

## Lesson 2: The Statistical Process & Design of Studies

### Homework

**Instructions: You are encouraged to collaborate with other students on the homework, but it is important that you do your own work. Before working with someone else on the assignment, you should attempt each problem on your own.**

1. Classify each of the following variables as categorical or quantitative.
  - a. Number of new automobiles sold at a dealership on a given day
  - b. Gender
  - c. Total number of hours slept in the past 24 hours - rounded to the nearest hour
  - d. Handedness (which hand you write with)
  - e. Species of trees sold at a nursery
  - f. Weight in carats of an uncut diamond
  - g. Brand name for a pair of running shoes
2. Explain the difference between an observational study and a designed experiment.
3. Briefly explain each of the following types of sampling procedures.
  - a. Simple random sample
  - b. Stratified random sample
  - c. Systematic random sample
  - d. Cluster sample
4. State health care regulators wanted to assess how satisfied residents of nursing homes are with the care they receive. In order to obtain a sample, the regulators used a registry that contained all of the state's nursing homes listed in alphabetical order. They randomly chose a number between 1 and 20 and got "16." They selected the 16<sup>th</sup> nursing home on the list and every 20<sup>th</sup> nursing home thereafter until they reached the end of the list. Which sampling method did they use?
  - a. Simple random sample
  - b. Cluster sample
  - c. Systematic random sample
  - d. Stratified random sample