

# CWRU DSCI351-351M-451: Week05b Tidyverse Thinking

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### 5.2.1.1 Reading, Homeworks, Projects, SemProjects

- Readings:
  - R4DS 4-6 for today
  - R4DS 7-8 for Tuesday
- Homeworks
  -
- Data Science Projects:
  - Proj1 Due Next Tuesday before class
- 451 SemProjects:
  - 4 Report Outs today
- Friday Comm. Hour
  - Discuss Data Sci, Proj1, SemProj, etc.

### 5.2.1.2 Textbooks

- [Peng: R Programming for Data Science](#)
- [Peng: Exploratory Data Analysis with R](#)
- [Open Intro Stats, v3](#)
- [Wickham: R for Data Science](#)
- [Hastie: Intro to Statistical Learning with R](#)

### 5.2.1.3 Syllabus

### 5.2.1.4 Tidyverse thinking

#### 5.2.1.4.1 Hadley Wickham Talk on Tidyverse

Watch this one for class

- [Hadley Wickham on Tidyverse](#)

Day:Date	Foundation	Practicum	Reading	Due
w1a:Tu:8/28/18	ODS Tool Chain	R, Rstudio, Git		
w1b:Th:8/30/18	Setup ODS Tool Chain	Bash, Git, Twitter	PRP4-33	HW1
w2a:Tu:9/4/18	What is Data Science	OIS:Intro2R	PRP35-64	<b>HW1 Due</b>
w2b:Th:9/6/18	Data Analytic Style, Git	451SempProj, Git	PRP65-93, OI1-1.9	HW2
w3a:Tu:9/11/18*	Struct. of Data Analysis	ISLR:Intro2R, Loops	PRP94-116, OIS3	<b>HW2 Due</b>
w3b:Th:9/13/18*	OIS3 Intro to Data	GapMinder, Dplyr, Magrittr		
w4a:Tu:9/18/18	OIS3, Intro2Data part 2, Data	EDA: PET Degr.	EDA1-31	Proj1
w4b:Th:9/20/18	Hypothesis Testing	GGPlot2 Tutorial	EDA32-58	HW3
w5a:Tu:9/25/18	Distributions	SemProj RepOut1	R4DS1-3	<b>HW3 Due</b>
w5b:Th:9/27/18	Wickham DSCI in Tidyverse	SemProj RepOut1	R4DS4-6	<b>SemProj1,</b>
w6a:Tu:10/2/18	OIS Found. of Inference	Inference	R4DS7-8	<b>Proj1 Due</b>
w6b:Th:10/4/18		Midterm Review	R4DS9-16 Wrangle	
w7a:Tu:10/9/18*	Summ. Stats & Vis.	Data Wrangling		
w7b:Th:10/11/18*	<b>MIDTERM EXAM</b>			HW4
w8a:Tu:10/16/18	Numerical Inference	Tidy Check Explore	OIS4	<b>HW4 Due</b>
w8b:Th:10/18/18	Algorithms, Models	Pairwise Corr. Plots	OIS5.1-4	Proj 2, HW5
Tu:10/23	<b>CWRU FALL BREAK</b>		R4DS17-21 Program	
w9b:Th:10/25/18	Categorical Infer	Predictive Analytics	OIS6.1,2	
w10a:Tu:10/30/18	SemProj	SemProj	OIS7	<b>SemProj2 HW5 Due</b>
w10b:Th:11/1/18	Lin. Regr.	Lin. Regr.	OIS8	<b>Proj.2 due</b>
w11a:Tu:11/6/18	Inf. for Regression	Curse of Dim.	OIS8	Proj 3
w11b:Th:11/8/18	Model Accuracy	Training Testing	ISLR3	HW6
w12a:Tu:11/13/18	Multiple Regr.	Mul. Regr. & Pred.	ISLR4	<b>HW6 due</b>
w12b:Th:11/15/18	Classification		ISLR6	
w13a:Tu:11/20/18	Classification	Clustering	ISLR5	<b>Proj 3 due</b>
Th:11/22/18	<b>THANKSGIVING</b>			Proj 4
w14a:Tu:11/27/18	Big Data	Hadoop		
w14b:Th:11/29/18	InfoSec	VerisDB		<b>SemProj3</b>
w15a:Tu:12/4/18	SemProj Re-reportOut3			
w15b:Th:12/6/18	SemProj Re-reportOut3			<b>Proj4</b>
	<b>FINAL EXAM</b>	<b>Monday12/17, 12:00-3:00pm</b>	Olin 313	<b>SemProj4 due</b>

Figure 1: DSCI351-451 Syllabus

Alternatively here is a more extended version

- [RConf-Jan 2017: Data Science in the Tidyverse](#) And slides

#### 5.2.1.4.2 Hadley has a great book on making R packages

Its available to read online

- [R Packages](#)

#### 5.2.1.4.3 Purrr is another part of the Tidyverse

purrr enhances R's functional programming (FP) toolkit

- by providing a complete and consistent set of tools
- for working with functions and vectors.

If you've never heard of FP before,

- Check Wikipedia first
  - [Functional Programming](#)
- the best place to start is
- the family of `map()` functions
  - which allow you to replace many for loops
  - with code that is both more succinct and easier to read.

The best place to learn about the `map()` functions

- is the iteration chapter in R for data science.
- [Use quick formula functions in purrr::map \(+ base vs tidyverse idiom comparisons/examples\)](#)

[purrr tutorial](#)

#### 5.2.1.5 An Exmaple

[Chart: It's not your imagination, US gun violence is over the top this summer](#)

[Falling into the Pit of Success](#)

##### 5.2.1.5.1 Jenny Bryan on Data Wrangling

[Jenny Bryan on Data Wrangling](#)

[Basic care and feeding of data in R](#)