

Learning R

A Second Thirty Minutes

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Review

- Let's review:
 - Working directory
 - Load data of different formats
 - Libraries
 - Functions and objects
 - Sourcing
 - Saving

Graphics

- Load the following packages:
 - ROCR
 - foreign
 - ggplot2
 - lattice
 - fields
 - car
 - vioplot
 - maps
 - geosphere
 - grDevices
 - rgdal
 - maptools
 - rgeos
 - gpclib

Basic Plot Tools

- Set your working directory
- Include “plotting.r” and “seq_analysis.dta” and other files
- Source “plotting.r”...

Let's look at some code...

plotting.r – Programming

- for loops
- data subsetting and value reassignment
- sequences
- lists and unlisting
- glm and predict functions
- matrix construction
- random number generation

plotting.r – Stats

- Bootstrapping
- Out of sample forecasting
- Logistic regression estimation
- Performance measures
 - Sensitivity, specificity, AUC
 - AUC implies ROC curve

Exercise

- The history matrix contains nine columns
- Columns 1,3,5 store the sensitivity values
- Columns 7,8,9 store the AUC values
 - Each of these columns have been plotted
- Columns 2,4,6 store the specificity values

What I want you to do:

- Add a specificity plot to the output
- Demonstrate it works by sourcing “plotting.r”
- If that's easy, work on labeling all 3 y-axes

ggplot2

- Very powerful graphics
- Can create custom maps
 - Requires a shapefile
- Let's look at some more code...

Remember...

- UNDERSTAND THE ERROR
 - Always more than one way to fix an error
 - BUT, there will always be only one cause of an error. If you get an error and you intend to fix it, you must first understand the source of the error.
- DO NOT RECREATE THE WHEEL
 - Creating something out of nothing is one of the most difficult tasks we do. Use packages when they exist, use code available on the Web, use code from your friends.
 - Basic process: use code, reuse code, repeat process.
- TALK TO THE TEDDY BEAR
 - Just like when you're editing an essay, editing code or thinking through a problem can be done by talking your way through it.

Resources

- Number One Resource: peers
 - Just ask, save yourself the lonely nights with a bottle of gin and a half gallon of fruit punch...
- Armstrong's introduction
 - www.quantoid.net/ICPSR.php
- Vito Ricci's regression reference card
 - [http://cran.r-project.org/doc/contrib/Ricci-refcard-regression.](http://cran.r-project.org/doc/contrib/Ricci-refcard-regression)
- Quick R
 - <http://www.statmethods.net/>