

ASDS - Applied Statistics with R

Fall 2018, YSU

Midterm 1 Material Coverage

Exam Time: October 30, 20:00 - 21:30

1 Descriptive Statistics

1. Introduction

- Populations and Samples
- Types of Variables (Features)

2. Exploratory Data Analysis for Univariate Data: Graphical Summaries

- Frequency and Relative Frequency Tables
- Histogram(s) for a Discrete Variable
- Histogram(s) for a Grouped Data/Continuous Variable
- Stem-and-Leaf Plots
- Empirical Distribution Function

3. Exploratory Data Analysis for Univariate Data: Numerical Summaries

- Order Statistics (Ranks)
- Statistics for the central tendency
 - The Sample Mean, Trimmed Mean, Weighted Mean, Winsorized Mean
 - The Sample Median
 - The Sample Mode
- Statistics for the Spread/Variability
 - Deviations
 - The Range
 - The Sample Variance and Standard Deviation
 - The Mean Absolute Deviation (MAD) from the Mean

4. Exploratory Data Analysis for Univariate Data: Quantiles and BoxPlots

- Theoretical and Sample Quantiles, Quartiles
- The InterQuartile Range, IQR
- BoxPlot

- Outliers (BoxPlot Method)

5. Exploratory Data Analysis for Bivariate Data

- ScatterPlot
- Sample Covariance and the Correlation Coefficient
- Q-Q Plot