STAT 110 –
Chapter 13 Definitions

Strategy for Exploring Data:

1. Always plot your data: make a graph, usually a histogram or stemplot.
2. Look for the overall pattern (shape, center, spread) and for striking deviations such as outliers.
3. Choose either the five-number summary or the mean and standard deviation to briefly describe center and spread in numbers.

An additional step:

4. Sometimes the overall pattern of a large number of observations is so regular that we can describe it by a smooth curve.

density curve – a curve that has no negative values where the area under the curve is exactly one

normal curves – symmetric, bell-shaped curves with these properties:

1. It's completely described by giving the mean and standard deviation.
2. The mean determines the center of the distribution.
3. The standard deviation determines the location of the "inflection points"

68 – 95 – 99.7

standard score – the number of standard deviations above or below the mean at which an observation is located (also known as z-score.)

$$\text{standard score} = \frac{\text{observation - mean}}{\text{standard deviation}} \qquad z = \frac{x - \bar{x}}{s}$$

*c*th percentile – a value such that *c* percent of the observations lies below it and the rest lie above it

observation = mean + (standard score)(standard deviation) $x = \bar{x} + (z)(s)$