

Getting Started with STAT 961

August 8, 2021

1 Setup

R and RStudio setup.

1. If you do not have R and/or RStudio installed, download and install these softwares by following the instructions [here](#). If you do have RStudio installed, update it to the latest version by opening RStudio and clicking **Help -> Check for Updates**. If you do have R installed, update it to the latest version by following the instructions [here](#). Open RStudio.
2. Install packages for compiling reports by entering the following commands at the console (labeled B in Figure 1):

```
install.packages("knitr")
install.packages("xtable")
install.packages("tinytex")
tinytex::install_tinytex()
```

3. If you are on a Windows machine, go to **Tools -> Global Options -> Terminal**. In the drop down box for **New terminals open with**, select “Git Bash”.
4. Go to **Tools -> Global Options -> Sweave** on Windows or **RStudio -> Preferences -> Sweave** on Mac and select the options pictured in Figure 2.

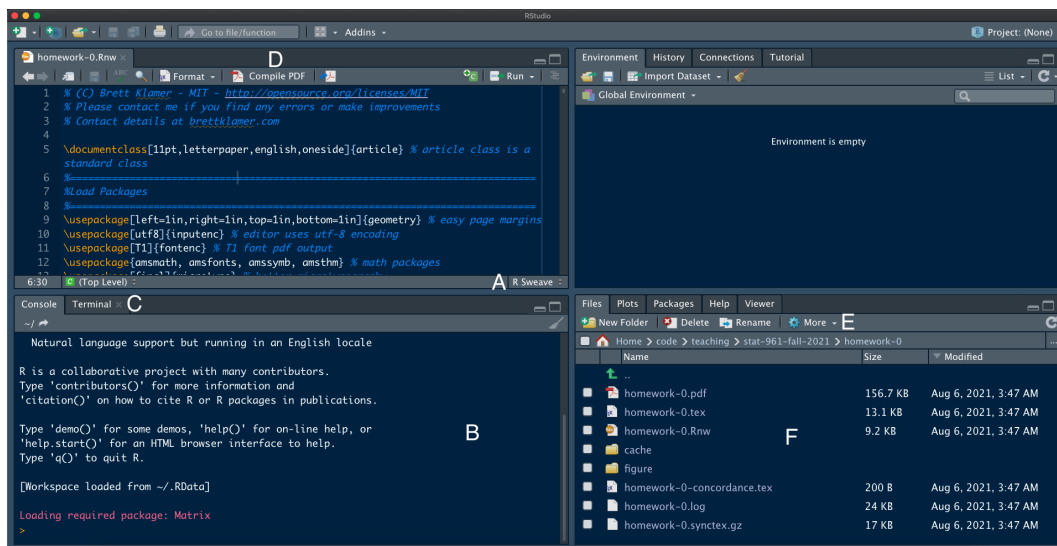


Figure 1: RStudio interface

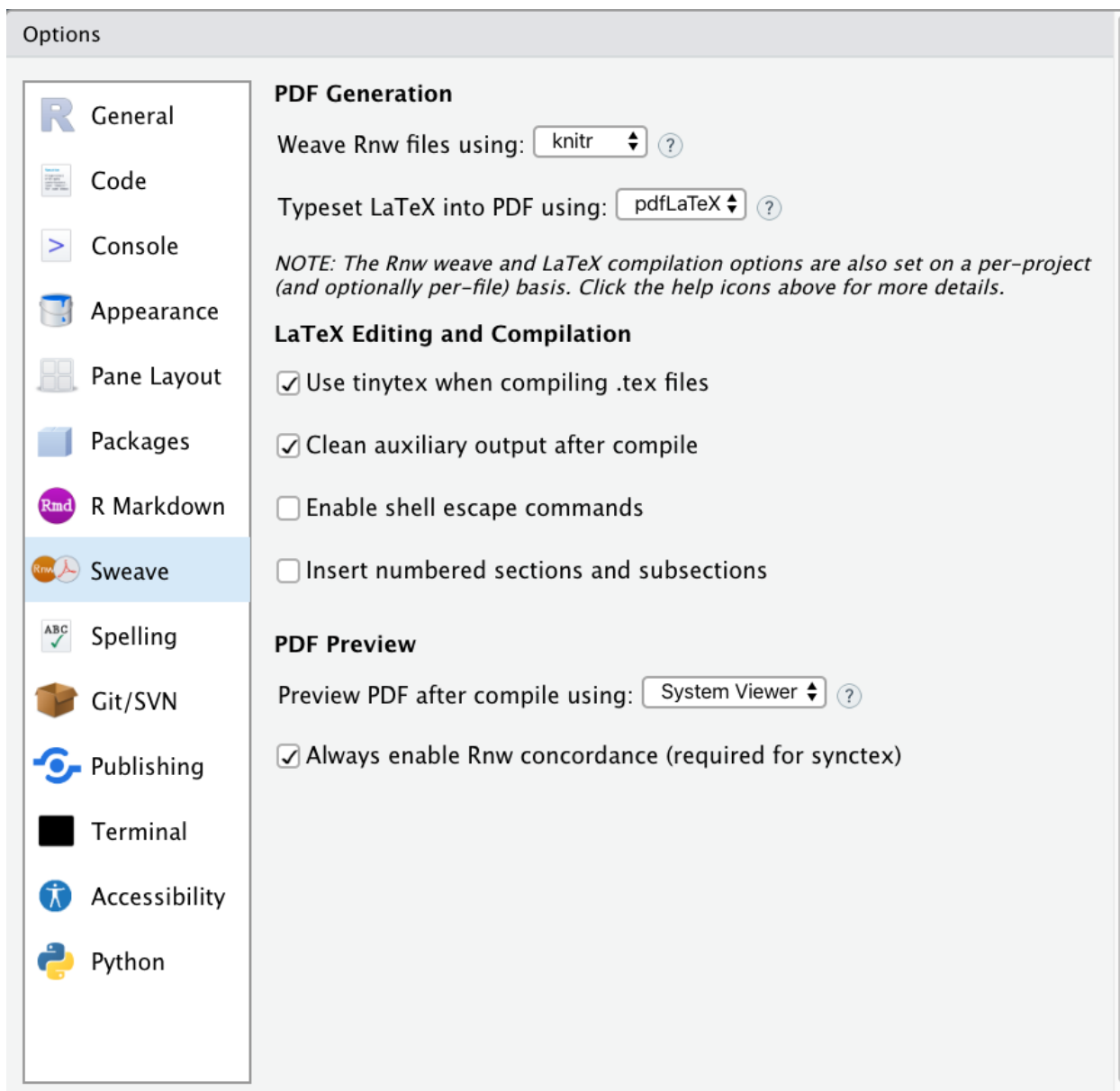


Figure 2: Options for PDF generation.

Git and Github setup.

1. Create an account on [Github](#) (if not already done so).
2. Create a repository on Github named `stat-961-fall-2021` by signing into your Github account, clicking “Repositories”, clicking the green “New” button, choosing the options pictured in Figure 3, and clicking the green “Create repository” button.
3. Create a folder on your computer called `stat-961-fall-2021`.
4. Install Git by following the instructions [here](#) (if not already done so).
5. Open RStudio and navigate to the `stat-961-fall-2021` directory in the RStudio “Files” pane (Figure 1F). Click More -> Set As Working Directory (Figure 1E). Open the Terminal in RStudio (Figure 1C), click the down arrow, and click Go to Current Directory. (For Mac/Linux users, alternatively you can open a Terminal window outside of RStudio and navigate to the `stat-961-fall-2021` directory).
6. To set up Git (if not already done so), type the following commands in the Terminal, using your name and email address:

```
git config --global user.name "Your name here"
git config --global user.email "your_email@example.com"
```

7. In the terminal, type

```
git clone https://github.com/katsevich-teaching/stat-961-fall-2021.git
```

This will copy the STAT 961 Github repository onto your local computer.

8. In the terminal, type

```
git remote set-url --push origin https://github.com/[USERNAME]/stat-961-fall-2021.git
```

Here, “[USERNAME]” should be replaced by your Github username. This command will tell Github that any changes you make will be synchronized to your version of the class repository, as opposed to the main version.

9. In the terminal, type

```
git push
```

This will have the effect of copying the contents of the repository to your personal Github account. Go to [https://github.com/\[USERNAME\]/stat-961-fall-2021](https://github.com/[USERNAME]/stat-961-fall-2021) and check that this operation succeeded.

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner *



ekatsevi-test ▾

Repository name *

stat-961-fall-2021



Great repository names are short and memorable. Need inspiration? How about **potential-octo-funicular**?

Description (optional)



Public

Anyone on the internet can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.

☐ **Add a README file**

This is where you can write a long description for your project. [Learn more](#).

☐ **Add .gitignore**

Choose which files not to track from a list of templates. [Learn more](#).

☐ **Choose a license**

A license tells others what they can and can't do with your code. [Learn more](#).

Create repository

Figure 3: Creating a new Github repository for the class.

2 Homework assignments

Assignment format. The homework assignment will be distributed as an Rnw document; see [homework-0.Rnw](#) for an example. This format facilitates the integration of LaTeX (for typesetting mathematical formulas) with R code (for statistical programming), producing a PDF report; see [homework-0.pdf](#) for an example. Read more about Rnw format [here](#). For those unfamiliar with LaTeX, please browse [this webpage](#). Useful articles on this page are those under the heading “mathematics” as well as the [article](#) on cross-referencing. For those unfamiliar with R, please read Chapters 1-5,7,9,10,12,15,17-21 of [R for Data Science](#). Those familiar with R should also browse these chapters to fill in any gaps.

Assignment download, completion and submission. The following steps should be carried out for each homework assignment. Work through these steps for Homework 0.

- **Download.** Homework assignments will be made available on the class Github repository (under the [homework](#) folder). To download the assignment, navigate to the `stat-961-fall-2021` directory on your computer in the Terminal (either through RStudio or a separate Terminal window), as in step 5 of the section “Git and Github setup” above. Then, pull the latest version of the class repository from Github by typing

```
git pull
```

If the repository has changed on Github and on your computer, then Git will automatically merge these two sets of changes. In this case, Git will automatically open an editor to allow you to type an informative message about this merge. However, a default message is already present and you do not need to change it, so simply close this editor. The default editor Git uses is Vim, and to close it you can type “:q” and then press enter. *Note:* Other course materials (e.g. lecture notes) will also be distributed via the course Github. These materials should be downloaded using the same process as above.

- **Complete.** Open RStudio. Navigate to the directory (e.g. `homework-0/`) containing the homework assignment in the files pane (Figure 1F). Click **More -> Set As Working Directory** (Figure 1E). Then, click on the Rnw file (e.g. `homework-0.Rnw`) to open it in the RStudio editor. Select “R Sweave” from the menu in the bottom right-hand corner of the editor pane (Figure 1A). Change “FirstName LastName” to your first and last name. Work through the problems in the assignment, keeping the problem statements as they are and updating only the solutions between `\begin{sol}` and `\end{sol}`. When you make changes to the Rnw file, click “Compile PDF” near the top of the editor pane (Figure 1D) to update the PDF output file. It is convenient to place the RStudio and PDF preview windows side by side. To save your work, periodically *commit* it to Git by typing

```
git add --all
git commit -m "[commit message briefly describing the changes]"
```

at the Terminal.

- **Submit.** When you have completed your assignment, compile to PDF and commit one last time. Then, push the changes to your Github repository by typing the following command in the Terminal:

```
git push
```

This will have the effect of synchronizing your files with your *personal* Github repository (but not the class repository). Submit the compiled PDF to [Gradescope](#). If you are unfamiliar with Gradescope, please watch [this brief video](#).