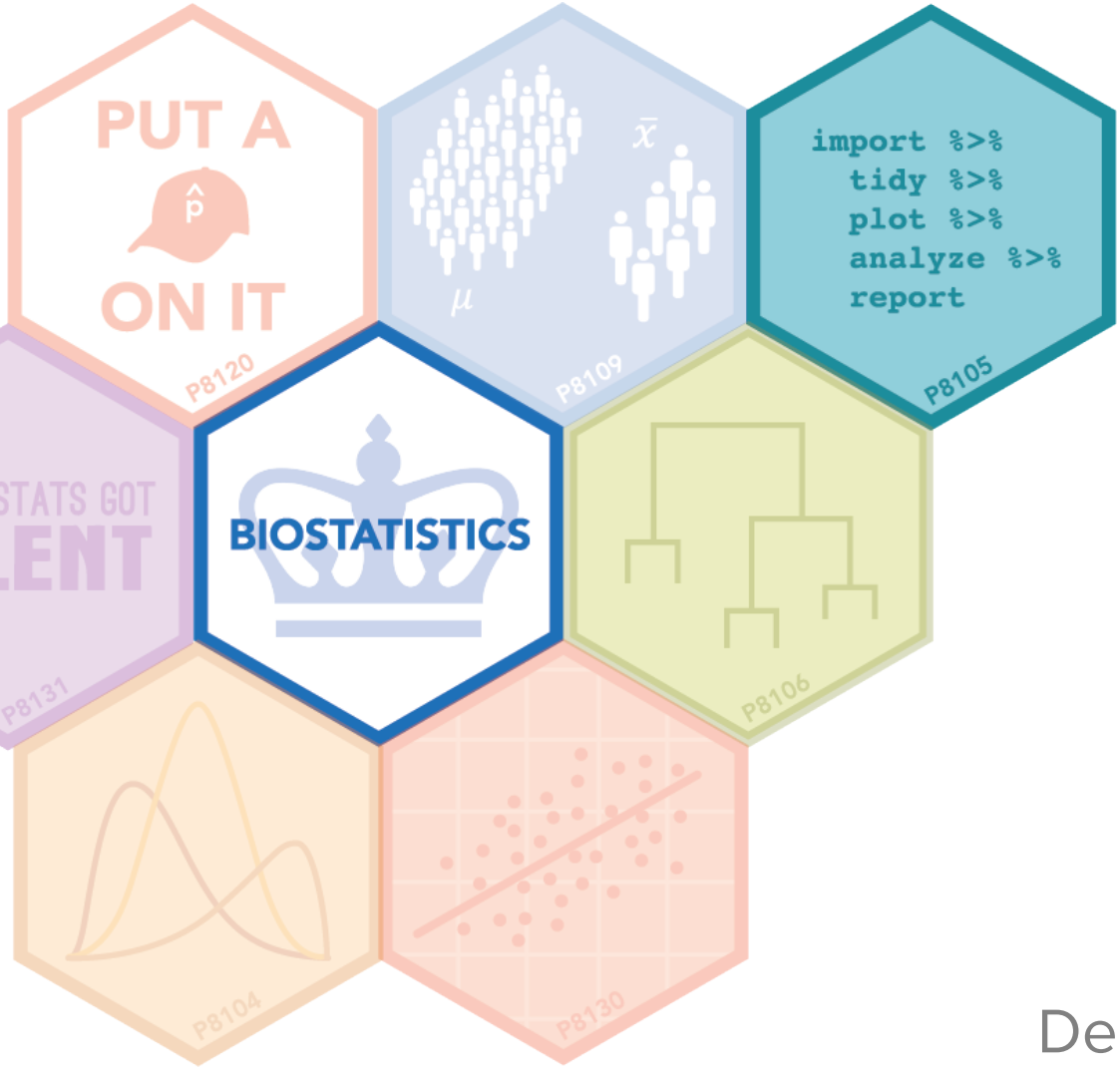

WRITING R PACKAGES

PART I

Jeff Goldsmith, PhD

Department of Biostatistics

When to write packages

"If you have more than two functions, write a package"

- almost everyone, basically

Why to write packages

In particular, why not just write a lot of functions in scripts or R Markdown code chunks?

- Documentation reminds you what functions do, what inputs are, and what outputs are
- Encapsulates code in standard, easy-to-share format
- Checks / tests ensure things are self contained and work as expected

Why to write packages

"I wish I could go back in time and create the package the first moment I thought about it, and then use all the saved time to watch cat videos because that really would have been more productive."

"It is about saving yourself time."

- Hilary Parker, "Writing an R Package from Scratch"

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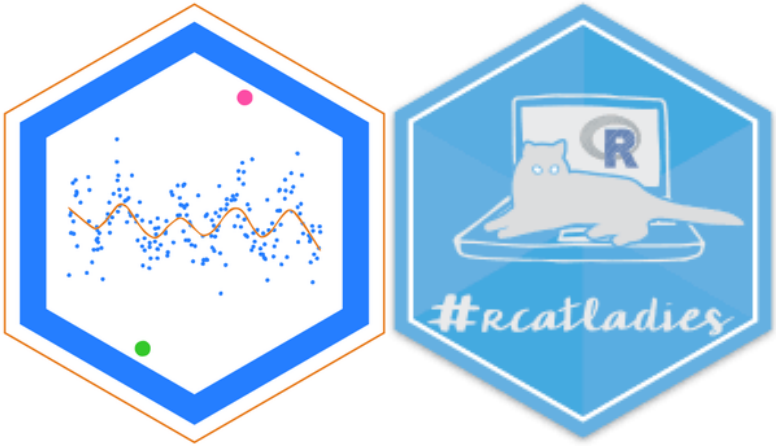
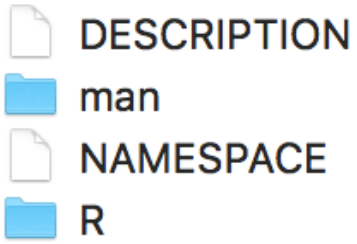


What is a package?

- Collection of related functions, with helpful documentation, written to stand alone
- Can also include data, vignettes, non-R code (e.g. C++), tests, ...

Parts of a bare-bones package



- Metadata / overview
- Help pages
- Dependencies
- Code

You can edit the DESCRIPTION and the R code yourself, but you should use other tools to generate the help pages and the NAMESPACE

How to write a package

With apologies to Hilary ...

- Step 0: whatever work you did to get to 2+ functions.
- Step 1: create package skeleton with `devtools::create()`
- Step 2: add your functions to /R/
- Step 3: add documentation using `roxygen` comments
- Step 4: iterate

Can also add a README and put on GitHub.

How to write a package

- Start small:
  - Write small functions that do one thing well and interact easily
  - Avoid unneeded complexity
  - When you have a couple of functions, put them in a package
  - Build complexity as needed
- Clarity is better than cleverness

How to write a package

Documentation > Usability > Speed > Statistical superiority

Jeff Leek's Guide to Writing R Packages