Statistics 101
Learning Objectives

Statistics is the study of variation. Recognizing, displaying, quantifying and identifying potential sources of variation are the basic activities of statistics.

By the end of the course students should be able to

- differentiate between populations and samples.
- summarize sample data both numerically and graphically.
    - single sample.
    - two samples.
    - relationship between two variables.
- interpret numerical and graphical summaries of data.
- identify what summary is most appropriate.
- recognize the difference between observational studies and experiments and understand the impact that difference has on making generalizations.
- perform simple random sampling.
- design and carry out an effective experiment.
- model a population using the normal distribution.
- make statistically valid inferences about a population based on a random sample of data.
    - confidence intervals.
    - tests of significance.
- interpret the results of confidence intervals and tests of significance within the context of the problem.
- recognize the limitations associated with making statistical inferences.
- use a modern statistical analysis package to analyze data.
- interpret output from a modern statistical analysis package.