Econ 310 Discussion Section

Handout 1: Chapter 1 and 4

Goals for Discussion Section:

- Work through the concepts presented during lecture
- Prepare students for exams
- Provide an environment where students can ask any questions related to the material and the course.

Review of Concepts:

Data Types:

- Interval
- Ordinal
- Nominal

Difference between population and sample.

Shape of distributions.

Mean, Median, and Mode

$$\mu = \frac{\sum_{i=1}^{N} x_i}{N} \qquad \bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Discussion Questions:

What is the difference between descriptive statistics and inferential statistics?

Why do we sometimes refer to the mean of x as $\bar{x}$, and sometimes as μ?

Practice Exercises

1. A manufacturer claims that 1% of the artificial hearts it has ever produced are defective. When 1,000 hearts are randomly drawn, 1.5% are found to be defective.

a) What is the population of interest?
b) What is the sample?
c) What is the parameter?

d) What is the statistic?

2. You are shown a coin. The owner of the coin claims it's "fair" (meaning that it will produce the same number of tails and heads when flipped a very large number of times).

a) Describe an experiment to test the claim?

For the rest of the question, suppose we do this 100 times.

b) What is the population in your experiment?

c) What is the sample?

d) What is the parameter?

e) What is the statistic?

f) Recall your goal is to determine whether the coin is fair. What conclusion would you draw if 99 of the 100 flips came up heads? What conclusion would you draw if 50 of the 100 flips came up heads?

3. Consider grade data for the following sample of students (drawn randomly from the entire population of 350 students who took Econ 310 last semester):

Student	Grade
Tom	80
Sean	90
Ed	60
Ben	70
Nate	80

a) What are N and n? Describe the difference between the two.

b) What are $\bar{x}$and μ? Describe the difference between the two.

c) Calculate the median, mode, and range

4. Ten people in a room have an average height of 5 feet 6 inches. An 11^{th} person, who is 6 feet 5 inches tall, enters the room. Find the average height of all 11 people?