Introduction to the tidyverse: One-day workshop

Lesson 1: The `tidyverse` and tidy data

Lesson 2: Importing data

Lesson 3: Re-shaping data

Lesson 4: Manipulating data

Lesson 5: Joining and appending data

Lesson 6: Miscellaneous tidying

Lesson 7: Visualizing data

Recommended preparation: Introduction to R, one-day workshop

Learning Objectives

- Student can compare and contrast the `tidyverse` to the general R environment
- Student can read tabular files into R
- Student can transform a dataset to fit tidy principles
- Student can create a data manipulation pipeline
- Student can merge and append datasets
- Student can manipulate strings, factors and dates
- Student can create graphical depictions of variable relationships

Lesson 1: The `tidyverse` and tidy data
Objective: Student can compare and contrast the `tidyverse` to the general R environment
Description:

- What is tidy data?
- A tour of the tidy galaxies
- The tidy workflow

Time: 40 minutes
Assets needed: none

Lesson 2: Importing data
Objective: Student can read tabular files into R
Description:

- Introduction to the tibble
- Importing text files
- Importing Excel workbooks

Time: 40 minutes
Assets needed: Baseball records

Lesson 3: Re-shaping data
Objective: Student can transform a dataset to fit tidy principles
Description:

- Pivoting and un-pivoting datasets
- Delimiting columns

Time: 60 minutes
Assets needed: Baseball records

Lesson 4: Manipulating data
Objective: Student can create a data manipulation pipeline

- Manipulating rows & columns
- Aggregating & summarizing data
- Piping functions

Time: 75 minutes
Assets needed: Baseball records

Lesson 5: Joining and appending data
Objective: Student can create a data manipulation pipeline

- Appending two or more tables
- Joining two tables: left, right, inner, outer

Time: 75 minutes
Assets needed: Baseball records

Lesson 6: Miscellaneous tidying
Objective: Student can manipulate strings, factors and dates

- Formatting, replacing and splitting strings
- Ordering and modifying factors
- Generating, calculating and resampling dates

Time: 60 minutes
Assets needed: Flight records

Lesson 7: Visualizing data
Objective: Student can create graphical depictions of variable relationships

- The grammar of graphics
- Plotting univariate relationships
- Plotting bivariate relationships
- Customizing scales, legends & themes

Time: 90 minutes
Assets needed: Baseball records