

STAT 113 Week 2 (Jan 14)

Work Sheet 1: Chapter 1-3

➤ **Observational Study or Experiment?**

1. Which of the following is an observational study and which is an experiment?
 - (a) A Stat 113 instructor announces a study session to be held the night before a test. The instructor lists the students who attended the session and compares their scores to the remaining Stat 113 students' scores.

Observational Study

- (b) To determine whether a review session will improve his students' test scores, a Stat 113 instructor divides his class into two groups. He then requires one group to attend a study session and compares the test results of each group.

Experiment

➤ **Population and Sample, Parameter and Statistic**

2. You are interested in the proportion of Stat 113 students that will end up with an A this semester. Identify the
 - (a) population: **all Stat 113 students this semester**
 - (b) individual: **a Stat 113 student this semester**
 - (c) variable: **whether or not a student will end up with an A**
3. The mean income of all subscribers to a particular magazine is **\$26000**. We draw a random sample of 100 subscribers and find that their mean income is **\$27300**. Identify the
 - (a) population: **all subscribers to the particular magazine**
 - (b) sample: **100 randomly selected subscribers**
 - (c) parameter: **\$26000**
 - (d) statistic: **\$27300**
4. The average GPA for all female volleyball players in a particular college is **2.8**, and their mean height is **182cm**. Identify the parameter or statistic if there is any.
2.8 and 182cm are both parameters.

➤ **Types of Sampling**

5. Which sampling method was utilized? Why?

- (a) Student organization looking to get signatures for a petition camp out in front of Class of 1950 Lecture Hall.

Convenience Sample / Voluntary Response Sample, because the selection process is seeking those individuals easiest to reach in front of Class of 1950 Lecture Hall.

- (b) Select three students from a class to receive ice cream by putting all the students' names in a hat and picking out three names randomly.

Simple Random Sample (SRS), because every individual has an equal chance of being sampled.

- (c) Select three female students and three male students to receive ice cream by putting all the men's names in one hat and all the women's names in a different hat and picking out three names from each hat.

Stratified Random Sample, because the population is first broken up into 2 subpopulations, one female and the other male students, then a SRS is done within each subpopulation.

- (d) In Fall 1995, the BBC in Britain requested viewers to call the network and indicate their favorite poem.

Convenience Sample / Voluntary Response Sample, viewers who do not want to call will not be able to participate.

- (e) Divide the class into four groups (freshman, sophomore, junior and senior) and take a random sample of two students from each group.

Stratified Random Sample, because the population is first broken up into 4 subpopulations, then a SRS is done within each subpopulation.

- (f) Priceline.com randomly e-mails a Customer Satisfaction Survey for certain transactions done on its site in which customers choose to either respond or not.

Convenience Sample / Voluntary Response Sample, customers who choose not to respond will not be able to participate.