

# *Talk Math 2 Me*

Multicollinearity in Regression: Looking Beyond the Lines

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## **Abstract**

Multicollinearity is a topic that is often discussed accordingly with linear regression analysis. One of the assumptions for a multiple linear regression model is that the predictor variables, which make up the X matrix, are assumed to be uncorrelated. This assumption ensures the errors from the ordinary least squares estimators will be uncorrelated. However, true independence amongst the predictor variables is difficult to achieve, even with a careful experimental design. Thus, multicollinearity can be defined as the deviation from the independence of the X matrix due to the intercorrelations of predictor variables. Recent R-packages ('perturb' and 'mctest') have been published with the capability to detect the presence of multicollinearity in a linear regression model. In this presentation, we will explore the performance of these packages on detecting multicollinearity. We will also suggest some possible solutions to address the multicollinearity issue.

This seminar is sponsored in part by Pi Mu Epsilon and the Texas State University Department of Mathematics. For more information or to sign up to speak, contact Ellen Robinson at [ebr21@txstate.edu](mailto:ebr21@txstate.edu).