

# STAT 489-01: Bayesian Methods of Data Analysis

## Problem Set 4

Assigned 2017 February 14  
Due 2017 February 21

**Show your work on all problems!** Be sure to give credit to any collaborators, or outside sources used in solving the problems. Note that if using an outside source to do a calculation, you should use it as a reference for the method, and actually carry out the calculation yourself; it's not sufficient to quote the results of a calculation contained in an outside source.

- 1 Gelman Chapter 3, Exercise 3**
- 2 Gelman Chapter 3, Exercise 10**
- 3 Gelman Chapter 3, Exercise 1**
- 4 Gelman Chapter 3, Exercise 2**

Also produce a ternary plot of the posterior probability distribution for the population proportion of pre-debate preferences  $\theta_i^{(1)}$ ,  $\theta_2^{(1)}$ , and  $\theta_3^{(1)}$  for Bush, Dukakis and none/other, and another for the posterior probability distribution for the post-debate preference proportions  $\theta_1^{(2)}$ ,  $\theta_2^{(2)}$ , and  $\theta_3^{(2)}$ .