

Unit 2 – Exploring Bivariate and Categorical Data (4 Weeks)

Enduring Understandings

- Regression is an effective model for prediction. [C2a]
- There is a difference between causation and correlation. [C2a]

Essential Questions

- To what extent can we predict the future?
- Is correlation ever causation?
- How can modeling data help us to understand patterns?

Knowledge and Skills

- Create and analyze patterns in scatterplots
- Understand correlation and linearity
- Construct, interpret and use least-squares regression lines
- Construct and interpret residual plots
- Identify and describe outliers and influential points
- Make transformations to achieve linearity (logarithmic and power)
- Create and interpret frequency tables and bar charts
- Create and interpret marginal and joint frequencies for two-way tables
- Create and interpret conditional relative frequencies and determine association
- Compare distributions using bar charts

Sample Assessments/Activities

- Choose a problem that interests you involving a dependent variable and an independent variable. The sample data for this problem must consist of at least 20 data points and must come from your own research or from an official, reputable site on the World Wide Web. Using technology (TI-Interactive or other application), construct a scatterplot and then perform a correlation & regression analysis on this data set. Write a report on the data and its analysis which includes a complete reference for the source of your data, the computer analysis of your data (must consist of a scatterplot, correlation analysis and regression analysis) and one or two well-written paragraphs summarizing your interpretation of these results. Be sure to address both sides of the story statistically. [C2a, C5]
- Students complete a variety of released free response items focused on linear and non-linear regression.

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.

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.