INFERENTIAL STATISTICS

COM 221-ML | CCDATSCL

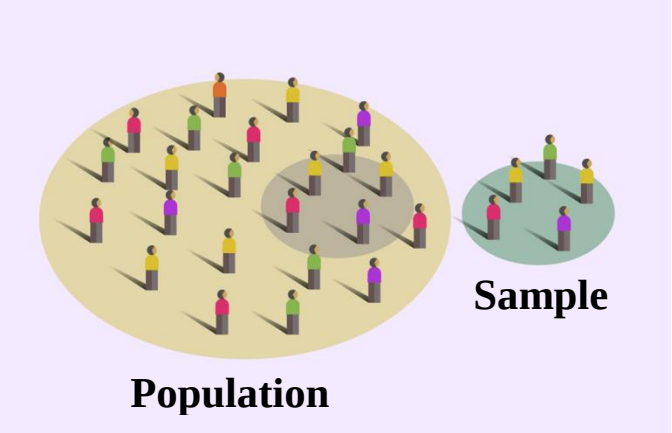
- Test whether the patterns that you observe in a sample dataset are likely to be present in the broader population or whether those patters are a product of chance.
- **Inferential statistics** is a branch of statistics that makes the use of various analytical tools to draw inferences about the population data from sample data.
- While **descriptive statistics** summarizes the features of the data set, inferential statistics helps to draw conclusions about the population.
- **Inferential statistics** can be defined as a field of statistics that uses analytical tools for drawing conclusions about a population by examining random samples.
- The goal of inferential statistics is to make generalizations or reasonable guesses about a population.

Inferential and Descriptive Statistics

Descriptive	Inferential
Organizing and summarizing data using numbers and graphs	Using sample data to make an inference or draw conclusion of the population
Bar Graphs, Histograms, Pie Charts	Uses probability to determine how confident we can be that the conclusions we make are correct
Measures of Central Tendency: Mean Median and Mode	Confidence Intervals and Margin of Error
Measures of Variability: Range, Variance and Standard Deviation	

Descriptive	Inferential
Summarize and organize the data with the sample	Use the sample data to make inferences about the population

INFERENCE - The process of drawing conclusions about population parameters based on a sample taken from the population.



The **population** is the entire group we want to study.

A **sample** is a small part of the population.

3 Main Ideas Underlying Inference

1. A sample is likely to be a good representation of the population.
2. There is an element of uncertainty as to how well the sample represents the population.
3. The way the sample is taken matters.