Why Study Statistics?

Dealing with Uncertainty

Everyday decisions are based on incomplete information

Consider:
- The price of IBM stock will be higher in six months than it is now.
- If the federal budget deficit is as high as predicted, interest rates will remain high for the rest of the year.

Because of uncertainty, the statements should be modified:
- The price of IBM stock is likely to be higher in six months than it is now.
- If the federal budget deficit is as high as predicted, it is probable that interest rates will remain high for the rest of the year.

Descriptive statistics
- Collecting, presenting, and describing data

Inferential statistics
- Drawing conclusions and/or making decisions concerning a population based only on sample data

Inference is the process of drawing conclusions or making decisions about a population based on sample results.
**Populations and Samples**

- **Population** is the set of all items or individuals of interest.
  - Examples: All likely voters in the next election, all parts produced today, all sales receipts for November.

- **Sample** is a subset of the population.
  - Examples: 1000 voters selected at random for interview, a few parts selected for destructive testing, every 100th receipt selected for audit.

**Data Types**

- **Qualitative (Categorical)**
  - Examples: Marital Status, Political Party, Eye Color (defined categories).

- **Quantitative (Numerical)**
  - **Discrete**
    - Examples: Number of children, defects per hour (counted items).
  - **Continuous**
    - Examples: Weight, voltage (measured characteristics).

**Data Measurement Levels**

- **Ratio/Interval Data**
  - Highest level for complete analysis.

- **Ordinal Data**
  - Higher level for mid-level analysis.

- **Nominal Data**
  - Lowest level for basic analysis.
The Decision Making Process

**Knowledge**

- Experience, Theory, Literature, Inferential Statistics, Computers

**Information**

- Descriptive Statistics, Probability, Computers

**Data**

Begin Here: Identify the Problem

---

**Task**

- Make an article about statistics roles in business research. Article should be typed with font times new roman 12 or Arial 11, space 1.5, paper size A4, and minimum length 3 pages.
- Article must be submitted on second meeting.
- Remember, lateness cannot be accepted!