Introduction to R

# Day 1

## Basic Intro

* Introductions
* What is R, comparison to other software
* How to download R and RStudio
* How to use the command line and scripts
* Installing and loading packages

## Data

* Data types (character, integer, numeric, logical)
* Data structures (vectors, matrices, data frames)
* Reading in data
* Viewing data
* Saving data

## Language Basics

* Basic syntax
* Subsetting
* How functions work

## Conditionals and Loops

* If statements
* For loops
* Apply functions

# Day 2

## Plotting

* Base graphics
* Lattice
* ggplot2

## Basic Statistics

* Summary statistics
* Tests

## Regression

* Building linear models
* Prediction

## Data Tranformation and QA

* Find and replace
* Numeric transformation
* QA (tests and assertions)

Notes on QA: Three kinds of mistakes

* Neglected due diligence for package (e.g. is author qualified to develope a stats package)
* Didn't read documentation and misused package
* Messed up programming and didn't check your work

Very easy to get a result and not check to see if you've done things correctly. Check your work. Some packages can help you set up a work flow for programming tests and assertions that will help you catch mistakes.