22S:105, Statistical Methods and Computing
Instructor: Cowles
Spring 2006, Homework 3

Due: Fri., 02/10 in class
Please put your name at the top of your homework, and list the names of any classmates
with whom you collaborated.

1. For textbook problem 4.27, the data are on the course web page as "winehrt.dat."

   (a) Use SAS to produce the scatterplot for part (a).

   (b) Answer parts (b) and (c).

   (c) Use SAS to compute the correlation coefficient r between alcohol from wine and
   heart disease death rate.

   (d) In the data, wine consumption is measured as yearly liters of alcohol from drink-
   ing wine, per person. If it had instead been measured in yearly *ounces* per person,
   how would the value of r have been affected?

2. Investors ask about the relationship between returns on investments in the U.S. and
on investments overseas. The data file "stocks.dat" gives the total returns on U.S.
and overseas common stocks over a 26-year period. (The total return is change in
price plus any dividends paid, converted into U.S. dollars. Both returns are averages
over many individual stocks. Use SAS to get the numbers required for answering the
following questions.

   (a) Make a scatterplot suitable for predicting overseas returns from U.S. returns.
   (Use SAS.)

   (b) Find the correlation coefficient r. Describe the relationship between U.S. and
   overseas returns in words, using r to make your description more precise.

   (c) Find the 5-number summaries for both U.S. and overseas returns. Make boxplots
   to compare the two distributions. (These will not be side-by-side on one plot).

   (d) Were returns generally higher in the U.S. or overseas during this period? Explain
   your answer.

   (e) Were returns more volatile (that is, more variable) in the U.S. or overseas during
   this period? Explain your answer.

3. Textbook problems: 3.14, 3.16, 3.28, 3.30, 4.13, 4.15, 4.17, 4.19, 4.28, 4.30