Homework 4: Mixed Models and Data Exploration

Your_Name_Here

Turn in via blackboard next Monday by the end of the day. please title the document **hw4_yourlastname_yourfirstname**. Ideally it will be a PDF file generated from knitting an RMarkdown document.

1. The package `tidyr` can also be used to reshape and organize data. Load the `tidyr` package. Look up the help menu for the functions `spread()` and `gather()`. The help documentation isn't very good, so doing a web search for a tutorial is likely the easiest option. Try these functions to go back and forth between long and wide format using the data `d` as we did with reshape during lab.

2. Install and load the package `lubridate`. There is a great tutorial at https://rpubs.com/davoodastaraky/lubridate. Use it to get today's date. Convert it from year-month-day format to the more familiar US format of month-day-year.

3. Use any dataset you want and make one histogram and one boxplot and print them side by side (hint: use the `par(mfrow = )` function.)

4. Use a linear mixed model to examine the effects of NAP on species richness with a random intercept for beach (from homework 3). Now use the regression equation and independent data along with the model coefficients, beach-specific random effects, and residuals to exactly recreate the original dependent data.