

**CS 130**  
**Winter 2019**  
**Introduction to R using swirl**

Today we will begin our introduction to the R programming language using a built-in tutorial called swirl. The steps involved on installing R and swirl on your own computer are given below, but in the lab we will start at step 3 using the plain R (command line) option. In the next class period we will be using RStudio.

**Step 1: Get R (on your own computer)**

In order to run swirl, you must have R 3.1.0 or later installed on your computer.

If you need to install R, you can do so [here](#).

For help installing R, check out one of the following videos (courtesy of Roger Peng at Johns Hopkins Biostatistics):

- [Installing R on Windows](#)
- [Installing R on Mac](#)

**Step 2 (recommended): Get RStudio (on your own computer)**

In addition to R, it's highly recommended that you install RStudio, which will make your experience with R much more enjoyable.

If you need to install RStudio, you can do so [here](#). Select the appropriate installer for your operating system.

**Step 3: Install swirl**

Open RStudio (or just plain R if you don't have RStudio) and type the following into the console:

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

Note that the `>` symbol at the beginning of the line is R's prompt for you type something into the console. We include it here so you know that this command is to be typed into the console and not elsewhere. The part you type begins after `>`.

Select the 0-Cloud [https] Secure CRAN mirror when prompted, and follow the prompts

**Step 4: Start swirl**

This is the only step that you will repeat every time you want to run swirl. First, you will load the package using the `library()` function. Then you will call the function that starts the magic! Type the following, pressing Enter after each line:

```
> library("swirl")  
> swirl()
```

## **Step 5: Install an interactive course**

The first time you start swirl, you'll be prompted to install a course. For our class, we will install course 1: R Programming: The basics of programming in R from the menu given below:

### **1: R Programming: The basics of programming in R**

2: Regression Models: The basics of regression modeling in R

3: Statistical Inference: The basics of statistical inference in R

4: Exploratory Data Analysis: The basics of exploring data in R

5: Don't install anything for me. I'll do it myself.

### **Some helpful swirl commands:**

- Typing `skip()` allows you to skip the current question.
- Typing `play()` lets you experiment with R on your own; swirl will ignore what you do...UNTIL you type `nxt()` which will regain swirl's attention.
- Typing `bye()` causes swirl to exit. Your progress will be saved.
- Typing `main()` returns you to swirl's main menu.
- Typing `info()` displays these options again.

Within R Programming: The basics of programming in R, by next class period you should have completed objectives 1-6.

### **1: Basic Building Blocks**

### **3: Sequences of Numbers**

### **5: Missing Values**

7: Matrices and Data Frames

9: Functions

11: `vapply` and `tapply`

13: Simulation

15: Base Graphics

### **2: Workspace and Files**

### **4: Vectors**

### **6: Subsetting Vectors**

8: Logic

10: `lapply` and `sapply`

12: Looking at Data

14: Dates and Times