

# Intro to R

# Welcome to class!

1. Introductions
2. Class overview
3. Getting R up and running



Photo by [Belinda Fewings](#) on Unsplash

## About Us

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# About Us

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# About Us

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## What is R?

- R is a language and environment for statistical computing and graphics
- R is the open source implementation of the S language, which was developed by Bell laboratories in the 70s.
- The aim of the S language, as expressed by John Chambers, is “to turn ideas into software, quickly and faithfully”



(source: <http://www.r-project.org/>,  
[https://en.wikipedia.org/wiki/S\\_\(programming\\_language\)](https://en.wikipedia.org/wiki/S_(programming_language)),  
[https://en.wikipedia.org/wiki/Bell\\_Labs](https://en.wikipedia.org/wiki/Bell_Labs))

## What is R?

- In 1991 Ross Ihaka and Robert Gentleman at the University of Auckland, New Zealand began developing R
- R is named partly after the first names of the first two authors and a play on the name of S.
- R is both open source and open development



(source: <http://www.r-project.org/>,  
[https://en.wikipedia.org/wiki/R\\_\(programming\\_language\)](https://en.wikipedia.org/wiki/R_(programming_language)) )

# Why R?

- High level language designed for statistical computing
- Powerful and flexible - especially for data wrangling and visualization
- Free (open source)
- Extensive add-on software (packages)
- Strong community



(source: <https://rladies-baltimore.github.io/>)

# Why not R?

- Fairly steep learning curve
    - “Programming” oriented
    - Minimal interface
  - Little centralized support, relies on online community and package developers
  - Annoying to update
  - Slower, and more memory intensive, than the more traditional programming languages (C, Java, Perl, Python)



# Introductions

What do you hope to get out of the class?

Why do you want to use R?



Photo by [Nick Fewings](#) on [Unsplash](#)

## Course Website

[http://jhudatascience.org/intro\\_to\\_r](http://jhudatascience.org/intro_to_r)

Materials will be uploaded the night before class



# Learning Objectives

- Reading data into R
- Recoding and manipulating data
- Writing R functions and using add-on packages
- Making exploratory plots
- Understanding basic programming syntax
- Performing basic statistical tests

# Installing R

- Install the latest version from: <http://cran.r-project.org/>
- [Install RStudio](#)

## Collection of R packages

We have an R package called jhur that will make sure all the packages are installed.

You can just copy and paste the below code into your console - we'll explain what it all means in the next day or two

```
install.packages("remotes")
remotes::install_github("muscchelli2/jhur")
```

Note it may take ~5-10 minutes to run.

# Useful (+Free) Resources

- R for Data Science: <http://r4ds.had.co.nz/>
- Various “Cheat Sheets”: <https://www.rstudio.com/resources/cheatsheets/>
- Dataquest: <https://www.dataquest.io/>
- R reference card: <http://cran.r-project.org/doc/contrib/Short-refcard.pdf>
- UCLA Institute for Digital Research and Education:  
<http://www.ats.ucla.edu/stat/r/>
- Quick R: <http://statmethods.net/>
- Open Case Studies: <https://www.opencasestudies.org/>
- Tidyverse Skills for Data Science Book:  
<https://jhubdatascience.org/tidyversecourse/>
- Tidyverse Skills for Data Science Course:  
<https://www.coursera.org/specializations/tidyverse-data-science-r>
- Roger Peng or Jeff Leek Courses on Coursera: <https://www.coursera.org/>
- Course Website: [http://jhubdatascience.org/intro\\_to\\_r/index.html](http://jhubdatascience.org/intro_to_r/index.html)