ONE-DAY COURSE, Saturday or Sunday
22 and 23 Getting Started with R for Mass Spectrometry Data Analysis

Instructors

Ryan Benz SoCal Bioinformatics	Jeffrey Jones SoCal Bioinformatics	Heath Patterson Vanderbilt University

This course is designed to help participants develop a solid foundation in the basics of the R programming language and understand how it can be used to perform the types of data analysis tasks scientists frequently encounter in their daily work. While the focus of the course will be on learning practical fundamentals of R for data analysis in general, mass spectrometry specific examples will be used during the course, making it well suited for ASMS members interested in adding data analysis skills to their scientific toolbelt. The main goal of the course is to help scientists, who are new to R and perhaps coding in general, get to the point where they can begin to perform basic data analysis tasks and produce data visualizations on their own, as well as to provide the basis for further study on the road to R fluency.

The course will focus on three main topics:
1. A high-level and practical introduction to R, covering the essential fundamentals that one needs to start doing basic data analysis tasks.
2. An introduction to the `tidyverse` ecosystem of R packages and how they can be used to facilitate efficient and organized data analyses.
3. An introduction to the `ggplot2` data visualization package, with an emphasis on practical fundamentals, so participants can start making basic plots and visualizations from their own data.

Please note that this course will not focus on the details of specific analysis and statistical methods, and how they can be applied to mass spectrometry data. Rather, the focus of the course is on helping new R users learn the essential fundamentals so they can start using R in their daily work. While one cannot expect to master R in one day, this course will help participants get over some of the initial hurdles that new R users often face. Additional learning resources and recommendations will also be provided at the end of the course to help participants continue their study of R.

Prerequisites:

All participants will need to bring a laptop in order to perform the example exercises during the course. Instructions will be provided in advance on any required software and set-up needed.

Participants should have some experience performing basic data analysis tasks, for example, using Excel and/or MS vendor software to process and review data.

While previous programming experience can be useful for learning R, it is not specifically required for this course since the focus will be on *the use of R for data analysis* as opposed to teaching participants how to program specifically. Those new to R, and programming in general, are welcome!