Aug 28 Lecture: Class intro, setting up projects in RStudio, some computer science terminology, importing and subsetting data.

Aug 30 Lab: Importing and manipulating data frames with R base and dplyr

Sept 4 Lecture: If/else statements, loops, and defining new functions

Sept 6 Lab: Making your own functions

Sept 11 Lecture: Producing graphics with R base and ggplot2

Sept 13 Lab: Using graphics to explore your dataset

Sept 18 Lecture: Working with strings

Sept 20 Lab: Using regular expressions to search for strings

Sept 25 Lecture: Advanced data import and export

Sept 27 Lab: Converting between file formats

Oct 2 Lecture: Environments, namespaces, data types, and classes. Boolean operators.

Oct 4 Lab: Controlling and converting between data types

Oct 9 Lecture: Beyond data frames: matrices, lists, and arrays. The apply family of functions.

Oct 11 Lab: Applying functions across a dataset

Oct 16 Lecture: Using Git for version control. R markdown format.

Oct 18 Lab: Setting up your own GitHub account and first repository

**Oct 23 Lecture: In-class exam on material through Oct 11.**

Oct 25 Lab: Making an R package

Oct 30 Lecture: Optimizing your code for computational time and memory

Nov 1 Lab: Using Rcpp to make compiled functions

Nov 6 Lecture: Defining new classes and methods

Nov 8 Lab: Adding new classes and methods to your R package

Nov 13 Lecture: Intro to Bioconductor - sequences, genomes, and annotation

**Nov 13 Final project proposals due**

Nov 15 Lab: Working with DNA, RNA, and protein sequence in Biostrings.

Nov 20 FALL BREAK

Nov 22 FALL BREAK

Nov 27 Lecture: Differential expression analysis

Nov 29 Lab: Differential expression analysis in DESeq2

Dec 4 Lecture: Discovering and annotating SNPs

**Dec 4 Recommended date for submitting project draft for feedback**

Dec 6 Lab: Using VariantAnnotation to work with VCF files

Dec 11 Lecture: Recursion, or other topic on request

**Final projects due by end-of-day (midnight) Dec 18**