

Today's Topics

- **Review homework and quiz**
- **More definitions**
 - **Studies and variables**
- **Organizing and displaying data**
 - **Using Excel**

MORE DEFINITIONS

- **Kinds of Studies**
 - **Observational – Researcher observes what is happening**
 - **Examples: Ages, incomes, preferences of the population**
 - **Experimental – Researcher manipulates a variable and tries to determine how that affects the other variable**
 - **Examples: Drug testing, exercise and diet studies**
 - **Quasi-experimental – Groups are not randomly assigned**

MORE ON EXPERIMENTAL STUDIES

- **Variables**
 - **Independent** – The variable that is being manipulated
 - **Dependent** – The one that is being observed
- **Problems**
 - **Confounding variables**
 - **Artificial conditions**
 - **Non-random selection of subjects**
 - **Hawthorne effect**

SAMPLING

- **RANDOM SAMPLING**
 - **RANDOM NUMBERS**
- **SYSTEMATIC SAMPLING**
 - **FIRST SUBJECT IS SELECTED RANDOMLY**
 - **THEN EVERY K-TH NUMBER**
- **STRATIFIED SAMPLING**
 - **DIVIDE POPULATION INTO GROUPS**
 - **SUBJECTS WITHIN GROUPS ARE RANDOMLY SELECTED**

SAMPLING continued

- **CLUSTER**
 - **USE AN INTACT GROUP THAT IS REPRESENTATIVE OF A PORTION OF THE POPULATION**
- **CONVENIENCE**
 - **NOT SCIENTIFIC!**
- **CENSUS**
 - **NOT PRACTICAL**

MISUSES OF STATISTICS

- **SUSPECT SAMPLES**
- **AMBIGUOUS AVERAGES**
- **IMPLIED CONNECTIONS**
- **MISLEADING GRAPHS**
- **FAULTY SURVEY QUESTIONS**
 - **PUSH POLL**

ORGANIZING DATA

- **Frequency distributions**
 - **Grouped (using classes)**
 - **Relative**
 - **Percent**
 - **Cumulative**
- **Histograms**
- **Frequency polygons**
 - **Ogives**