HOMEWORK #9 Due **OCT 31**

INSTRUCTIONS:

A) *For each question,* include a:
   1. summary output table and/or graphs, as appropriate
   2. narrative answer that directly and clearly answers the question, based on the results.

B) Provide your code in an Appendix, organized so that we can relate it to questions

C) Submit a pdf (with your name in the file name).

The timber2.txt dataset includes the girth (cm), height (m) and volume (m^3) of two timber tree species (A or B). Besides estimation of lumber, these measurements are important to evaluate species differences, competition, niche space, etc.

1. List ***all*** the possible conceptual models (using *narrative prose* – not symbols) with species, girth and/or height as predictors of timber volume. You can have any number of additive and interactive models [2 pts.].

2. Out of the list you created for the previous question, choose the **five** hypotheses that you bet will be best supported. Justify why you chose each of the models [1 pt.]

3. Turn your conceptual models into computed statistical models, and compare them using AICc. Show your model comparison results [2 pts.].

4. Show your most plausible model in two ways: using scaled and unscaled predictors. Which predictor has the strongest effect on timber volume? [2 pts.]

5. Evaluate model assumptions and write briefly on what you see about collinearity, and residuals homogeneity of variance and normality [2 pts.].

6. Based on all the above, what recommendations would you make to a forest manager wanting to plant trees for the goal to maximize carbon storage? (1 point).