Biol-4790/5090 Biometry Homework #9

GLM: Complex Regression

Make sure to present all the appropriate null hypothesis, justifications, ANOVA tables, graphs, etc.

1. A plant physiologist is interested on how wild chiles (=pepper) plant responds to environmental variability, specifically atmospheric relative humidity. Our plant physiologist measured the water potential at the tip of three leaves for each of 38 plants along a relative humidity gradient in Arizona. He hypothesized that there is a cubic relationship between the relative humidity in the air and the water potential in chile plants. He averaged the three leaves to minimize measurement error, thus only one reading per plant, and transformed all the data to meet the assumptions of the test.

2. Our botanist, still interested in chiles biology, collected seeds from the highest elevation populations and brought them back to the lab. The seeds were weighted and planted, and followed for two weeks to determine which ones germinated (1), and which ones did not (0). Our intrepid botanist wanted to predict, based on seed mass, which seeds will emerge in two weeks and which ones wouldn't.