

Data Visualization

Who are you?



I Still Don't Know

Fill-out: Form

Why are We Here?



- To Develop a Personal and Intimate Hate/Love Relationship With R
- To Install Some Key R Packages
 - Tidyverse
 - Rmarkdown
- To Practice Coding via R Scripts
- To Learn Elements of ggplot2
- To Practice Making Visually Stunning Pictures that Change Lives

Initial Steps in RStudio



- Install Tidyverse Package
 - > install.packages("tidyverse")
- Other Packages To Be Installed
 - RColorBrewer
 - RMarkdown

Select Install and Search on CRAN

Files ots	Packages	Help	Viewer			
Install	Update			Q		
Name		[escription		Version	
User Library						
abind		(ombine Multidimensional Arrays		1.4-5	8
assertth	at	I	asy Pre and Post Assertions		0.2.0	8
backpor	ts		eimplementations of Functions Introduced Since R-3	.0.0	1.1.2	
base64e	nc	-	pols for base64 encoding		0.1-3	
ВН			oost C++ Header Files		1.66.0-1	8
bindr	bindr		arametrized Active Bindings		0.1.1	8
bindrcpp	bindrcpp		n 'Rcpp' Interface to Active Bindings		0.2.2	8
bitops	bitops		Bitwise Operations		1.0-6	8
broom		(onvert Statistical Analysis Objects into Tidy Tibbles		0.5.0	8
callr		(all R from R		2.0.4	8
caTools			ools: moving window statistics, GIF, Base64, ROC AUC	C, etc.	1.17.1.1	8
cellrange	cellranger		Translate Spreadsheet Cell Ranges to Rows and Columns		1.1.0	8
cli			elpers for Developing Command Line Interfaces		1.0.0	8
clipr			ead and Write from the System Clipboard		0.4.1	8
coda		(utput Analysis and Diagnostics for MCMC		0.19-1	(3)

Initial Steps in RStudio



- To Use the Package
 - Code
 - > library("tidyverse")
 - Check Box for Tidyverse

Files	Plots	Packages	Help	Viewer				
Install • Update				Q				C
	Name			Description			Version	
✓	tidyverse			Easily Insta	ll and Load the 'Tidyverse'		1.2.1	⊗ ^
	tinytex			Helper Fun 'LaTeX' Doo	ctions to Install and Maintain 'TeX Live', and Compi uments	le	0.6	⊗
	utf8			Unicode Te	ct Processing		1.1.4	8
	viridisLite	9		Default Col	or Maps from 'matplotlib' (Lite Version)		0.3.0	⊗
	whisker			{{mustache	}} for R, logicless templating		0.3-2	8
	withr			Run Code '	With' Temporarily Modified Global State		2.1.2	8
	xfun			Miscellaneous Functions by 'Yihui Xie'			0.3	⊗
	XLConnect			Excel Connector for R			0.2-15	⊗
	XLConne	ctJars		JAR Depen	dencies for the XLConnect Package		0.2-15	⊗
	xml2			Parse XML			1.2.0	⊗
	yaml			Methods to Convert R Data to YAML and Back			2.2.0	⊗
	zoo			S3 Infrastructure for Regular and Irregular Time Series (Z's Ordered Observations)		1.8-3	8	
Syste	System Library							
	boot			Bootstrap Functions (Originally by Angelo Canty for S)			1.3-20	8
	class			Functions f	or Classification		7.3-14	8
	cluster			"Finding Groups in Data": Cluster Analysis Extended Rousseeuw et al			2.0.7-1	⊗ 🗸

ggplot2



- Help Page: <u>Link</u>
- Comes with Preloaded Datasets



Reference

Data

ggplot2 comes with a selection of built-in datasets that are used in examples to illustrate various visualisation challenges.

diamonds Prices of 50,000 round cut diamonds

economicsUS economic time series

faithfuld 2d density estimate of Old Faithful data

midwest Midwest demographics

mpg Fuel economy data from 1999 and 2008 for 38 popular models of

car

msleep An updated and expanded version of the mammals sleep dataset

presidential Terms of 11 presidents from Eisenhower to Obama

seals Vector field of seal movements

txhousing Housing sales in TX

luv_colours colors() in Luv space

ggplot2



- Many Useful Plots and Charts Provided
 - See Cheat Sheet: <u>Link</u>
 (Also on Course Website)
 - Identified as Geoms (Geometric Objects)
- Organized by Type of Data
 - Univariate
 - Bivariate
 - Mixtures of Categorical and Numeric
- ggplot2 General Form
 - The geom you choose has to comply with the type of variables you are analyzing
- > ggplot(data=DATA) +
 geom_TYPE(mapping=aes(x=XVAR,y=YVAR, etc.))
 - Fill in blanks from dataset

ggplot2



Now, let us

PRACTICE

Start by downloading
Tutorial2.Rmd to Your Computer
from the Course Website and
open the file in RStudio

Closing



Disperse and Make Reasonable Decisions