Descriptive Statistics and Probability Distributions
Curriculum Module

by *Ward Nickle, Humboldt State University*

Created with R2020b. Compatible with R2020b and later releases.

Description

This package contains *live scripts* centered around the fundamentals of descriptive statistics and some commonly used probability distributions. These materials are designed to be flexible and can be easily modified to accommodate a variety of teaching and learning methods. Used in a sequence, the live scripts progressively add depth to the topic. However, each script can be easily adapted for standalone use. We include a brief background, interactive illustrations, tasks, reflection questions, and example problems for the different concepts explored.

Suggested Prework

MATLAB Onramp – a free two-hour introductory tutorial to learn the essentials of MATLAB.

Details

`descriptiveStatistics.mlx`

Products: MATLAB, Statistics and Machine Learning Toolbox
Learning Goals:
- Display a quantitative variable as a histogram.
- Determine and interpret the mean and the median.
- Determine and interpret the range, variance, and standard deviation.
- Determine and interpret measures of position.
- Display a quantitative variable as a boxplot.

`discreteDistributions.mlx`

Products: MATLAB, Statistics and Machine Learning Toolbox
Learning Goals:
- Define a probability distribution.
- Find statistics given a discrete probability distribution.
- Use the binomial distribution.
- Use the hypergeometric distribution.
- Use the Poisson distribution.

`continuousDistributions.mlx`

Products: MATLAB, Statistics and Machine Learning Toolbox
Learning Goals:
- Describe and use the uniform probability distribution.
- Describe and use the normal probability distribution.
- Describe and use the standard normal probability distribution.
- Describe and use the exponential probability distribution.