CPH 682-001: Quantitative Methods   **Fall 2017**
Team Project #1   **Dr. Charnigo**

The workbook {WB1CPH682F17.xlsx} contains data for this project and will also be the file in which you type your answers. Please save the file with all of your answers under the filename {WB1CPH682F17 LN1 LN2 LN3 LN4.xlsx} and upload the final version into Canvas. Above, LN1 is your last name, while LN2 through LN4 are the last names of your other group members. (Groups with only three persons will have only three last names, obviously.) Members of the same group will have identical files except for the order of the last names in the filename.

Recall the Chapter 1 example on compensation for health care personnel, and consider the fictional data set in Sheet 1 of the accompanying workbook. ID is an identification number, Exp denotes years of experience, Deg denotes highest degree (HS=High School, UG=Undergraduate, G=Graduate), Per denotes most recent performance evaluation (1 to 5, 5 is best), and Rate is a proposed hourly wage.

[10] 1. Give a verbal description of the formula by which Rate is determined. (Notice that this formula coerces statements which are true or false into numbers by arithmetic operations.) Type your answer into cell A17 of Sheet 1.

[15] 2. Convert the following verbal description into an Excel formula in terms of B2, C2, and D2. Place the Excel formula in cell F2 and drag the formula down to cell F16. "Hourly wage starts at $8.20 for high school degree, $11 for undergraduate degree, $13 for graduate degree; add 25 cents for each year of experience, plus 122 cents per point on performance evaluation; then round to the nearest 10 cents."

[15] 3. Create an Excel formula which, when typed into cell G2, yields "Higher w/ rate E" if E2 exceeds F2, "Higher w/ rate F" if F2 exceeds E2, and "Equal w/ both" if F2 equals E2. Drag the formula down to cell G16.

[15] 4. In the present context, which variables are most reasonably regarded as outcomes, and which variables are most reasonably regarded as explanatory ? Indicate whether each variable is nominal, ordinal, interval, or ratio. Type your answers into cell A19 of Sheet 1.

[15] 5. If I asked you to randomly select one person with a high school degree, one person with an undergraduate degree, and one person with a graduate degree, what type of sample would that be ? What if I asked you to randomly select an ID number between 1 and 3 and then choose every third person thereafter ? Type your answers into cell A21 of Sheet 1.

[15] 6. Use the FREQUENCY command to output into cells I2 through I5 the numbers of persons for whom Rate (column E) is less than $10.00, between $10.00 and $14.99, between $15.00 and $19.99, and $20.00 or above.

[15] 7. Create a Sheet 2, and copy the data (cells A1 to E16) to Sheet 2. Sort the data by Deg. Use the AVERAGE and STDEV.P functions to calculate the mean and standard deviation of Rate for each type of Deg. Make a plot like that on page 8 of my notes for Chapter 2, where the height of each column corresponds to the mean of Rate for each Deg type and the length of the error bar corresponds to the standard deviation of Rate for each Deg type.