SYS 5581 Time Series and Forecasting

Computing setup and guide

University of Virginia Engineering, Spring 2021

The course relies on computing resources. Please install the software as indicated on your local machine, and familiarize yourself with the associated documentation.

The R programming language

- Download and install R, v. 3.0.1+.
- Download and install R Studio, v. 1.4.1+.
  - R Studio is an integrated development environment (IDE) for R. It offers a variety of utilities to enhance the experience of coding and generating documents.
- Install the Tidyverse packages for R: From the Console tab in R Studio (or from R running in a Terminal window), enter: `install.packages("tidyverse")`.
  - Tidyverse is a collection of packages that extend the capabilities of R for doing data science.
- Install the tidyverts packages for R: From the Console tab in R Studio (or from R running in a Terminal window), enter: `install.packages("tidyverts")`.
  - tidyverts is a collection of R packages for time series analysis designed to work well with the Tidyverse packages.

Git and Github

Git is software for version control. Github is a web service that provides remote storage and access to files via git. This setup greatly facilitates collaboration between multiple individuals working on the same code base.

- Follow these instructions to download and install git and to link git with R Studio.

A collection of files associated with a single project is in git-speak called a "repository" or *"repo"*. You should already have a basic repo set up for you on the course site on Github. The next step is to copy ("clone") this remote repo to your local machine.

- Clone your course repo on Github to a new R Studio project on your local machine.
  - Navigate to the course website on Github. Select your repo.
  - Click on the green button labeled "Code". Copy the URL.

  - In the R Studio window, from the pull-down menu in the upper-right corner, select `New Project...`, `Version Control`, `Git`. Paste the URL into the dialog box labeled `Repository URL`.
  - Optional: Change the name of the project folder, and the location of this folder on your local directory tree.
  - Click on `Create Project`. The files from your remote repo should be copied to your local machine in a new folder with the name you chose.
- Optional: Download and install the Github desktop client, or an alternative GUI client.
  - The git operations you need for this course can be managed within R Studio, from the `Git` tab. Some more advanced operations require using either a Terminal window, or a Git desktop client.
- Review the documentation for git and Github. Learn the basics.

Markdown and R Markdown

[Coming soon...]

https://www.markdownguide.org/

https://rmarkdown.rstudio.com/

Bibliographic resources: Zotero and Bibtex

[Coming soon...]

General course web resources

- Collab class site, for basic course information, assignments, office hours sign-up, links to online textbook and other resources.
- Github class site, for posting and sharing code.
- Zoom, for class sessions, recordings, and office hours.