Sampling

Why the need for Sampling?

We are moving from descriptive statistics to inferential statistics.

Inferential statistics allow the researcher to come to conclusions about a population on the basis of descriptive statistics about a sample.

Technical Terminology

- A population is a collection of elements about which we wish to make an inference.
- Sampling units are collections of elements from the population that cover the entire population.

Why sample?

- **Too expensive to survey all**

- The population of interest is usually too large to attempt to survey all of its members.

- A carefully chosen sample can be used to represent the population.
  - The sample reflects the characteristics of the population from which it is drawn.

Sample results from samples …

- For example:
- Calculate mean of adult male heights and make inferences regarding the whole population
- Inferential statistics allow you to say that the mean height of population is xyz with margin of error of +/- 4%.

Random Sampling

Random sampling is the purest form of sampling.

- Each member of the population has an equal chance of being selected.

Sample size and error relationship

Standard error = population standard deviation / square root of sample size

$$SE = \sigma/\sqrt{n}$$

Sample Size ↓ == *SE* ↑