Exam 1 Objectives

For Exam #1, a well-prepared student should be able to

- distinguish between categorical and quantitative variables

- distinguish between a variable and a value

- read context to determine what each variable measures, how it is measured (including units when relevant), and the range of possible values

- construct an appropriate graph (bar graph, pie chart, stemplot, histogram, boxplot) and use it to identify key features of a distribution

- identify potential outliers and make a judgment on how to deal with each in analyzing a distribution

- compute relevant quantities for a distribution (median, quartiles, IQR; mean, standard deviation) and use these to quantify key features of a distribution

- understand which measures are resistant and which are not resistant

- use the $1.5 \times$ IQR rule to identify potential outliers

- state the defining features of a density curve

- understand the connection between a model distribution and a density curve

- connect the area of a region under a density curve with a proportion of observations

- recognize the key features of a normal density curve and graphically locate the mean and standard deviation

- use the 68-95-99.7 rule to quickly determine proportions for "nice" intervals of a normally distributed variable

- standardize values (i.e., compute z-scores) for a normally distributed variable

- use standardized values and a standard normal table to determine a proportion for a given interval of values of a normally distributed variable

- use standardized values and a standard normal table to determine an interval of values for a given proportion of a normally distributed variable

- assess the normality of a distribution using a normal quantile plot

- relate information from a data distribution to the real-world context from which the data came