Math 263: Excel Assignment 2

Due Thursday January 30, at the start of class. Hand in a paper printout of your work. Please don't email me the assignment. Thanks!

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, before Tuesday or meet with Adrian Carballeira (adrianc@email.arizona.edu)

The file *HealthCareLifeExpectancy.xlxs* contains data from the Statistical Abstract of the United States about life expectancy for men and for women in thirty countries and the country's health care expenditures as a percentage of GDP (gross domestic product). We will look at how well health care spending predicts life expectancy.

1. Use health care expenditures to predict female life expectancy:

(a) Which variable is the response variable? Which is the explanatory variable?

(b) Make a scatterplot of female life expectancy against health care expenditures. (Instructions at end of assignment.)

(c) Insert the trend line and R^2 value. (Instructions at end of assignment.)

(d) Paste your scatterplot plot in your solutions.

(e) Are there any outliers? If so, which country or countries? (To find the data for the outlier, hover over it in the scatter plot. Then look up the country in the list.)

(f) For the outlier(s), is life expectancy higher or lower than would be predicted from the country's health care spending?

(g) Using your scatter plot:

(i) What is the correlation between life expectancy and health care?

(ii) Give an interpretation, in terms of life expectancy and health care, of the constant in the equation of your line.

(iii) Give an interpretation, in terms of life expectancy and health care, of the slope of your line.

2. Use health care expenditures to predict male life expectancy:

(a) Add male life expectancy to your scatter plot. (See instructions at end of assignment.) Fit a regression line to the male data and show the equation and the value of R-squared. (Use the same method as in the previous question.) Paste your scatter plot in your solutions.

(b) What is the value of $R^{2.}$? Interpret $R^{2.}$ in terms of the context of health care and male life expectancy.

3. Compare the equations of the trendlines for males and females:

(a) For which gender does life expectancy appear to be more affected by health care spending? Give a reason for your answer.

(b) Is there a level of health care spending at which male and female life expectancies are predicted to be equal? How do you know? If so, find it.

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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

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