Cooperative Group Activities

1. Out-of-class activity All students should make up results for 200 coin flips. Then use the runs test to determine whether the results appear to be random.

2. In-class activity Use the existing seating arrangement in your class and apply the runs test to determine whether the students are arranged randomly according to gender. After recording the seating arrangement, analysis can be done in subgroups of three or four students.

3. In-class activity Divide into groups of 8 to 12 people. For each group member, *measure* his or her height and *measure* his or her arm span. For the arm span, the subject should stand with arms extended, like the wings on an airplane. Divide the following tasks among subgroups of three or four people.

a. Use rank correlation with the paired sample data to determine whether there is a correlation between height and arm span.

b. Use the sign test to test for a difference between the two variables.

c. Use the Wilcoxon signed-ranks test to test for a difference between the two variables.

4. In-class activity Do Activity 3 using pulse rate instead of arm span. Measure pulse rates by counting the number of heartbeats in 1 min.

5. Out-of-class activity Divide into groups of three or four students. Investigate the relationship between two variables by collecting your own paired sample data and using the methods of Section 13-6 to determine whether there is a correlation. Suggested topics:

• Is there a correlation between taste and cost of different brands of chocolate chip cookies (or colas)? (Taste can be measured on some number scale, such as 1 to 10.)

• Is there a correlation between salaries of professional baseball (or basketball or football) players and their season achievements (such as batting average or points scored)?

• Rates versus weights: Is there a correlation between car fuel-consumption rates and car weights?

• Is there a correlation between the lengths of men's (or women's) feet and their heights?

• Is there a correlation between student grade point averages and the amount of television watched?

• Is there a correlation between heights of fathers (or mothers) and heights of their first sons (or daughters)?

6. Out-of-class activity See this chapter's "From Data to Decision" project, which involves analysis of the 1970 lottery used for drafting men into the U.S. Army. Because the 1970 results raised concerns about the randomness of selecting draft priority numbers, design a new procedure for generating the 366 priority numbers. Use your procedure to generate the 366 numbers and test your results using the techniques suggested in parts (a), (b), and (c) of the "From Data to Decision" project. How do your results compare to those obtained in 1970? Does your random selection process appear to be better than the one used in 1970? Write a report that clearly describes the process you designed. Also include your analyses and conclusions.

7. Out-of-class activity Divide into groups of three or four. Survey other students by asking them to identify their major and gender. For each surveyed subject, determine the accuracy of the time on his or her wristwatch. First set your own watch to the correct time using an accurate and reliable source ("At the tone, the time is . . ."). For watches that are ahead of the