a bevy of practice problems for discussion

1. A university's financial aid office wants to know how much it can expect students to earn from summer employment. This information will be used to set the level of financial aid. The population contains 3478 students who have completed at least one year of study but have not yet graduated. A questionnaire will be sent to an SRS of 100 of these students, drawn from an alphabetized list.

   (a) Describe how you will select the sample. Follow the four steps: label; table; stopping rule; and identify sample.

   (b) Use the portion of the random digits table below to select the first five students in the sample.

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95592 94007 69971 91481 60779 53791 17297 59335

68417 35013 15529 72765 85089 57067 50211 47487
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2. You're in college now, and you want to investigate the attitudes of students at your school toward the faculty's commitment to teaching. The Student Government will pay the costs of contacting about 500 students.

   (a) Specify the exact population for your study; for example, will you include part-time students?

   (b) Describe your sampling design. Will you use a stratified sample?

   (c) Briefly discuss the practical difficulties that you anticipate; for example, how will you contact the students in your sample?

3. To gather data on a 1200-acre pine forest in Louisiana, the U.S. Forest Service laid a grid of 1410 equally spaced circular plots over a map of the forest. A ground survey visited a sample of 10% of these plots.

(a) How would you label the plots?

(b) Use the table of random digits beginning at line **105** (below) to choose the first 2 plots in an SRS of 141 plots.

95592 94007 69971 91481 60779 53791 17297 59335

68417 35013 15529 72765 85089 57067 50211 47487

4. In late 1995, a Gallup survey reported that Americans approved of sending troops to Bosnia by 40% to 46% approval rate. The poll did not mention that 20,000 U.S. troops were committed to go. A CBS News poll mentioned the 20,000 figure and got the opposite outcome—a 33% to 58% disapproval rate. Briefly explain why the mention of the number of troops would cause such a big difference in the poll results. Write the name for the kind of bias that is at work here.

5. A church group interested in promoting volunteerism in a community chooses an SRS of 200 community addresses and sends members to visit these addresses during weekday working hours to inquire about the residents' attitudes toward volunteer work. Sixty percent of all respondents say that they would be willing to donate at least an hour a week to some volunteer organization. Bias is present in this sample design. Identify the type of bias involved and state whether you think the sample percent obtained is higher or lower than the true population percent.