Lecture 4: Gelman Hill Ch 2

Statistical Inference

Statistical inference is used to learn from incomplete or imperfect data.

This class sets up regression models using a measurement-error philosophy

$$y = \beta_0 + \beta_1 x + \epsilon,$$

parameters

where the errors are considered to be a random sample from a probability distribution, (e.g. $\epsilon \sim N(0, \sigma^2)$).

with parametric models, the goal is to estimate the relationship between our variables and the outcome of interest. Using the principles of statistical modeling, we compute a point estimate along with uncertainty.

Confidence Intervals

standard errors: are the standard deviation of a parameter estimate.

σ/n

Typically 95% Confidence Intervals for large samples, are based on the normal distribution.

Later on we will see how to use simulation for more confidence intervals in more complicated scenarios.

HW3: runif(n=10, min max)

rnorm( )