Lecture 2 APPM2720 spring 2016

This lecture is an introduction to R and some stats nuggets and experience in programming tossed in along the way.

The way to participate in this lecture is to

- open R studio (just R will be OK too.)
- load or create an R script file in to your editing window
- cut, paste R commands from your editing window into the R command window to run the code.
- add more code and comments as you work through the lecture and answer the questions.
- when you are done (or periodically) save your file in R studio.

The R scripts in this lecture cover

- Basic housekeeping of your R workspace **RBasics.R**
- Arithemtic and naming data sets (objects) **RMath.R**
- Subsetting and extracting pieces of a data set **RSubsetting.R** (This will be assigned to work through outside of class.)

R survival

- R is case senitive
- lines starting with # are comments
- **help** help(plot) or ?plot gives you help documentation on a function or data set
- When you quit R your workspace you will be asked to save your workspace. To recover past commands typed in see the history function. To save the workspace in your session use **save.image()** in the command window.

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Basic functions to survive in R:

- `ls` lists the data sets in your workspace ls()
- `rm` removes a data set from your workspace rm(classGrades)
- `<-` assigns values to a data set a <- 3.5
- `seq or :` creates a sequence of equally spaced values. 1:4 or seq(0,1,length.out=10)
- `[ ]` lets you select subsets of a data set or particular values. `a[1:5] or b[1,2] or b[,3]`
- `c` combines values or data sets `a<- c( 3.5, 4.8) or X <- c(a, c)`
- `library` loads an additional library to use in your R session `library(fields)`

Creating reports for homework assignments and projects

- the notebook button (top line in the editting window a spiral notebook icon) in Rstudio will let you convert your R code into a spiffy report.
- You can convert your R code into the markdown format to add text and still be able to "run" your code and get a good looking report. To get started create a blank R Markdown file using the green + button, follow the hints and then fill it in!