

Week 12 Individual Assignment 4

In this exercise you will replicate an earlier group assignment that performed a single-factor ANOVA with a continuous covariate (i.e., an ANCOVA).

- Your model should have a parameter μ for each of the two levels of the factor representing the intercept at that level
- Use a normal(0,50) prior for both μ parameters
- This time we will the model to have different slopes at each level by defining two slope parameters β , one for each level of the factor.
- Use a normal (0,20) priors for β
- Define a parameter σ for each of the two levels to represent the background or error standard deviation at that level.
- Use a half-cauchy (0,20) prior for each σ parameter
- Use a normal likelihood for y , with mean equal to the μ parameter for that particular level plus β times the x value for that observation, and standard deviation equal to the corresponding σ parameter for that level.

Use the generated quantities block to compute the difference in both the μ parameters and the β parameters at the two levels.

Use the 95% credible intervals for these differences to decide whether the intercepts and/or slopes are likely to be different.

The individual datasets can be found on github in the file `MTH225.Week12.IA4.data.zip`