Homework Policies: You should give a brief and concise explanation for each question. Just writing down an answer with no explanation is usually not sufficient. If the homework requires output from Stata, incorporate that output into your written assignments. Homework is due at the *beginning* of class on the day indicated.

(1) M&M 1.17, p. 23

(2) It has been said that, "The average stockholder is a 53-year-old woman." In what sense(s) is the word "average" being used here? Explain briefly.

(3) An old joke is that a certain math professor left Colby to go to Swarthmore, thereby improving the average quality of both math departments. If this statement is true, which college must have a better math department? Why?

(4) A team of seven lightweight male rowers has an average weight of 158.6 pounds. The team plans to race in an eight-man boat, so another rower is needed. If the team needs to maintain an average (mean) weight of 160 pounds/rower, what is the maximum that this additional rower can weigh?

(5) In the survey given to the class on the first day, you were asked how many hours of TV you watch per day, on average. These data are in the *survey-231.dta* file posted on the course website. Produce a histogram of the "TV" variable. Is the distribution symmetric? If not, which way was is it skewed? What would be the most appropriate measure of location (centrality) to use? Explain.

(6) Produce a boxplot of the "interest" variable from the course dataset. Is this variable quantitative or categorical? What is its interquartile range (approximately)?

(7) M&M 1.68, p. 50

(8) A professor gives a quiz to his class. There are 10 questions on the quiz worth 1 point each – no partial credit is given. After grading, the professor writes down, for each student, the number of questions the student got right and the number wrong. The average number of right answers is 6.3 with a SD of 1.6. What are the average and SD of the number of wrong answers? Or can this not be determined from the information given?

(9) You roll a standard die three times and then calculate the SD for the results of the 3 rolls. What is the largest possible SD that could be obtained? What is the smallest possible SD? Explain.

(10)   M&M 1.78 (Page 51)

OVER

Famous Statistician of the Week

Who is this dude?
Ernst Abbe
1840-1905

Why is he famous?

In 1868 he invented the apochromatic lens system for the microscope. This important breakthrough eliminates both the primary and secondary colour distortion of microscopes.

Other optical advances which Abbe made include a clearer theoretical understanding of limits to magnification and the discovery the Abbe sine condition, as it is called today, which gives conditions on a lens for it to form a sharp image, without the defects of coma and spherical aberration. Statistics played a key role in much of his work.

Courtesy of *http://www-gap.dcs.st-and.ac.uk/history/Mathematicians/Abbe.html*

OVER