

## STATS 500 - Homework 6

Due in class Wednesday, November 11, 2015

### Based on Chapter 9, question 5 (page 147)

Using the `trees` data, fit a model with `Volume` as the response and `Girth` and `Height` as predictors.

- (a) Use the Box-Cox method to determine the best transformation on the response. Compare the fits with and without the transformation.
- (b) Try adding higher order polynomial terms in the predictors to the original linear model. Comment on the changes in fit.
- (c) Try to improve on the best model from (a) by adding higher order polynomial terms in the predictors to the model. Comment on the changes in fit.

Note: do NOT use the `polym()` function to add higher order terms. Use `I(Girth^2)`, `I(Height^2)`, `I(Height*Girth)`, etc directly in the linear model formula.

**Solutions to this homework should not exceed 4 pages.**