13.a - Intro to Experiments

1) Quiz 11 and Quiz 12 Discussion?
2) Reading: Observational Studies
3) Notes 13.a: Vocabulary of Experiments
4) Notes 13.a: Principles of Experimental Design

Discussion of Reading

Pg. 292 - 293
Observational Study Vocabulary

**Observational Study**
- collect data on uninfluenced outcomes
- observe choices instead of assigning them

**Retrospective Study**
- identifying subjects, and collecting data that has already occurred

**Prospective Study**
- identifying subjects first, collecting data as it occurs

Experiment Vocabulary

**Experiment**
- study design where the researcher applies a treatment

**Factor**
- explanatory variable (one or more) that is manipulated

**Response Variable**
- measurement of interest

**Experimental Unit**
- the individuals on whom we experiment
  (if human, consider subjects or participants)

**Levels**
- specific values chosen for the factor(s)

**Treatment**
- combination of the levels of all the specific factors applied to a unit
Four Principles of Experimental Design

Control
- we control sources of variation
- making conditions as similar as possible

Randomize
- assign treatments at random
- equalizes the effect of other sources of variation
- allows us to draw conclusions

Replicate
- applying each treatment to a number of subjects (within)
- redoing under the same controls (again)

Block
- when you cannot control variation of an attribute
- placing units with similar characteristics into groups

Assignment (Due Wednesday, December 2)

1) Pg. 312, #1-6

2) Read Chapter 13, Pg. 294 - 299