

SOC 4015/5050: Lab-11 - Bivariate Regression

Christopher Prener, Ph.D.

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Directions

Please complete all steps below. All work should be uploaded to your GitHub assignment repository by 4:15pm on Monday, November 19th, 2018. All data can be obtained from the `testDriveR` package's `auto17` data set.

Analysis Development

Using RStudio and your operating system's file manager, create an R Project in the *existing* directory in your assignments repository named Lab-11. Add a `README.md` file, notebook, and all necessary folders before beginning.¹

¹ This initial section follows the project workflow that is available in the `lecture-03` repo!

Regression Model 1

1. Construct a dissemination ready scatter plot of the relationship between fuel cost (`fuelCost`) and engine size (`displ`). Include a linear regression line on the plot and color the points based on the number of gears (`gears`).
2. Construct a hypothesis and null hypothesis for the relationship between fuel cost (`fuelCost`) and engine size (`displ`).
3. Construct a regression equation modeling how `displ` affects `fuelCost` using \LaTeX syntax.
4. Execute a bivariate regression model that shows how `displ` affects `fuelCost`. Fully interpret the results of this model.

Regression Model 2

5. Construct a hypothesis and null hypothesis for the relationship between fuel cost (`fuelCost`) and highway fuel efficiency (`hwyFE`).
6. Construct a dissemination ready scatter plot of the relationship between fuel cost (`fuelCost`) and highway fuel efficiency (`hwyFE`).

Include a linear regression line on the plot and color the points based on the number of cylinders (cyl).

7. Construct a regression equation modeling how hwyFE affects fuelCost using \LaTeX syntax.
8. Execute a bivariate regression model that shows how hwyFE affects fuelCost. Fully interpret the results of this model.