Introduction to R for Air Quality Data Science

May 14-16, 2024

Location: Virtual (Online)

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LADCO Coordinator: Angie Dickens (dickens@ladco.org)

Course Preparation: No prior experience with R is required. However, students are **<u>required</u>** to have R and RStudio installed on their computers prior to the course. Installation instructions are linked below. Please allow enough time to work with your IT department on the installation (if necessary). Reach out to Eric Bailey (ebailey@fluentdatallc.com) with questions about the installation.

Agenda

All times are EDT

May 14, 2024	
9:00 AM	<u>Introduction to R – Lesson</u> *This lesson provides a basic introduction to R, including how to install and set up R and RStudio, an overview of R syntax, and how to perform simple operations.*
10:00 AM	Introduction to R – Exercises
10:45 AM	Break
11:00 AM	<u>Functions and Importing Data – Lesson</u> *This lesson covers the use of functions in R, including built-in functions and functions from packages. It also discusses how to import data from in formats such as CSV and Excel.*
12:00 PM	Functions and Importing Data – Exercises
12:45 PM	Wrap-up
May 15, 2024	
9:00 AM	<u>Subsetting, Sorting, and Combining Data Frames – Lesson</u> *This lesson covers how to subset data using indexing, logical operators, and the filter( ) function from dplyr. It also covers how to sort and combine data frames.*
10:00 AM	Subsetting, Sorting, and Combining Data Frames – Exercises
10:45 AM	Break
11:00 AM	<u>Writing Functions, Conditionals, and Loops – Lesson</u> *This lesson introduces the concept of writing functions in R, using conditionals to control the flow of execution, and implementing loops for repetitive tasks.*
12:00 PM	Writing Functions, Conditionals, and Loops - Exercises
12:45 PM	Wrap-up
May 16, 2024	
9:00 AM	<u>Plotting – Lesson</u>

	This lesson focuses on visualizing data using various plotting techniques in R, including scatter plots, line graphs, and histograms.
10:00 AM	Plotting - Exercises
10:45 AM	Break
11:00 AM	Basic Statistics – Lesson *This lesson covers the basics of statistical analysis in R, including calculating means, medians, standard deviations, and correlations.*
12:00 PM	Basic Statistics – Exercises
12:45 PM	Wrap-up

Installation and Preparation Instructions: https://github.com/FluentData/download-R-and-Rstudio/blob/main/readme.md