Introduction to R

https://tinyurl.com/hbc-r-qmd

Harvard Chan Bioinformatics Core

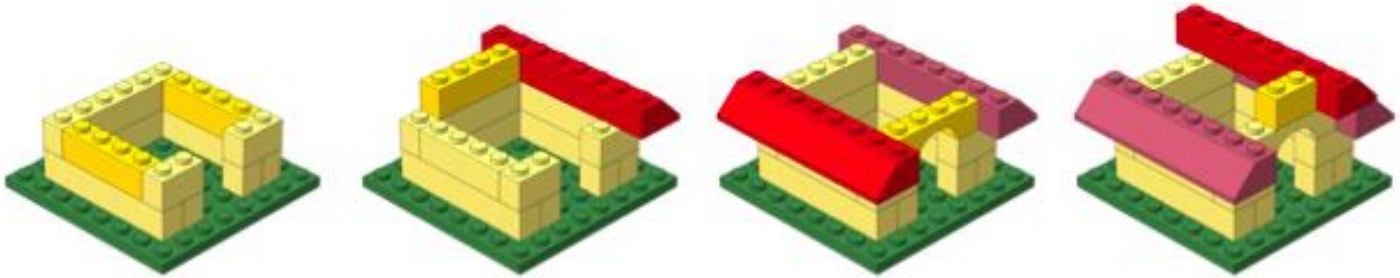
Learning Objectives

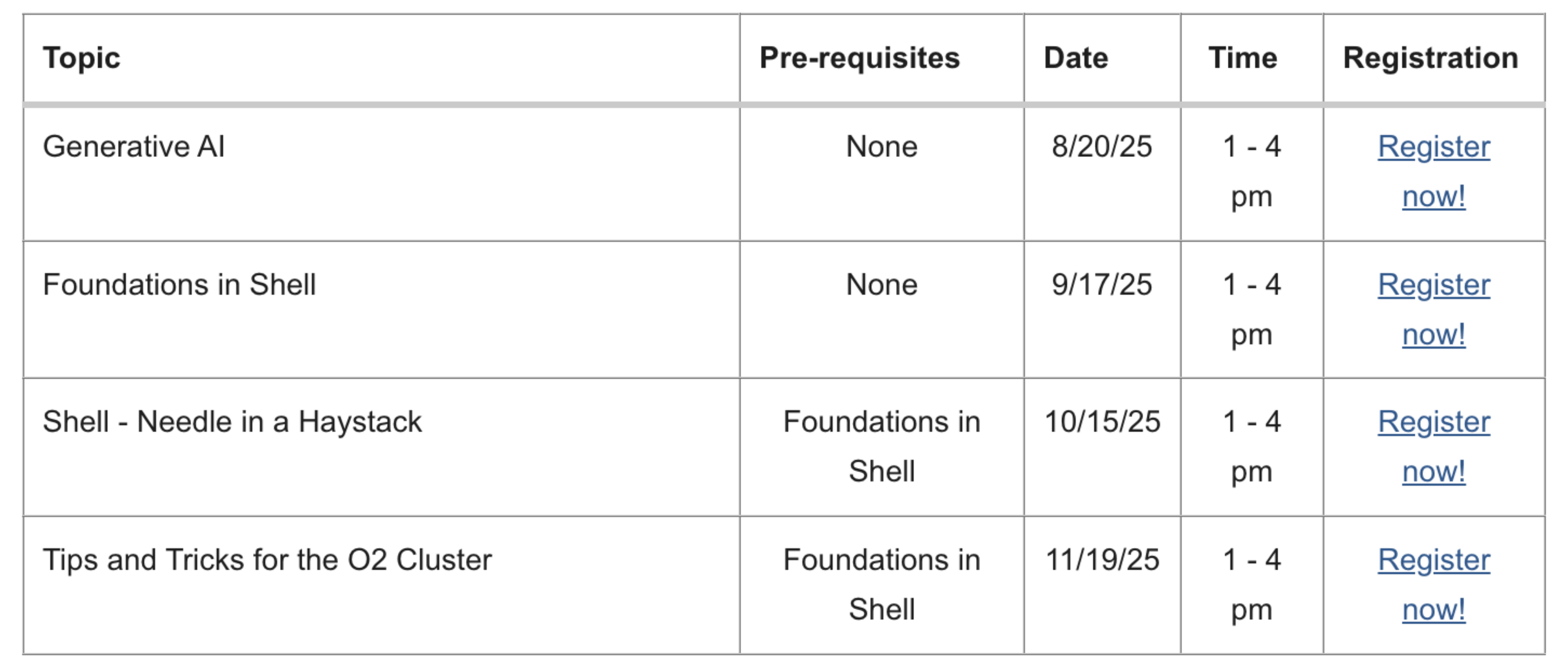
- Comfortably use RStudio (a graphical interface for R)
- Fluently interact with R using RStudio
- Become familiar with R syntax
- Understand data structures in R
- Inspect and manipulate data structures
- Install packages and use functions in R
- Visualize data using ggplot2
- Utilize pipes, tibbles and functions from the Tidyverse package suite

Exit survey

https://tinyurl.com/r-workshop-hbc

Keep building!

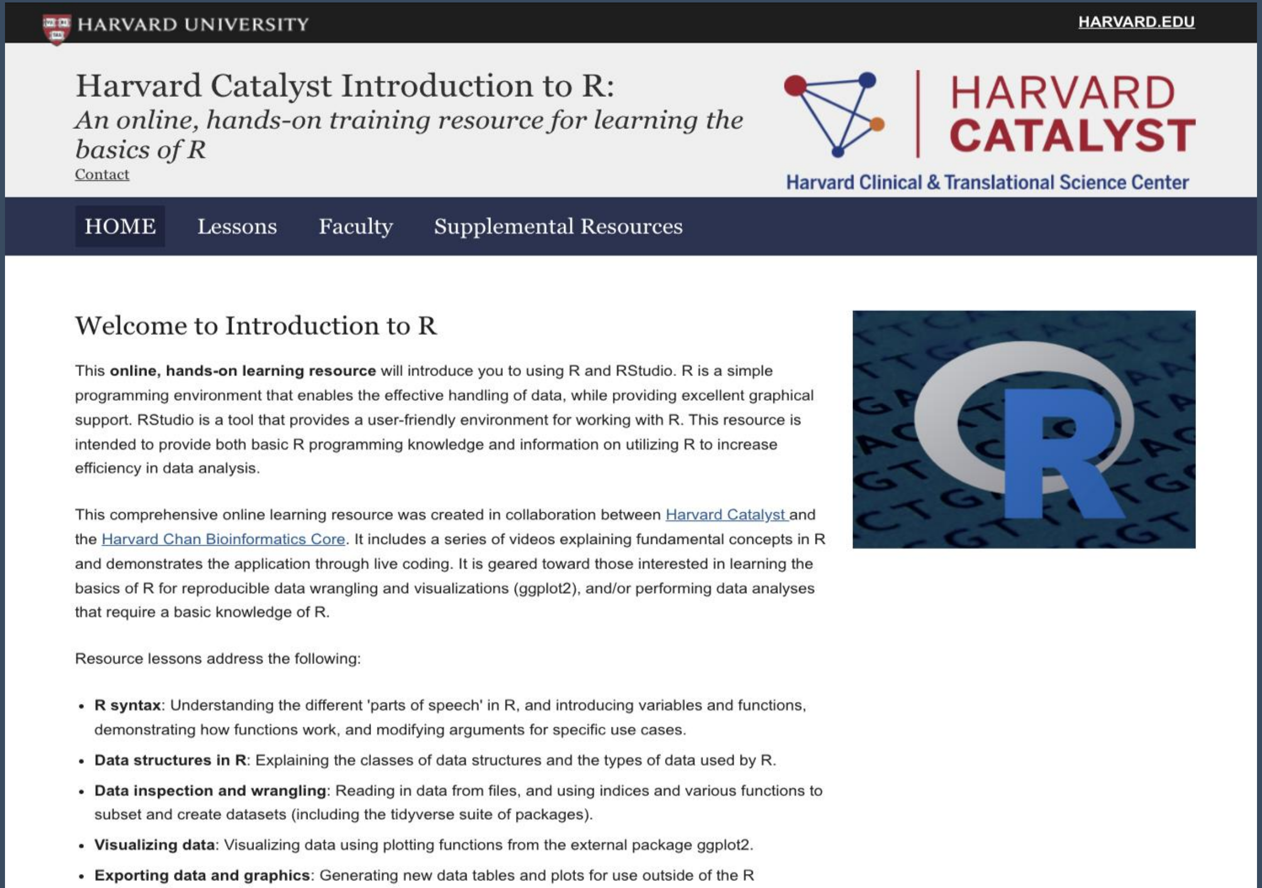




Topic	Pre-requisites	Date	Time	Registration
Generative AI	None	8/20/25	1 - 4 pm	Register now!
Foundations in Shell	None	9/17/25	1 - 4 pm	Register now!
Shell - Needle in a Haystack	Foundations in Shell	10/15/25	1 - 4 pm	Register now!
Tips and Tricks for the O2 Cluster	Foundations in Shell	11/19/25	1 - 4 pm	Register now!

https://bioinformatics.sph.harvard.edu/current-bioinformatics-topics-workshops

Harvard Catalyst Online Resource



Harvard Catalyst Introduction to R:

An online, hands-on training resource for learning the basics of R

Welcome to Introduction to R

This **online, hands-on learning resource** will introduce you to using R and RStudio. R is a simple programming environment that enables the effective handling of data, while providing excellent graphical support. RStudio is a tool that provides a user-friendly environment for working with R. This resource is intended to provide both basic R programming knowledge and information on utilizing R to increase efficiency in data analysis.

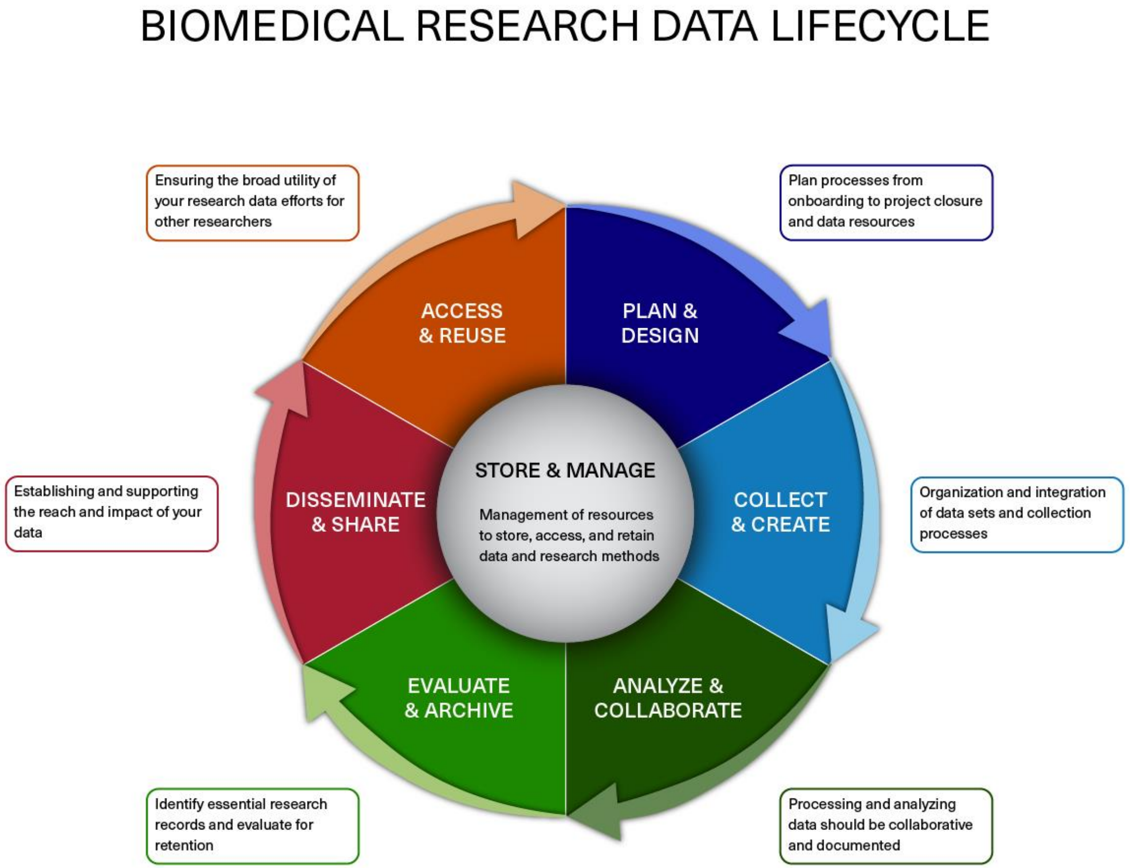
This comprehensive online learning resource was created in collaboration between Harvard Catalyst and the Harvard Chan Bioinformatics Core. It includes a series of videos explaining fundamental concepts in R and demonstrates the application through live coding. It is geared toward those interested in learning the basics of R for reproducible data wrangling and visualizations (ggplot2), and/or performing data analyses that require a basic knowledge of R.

Resource lessons address the following:

- **R syntax**: Understanding the different 'parts of speech' in R, and introducing variables and functions, demonstrating how functions work, and modifying arguments for specific use cases.
- **Data structures in R**: Explaining the classes of data structures and the types of data used by R.
- **Data inspection and wrangling**: Reading in data from files, and using indices and various functions to subset and create datasets (including the tidyverse suite of packages).
- **Visualizing data**: Visualizing data using plotting functions from the external package ggplot2.
- **Exporting data and graphics**: Generating new data tables and plots for use outside of the R

https://projects.iq.harvard.edu/hcatrresource

Research Data Management (RDM)


BIOMEDICAL RESEARCH DATA LIFECYCLE

PLAN & DESIGN

Plan processes from onboarding to project closure and data resources

COLLECT & CREATE

Organization and integration of data sets and collection processes

ANALYZE & COLLABORATE

Processing and analyzing data should be collaborative and documented

EVALUATE & ARCHIVE

Identify essential research records and evaluate for retention

DISSEMINATE & SHARE

Establishing and supporting the reach and impact of your data

ACCESS & REUSE

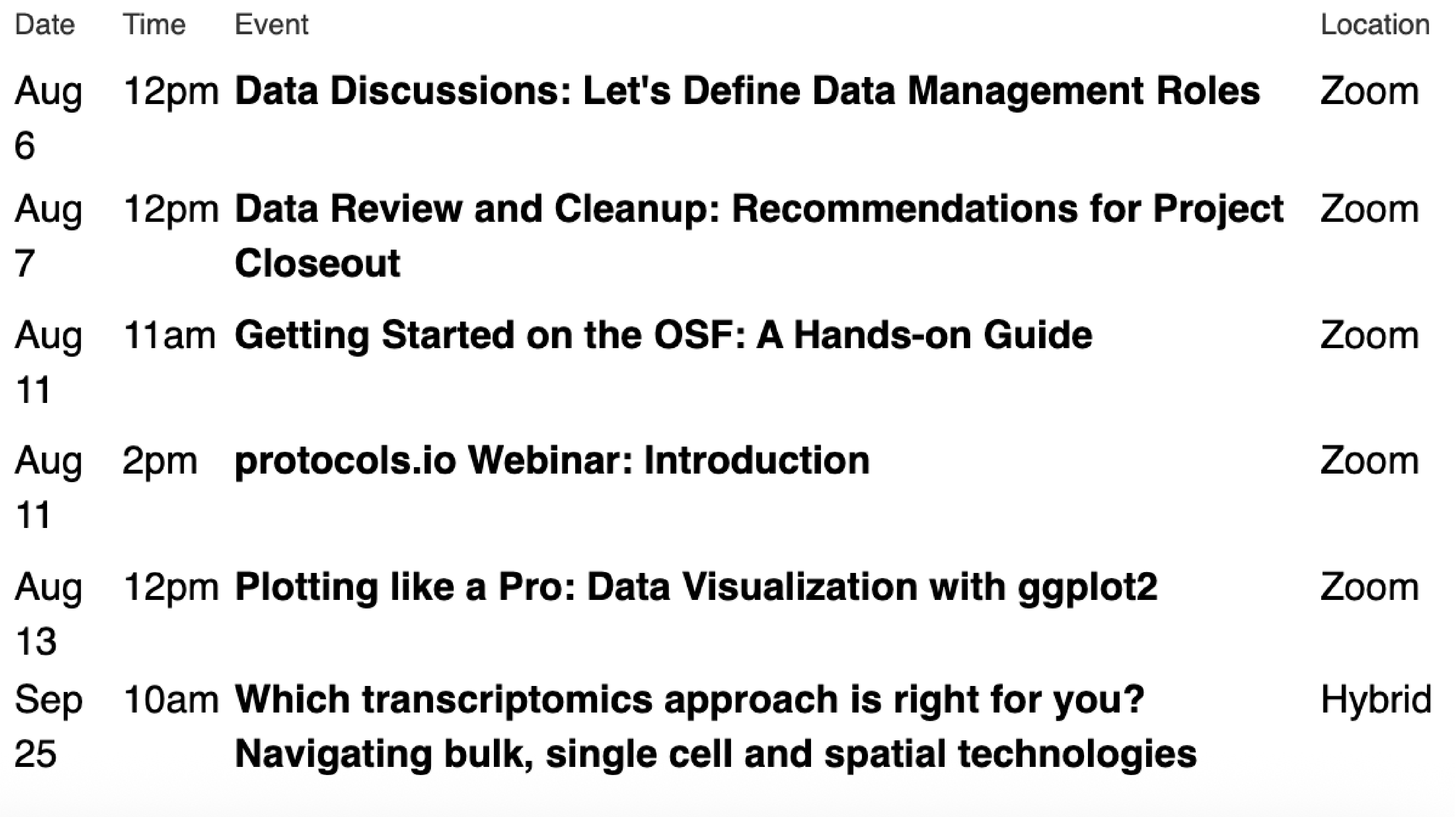
Ensuring the broad utility of your research data efforts for other researchers

STORE & MANAGE

Management of resources to store, access, and retain data and research methods

Better RDM practice benefits you

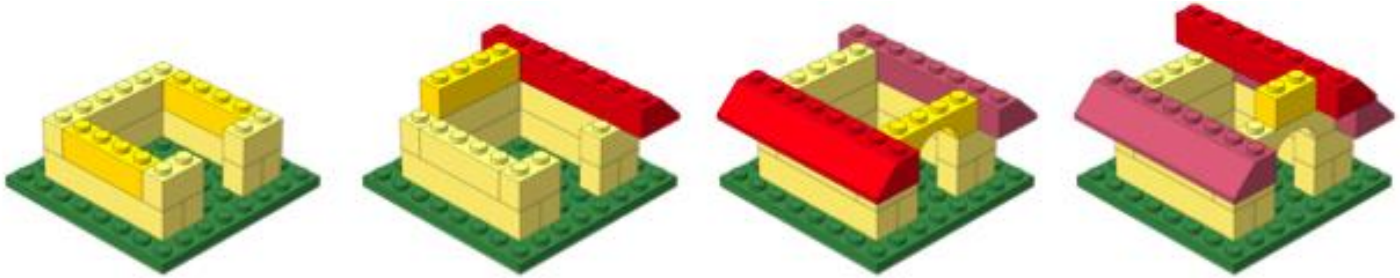
- **HMS Data Management LMA**
  - **Webpage:** https://datamanagement.hms.harvard.edu
  - **Sign up for quarterly email updates**
- **Harvard-wide Research data Management**
  - https://researchdatamanagement.harvard.edu/



Date	Time	Event	Location
Aug 6	12pm	**Data Discussions: Let's Define Data Management Roles**	Zoom
Aug 7	12pm	**Data Review and Cleanup: Recommendations for Project Closeout**	Zoom
Aug 11	11am	**Getting Started on the OSF: A Hands-on Guide**	Zoom
Aug 11	2pm	**protocols.io Webinar: Introduction**	Zoom
Aug 13	12pm	**Plotting like a Pro: Data Visualization with ggplot2**	Zoom
Sep 25	10am	**Which transcriptomics approach is right for you? Navigating bulk, single cell and spatial technologies**	Hybrid

https://datamanagement.hms.harvard.edu/about/news-events/rdmwg-calendar

Keep building!



Topic	Category	Date	Duration	Prerequisites
Introduction to Peak Analysis	Advanced	August 15, 19, 22	Three 2.5h sessions	R
Introduction to single-cell RNA-seq	Advanced	September 9, 12, 16	Three 2.5h sessions	R
Pseudobulk and related approaches for scRNA-seq analysis	Advanced	October 21, 24, 28, 31	Four 2.5h sessions	R

https://bioinformatics.sph.harvard.edu/upcoming-workshops

Talk to us early!

Involvement in study design to optimize experiments

More Information

- *HBC training materials: https://hbctraining.github.io/main*
- *HBC website: http://bioinformatics.sph.harvard.edu*

Contact Us

Sign up for our mailing list:

https://tinyurl.com/hbc-training-mailing-list

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