

Unit 1 – Exploring Univariate Data (3.5 Weeks)

Enduring Understandings

- Interpretation of data is dependent upon the graphical displays and numerical summaries. [C2a]
- Graphical displays are created for the purpose of analysis and communication. [C4]

C2a: The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on exploring data.

Essential Questions

- How do we communicate data?
- How do we understand data?
- Can you lie with statistics? How and to what extent?

C4: The course teaches students how to communicate methods, results, and interpretations using the vocabulary of statistics.

Knowledge and Skills

- Construct dotplots, stemplots, histograms, and cumulative frequency plots.
- Interpret dotplots, stemplots, histograms, and cumulative frequency plots.
- Describe center, shape, spread, clusters, gaps, outliers and other unusual features
- Measure center using mean and median
- Measure spread using range, interquartile range, and standard deviation
- Measure position using quartiles, percentiles, and standardized (z) scores
- Use boxplots (and modified) with the five number summary
- Understand the effect of changing units on summary measures
- Do normal calculations
- Use dotplots, back-to-back stemplots, and parallel boxplots
- Compare center and spread both within a group and between groups
- Discuss shape, outliers, center, and spread of distributions
- Compare position of different distributions using standardization

C5: The course teaches students how to use graphing calculators and demonstrates the use of computers and/or computer output to enhance the development of statistical understanding through exploration and analysis of data, assessment of models, and simulations.

Sample Assessments/Activities

- Using one of the sites below (from the [DASL website](#)), students perform an analysis of the distribution of the data. Analysis includes graphically displaying the data, evaluating its ‘normalcy’, describing it numerically, and making claims about the distribution of individual data values. Students then locate an individual data point, find its standardized value, and determine its percentile ranking. Findings are presented in a format of their choice. [C2a, C4, C5]
- Students complete a variety of released free response items focused on summarizing and comparing univariate data.