Every week, assignment will be to create Rmd summarizing learned concepts and add to an ongoing Rscript that includes each of the functions learned that week with a comment defining it and what library it comes from (if not base)

1. Intro
   * Syllabus
   * R v. other statistical tools
   * R v. Rstudio
   * Rstudio interface & layout
   * Code sections: ####### headers and section breaks, select entire line, collapse/expand
   * Always put all libraries at top of script: can easily load all each time
   * Best practice to clear env at beginning of script **rm(list = ls())**
   * Getting help: everything is on google! Stack exchange, cookbook for R, sthda,
   * assignment: create simple r markdown with sections, called functions, and commented code snippets and plot. The final markdown document will walk through creating a project, reading in libraries, and a very simple plot (any plot accepted, practice finding working code on google and displaying in Rmd—will walkthrough plots in later module)
2. Base R
   * Loading & writing csvs; $ v. attach/detach
   * Variables v objects, vectors v. dfs
   * Create df with two columns, add a ‘total’ column and a ratio column
3. Intro to Wrangling
   * benefit of editing datasets in R and leaving the original document untouched for reference
   * also examples of other filetypes (txt)
   * exploration: which(), find nas, outliers, high/low values
   * data exploration: mean(), median(), sd(), var(), max/min, range,cor()?
   * Exploration-plotting: plot(), hist() with bin, boxplot()
   * Formal calculation of outlier and replace with NA or closest value
   * Example of when an operation returns an object as a list, and you have to unlist() in order to work with it
   * Rowsums and colsums, ratios
4. Tidyverse
   * Creating dfs with random data rnorm()
5. Basic analyses
   * checking assumptions (outputting assumptions as pdf)
   * fancy rmd with knitr to display tables
6. simple visualization
7. loops/conditionals
   * paste() very useful in for loops for pasting the variable you are looping through into filenames; also useful if you need special characters (e.g. in plot labels)
8. functions
   * maybe add a class demo function for calculating their grades specifically for this class
9. Practice troubleshooting code:
   * provide an analysis prompt with code that gives error messages that students have to solve and come up with a clean, working version serving the intended purpose of the code
10. Plotting: ggplot, exporting directly to folder as png, boxplots, scatter, line,

Final project: pick an analysis project and create an Rmarkdown as a teaching material

16 weeks

3 – 50 min classes/week (Travis idol)

1 – 1.5 hour class/week

My preferred; 2 – 1:15 classes/week; one teaching one lab, working on assignments where they can ask me questions