Stat 201 – Spring 2026

Topics to study for Exam 1

Chapter 1: Stats Start Here

- Quantitative versus categorical variable
- Recognizing what is not a variable at all
- Understanding the relationship of a sample and population
- Understanding the need for the context of a variable
- Being able to recognize an "Identifier Variable"
- Understand what "random" means
- Simulations and associated terminology

Chapter 2: Displaying and Summarizing Data

- Reading pie charts, bar charts, comparing the two
- Frequency table versus relative frequency table
- Calculating a Range and the IQR (given Q1 and Q3)
- Interpreting shape, center, spread and unusual features from a histogram
- Comparing histograms versus stem and leaf displays
- Identifying symmetry – skewness – outliers – gaps (from histograms or stem and leaf)
- Calculating a median by hand and interpreting it
- Calculating a mean by hand and interpreting it
- When to use mean and standard deviation versus median and IQR
- Interpreting median, mean, quartiles, IQR, range and standard deviation

Chapter 3: Relationships Between Categorical Variables

- Being able to calculate a relative frequency
- Being able to calculate a marginal distribution
- Being able to calculate a conditional distribution
- Interpreting segmented bar charts, mosaic plots
- Recognizing independence or dependence from mosaic plots

Chapter 4: Understanding and Comparing Distributions

- Know what the 5-number summary is
- Interpreting side by side box plots
- Comparing distributions (using histograms)
- Identifying and interpreting box plot components
- Use of common scaling on histograms when making comparisons
- Recognizing a trend in a time plot

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Chapter 5: The Standard Deviation as a Ruler and the Normal Model

- Calculating Z-scores, comparing two values
- 68-95-99.7 rule
- Understanding Z-scores, standard deviation (s) as a "ruler"
- Interpreting normal probability plots and goodness of fit tests
- Identifying outliers
- Understanding the difference between positive and negative Z-scores
- Recognizing the normal model, relationship between normal model and Z-scores
- "Nearly Normal Condition"
- Be comfortable with output from the "David M Lane" Normal Curve calculator
- Note: no use of the "Z-table"
- Understand the Normal probability plot and its use
- Understand the Goodness of Fit test and its use

Chapter 6: Scatterplots, Association, and Correlation

- Know which type of variables we use to create a scatter plot
- Interpret a scatter plot
- Direction (distinguish positive versus negative relationship)
- Form (distinguish linear versus curvy relationship)
- Strength (distinguish strong versus weak relationship)
- Unusual Features (be able to spot an outlier or groups)
- Know the difference between explanatory and response variables
- Know the bounds for r
- Be able to match r to example scatter plots
- Know the 3 necessary conditions for correlation analysis
    - Quantitative variables
    - Straight-enough condition
    - No outlier condition
- Describe what it means for a correlation to be -1, 0, and 1
- Understand the difference between correlation and causation
- Have a general understanding of what lurking variables are