Math 263: Excel Assignment 2

Due Thursday January 28 in the Dropbox on D2L

You must do the computer work for this assignment yourself, although you may certainly talk to other people. Graphs or answers, which appear to be copied, will be treated as an integrity violation.

Excel instructions are on the last page of the assignment.

Excel Help
If you aren’t comfortable doing this in Excel, come to my office, Gould Simpson 829, with your laptop.

Hurricanes have low pressure at their center. This pulls in moist air and generates high wind speeds. The file HurricanesWindPressure.xlsx contains data from National Hurricane Center (NHC), National Oceanic and Atmospheric Administration (NOAA) on the wind speed and central pressure for 163 hurricanes that have hit the US since 1851.

For comparison, standard sea level pressure is 1013 millibars (mb) or 29.9 inches of mercury. Hurricane Katrina had a central pressure of 902 mb and wind speed of 175 mph.

1. Use central pressure to predict maximum wind speed:
   (a) Which variable is the response variable?
   (b) Which variable is the explanatory variable?
   (c) Make a scatterplot of wind speed against central pressure. (Instructions at end of assignment.)
   (d) Insert the trend line and $R^2$ value. (Instructions at end of assignment.)
   (e) What is the correlation between wind speed and central pressure?
   (f) Using the regression equation, use Hurricane Katrina’s central pressure to predict its wind speed.
   (g) Was the actual wind speed for Katrina higher or lower than that predicted by the central pressure?
   (h) What is the residual for Katrina? (Residual = Actual value – Predicted value.)
HOW TO MAKE A SCATTER PLOT IN EXCEL AND FIT A REGRESSION LINE  
(MAC AND PC)

Making a Scatter Plot

1. Under Insert (on PC) or under Charts (on Mac), select Scatter Plot. Chose the option without connecting lines. A blank graph will come up.

2. Right click on the blank graph and choose Select Data. Choose the appropriate data for the xs and for the ys. Do not include the headings.

Labeling the Scatter Plot

3. Label the axes so it is clear what each axis represents in terms of the context. To do this, click on the graph, and select a menu called Layout (PC) or Chart Layout (Mac). Then look for the Axis Title button.

To fit a Trendline

4. Right click on the data and select Add Trendline.
   • In the Type tab, select Linear.
   • In the Options tab, check Display equation and Display R-squared value.

Adding Another Data Series to a Scatter Plot (you don’t need to do this here, but in case you want to do it in the future)

5. Right click on the graph and chose Select Data. Choose the appropriate data