Population – all possible individuals that comprise a group of interest

Sample – a small subgroup of individuals from a population that participates in a study

Hypothesis – a specific statement that can be tested from empirical data. Scientific hypotheses typically make predictions about how one variable relates to another variable. For example:
  Males are taller than females. (Gender relates to height)
  As intelligence increases GPA increases. (Intelligence is associated with GPA)

Parameter – a numerical characteristic such as a measure of central tendency or dispersion that relates to a population

Statistic – a numerical characteristic such as a measure of central tendency or dispersion that relates to a sample

Descriptive Statistics – statistics that summarize or describe a set of observations (usually from a sample)

Inferential Statistics – statistics that allow one to make predictions or generalize about a population from a sample

Central Tendency
  Mean – the sum of all scores in a distribution divided by the total number of scores
  Sample Mean:
  \[ \bar{x} = \frac{\sum x}{n} \]
  Median – the score in a distribution of scores that divides the distribution in half such that ½ of the scores are greater than the median and ½ are less than the median
  Mode – the most frequent score in a distribution of scores

Dispersion or Variability
  Range – difference between the largest and smallest score in a distribution
  Standard Deviation – reflects the average amount that each the scores in a distribution differs from the mean of all scores
  Sample Variance:
  \[ s = \sqrt{\frac{\sum (x - \bar{x})^2}{n - 1}} \]