PLSC 503: "Multivariate Analysis for Political Research"

Christopher Zorn

An Introduction To R

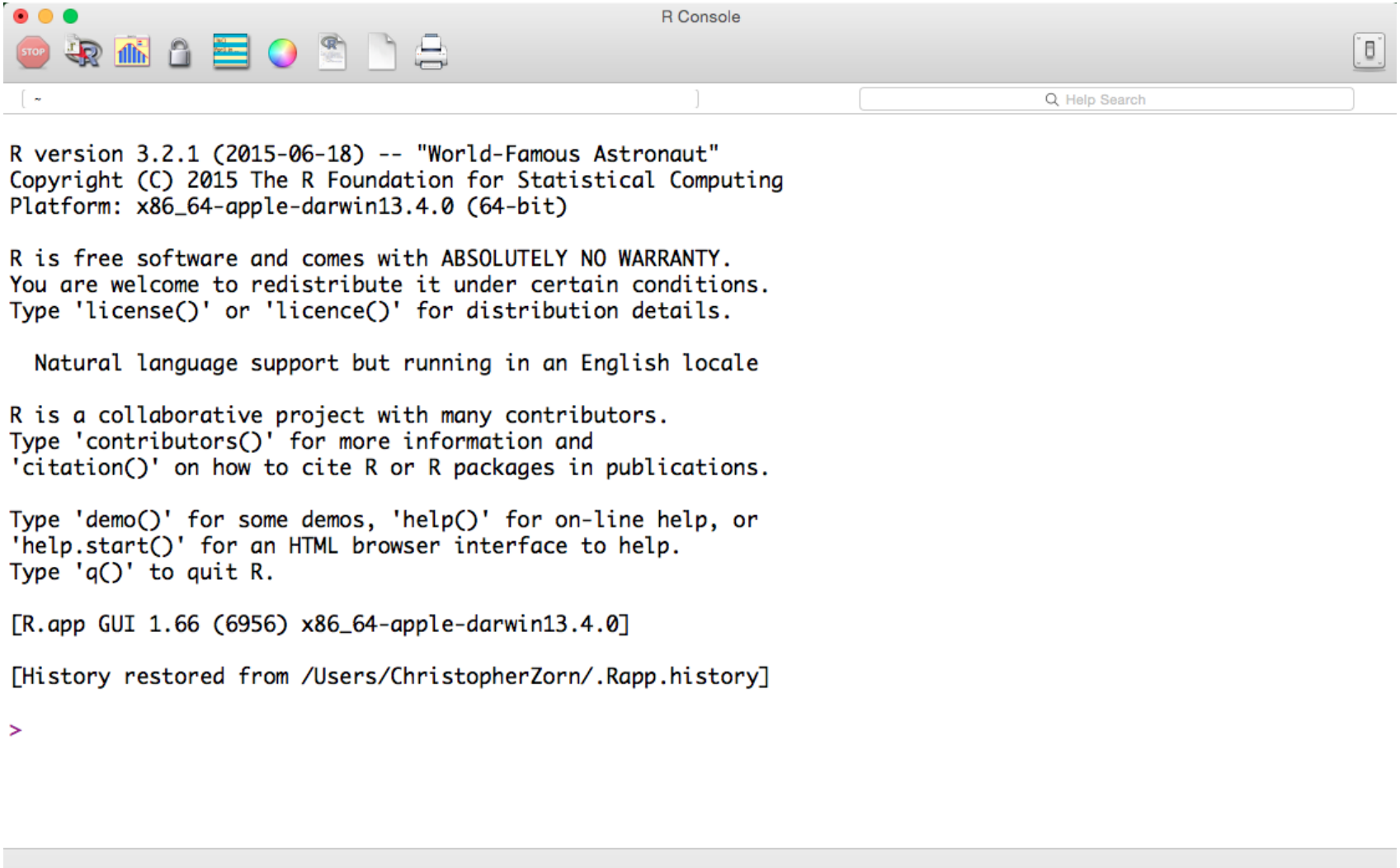
Software

- Preferred: R + RStudio
- Also viable: Stata
- Highly discouraged: SAS, SPSS/PSPP, etc.

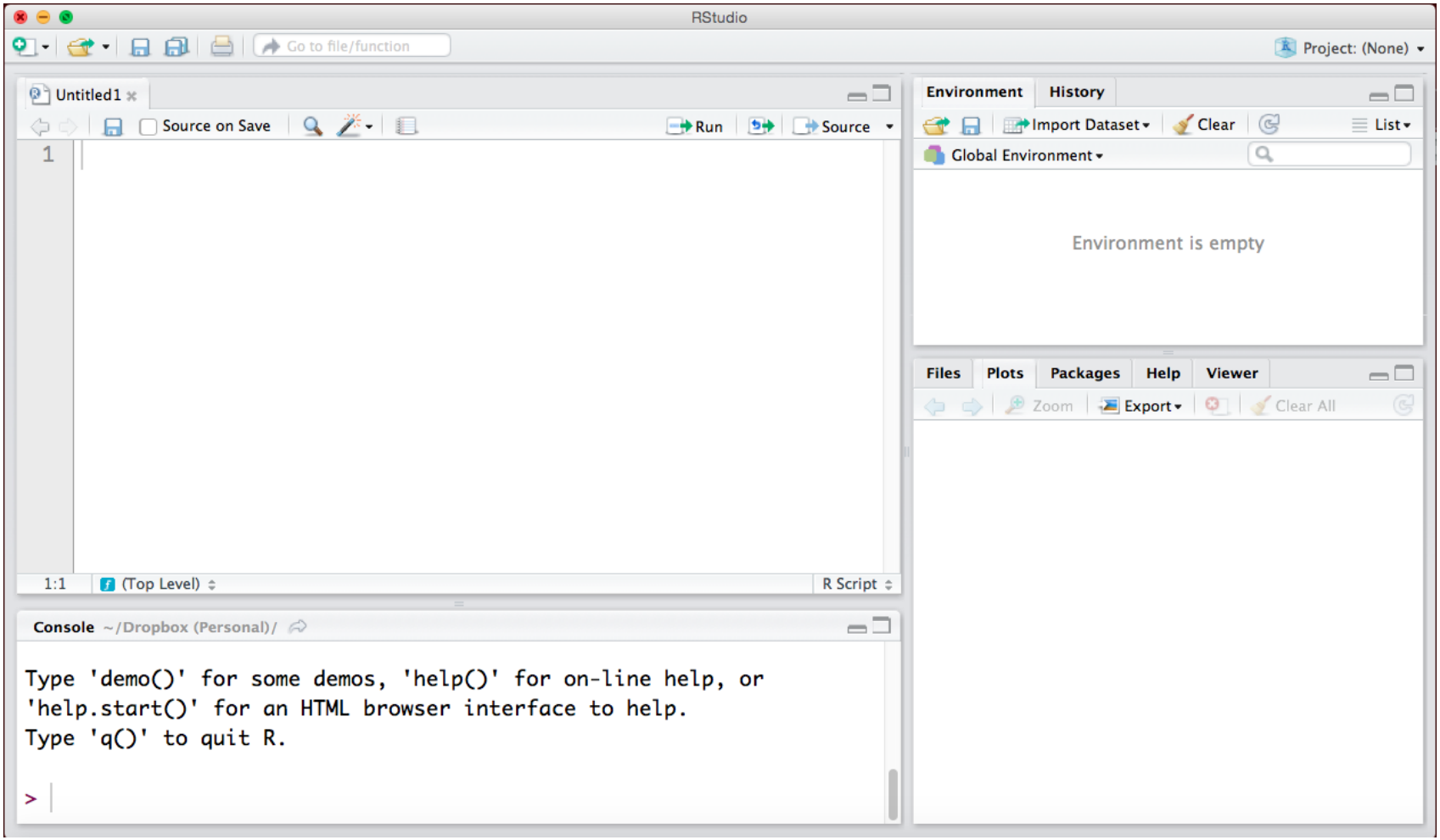
Accessing RStudio

- Simplest: Install and run R + RStudio locally
- Also viable:
  1. Go read this:

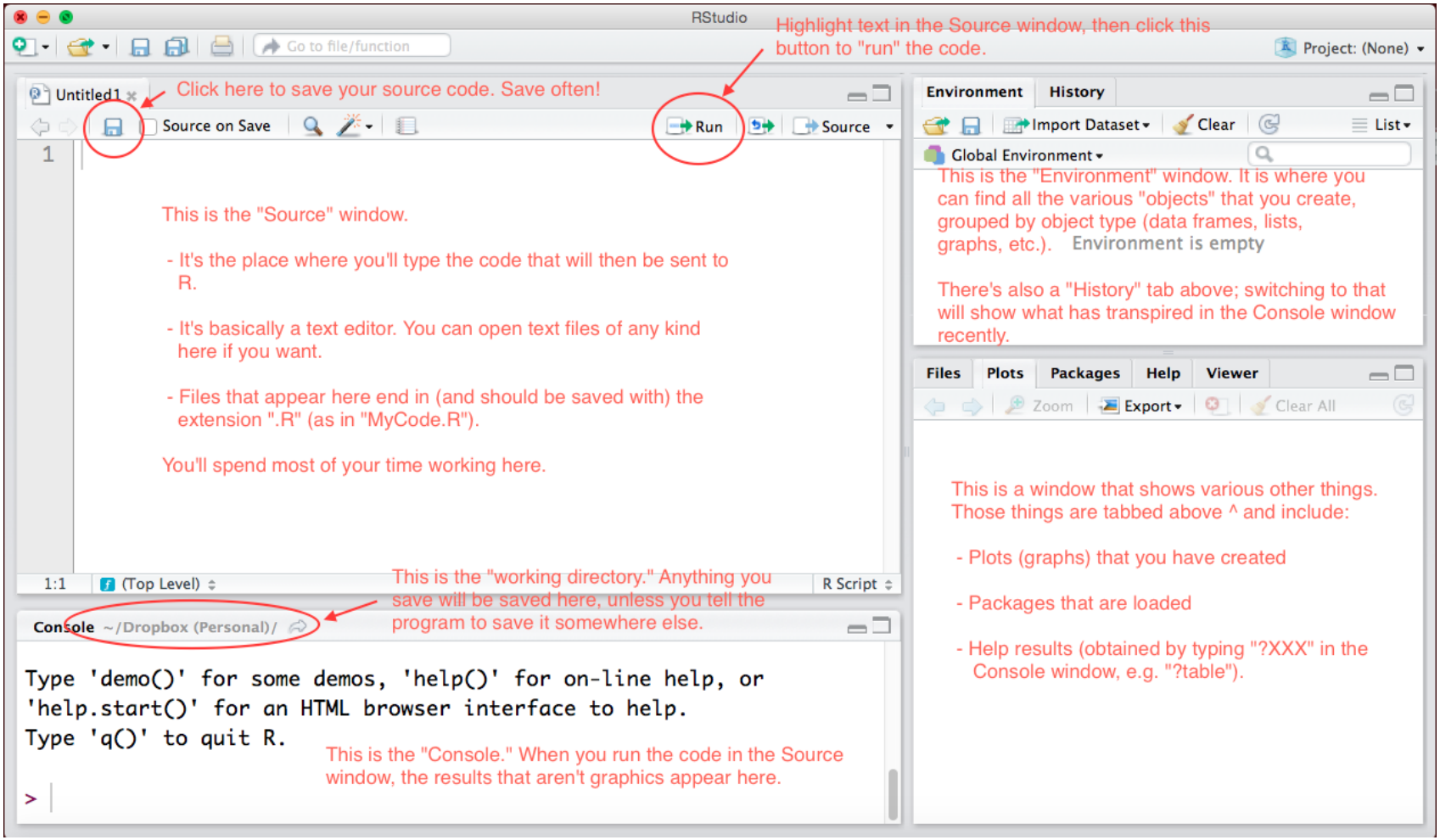
     `http://clc.its.psu.edu/RemoteAccess/LinuxCluster/access`
  2. Install software as needed (X/cygwin for Windows, X11/XQuartz for OS-X)
  3. Start up the X-window software, and open a session to `lxcluster.tlt.psu.edu`
  4. When logged in, type `"rstudio"` at the command prompt
- Harder:
  1. Secure an account on Hammer
  2. Install the ExceedonDemand client
  3. Run Rstudio in the EoD client window


R Console
~
Help Search
R version 3.2.1 (2015-06-18) -- "World-Famous Astronaut"
Copyright (C) 2015 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin13.4.0 (64-bit)
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.
Natural language support but running in an English locale
R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
[R.app GUI 1.66 (6956) x86_64-apple-darwin13.4.0]
[History restored from /Users/ChristopherZorn/.Rapp.history]
>

RStudio


RStudio
Go to file/function
Project: (None)
Untitled1
Source on Save
Run
Source
1
1:1
(Top Level)
R Script
Environment
History
Import Dataset
Clear
List
Global Environment
Environment is empty
Files
Plots
Packages
Help
Viewer
Zoom
Export
Clear All
Console ~/Dropbox (Personal)/
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
>

RStudio (annotated)



Inside the Source Window

This:

```
> table(df$X)
```

... means "Type the phrase 'table(df$X)' on the command line," or – equivalently – "Type the phrase 'table(df$X)' into your Source code, and then run it."

Inside the Source Window

More often, you'll see:

```
with(df, plot(Y~X,pch=19,col="red")) # draw a scatterplot
abline(h=0,lty=2) # add a horizontal line at zero
abline(v=0,lty=2) # add a vertical line at zero
text(df$X,df$Y,labels=df$names,pos=1) # add labels
```

... which means "Put this block of text into your Source code, and then run it."

Note:

- R / RStudio ignores line breaks
- Anything to the right of a "#" is a comment

Examples...

(see `PLSC503-2017-R-Intro.R`)

Help For Learning R(Studio)

In rough order of preference:

- Quick-R (`http://www.statmethods.net/`)
- The "Level-Zero" R Tutorial (doesn't integrate RStudio, but is otherwise very good)
- Statistics with R
- The Do It Yourself Introduction to R
- Also be sure to consult the PLSC 503 "Useful R Resources" guide (under "Resources" on GitHub).