

Instructions for Tutorial on R Programming

In order to prepare you for the programming aspect of the data science courses, we are requiring that each student **individually** complete the **21 modules** contained within the R "swirl" package. We have augmented some of the lessons to better fit the R content that will be utilized throughout the data science program. Each Module should take about 20-30 minutes to complete. Here is the list of Modules that should be completed in the order listed below:

Week-1:

1. Basic_Building_Block
2. Base_Graphics
3. Looking_at_Data
4. Vectors
5. Logic
6. Subsetting_Vectors
7. Matrices_and_Data_Frames

Week-2:

8. Lists
9. Functions

Week-3:

10. lapply_and_sapply
11. Control_Flow
12. Loops

Week-4:

13. Sequences_of_Numbers
14. Factors
15. Missing_Values
16. Workspace_and_Files
17. Data_Reading_and_Writing
18. vapply_and_tapply
19. Simulation
20. Data_Management
21. Dates_and_Times

Once you have completed all 21 modules, upload a zip folder called "**R-Tutorial-Username**", containing the **21 Rhistory files** for all 21 modules (see STEP 8), to this assignment page.

#These are instructions on how to install R, RStudio, swirl(), use swirl(), and save swirl() history.

Please, follow the instructions below to complete the tutorial.

Read STEP 8 before starting STEP 7.

You need to complete STEPS 1, 2, and 4 only ONCE

STEP 1: Install **R** from <https://cran.r-project.org/index.html>

STEP 2: Install **RStudio** from <https://www.rstudio.com/products/rstudio/download/>

STEP 3: Start RStudio

STEP 4: Install the **swirl** library from RStudio console:

```
install.packages("swirl", )
```

STEP 5: Load the **swirl** library from RStudio console:

```
library(swirl)
```

STEP 6: Install R Programming Tutorial from RStudio Console

```
install_course_zip("path/to/file/here/R_tutorial.zip", multi=TRUE,  
which_course="R_Programming")
```

```
# here is an example for my path (please note FORWARD slash):  
install_course_zip("C:/Users/nagiza/Desktop/R_tutorial.zip", multi=TRUE,  
which_course="R_Programming")
```

STEP 7: Start the tutorial from RStudio:

```
swirl()  
#Type in your name  
#Press "Enter"  
#Press "1"  
#Press "Enter"  
#Press "1" to choose "R Programming Course"  
#Choose one lesson at a time (in the order listed 1-21) and save Rhistory file for each  
lesson separately, as detailed below
```

STEP 8: IMPORTANT: After you finish each lesson, save the Rhistory for that lesson

(e.g., "*Rhistory.BuildingBlocks*") (We recommend to study the lessons in the order listed in the swirl()'s menu.)

- If you look at the top-right side of the RStudio GUI you will see two tabs: "Environment" & "History"
- Click the "History" tab- To Save your history for that lesson, click the "Save" icon and save it to a folder, you create, named R-Tutorial-Username (you will upload this zipped folder with 21 Rhistory files (for each swirl() lesson) to the Course Assignment Submission Page for grading)
- Clear the history after each lesson by clicking the "Paint Brush" icon under the "History Tab".

- PLEASE MAKE SURE THE HISTORY FILE SAVES BEFORE YOU MOVE ON TO THE NEXT MODULE
 - If for some reason you find the Rhistory files not being saved:
 - Completely exit out of swirl(), then save.
 - Restart RStudio then save.
 - Alternate the locations where you are saving the file to.