

Week Four

[Help Center](#)

Polynomial Regression

This week we will introduce the concept of polynomial regression analysis where the k_{th} order of a single predictor is used to model the dependent variable. You will learn how to create and interpret the ANOVA table for polynomial regression based on the techniques taught in week 3.

We will explain the use of hypothesis testing in concluding whether or not you need to make use of polynomial regression. Furthermore, we will illustrate all the concepts using an interesting example which will also be helpful for the homework for this week.

The homework involves fitting a series of models, including models with polynomial terms in order to determine which model best fits the data.

Lectures

Please click on the links below to access the video lectures for this fourth week

- [Polynomial Regression I: Introduction](#)
- [Polynomial Regression II](#)
- [Polynomial Regression III](#)
- [Example: Dose Response Study and Assessing Multicollinearity](#)
- [Example: Potential Energy](#)

Lecture Material

Please click on the link below to download the slides of the fourth week

[Week Four "Polynomial Regression"](#)

Conversations

Please join in the conversations around regression analysis in our [community forums](#) area. You can ask and answer questions and discover insights and help for yourself and others as we come together to encourage each other in our exploration.

Key Terms

Below are definitions of two important terms covered this week:

- **Polynomial Regression:** A type of linear regression model where the relationship between the dependent variable Y , and the independent variable, X is modeled as a k_{th} degree polynomial term.
- **Sums of Squares Due Regression:** The sums of the squared deviations of each predicted value from the mean.

Homework

Please watch the following video, [Homework Highlights from Week Three](#), to review the homework from last week.

Navigate to the [Week Four Homework](#) page to view and download the homework for this week.

Quiz

After you've gone through the materials for this week please be sure to visit the [quizzes area](#) to complete this week's quiz.



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