

- Measures of central tendency include:
 - Mean – the central point of the values numerically – average
 - Median – the locational center point of the values
 - Mode – value or values that occur in the data most frequently
- Parameters vs statistics:
 - Population values are called parameters
 - Sample values are called statistics
 - Different symbols are used to designate a value as a statistic or a parameter such as μ for population mean and $\bar{x}$ for sample mean
- Measures of dispersion tell us how widely the data varies:
 - Range: Largest value – Smallest value
 - Population variance:
$$\sigma^2 = \frac{\sum (x - \mu)^2}{N}$$
 - Sample variance:
$$s^2 = \frac{\sum (x - \bar{x})^2}{n - 1}$$
 - Population Standard Deviation: $\sigma = \sqrt{\sigma^2}$
 - Sample Standard Deviation: $s = \sqrt{s^2}$
- The empirical rule states that approximately:
 - 68% of the values lie within +/- 1 standard deviation from the mean
 - 95% of the values lie within +/- 2 standard deviations from the mean
 - 99.7% of the values lie within +/- 3 standard deviations from the mean
- Excel has built-in functions for mean (average), mode, median, standard deviation and variance.