MTH225 Spring2017 Final Problem 14

Average MCAS Language and Math scores were recorded in classrooms in three districts.

The data is in `MTH225_Spring2017_Final_Problem14.csv`.

The variables are:

- `MCAS` Mean MCAS score for this class

- `district` District code (1,2, or 3)

- `L_M` Test: 1 for language, 2 for math

Use STAN to the analyze data using a two-factor ANOVA without interaction, with the purpose of estimating what differences there may be between the districts and between the language and math scores.

MCAS scores range between 220 and 280. Your prior for the mean score should allow for values in

- 2 points: Write R code to read the data and convert it to an R data frame.

- 1 point: Write the data block of a STAN model file that extracts the data from the R workspace.

- 1 point: Write the parameters block of a STAN model file that declares the paramter(s) of your model.

- 2 points: Write the model block of a STAN model file that specifies the priors and likelihood for your model.

- 1 point: Write R code to apply the extract function to the data structure output from the stan function.

- 1 point: Use the extract() function of the RSTAN package to obtain the values for the parameters from the posterior draw.

- 1 point: Compute 95% confidence intervals for the differences between districts.

- 1 point: Compute a 95% confidence interval for the difference between the language and math scores.

(10 points possible)