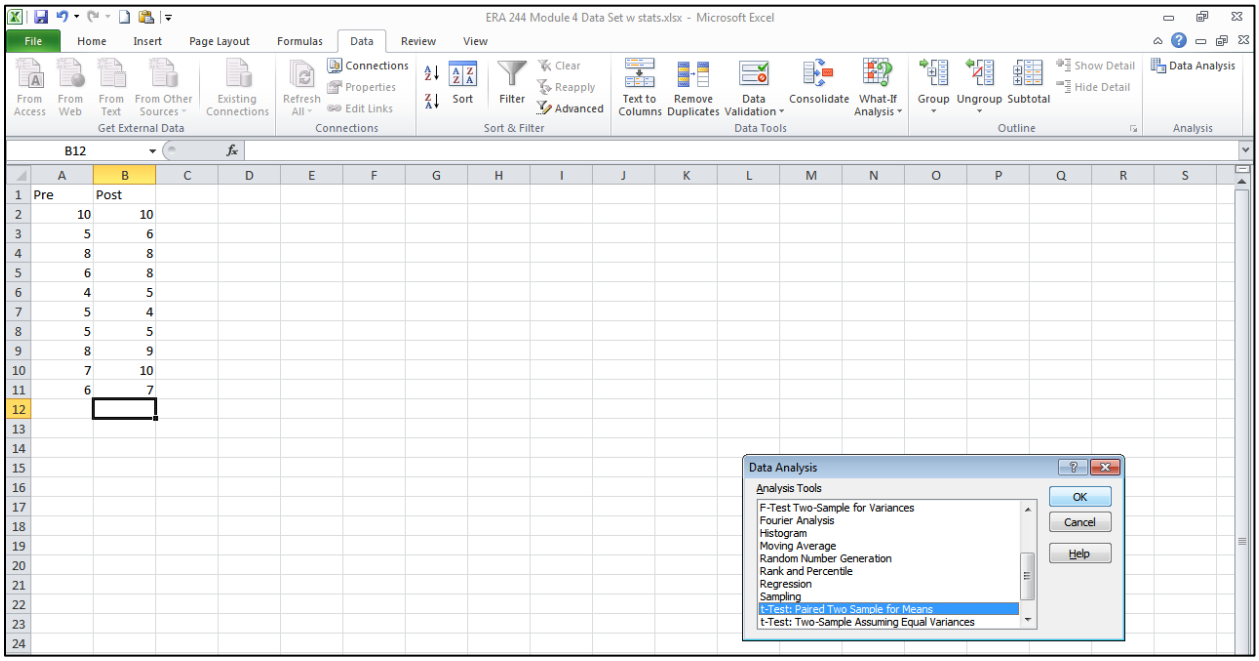
Dependent-tests

To calculate a Dependent t-test in Excel

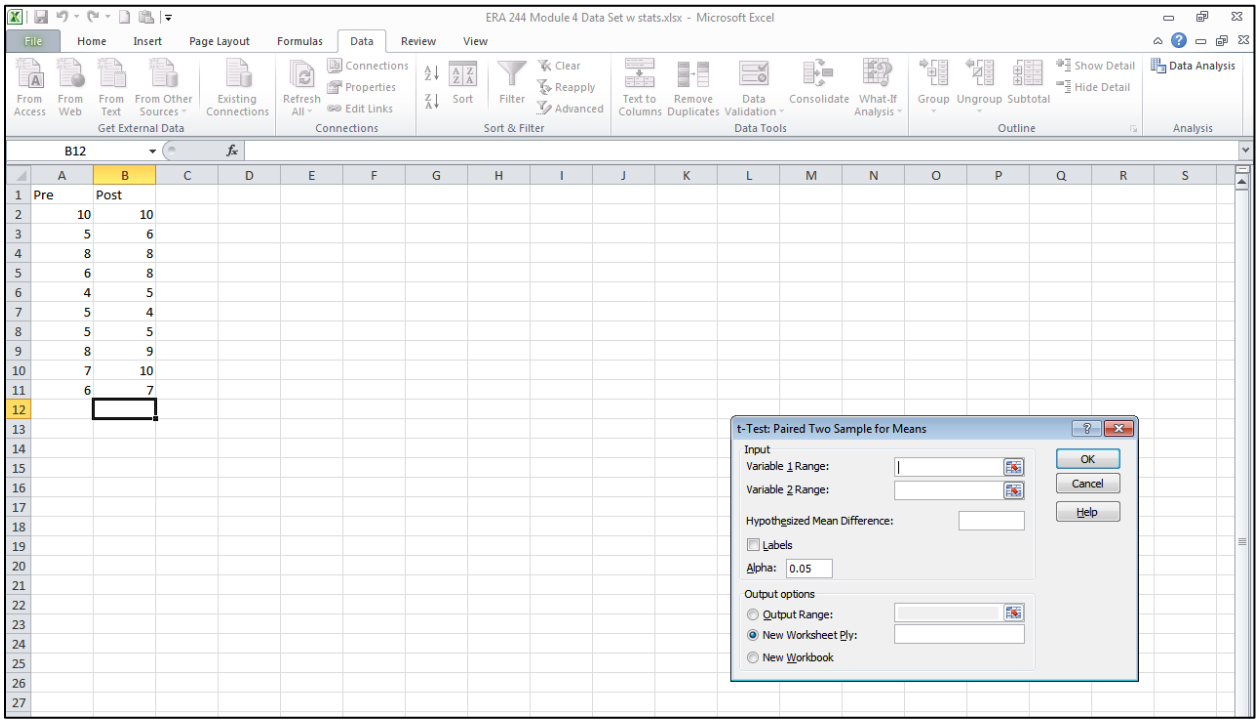
- Set up your data with the pretest scores in one column and the posttest scores in the adjacent column as shown below:



- Click on Data Analysis and drag the cursor down to “t-test: Paired Two Sample for Means” and click on OK.

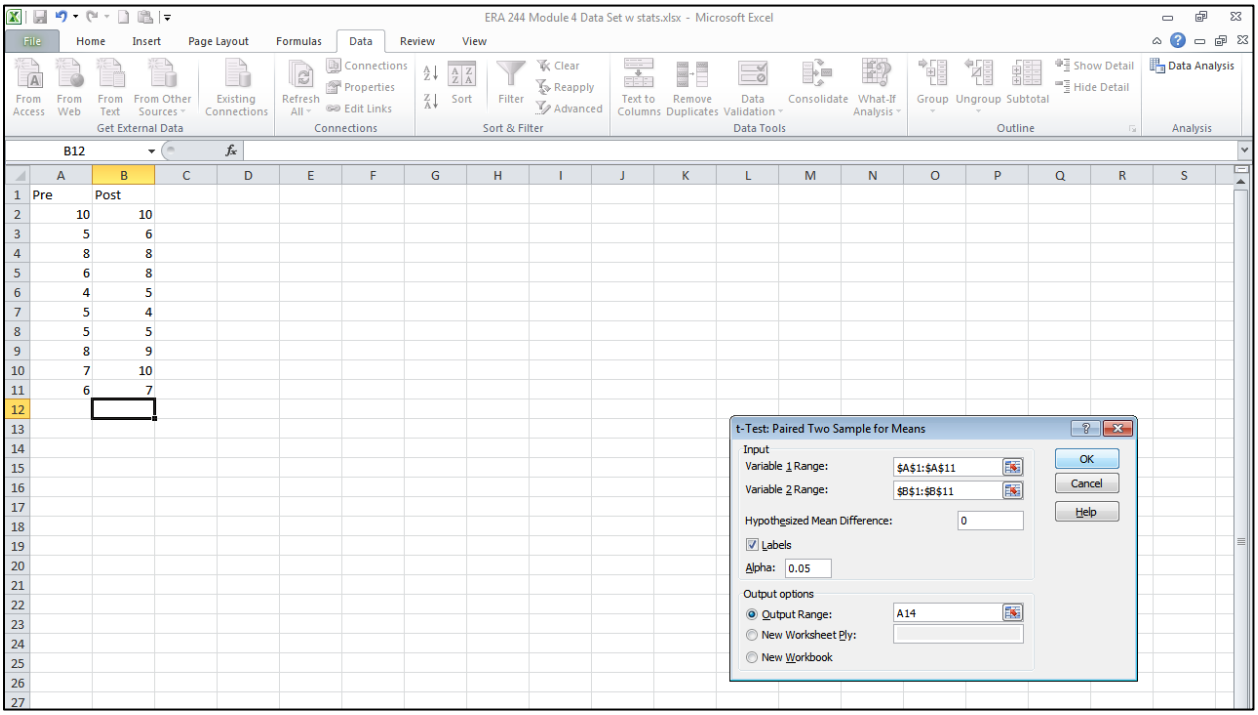


- The following box will appear.

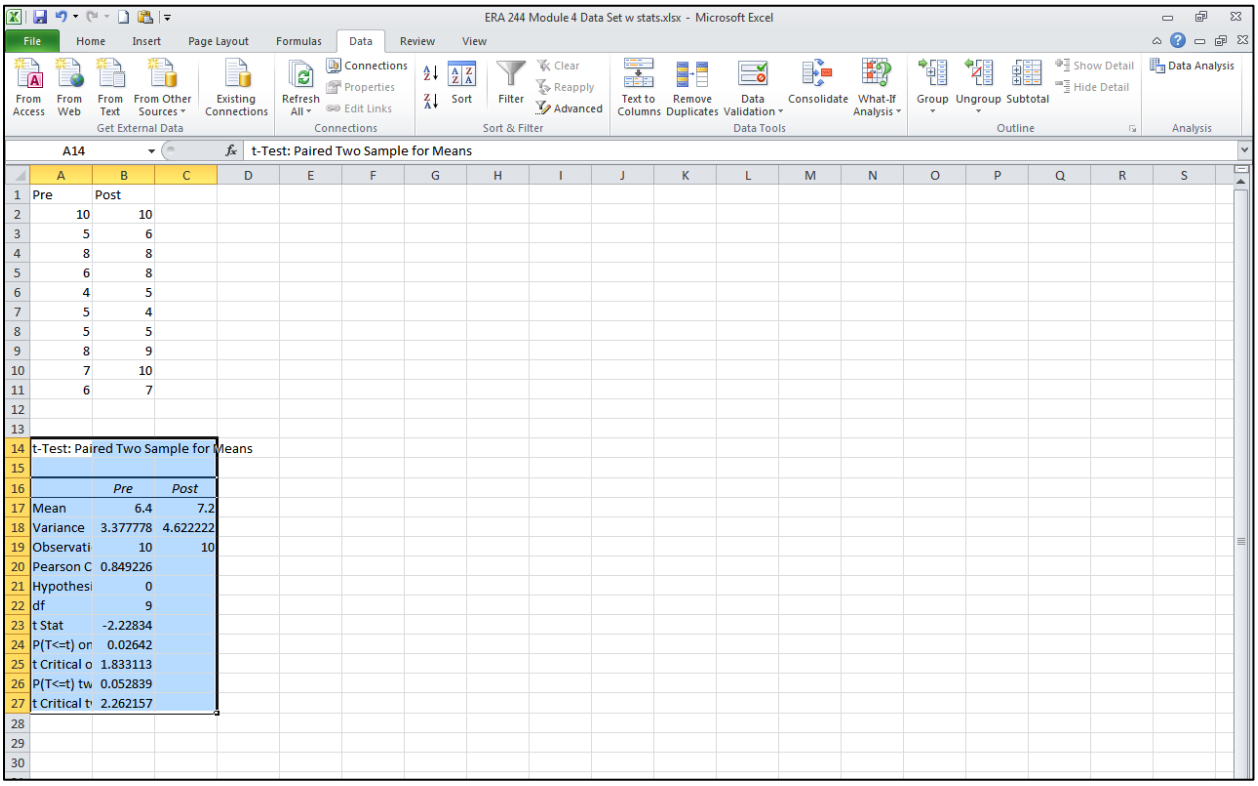


- Type in the cells that enclose the label and data for the pretest A1:A11. Then type in the cells that enclose the label and data for the posttest B1:B11.
- Type “0” for the Hypothesized Mean Difference.

- Click in the box by labels (If you don't type in the cell for the label, you don't have to check this box.)
- Click on Output range and give an empty cell for the results to be printed in. Here it is A14.
- Click on OK.



Your data will appear below. Notice that the means are labeled according to the column labels.



I have copied the results into this Word file

t-Test: Paired Two Sample for Means

	Pre	*Post*
Mean	6.4	7.2
Variance	3.377778	4.622222
Observations	10	10
Pearson Correlation	0.849226	
Hypothesized Mean Difference	0	
df	9	
t Stat	-2.22834	
P(T<=t) one-tail	0.02642	
t Critical one-tail	1.833113	
P(T<=t) two-tail	0.052839	
t Critical two-tail	2.262157	

The means for are in red. The variances are in blue. You can get standard deviations by squaring this variance number for each group. The t-value and the one-tailed P value are in green. The two-tailed p-value is in orange. Remember you want the p value to be less than .05 for the t to be significant meaning that the pretest is significantly different from the posttest. The degrees of freedom are in purple.

In my example these are spelling test grades. I want to do a one-tailed test since I think my students should be better (one direction) on the posttest than on the pretest. (If I wasn't sure which way the results should turn out, I would be doing a two-tailed test.

Your write-up should read:

The means and standard deviations appear in Table 1 (you can do that table yourselves.)

The dependent t-test of differences between pretest (M = 3.78) and posttest (M = 4.62) means in spelling was significantly different (t (9) = -2/23. P = .03).

If this p is less than .05, you would need to say that there was a significant difference, and the group with the highest mean was different from the group with the lowest mean.