

## *Lab 01 - Hello R!*

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The main goal of this lab is to introduce you to R and RStudio, which we will be using throughout the course both to learn the statistical concepts discussed in the course and to analyze real data and come to informed conclusions.

An additional goal is to introduce you to Git and GitHub, which is the collaboration and version control system that we will be using throughout the course.

As the labs progress, you are encouraged to explore beyond what the labs dictate; a willingness to experiment will make you a much better programmer. Before we get to that stage, however, you need to build some basic fluency in R. Today we begin with the fundamental building blocks of R and RStudio: the interface, reading in data, and basic commands.

And to make versioning simpler, this is a solo lab. Additionally, we want to make sure everyone gets a significant amount of time at the steering wheel. In future labs you'll learn about collaborating on GitHub and produce a single lab report for your team.

### *Learning Objectives*

By the end of this lab, you will be able to:

- Navigate the RStudio interface
- Edit and knit R Markdown documents
- Use Git for version control (commit and push changes)
- Load R packages
- Create basic visualizations with ggplot2
- Calculate summary statistics
- Understand why visualization is important for data analysis

### *Before You Begin*

**Prerequisites:** - You have a GitHub account - You have accepted the invitation to the course GitHub organization - You can access JupyterHub and RStudio - You have watched the “Meet the toolkit” lecture videos

**If you haven't completed these prerequisites, stop here and complete them first!**

R is the name of the programming language itself and RStudio is a convenient interface.

git is a version control system (like “Track Changes” features from Microsoft Word on steroids) and GitHub is the home for your Git-based projects on the internet (like DropBox but much, much better).