## In-Class Exercises

8.3: (a) The population is all 45,000 people who made credit card purchases. (b) The sample is the 137 people who returned the survey form.

8.5: Since all the students surveyed are enrolled in a special senior honors class, these students may be more likely to be interested in joining the club (and more willing to pay $35 to do so). The direction of bias is likely to overestimate the proportion of all psychology majors willing to pay to join this club. This is a convenience sample.

8.9: With the election close at hand, the polling organization wants to increase the accuracy of its results. Larger samples provide better information about the population.

8.11: Label the suburban townships from 01 to 30, down the columns. At the website <https://www.random.org/integer-sets/>, generate 1 set of 5 unique random integers. From the list of suburban townships, select a township if its numerical indicator matches one of the five random numbers. Next, label the Chicago townships from 1 to 8, down the columns. Generate 1 set of 3 unique random integers. From the list of Chicago townships, select a township if its numerical indicator matches one of the three random numbers.

8.14: Question A asks whether existing law should be overturned. Question B simply asks whether openly gay men and women should be allowed to serve. Anybody who answers “yes” to Question A would surely answer “yes” to Question B, but the converse is not true. Hence, Question A is slanted toward a more negative response on gays in the military.

9.1: This is an observational study: No treatment was assigned to the subjects; we merely observed cell phone usage (and presence/absence of cancer). The explanatory variable is cell phone usage, and the response variable is whether or not a subject has brain cancer.

9.3: This is an observational study, so it is not reasonable to conclude any cause-and-effect relationship. At best, we might advise smokers that they should be mindful of potential weight gain and its accompanying ailments.

9.4: Subjects: the “healthy people aged 18 to 40.” Factor: the pill given to the subject. Treatments: ginkgo or placebo. Response variable: the number (or fraction) of e’s identified by each subject.

9.5: Individuals: pine seedlings. Factor: amount of light. Treatments: full light, 25% light, or 5% light. Response variable: dry weight at the end of the study.

Example 9.3 on page 226.

## Homework

8.1: (a) The population is (all) college students. (b) The sample is the 104 students at the researcher’s college who returned the questionnaire.

8.5: Since all the students surveyed are enrolled in a special senior honors class, these students may be more likely to be interested in joining the club (and more willing to pay $35 to do so). The direction of bias is likely to overestimate the proportion of all psychology majors willing to pay to join this club. This is a convenience sample.

8.28: Numbering from 01 to 35 alphabetically (down the columns), use the website <https://www.random.org/integer-sets/> to generate 1 set of 8 unique random integers. From the list of class members, select a class member if his or her numerical indicator matches one of the eight random numbers. Lists of selected class members will vary among students. Your answer should include the set of numbers you generated and the complete timestamp from the website.

8.46: (a) The wording is clear, but will almost certainly be slanted toward a high positive response. (Would anyone hear the phrase “brain cancer” and not be inclined to agree that a warning label is a good idea?) (b) The question makes the case for a national health care system, and so will slant responses toward “yes.” (c) This survey question is most likely to produce a response similar to: “Uhh...yes? I mean, no? I’m sorry, could you repeat the question?” (And, if the person is able to understand the question, it is slanted in favor of day-care subsidies.)

9.10. Assign 24/6 = 4 students to each treatment. The diagram is shown below. Label each student from 01 through 24. Then use the website <https://www.random.org/sequences/> to generate a sequence of random numbers between 1 and 24. Enter “1” in the Smallest value text box and “24” in the Largest value text box. Enter “6” in the Format text box. This will display the random numbers in six columns. Take the first column of random numbers and match each number to one of the student labels. Add those four students to group 1 by writing their names and labeling them as group 1. Repeat for each of the other columns and groups until all students are assigned randomly to a treatment group. Note that each group has 4 students not 6 as indicated in the diagram below.

