Name: _____ Lecture time (10 or 11 or 12): _____

Lab Problems 1-4

Statistics 0200
Dr. Nancy Pfenning

1. (5 pts.) How many credits were surveyed students taking?

   (a) What variable or variables are involved? For each variable, tell whether it is quantitative or categorical.

   (b) **Before you even look at the data**, try to make a rough guess for each of the following: [If you're completely clueless, just answer with a "?".]

      i. (center) mean:_____median: _____
      ii. (spread) standard deviation: _____   range: _____to _____
      iii. shape:_____
         Do you expect outliers? (Explain briefly.)

   (c) Use **MINITAB Basics Examples C-F** to find the following:
      Five Number Summary:_____ _____ _____ _____ _____
      mean_____standard deviation _____
      shape (based on stemplot/histogram/boxplot)_____

   (d) **Summarize** your findings in one or two sentences. Be sure to express your results specifically in terms of the variable(s) of interest, and mention to what extent the results match your guesses in (b).

2. (5 pts.) For surveyed students, how do the shoesizes of males compare to those of females?

(a) What variable or variables are involved?For each variable, tell whether it is quantitative or categorical.

(b) **Before you even look at the data**, try to make a reasonable guess for each of the following:

    i. Which group will have a higher center (or about the same)?_____

    ii. Which group will have more spread (or about the same)?_____

    iii. What shapes do you expect?
    Do you expect outliers?

(c) Use **MINITAB Basics Example I** to make a comparison:

    i. Does one group have a considerably higher center?

    ii. Does one group have more spread?

    iii. Compare the shapes.

(d) **Summarize** your findings in one or two sentences. Be sure to express your results specifically in terms of the variable(s) of interest, and mention to what extent the results match your guesses in (b).

3. (5 pts.) Does living on or off campus depend at all on whether a surveyed student is male or female?

   (a) What variable or variables are involved? For each variable, tell whether it is quantitative or categorical. Which variable (if any) should play the role of explanatory

   variable?_____

   (b) **Before you even look at the data**, do you expect the variables to be dependent?_____ If so, for which explanatory group do you expect to see a higher proportion living on campus?

   (c) Use **MINITAB Basics Example U** to produce a two-way table of counts and row percents. Does one group have a considerably higher proportion on campus?

   (d) **Summarize** your findings in one or two sentences. Be sure to express your results specifically in terms of the variable(s) of interest, and mention to what extent the results match your guesses in (b).

4. (5 pts.) How are surveyed students' heights and weights related?

(a) What variable or variables are involved? For each variable, tell whether it is quantitative or categorical.

Which, if any, would be the obvious choice for explanatory variable?_____

(b) **Before you even look at the data**, try to make a reasonable guess for each of the following: [If you're completely clueless, just answer with a "?".]

   i. form (linear or curved): _____

  ii. direction (positive, negative, or none):_____

 iii. strength (strong, moderate, or weak):_____
     Do you expect outliers? (Explain briefly.)

(c) Use **MINITAB Basics Example Q** (only the relevant parts) to answer the following:
Does the scatterplot show a roughly linear form?_____
What is the regression line equation?_____
What is the value of the correlation r? _____
What is the typical residual size s? _____

(d) **Summarize** your findings in one or two sentences. Be sure to express your results specifically in terms of the variable(s) of interest, and mention to what extent the results match your guesses in (b).