

Practice Problems Section 1C

1. Define each of the following and give an example of each.

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| a) Population | f) Response Bias |
| b) Census | g) Sampling Bias |
| c) Sample | h) Deliberate Bias |
| d) Bias | i) Non-response Bias |
| e) Question Bias | |

Directions for #2-10: For each of the following scenarios, describe the population of interest and all of the types of bias that the data may have (Question, Response, Sampling, Deliberate or Non-response). There may be more than one type of bias involved. Explain your answers and if there is bias, what groups of people were not represented.

2. We are interested in calculating the percent of children in LA County that are up to date with their vaccines. To figure this out, a person put a survey up on the yahoo webpage asking the following question: "Is your child up to date with their vaccines?" The computer will keep track of the number of people that answer yes or no.

3. We are interested in finding what percent of people in the U.S. agree or disagree with vaccinating children. To figure this out, we randomly selected 350 people in the U.S. and asked them the following question: "In order to save children from devastating diseases, do you agree that all children should be vaccinated?"

4. We are interested in finding out how many people in the U.S. have had whooping cough this year. To figure this out, we called every major hospital in the United States and asked how many people at their hospital were diagnosed with whooping cough this year.

5. We are interested in finding out what percent of Americans use Cocaine. We randomly chose 400 Americans and asked them if they use Cocaine or not.

6. What is the average age of college students in Canada? Since my cousin lives in Canada, I asked him to drive to two colleges near his house and ask people he bumps into what their age is.

7. Julie is interested in calculating the yearly income of adults in Palmdale. She drives around Palmdale, stops at certain streets, and then asks people that live on that street what their yearly income is? She skips streets that look "sketchy" as she is worried about her safety.

8. A college wants to collect data on their students to see how often they use the health office for mental health counseling. They randomly select 35 classes and collect data from all of the students taking those classes. They asked the following question. "It is very important for all college students to have mental health support. College students report having depression, anxiety and high stress levels. The college offers free mental health counseling at the health office. Have you taken advantage of these mental health services?"

9. A pharmaceutical company took random samples of their pills to check that the pill has the correct type and amount of medicine. They noticed that several of their pills did not have the correct amount of medicine, but decided to delete this data.

10. An auto manufacturer wants to collect data on the type and number of mechanical problems in their cars. They decide to keep data only on all cars brought to their dealerships nationwide.

Social Justice Question

11. A computer algorithm called COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) was created by Northpointe, Inc. The algorithm assesses whether criminals have a higher or lower risk of repeating crimes. Northpointe, Inc. did the validation study to show that the algorithm works.

