Data Analysis II: Comparison Analysis (Excel)

1) This task requires you to compare students' knowledge test results (knowledge total) by **ethnical groups**.
2) **How?** Open your Excel file.

Step 1 Prepare a new data sheet for analysis: Copy the variable of "knowledge total" and paste it on a new data sheet on column 1. Then copy the variable of "Ethnicity" and paste it in the new data sheet on column 2.

Step 2: Transform the data for comparison. In the new data sheet with the two columns of data "knowledge total" and "ethnicity," you select both variables' data first, then click "Data" tab then click "Sort." In the little window popped up, choose to sort the data by the categorical variables (i.e. ethnicity or schools) in the drop-down menu "sort by." Now you can copy and paste students' knowledge test results to a new data sheet juxtaposed by the categorical variable.

Step 3: Install "Data Analysis" add-in. If you can't find a tab called "Data Analysis" under "Data" you need to install it. First you go to "File" and click "Options." In the window popped up, click "Add-ins" on the left hand side. At the bottom of the new window, you click "go" after "Excel Add-Ins" After check "Analysis ToolPak" you click "Go."

Step 4: Analysis of Variance (ANOVA).

You click "Data Analysis" under "Data" tab then choose "ANOVA: single factor." In the "Output Range" you designate a blank cell as the location for the result of the analysis. Then, you select the re-organized data we just arranged by the categorical variable. Then click "Ok" Two tables will be inserted in the location you previously designated.

Step 5: Write up your results along with the ANOVA table generated by Excel. The write up should be similar to the passage below after you plug in the numbers.

"*A one-way between subjects ANOVA was conducted to compare the effect of (Independent variable or the so-called categorical variable; you fill the blank with 'ethnicity group' for the analysis) on students' knowledge test results.*

There was a significant effect of (Independent variable or the so-called categorical variable; for you it should be for ethnicity group) on knowledge test results at the p< .05 level for the three conditions F(2,413)=5.73, p=0.004"

ANOVA

Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	41.90601	2	20.95300263	5.729048	0.003514	3.017568
Within Groups	1510.476	413	3.657327376			
Total	1552.382	415				

- If the P-value is larger than 0.05, it indicates that the difference is not statistically significant; if the P-value is smaller than 0.05, it indicates that the difference is statistically significant.