Linear Regression in R

Workshop Description

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246 Hesburgh Library

Overview

This workshop is designed as an introduction to linear regression in R. Linear regression is considered the "backbone" of quantitative social science and provides the grounding and framework for understanding advanced regression models.

Prior Knowledge

The workshop is designed for individuals with experience using linear regression in other statistical software (e.g., Stata, SPSS) and want to learn how to run linear regression models in R. Further, it is assumed that individuals have a basic understanding of R. We will also be using R Markdown, but it is not critical for learning the material.

Software Details

Make sure you are using R 4.0 (the specific version should not matter). I advise using the RStudio IDE as it is very user-friendly (much more than R's GUI).

You should also install the following packages we will be using prior to the workshop. To do so, run this code:

```
install.packages(c("tidyverse","rmarkdown","GGally","lindia","lmtest","sandwich","car",
                   "nortest"))
```

Workshop Plan

The workshop will review the topic, cover the main R functions, and go through a few live demos. Following the workshop, an annotated lab handout will be provided with a small problem set for you to practice on your own.

Workshop Delivery

This workshop will be offered in-person in 246 Hesburgh Library. All workshop materials will be emailed to participants. **I kindly request for masks to be worn for this workshop - thanks.**

Topics

The topics covered during the workshop include:

- Wrangling data in R
- Model fit, statistical significance, and regression coefficient interpretation
- Visualizations of regression coefficients
- Testing OLS assumptions