MODULE 5: COLLECTING DATA - SAMPLING (REVIEW)

Numbers 1 & 2: Complete both problems in your groups. Be prepared to share your work with the entire class.

- 1) The math department faculty at a large university wanted to know what portion of the student body believes students should be able to enroll in any math class without meeting a prerequisite. The statistics department offered to cooperate in conducting a survey, and a simple random sample of 500 students was selected from all the students enrolled in statistics classes. A survey form was sent by email to these 500 students and 236 responded.
 - a) What is the population of interest (a.k.a. the population) in this study?
 - b) What is the sample frame (a.k.a. the population frame) in this study?
 - c) What is the sample in this study?
 - d) Is the survey biased? Explain.
- 2) There were 136 movies made in Hollywood in 2011. Suppose that we are making a documentary on Hollywood film crews, and we need to devise a sample plan for selecting crew members for indepth interviews. For each of the following determine whether a random sample was collected.
 - a) Randomly select three crew members from each movie.
 - b) Make an alphabetical list of the crew members from all 136 movies. Randomly select one crew member and then select every 50th crew member thereafter.
 - c) Randomly select 4 movies and interview every crew member.

MODULE 6: COLLECTING DATA - EXPERIMENTS (REVIEW)

Number 3: Complete number 3 with your group-mates. Be prepared to share your work when you come back to class.

3) In 1778, Captain James Cook landed in what we now call the Hawaiian Islands. He gave the islanders a present of several goats, and over the years these animals multiplied into wild herds totaling several thousands. They eat almost anything, including the famous silver sword plant, which was once unique to Hawaii. At one time, the silver sword grew abundantly on the island of Maui ... but each year there seemed to be fewer and fewer plants. Biologists suspected that the goats were partially responsible for the decline in the number of plants and conducted a statistical study that verified their theory.

To test the theory, park biologists set up stations in remote areas of Haleakala. At each station two plots of land similar in soil conditions, climate, and plant count were selected. <u>One</u> <u>plot was fenced to keep out the goats, while the other was</u> <u>not</u>. At regular intervals a plant count was made in each plot.



Haleakalā silversword (Wikipedia)

a) Is this an experiment or an observational study?

b) What are the explanatory and response variables?

c) Is there a control group? Explain.