Software Installation Guide

Environmental Data Analytics | Kateri Salk

Course Resources

Hydrologic Data Analysis will use two online platforms for course management: Sakai and GitHub. If you choose to use a school computer rather than your personal computer, a third plaform will allow you to store and save your course files (CIFS).

Course Server

Each student is allotted 5 GB of file storage, which can be accessed from both personal and on-campus computers. If you intend to use a computer in the lab, you will need to save your course files to this server so they can be accessed for each class.

Visit https://oit.duke.edu/what-we-do/applications/cifs to learn how to set up server access.

Note: To access the course server, you must be connected to the DukeBlue network OR be connected to the Duke VPN (when off-campus or on another network). For a guide on how to access the Duke VPN, please visit https://oit.duke.edu/what-we-do/services/vpn.

R

If you already have R installed, please ensure you are using version 3.6.2. If not, follow the instructions below. If you do not have R installed, follow the instructions below.

1. Open a web browser and naviate to the Duke CRAN mirror: http://archive.linux.duke.edu/cran/

2. Please select your operating system (Mac, Windows, Linux)

   For Windows Users: install the `base package`

   For Mac Users: install the R-3.6.2.pkg file. Note: you must have OS X 10.11 (El Capitan) installed or higher. You must also install XQuartz, which can be found in the Latest Release paragraphs on the same page.

RStudio

If you already have RStudio installed, please ensure you are using version 1.2.5033. To check that you are using the most up-to-date version, go to the Help menu in RStudio and select "Check for Updates." You will be instructed to install any updates that are available.

If you do not have RStudio installed on your computer, please do the following:

1. Open a web browser and naviate to http://www.rstudio.com/products/rstudio/download/
2. Select and download the appropriate installer for your operating system (Windows, Mac, Linux)
3. Open the installer and follow the onscreen directions

Git

If you already use Git, please ensure you are using the most up-to-date version. If you do not have Git yet installed, please do the following:

1. Open a web browser and naviate to https://git-scm.com/download/
2. Select and download the appropriate installer for your operating system (Windows, Mac, Linux)
3. Open the installer and follow the onscreen directions.

On Mac:

You will need to make sure you have Xcode Command Line Tools installed. To test this, type `which g++` into Terminal. If you get `/usr/bin/g++` as a reply, then you are ready to move on.

On Windows:

This process will install Git Bash (msysGit). During installation, you will be asked to adjust your **PATH environment**. To provide you with the most flexibility, we recommend that you select the option to "Use Git from the Windows Command Prompt". In addition, we recommend that during installation you select "Use OpenSSH" for your secure shell client with GitBash.

During installation, you will be asked how to configure the line-ending conversions

On Mac: We recommend "Checkout as-is, commit Unix-style line endings"

On Windows: We recommend "Checkout Windows-style, commit Unix-style line endings"

GitHub

1. Sign up for a GitHub account at https://github.com. Use your Duke email address.
2. (OPTIONAL) Sign up for a GitHub Student Pack at https://education.github.com/pack if you would like your repositories to be private. The default for repositories is public.
3. (OPTIONAL) We will be using the https protocol to clone repositories. Another option is to use SSH keys, which is a more secure option. For a guide on how to generate your own SSH key(s), see the guide from the Duke Library: https://git-rfun.library.duke.edu/outline.html.

LaTeX

LaTeX will be used by RStudio and the R package `Knitr` to convert our RMarkdown files (.Rmd) into professional-quality PDF files. If you do not have LaTeX installed on your computer, please do the following:

On a Mac:

1. Install Basic Tex: https://tug.org/mactex/morepackages.html
2. Note: this will require you to run the commands below (to install `framed` and `titling`).

On a PC:

1. Install Basic MiKTeX: http://miktex.org/download.
2. Note: you need to use the MiKTeX package manager to download required style guides.

By default, RStudio uses style guides to format our PDF documents. These style guides include framed.sty and titling.sty. We have found that not all LaTeX installations include these style guides. If you do not have them, you will get an error message when you "Knit". To fix this, you need to install the required files.

On a Mac:

Type the following in terminal:

```
tlmgr init-usertree
tlmgr --usermode install framed
tlmgr --usermode install titling
```

If this option does not work, try using the following commands:

```
sudo tlmgr update --all
sudo tlmgr update --self
```

Note: you may need to restart your computer before using these commands.

On a PC: You have two options:

1. Open the MikTeX package manager from Start.

2. Search for and install the following: framed, titling

   OR

3. Type the following in command line (or GitBash):

```
mpm --install framed
mpm --install titling
```

If your RMarkdown documents are not knitting properly, try the following troubleshooting option: Go to the Start menu, find the menu "MiKTeX Console", and choose the option `Always install missing packages on-the-fly`