

INSTRUCTIONS:

1. Write your name on the first page of your homework
2. For each answer, include:
 - a. a summary output table and/or graphs, as appropriate
 - b. a short statement that clearly answers the question, based on the results.
 - c. evaluation of fit to model assumptions
 - d. your relevant code in an Appendix.

The timber2.txt dataset includes the girth (cm), height (m) and volume (m^3) of two timber tree species (A or B). These measurements are important to estimate lumber (\$) as well as evaluate species differences, competition, niche space, carbon storage, etc.

1. List **all** the possible conceptual models (using words) where species, girth **and/or** height are predictors of timber volume. You can have any number of additive and interactive models (if they make sense!). Do not worry about transformations yet (2 points).
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 point).
3. Turn your conceptual models into computed statistical models. Also deal with scaling of variables, collinearity, and transforms of variables (if needed). Show your model results (4 points).
4. Which of your five models most plausibly predicts timber volume? Defend your answer using narrative prose and appropriate tables / figures that are themselves clearly labelled (2 points).
5. Based on your statistical analyses, what recommendations would you make to a forest manager wanting to plant trees for the goal to maximize carbon storage? (1 point).