STAT 471: Introduction to R Programming Lecture

Lecture 1: Course Introduction and Basic Data Types

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25 August 2025

Overview

1. Introduction
2. Syllabus and Course Logistics
3. R Installation (if you want to work on your personal device)
4. Types of R Files

Introduction

Let's get to know each other better, we'll go around the class and share:

- Name
- Year (Second, Third, etc.)
- Your goals post-graduation
- A fun fact about yourself or your favorite ice cream flavor

Self-Introduction

- Professor Suzuki (if you want, you can also just call me by my first name Cory)
- Attended CSULB for my Bachelors in Pure Math and minor in Computer Science, and Masters in Applied Statistics
- Currently lecturing at CSU's and CC's
- I am a massive Godzilla nerd and my favorite ice cream flavor is cookie dough

What is this Course About?

- Learning about the basics of R
- Learn about general programming skills that are multi-disciplinary
- Learn about visualizations, simulations, and special techniques for data science
- Take a sneak peek at a couple basic machine learning models and introduce time series analysis
- Pick up skills on drafting statistical documents/reports using R

Syllabus Briefing

The course syllabus for STAT 471 is posted on Canvas, let's go ahead and review it.

Installing the CRAN Base package (R Language)

- Go to the CRAN website (linked in Canvas) and download the latest version
- https://cran.r-project.org/
- Note: make sure that you download onto the right platform depending on your machine's Operating System (Windows, Mac, etc.)
- You'll be installing the Wizard, which will in turn install all necessary files for the language. You can accept all default settings and any recommended working directories
- After a few minutes, the language should be installed onto your machine

Installing R Studio (Integrated Development Environment (IDE) for CRAN

- After installing the R language, you'll need to install an IDE to do the actual coding
- Navigate to the Posit website and download the latest version of RStudio for your machine's Operating System (linked in Canvas also)
- https://posit.co/download/rstudio-desktop/
- Similar to installing R, you're just installing the Wizard for RStudio. Accept the default settings and recommended working directories and it'll start downloading RStudio onto your machine
- Now you're done and ready to code!

.r, .rmd, .nb File Types

- .r files are source code files which only include R source code. You can run these and get outputs through your IDE's terminal.
- .rmd are called "R markdown files". These are files where you can provide annotations/text before writing code in blocks.
- In an .rmd file, each block will produce sequential outputs in the order you code in.
- .nb are R notebook files, similar to Jupyter Notebooks for the Python language. These are more streamlined and aesthetically easy to read, but have similar functionality to that of an .rmd file.
- Generally, .rmd and/or .nb's are preferred in industry since you can see all outputs/visualizations of your data and produce streamlined, easy to read reports.

Basic Data Types and Operations

The best way to learn coding is by doing. Download one of the empty files on Canvas (I'll be working from the .rmd file for now) and you can now code while I teach/demo each week!

Next Time...

Loops, Built-In Functions, and Writing Your Own Functions in R

The End

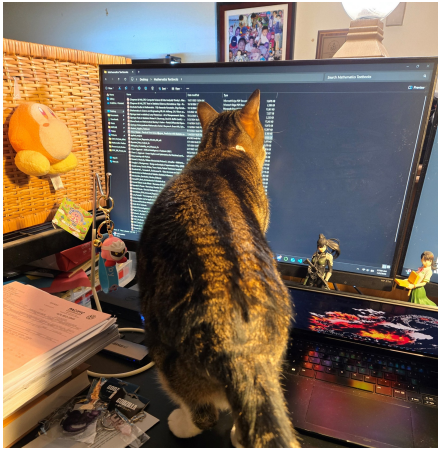

Figure: My cat Emma, not a statistician but a major contributor to my academic journey