A Short Introdunction to R

Why R and RStudio?

- It is free and open-source (unlike Minitab or Excel)
- It runs on many desktop platforms (Mac, PC, Unix, Linux)
- There are lots ($>$ 10,000) of packages available to increase functionality (https://cran.r-project.org/web/packages/available_packages_by_name.html)
- It runs many different statistical tests (far more powerful than Minitab or Excel)
- R lets you automate data processing
- It enforces scientific reproducibility because analyses are specified using a scripting language that fully documents all of the steps
- Once you learn the language, it will save you lots of time
- R is a valuable skill that will increase or employability after graduation

What is the difference between R and RStudio?

- **R** is a programming language that can be used to perform data processing and analyses, and to create graphs.

- **RStudio** is a separate program that provides a "front end" to R. It makes using R easier by organising commands, scripts, graphics, help, etc. as separate windows.

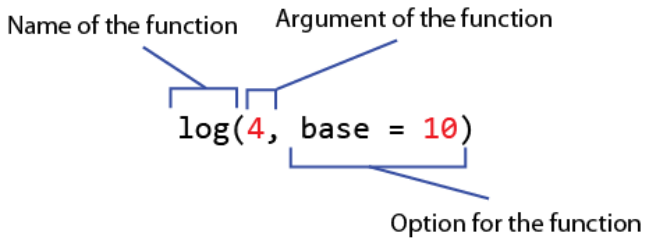
There are lots of great resources available

- Companion to the Analysis of Biological Data (Whitlock and Schluter)
  https://whitlockschluter3e.zoology.ubc.ca/RLabs/index.html
- Data to Viz (for lots of plots with accompanying code)
  - https://r-graph-gallery.com/index.html
- Harvard free courses
  - https://pll.harvard.edu/subject/r
- Sofware carpentry
  - http://swcarpentry.github.io/r-novice-inflammation/

R involves specifying arguments to functions and assigning outputs to objects

R commands summary

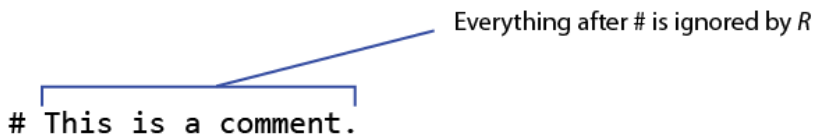
Log



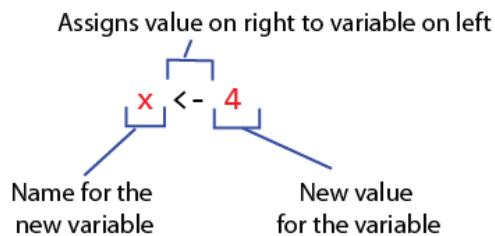
Square root

```
sqrt(4)
```

Comments



Assigning values to names



source: https://whitlockschluter3e.zoology.ubc.ca/RLabs/R_tutorial_Intro_to_R_1.html