

Unit #6: Non-Parametric Hypothesis Testing

Content Area: **Mathematics**
Course(s): **Statistics H**
Time Period: **Semester 1 & 2**
Length: **2 weeks**
Status: **Published**

Standards

MA.S-ID.B.6	Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
MA.S-ID.C.7	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
MA.S-ID.C.8	Compute (using technology) and interpret the correlation coefficient of a linear fit.
MA.S-ID.C.9	Distinguish between correlation and causation.
MA.S-IC.A.1	Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
MA.S-IC.B.4	Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.
MA.S-IC.B.5	Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.

Enduring Understandings

- 1) Understand when a parametric test is appropriate and when its non-parametric counterpart should be used.
- 2) Recognize that the correlation between two variables must first be determined before predictions can be made.

Essential Questions

- 1) Will students be able to use the concepts of correlation and regression to make predictions about two-variable data?
- 2) Will students be able to differentiate and perform various non-parametric hypothesis tests that are the counterparts to other parametric tests?
- 3) Will students be able to utilize DESMOS to determine the correlation between two variables, and resulting regression predictions?

Knowledge and Skills

- 1) Students will calculate correlation coefficients, and use linear regression to make predictions and construct confidence intervals.
- 2) Students will be able to perform non-parametric tests on various hypotheses.
- 3) Students will be able to create a scatterplot, correlation coefficient, and regression equation on DESMOS, and utilize the information to make predictions.

Transfer Goals

- 1) Regression analysis is covered in much greater depth in intermediate and advanced statistical courses.
- 2) Non-parametric tests should be used when the restrictive requirements of their parametric counterparts cannot be met.

Resources

Elementary Statistics 10th Edition

<https://doralacademyprep.enschool.org/ourpages/auto/2015/8/18/48840047/Elementary%20Statistics%2010e.pdf>