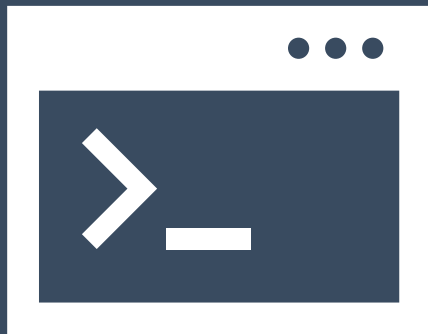


Introduction to R

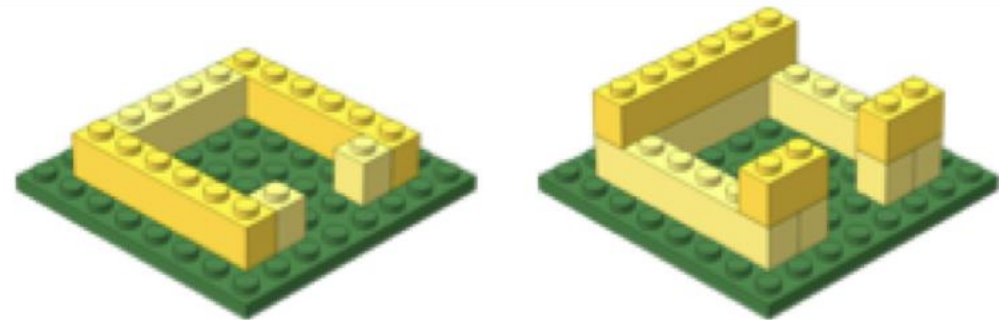
<https://tinyurl.com/hbc-r-revised>



Harvard Chan Bioinformatics Core



Learning Objectives

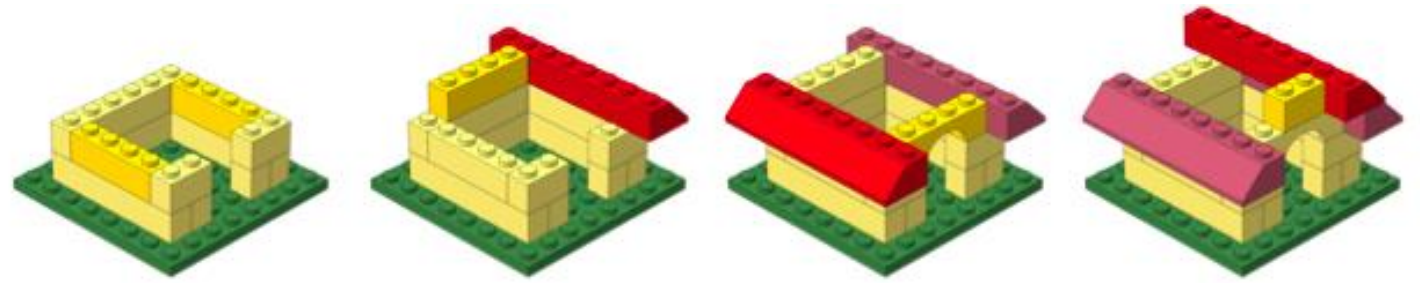


- ❖ Comfortably use RStudio (a graphical interface for R)
- ❖ Fluently interact with R using RStudio
- ❖ Become familiar with R syntax
- ❖ Understand data structures in R
- ❖ Inspect and manipulate data structures
- ❖ Install packages and use functions in R
- ❖ Visualize data using ggplot2
- ❖ Utilize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

Exit survey

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


Keep building!



Topic	Pre-requisites	Date/Time	Time	Registration
Reproducible Research using Rmarkdown	R basics	3/19/25	1 - 4 pm	Register now!
"Track Changes" for Your Code: an Introduction to Git and GitHub	None	4/16/25	1 - 4 pm	Register now!
Coding with Others: Managing Conflicts on GitHub	"Track Changes" for your code: An Introduction to Git and GitHub	5/21/25	1 - 4 pm	Register now!


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

Harvard Catalyst Online Resource

 HARVARD UNIVERSITY

HARVARD.EDU

Harvard Catalyst Introduction to R:
An online, hands-on training resource for learning the basics of R
[Contact](#)

 HARVARD
CATALYST
Harvard Clinical & Translational Science Center

HOME Lessons Faculty Supplemental Resources


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:

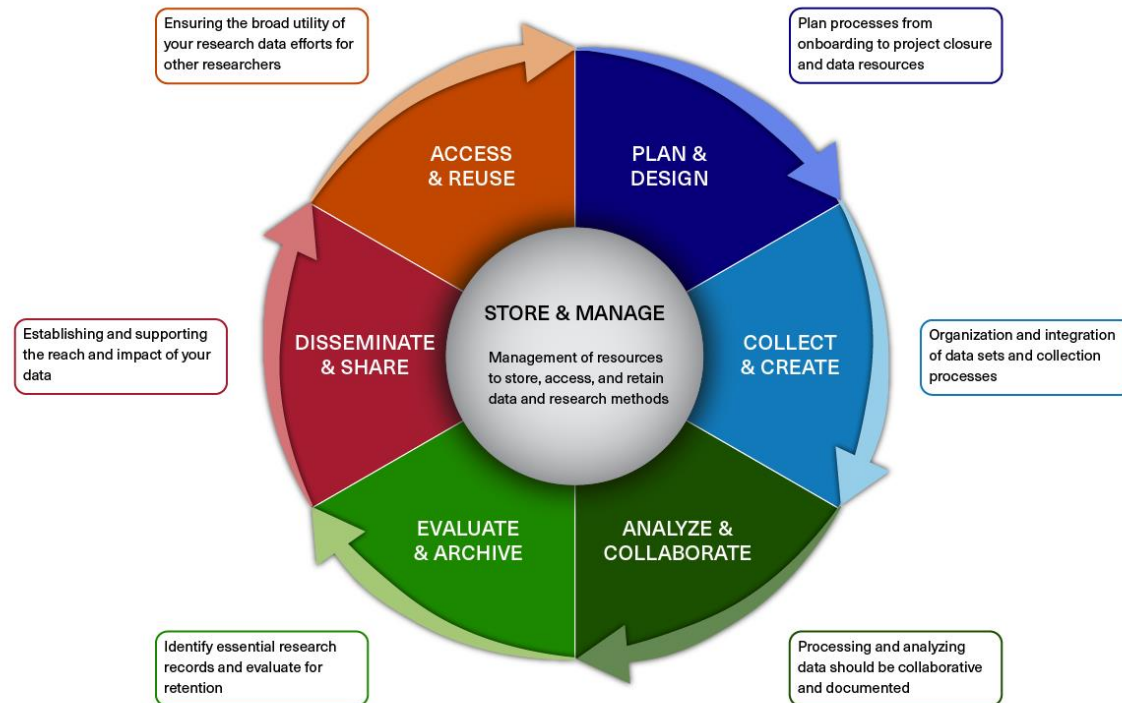
- **R syntax:** Understanding the different 'parts of speech' in R, and introducing variables and functions, demonstrating how functions work, and modifying arguments for specific use cases.
- **Data structures in R:** Explaining the classes of data structures and the types of data used by R.
- **Data 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/hcatrrsource>

Research Data Management (RDM)

BIOMEDICAL RESEARCH DATA LIFECYCLE



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/>

Spring 2025 Data Lifecycle Training

Plan & Design

February 11 


Data Management
Offboarding for
Research Projects

March 19  

A Guide to Efficient
Research Practices


March 26  

Tips and Tricks for Writing
an Actionable Data
Management Plan

May 21 

Research Data
Stewardship Basics


Collect & Analyze

January 29 


Data Literacy:
Introduction to GIS

February 19 


Foundations in R

March 19 

Reproducible Research
using RMarkdown


April 16 

An Introduction to Git
and GitHub


May 21 

Managing Conflicts
on GitHub


Store & Evaluate

March 10 

Introduction to the
General Records Schedule


April 7 

Managing Paper Records:
Off-Site Records Storage



April 21 

Managing Electronic
Records: Shared Drives
and Emails


Share & Publish

February 27 



Research Management:
Open Access Publishing

April 9  

Research Management:
Closing Out Your Research

April 23 

Data Sharing with
Harvard Dataverse

 In-person
 Virtual

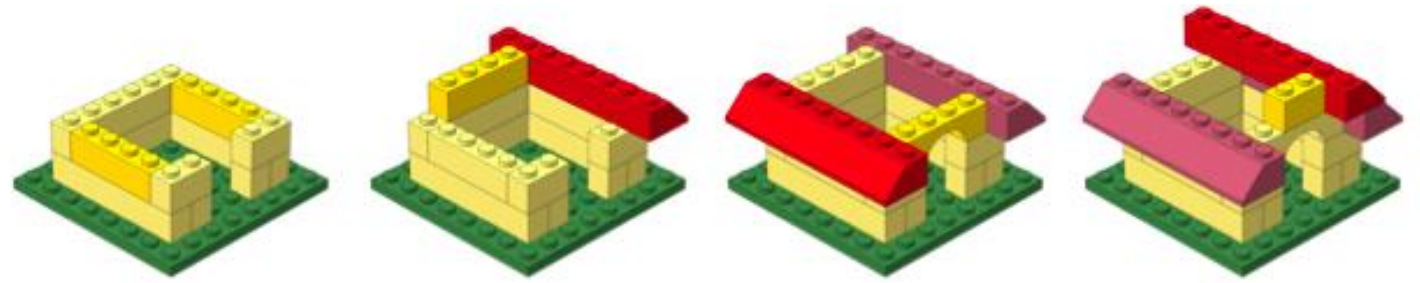


Learn More & Register
bit.ly/rdmwg-calendar



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

Keep building!



Topic	Category	Date	Duration	Prerequisites
Introduction to SingleCell RNA-seq	Advanced	March 4, 7, 11	Three 2.5h session	R
Introduction to Differential Gene Expression Analysis	Advanced	March 18, 21, 25, 28	Four 2h sessions	R
Pseudobulk and related approaches for scRNA-seq analysis	Advanced	April 4, 8, 11	Three 2.5h sessions	R
Shell for Bioinformatics	Basic	April 22, 25, 29	Three 2.5h sessions	None
Investigating chromatin biology using ChIP-seq and CUT&RUN	Advanced	May 2, 6, 9	Three 2.5h sessions	Shell for Bioinformatics
Introduction to R	Basic	May 20, 23, 27, 30	Four 2h sessions	None
Peak Analysis	Advanced	June 17, 20, 24	Three 2.5h sessions	R

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

Join us for HBC Community Breakfast!

- ❖ An opportunity to get to know others in the community
- ❖ Free food and beverages
- ❖ Great conversations



**Thursday May 8th, 2025
9:00 to 10:30am**

More Info:

<http://bioinformatics.sph.harvard.edu/breakfast/>

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>

- ❖ *HBC training team:* hbctraining@hsph.harvard.edu
- ❖ *HBC consulting:* bioinformatics@hsph.harvard.edu