

Simple Linear Regression Bootstrap Tests of Hypothesis

This lab activity makes use of the death rate data.

(<http://www.cs.pomona.edu/~john/bioquest/data/birdflu/index.html>)

1. What is the sample size (n)?
2. Using the command `lm`, find the least squares estimate of slope.
3. Recall that a bootstrap sample is a sample of size n from the original sample taken with replacement. Obtain a bootstrap sample from the response variable. Call this variable y^* . What do you expect the slope of the fitted regression line

$$y^* = \alpha + \beta x + e$$

to be?

4. Fit the model

$$y^* = \alpha + \beta x + e.$$

What is the estimate of slope?

5. Write your bootstrap estimate of slope on the board. How many of the estimates of slope are greater than the least squares estimate?
6. Download and run the function
<http://www.cs.pomona.edu/~john/bioquest/data/birdflu/bs.slr.plot.R> Comment.