

# STATISTICS I

SECTION R3

SPRING 2010

FEBRUARY 5, 2010

# TODAY'S PLANS

- Homework
  - Notes on your 3 questions
  - Questions on HW?
- Finish up measures of central tendency
  - Quick review of mean, median, mode, midrange
  - Weighted average
- Start measures of variation

# Sample Question about Exercise

- How much time do you spend exercising?

# Sample Quantitative Question about Sleep Habits

- How much sleep do you get each night?
- Select one:
  - I sleep less than 4 hours each night
  - I sleep between 4 and 8 hours each night
  - I sleep more than 8 hours each night

# Sample Qualitative Survey Question

- What is your favorite movie?

# APPLICATIONS OF MEAN, MEDIAN, MODE

- Which measure of central tendency to use?
  - Use mean when you want to perform more calculations
  - Use mode when you want a “typical” value
  - Use median when you want a number that divides the data into two groups
  - Use mode for qualitative data
- How do changes in individual values affect the mean, median, and mode?
  - Outliers mostly affect the mean
  - Don't rely on the mean when there are outliers
- Problem solving using the mean
  - What grade do I have to get on the next quiz?

# Which Measure to Use?

- You want to know:
  - What's the number of children in the average NJ family?
  - Which color car is the most popular?
  - 50% of students scored less than this number on the SAT – what's the number?
- The situation is:
  - There is one data value that is much larger than the other data values

# Weighted Average

- Some values might be worth more than others
- One application: Calculating your GPA

- Formula: 
$$\bar{x} = \frac{\sum wx}{\sum w}$$

# Measures of Variation

- Range – the easiest
- Variance – used to compute standard deviation
- Standard deviation – the measure of variation that is used most often