



Module 0: Getting into an R environment

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Objectives

- Set up a working R environment either on your computer or in the cloud

Prerequisites

- Knowledge of:
 - The main operating system of your computer
 - Installing and managing software
 - Downloading files from the web

Class Instruction

- Typically, this can be done outside of class and should be assigned as a pre-requisite for Module 1.

Associated Videos

- Intro to R and the RStudio Environment: https://youtu.be/C_OYUyTtCdY

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In order to participate in the Module 1, you will need to download and install both R and RStudio. You may choose to do this on your main computer by installing the software onto your computer. This is completely free to you! Alternatively, you may access a free cloud environment for working with R and RStudio. Either option will work for getting started with Module 1. Check with your instructor on their preferred option for your class.

Option 1. Installing R on your own computer

The base language R can be downloaded at <https://cran.rstudio.com/>. Choose the appropriate download for your Operating System (OS). R is cross platform compatible (Windows/Mac/Linux) and FREE.

Once you've downloaded and installed R, download RStudio: <https://posit.co/download/rstudio-desktop/>. Although R can be run and loaded from the command line, RStudio offers a graphic user interface for working in R. It includes a set of integrated tools designed to help you be more productive with R, such as a console, syntax-highlighting editor that supports direct code execution, tools for plotting, history, debugging and workspace management. We will be primarily using this interface for module 1.

For students less comfortable with installing software on their computer, here is a basic workflow for installing software on both windows and mac computers. Students should focus on instructions associated with Installing software from the Web:

- Windows: <https://edu.gcfglobal.org/en/basic-computer-skills/installing-software-on-your-windows-pc/1/>
- Mac: <https://edu.gcfglobal.org/en/basic-computer-skills/installing-software-on-your-mac/1/>

Option 2. Cloud based access

As an alternative to having students install these two softwares locally on their own machines, instructors may request free student accounts for a cloud-based virtual R server through CyVerse. CyVerse provides computational infrastructure for life science research as well as for the classroom. Accounts are free and through their online User Portal, instructors can attend various workshops and courses. When scheduling your workshop or class, note that CyVerse conducts regular maintenance of its platforms typically on the first Tuesday of the month, with most services unavailable during that time. Learn more here: <https://learning.cyverse.org/vice/teaching/>

Specific links:

- Create CyVerse Account: <https://learning.cyverse.org/account/#register-for-services>
- Request access for a class: <https://user.cyverse.org/requests/8>
- Access RStudio: <https://learning.cyverse.org/vice/quick-rstudio/>

When the instructor completes the workshop form, they should request VICE access so that enrollees gain access to RStudio which requires VICE. It is also highly recommended for instructors to *pre-install the dataset* for Module 1 to facilitate a seamless student experience when starting the Module Exercise. The dataset is provided as a zip file (see below) to manage the file size and download speed, but it is recommended that instructors *unzip the file* before releasing the environment to the students.

The dataset for Module 1 can be downloaded here as a zip file:

<https://wustl.box.com/s/h7t9cpnfkozno1l6acr3iqg2gv62eo11>

Here is an overview of working with zip files to help with any potential questions or concerns:

<https://edu.gcfglobal.org/en/techsavvy/working-with-zip-files/1/>

Explore your new environment

Before moving on, be sure to watch the [associated video](#) to orient yourself to the RStudio environment.

Conclusion:

In this lesson, you have setup your computer or accessed a cloud computing environment to start to learn R. To summarize:

- R is a free and open-source program.
- RStudio is an integrated development environment for using R.
- R and RStudio can be used on your own computer or in a web environment depending on your resources and comfort level.

You have now completed Module 0 and are ready to move on to Module 1.