University of California, Santa Cruz
Department of Statistics
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Statistical Methods for the Biological,
Environmental, and Health Sciences
STAT 007

Answers to Quiz 1

1. A clinical trial of Liptor treatments is being planned to determine whether its effect in diastolic blood pressure (in mm Hg) are different for men and women.

   a) Classify data from diastolic blood pressure as one of: categorical, discrete and finite, discrete and countable, or continuous. Justify your answer.
   *Diastolic blood pressure data is continuous data **[1pts.]**. It has a unit of measurement and is measured on a continuous scale**[2pts.]***
   *Another possible answer: Diastolic blood pressure data is discrete and finite **[1pts.]**. It has a unit of measurement and when measured with a digital instrument can take only a finite number of possible values**[2pts.]***

   b) Identify which of the following designs is more appropriate for the given experiment: completely randomized, randomized block design, or matched pairs. Justify your answer.
   *The more appropriate design is randomized block **[1pts.]**. First divide individuals into (blocks) men and women and the assign the treatment randomly within each block. This avoids confounding. **[2pts.]**.*

2. There are 19.6 million college students in the U.S.. In a study involving 6,000 college students, 46% were first generation college students. The sample was collected by randomly selecting 1,500 students from each of the categories freshmen, sophomore, junior, and senior.

   a) Identify one parameter and one statistic in the above statement. Justify your answer.
   *A parameter is 19.6 million. It describes the number of college students in the U.S, this is, in the whole population **[1.5pts.]**. A statistic is 6,000 college students. It describes the number of college students in the sample **[1.5pts.]**. Another statistic is 46%, which describes the percentage of first generation college students in the sample.*

   b) Which of the following best describes the type of sampling used in the study: simple random sampling, systematic sampling, convenience sampling, stratified sampling, or cluster sampling? Justify your answer.
   *stratified sampling **[1pts.]**. First, the students are divided into strata (freshmen, sophomore, junior, and senior) and then, within each strata 1,500 students are selected. **[2pts.]***