

1.3 Introduction to Experimental Design

Guidelines for planning a study:

- 1) Identify the objects of interest
- 2) Specify variables
Detail procedures for measurements
- 3) Determine population of sample.
Specify sampling method if samples are used
- 4) Collect Data
- 5) Use appropriate descriptive and inferential statistics
- 6) Acknowledge concerns regarding data collection
Make recommendations for future studies

Census - measurements of entire populations

Sample - measurements are taken from a sample representative of the population

- i.e. Simple random sampling
Stratified
Cluster
Systematic
Convenience

Observational study - measurements are taken in a way that doesn't change the response or variable being measured

experiment - changes are specifically imposed on a variable to observe changes

control group - group receiving a placebo
treatment group - receives the actual treatment

randomization - used to assign individuals to groups and avoid bias in selection
i.e. randomized two-treatment experiment

double-blind study - subjects of the study
- and the observers do not know which group of subjects receive the treatment

Guided Exercises (pg. 23, 25)