

Homework 8

STAT 690STA Spring 2023

Due April 12, 2023, 9:40am on Gradescope

1 Reading

- Read through Section 4.3 in HRW.

2 Questions

1. HRW 4.1
 - (a) As in book
 - (b) As in book
 - (c) Now fit Model (4.1) from the book, using the `gamm()` function in `mgcv`. Create a boxplot of residuals by race. Is there evidence that some races were better fit than others?
 - (d) The two model fits differ in (1) model terms and (2) mechanism of fitting. Briefly describe at least one advantage and one disadvantage of each set of model terms and of each mechanism of fitting. (it is OK if the advantage of one is the disadvantage of its alternative)
2.
 - (a) Execute the code in **maleGrowthIndiananlme.R**. Use your own words to briefly interpret the plot created at the end of the code.
 - (b) Execute the code in **maleGrowthIndianaBayes.R**. There are 2 key plots created, one similar to the previous part and one summarizing the MCMC fit. Briefly describe what you see in the diagnostic plot for the MCMC fit, and if you see any concerning patterns there. What would you do to try to fix this?
 - (c) Describe the difference in the model terms fit by the two sets of code above. List one advantage of each.