Lab #9:

Please e-mail code, graphs and answers to questions to [afodor@uncc.edu](mailto:afodor@uncc.edu)

Please have lab submitted (whatever you have) before lab on Wed., April 20.

This week’s dataset is here (same dataset as last week):

<http://afodor.github.io/classes/stats2015/prePostPhylum.txt>

1. Perform PCA on the entire dataset. What % variance is explained by the first and second PCA axis?
2. Graph PCA1 vs. PCA2. Perform 2 graphs, one colored by timepoint (PRE vs. POST) and one colored by genotype ( WT vs. IL10-/-). Which PCA axis seems to separate PRE vs. POST? Which PCA axis seems to separate WT vs. IL10-/-
3. For each of the first two PCA axes, build a mixed linear model with fixed variables of genotype and timepoint (PRE vs. POST) and a random variable of cage. Fill in the following table for the null hypotheses that timepoint, genotype and cage are not associated with PCA axes 1 and 2. (Use the ANOVA function to get the p-values)

|  |  |  |  |
| --- | --- | --- | --- |
|  | timepoint | genotype | cage |
| PCA axis 1 |  |  |  |
| PCA axis 2 |  |  |  |