

Univariate Statistics

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1 Housekeeping

2 Introduction to Statistics

- Group Meeting 3: Theory and Hypothesis on April 4
- Hwk 3 due April 11
- Keep bringing those laptops!
- Statistics today!

- Inferential Statistics
- **Descriptive Statistics** (aka univariate)

- **Distribution:** is a list of values for a particular variable
- Measures of **Central Tendency** -mean, median, mode
- Measures of Variability (aka **Dispersion**) -variance, standard deviation

Measures of Central Tendency

- **Mean:** arithmetic average of a distribution (add up all the values and divide by number of values)
- **Median:** middle number of a distribution (order all the values and take middle number (if odd, average of two in middle))
- **Mode:** most frequent value in a distribution

Measures of Variability

- **Variance:** Average of the squared differences from the mean. It tells us how different each value is from the mean and from each other. Subtract each value from the mean then find the mean of that set of differences
- **Standard Deviation:** Simply the square root of the variance (measures dispersion around the mean)
- High values for the variance and SD indicate that the data points are very spread out from the mean and from each other

Other Measures and Concepts

- **Quartiles:** 3 of them the upper, second, and lower. The middle is equivalent to the median, the lower is the median of the first half of the data and the upper is the median of the second half
- **Range:** Distance between the minimum and maximum values in a distribution
- **Interquartile Range:** Difference between the upper and lower quartiles
- **Histogram:** graphical representation of the distribution of a variable showing the frequency of each value