

Read Chapter 1 of the textbook.

The answer to any exercise with ‡ must be written in sentence form to receive full credit. Please limit your answers to at most two (and if you deem it absolutely necessary, to three) coherent sentences for any part of an exercise. Your answers must be legible or they will be returned ungraded.

1. Answer any two of the following. As part of each exercise, you are asked to “Discuss any possible sources of selection bias or inaccuracy of responses.” For this part of the exercise, provide exactly two possible sources of selection bias or inaccuracy in responses.
 - (a) ‡ (2pt) Exercise 3, page 19.
 - (b) ‡ (2pt) Exercise 5, page 20.
 - (c) ‡ (2pt) Exercise 10, page 20.
2. In any service-oriented business it is important to assess customer satisfaction. Suppose an airline wants to assess the satisfaction of their customers. Occasionally, when an airline flight is not very full, the flight attendants may have free time to ask passengers to fill out customer satisfaction surveys. (This happened to me twice.) Suppose customer satisfaction is on a 0 to 10 scale with 0 being “extremely dissatisfied” and 10 being “extremely satisfied”.
 - (a) ‡ (1pt) What is a major flaw with the validity of estimates generated from these customer satisfaction surveys?
 - (b) ‡ (1pt) What type of bias would you expect to appear in the estimates – an over or underestimate of true customer satisfaction? Why?
3. Suppose you want to estimate the proportion of MSU campus buildings that have at least one conference room. You plan on taking a SRS of campus buildings to gather your data.
 - (a) ‡ (1.5pt) What practical problems could arise in establishing a sampling frame from which to select the sample?
 - (b) ‡ (1.5pt) What problems could arise in observing the units selected?
4. Administrators of the dining facilities at MSU want information on the eating habits of undergraduate MSU students enrolled on the Bozeman campus. A survey was run and data were collected at the five dining centers on campus known to have the highest volume of use. Random samples of 80 students from each of the five dining centers were selected from those students who used the dining facilities for lunch on a certain Wednesday. These students expressed their opinions by filling out a questionnaire.
 - (a) ‡ (.5pt) What is the target population?
 - (b) ‡ (1pt) What is the study population?
 - (c) ‡ (1.5pt) Justify why the estimates from this sample will not be valid for the target population.