

4 present

- ☐ Office Hours M,W 11-12 PM EIT 303
- ☐ Find Bug In Lecture 0 R Notebook from libraries
- ☐ Vectors
 - Immutable in R
 - No insert or append operation for vectors
 - No declaration required but,
 - Arrays/Vectors Must be Declared for Allocation
 - R is a scripting language like Python
- ☐ When operating on vectors of unequal length with termwise operators, the shorter vector is replicated, or recycled as needed.
- ☐ Scalars are one-element vectors.
- ☐ Vectors add, subtract, multiply and divide termwise
- ☐ Can you pass functions as arguments?
- ☐ Filtering is Conditional Indexing
- ☐ First exam will cover basics of R

Some version divergence in old and new versions of R
RStudio 1.2 won't run < MacOS 12 but RStudio 1.1 will.
 Installed old on the laptop and new on the desktop.

R in Jupyter Notebooks is OK.
 So I will build an R project in Jupyter
 and try looking at its environment in RStudio,
 kinda like vi versus Netbeans.

Installed R Jupyter and RStudio on
 both machines. Works great so far.
 That's four installations - a bit of maintenance.

Three styles of code execution:

- Line
- Selected Region
- Entire Document

Exporting Images From Jupyter
 Exporting Images From RStudio

Facilitating Group Collaboration

Read Data From File:

- .csv Comma Separated Values
- .txt File
- .xls .xlsx, .xla Excel Files

Write/Save Data To File:

- See Example Runs
- Load Source to See Previous Sessions
- .RData is suffix to save session file

R Types: Integer, Numeric, Logical, Character

R Structure: Vector, Matrix, Array, List, Data frame

- Vector, Matrix, Array are Homogeneous
- List, Data frame can be Heterogeneous

☐ Cleaning Data with `na.rm` and `na.omit`

☐ Including libraries like `ggplot` with each session

☐ Questions:

- How to check version?
- How to install from CRAN, in Jupyter and RStudio?
- Does environment in RStudio show proper package versions?

☐ Unix-Like Commands:

- `ls()` and `rm(obj)` work within the scope of R itself
- `setwd()`, `getwd()`, `dir()` and `dir.create()` affect OS state
- `!cd`, `!pwd`, `!mkdir` are Jupyter notebook equivalents

☐ Multiple libraries accessible from Bioconductor

- Including OMIM, PUBMED:

☐ Extra Programming Hints on R Data Camp

☐ Codify today's work as a web page for quick access.

☐ Nick Trick: Cross Compare Two Datasets