

Units 10 & 11 – Inference for Goodness of Fit, Independence, Homogeneity, and Regression (4 Weeks)

Enduring Understandings

- Significance tests can also determine the likelihood of a sample from a series of proportions. [C2d]
- Significance tests can also determine the whether two variables are independent. [C2d]
- Significance tests can determine the likelihood of a bivariate sample's slope. [C2d]

C2d: The course provides instruction in each of the following four broad conceptual themes outlined in the Course Description with appropriate emphasis on statistical inferences.

Essential Questions

- How can we test a series of proportions?
- How can we verify that two variables are independent?
- How can we test the slope of a correlation?

C3: The course draws connections between all aspects of the statistical process, including design, analysis, and conclusions.

Knowledge and Skills

- Check assumptions for both chi-squared goodness of fit and chi-squared test of independence
- Conduct significance tests for both chi-squared goodness of fit and chi-squared test of independence
- Check assumptions for inference for regression or a linear regression test.
- Conduct significance tests for linear regressions

Sample Assessments/Activities

- Have you ever wondered why the package of M&Ms you just bought never seems to have enough of your favorite color? Or, why is it that you always seem to get the package of mostly brown M&Ms? What's going on at the Mars Company? Is the number of the different colors of M&Ms in a package really different from one package to the next, or does the Mars Company do something to insure that each package gets the correct number of each color of M&M? Students run a complete significance test both in groups and as an entire class to justify their results. [C2d, C3, C4]
- Students complete a variety of released free response items focused on inference for independence, goodness of fit, and regression.

C3: The course draws connections between all aspects of the statistical process, including design, analysis, and conclusions.

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