Oct-Nov Workshops from Research Computing and HS Library

Learn about image processing with Python, GPU computing resources, and R, the popular programming language for statistical computing and graphics. Workshops are via Zoom and are free: use the links below to register.

**Research Computing**

**Parallel Matlab on Rivanna**

This workshop focus will on how to parallelize Matlab code to efficently use the computational resources on Rivanna. Both task parallel and data parallel examples will be presented, and the latest features of the Matlab Parallel Computing toolbox with be covered. Rivanna account recommended. Expected prior knowledge: Familiarity with Matlab.

Thu Oct 13 2022 2:00pm - 4:00pm [Register](https://cal.lib.virginia.edu/event/9534376)

**GPU-Enabled Applications on Rivanna**

In this workshop participants are introduced to the gpu computing resources available to them on Rivanna, and how these resources might be applied to their computational needs. Participants are provided a general overview of existing gpu resources, as well as a new resource coming online. Then language-specific breakout rooms (Python, Matlab) would allow them to see how gpu computing might impact their own research.

Thu Oct 20 2:00PM - 4:00PM [Register](https://cal.lib.virginia.edu/event/9534448)

**Scientific Image Processing with Python**

In this advanced workshop participants are introduced to scientific image processing with the Python OpenCV package. Topics include splitting and merging of color channels, morphological filters, image thresholding and segmentation.

Thu Oct 27 2:00PM - 4:00PM [Register](https://cal.hsl.virginia.edu/event/9544203)

**R Training**

**Introduction to R**

This workshop is directed towards participants who have little or no experience with statistical computing or programming. R is an open source language that can be used for a variety of computational purposes. This class will introduce R and RStudio in the context of its data analysis capabilities. Via interactive code-alongs, students will learn the basics of creating variables, using functions, accessing documentation, loading packages, importing data, and investigating a dataset.

Wed Oct 12 10:00AM - 12:00PM [Register](https://cal.hsl.virginia.edu/event/9730727) or

Wed Nov 9 2:00PM - 4:00PM [Register](https://cal.hsl.virginia.edu/event/9730759)

**Data Preparation in R**

Data analysis involves a large amount of preparing, cleaning, and "munging" data to facilitate downstream data analysis. This workshop is designed for those with a basic familiarity with R who want to learn modern tools and techniques for data manipulation. Upon completing this lesson, participants will be able to use the dplyr package in R to effectively manipulate and conditionally compute summary statistics over subsets of a "big" dataset containing many observations.

Wed Oct 19 10:00AM - 12:00PM [Register](https://cal.hsl.virginia.edu/event/9730743) or

Thu Nov 10 2:00PM - 4:00PM [Register](https://cal.hsl.virginia.edu/event/9730763)

**Data Visualization in R**

This workshop will cover fundamental concepts for creating effective data visualization using the popular R plotting package, ggplot2. We will review fundamental concepts for visually displaying quantitative information, such as using series of small multiples, avoiding "chart-junk," and maximizing the data-ink ratio. We will cover the grammar of graphics in the ggplot2 package (geoms, aesthetics, stats, and faceting) to create beautiful plots layer-by-layer. Upon completing this lesson, learners will be able to use ggplot2 to explore high-dimensional datasets.

Wed Oct 26 10:00AM - 12:00PM [Register](https://cal.hsl.virginia.edu/event/9730732) or

Wed Nov 16 2:00PM - 4:00PM [Register](https://cal.hsl.virginia.edu/event/9730766)

**Data Wrangling in R**

One of the most difficult tasks when conducting data analysis is combining disparate datasets into a single usable dataset. This workshop will provide participants with data cleaning and joining skills using functions from tidyverse packages. Specifically, participants will be able to reorganize and reshape datasets, clean messy datasets, and correctly merge datasets together.

Wed Nov 2 10:00AM - 12:00PM [Register](https://cal.hsl.virginia.edu/event/9730744) or

Thu Nov 17 2:00PM - 4:00PM [Register](https://cal.hsl.virginia.edu/event/9730770)

**Customizing Shiny Apps**

This workshop will expand upon the Introduction to Shiny workshop and cover stylizing your Shiny app and Shiny dashboards. No web development experience is required. R is available to everyone. The only prior knowledge assumed for this workshop is some programming experience with R and Shiny.

Mon Oct 10 10:00am - 12:00pm [Register](https://cal.lib.virginia.edu/event/9534969)

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Check out the full workshop calendars from [Research Computing](https://www.rc.virginia.edu/education/workshops/) and [Health Sciences Library](https://cal.hsl.virginia.edu/calendar/data)

Questions? Email the Health Sciences Library Research & Data Services team at [hsl-rdas@virginia.edu](mailto:hsl-rdas@virginia.edu).