

HIGH PERFORMANCE RESEARCH COMPUTING

Fundamentals of R Programming

HPRC Training

6 Mar 2026



High Performance
Research Computing
DIVISION OF RESEARCH



Course Outline

1. Accessing Grace
2. Launching Tutorials OnDemand
3. Arithmetic Operators
4. Data Types and Variables
5. Built-in Functions
6. Vectors
7. Matrices
8. Data Frames

Accessing the HPRC Grace Portal

The screenshot shows the HPRC website interface. At the top, the browser address bar displays `hprc.tamu.edu`. The navigation menu includes links for Home, User Services, Resources, Research, Policies, Events, Training, About, and Portal. The 'Portal' link is highlighted with a red box, and a dropdown menu is visible with options: Grace Portal, FASTER Portal, ACES Portal (ACCESS), and Launch Portal (ACCESS). The 'Grace Portal' option is also highlighted with a red box. On the left side, there are sections for 'Quick Links' (New User Information, Accounts, User Consulting, Training, Knowledge Base, Software, FAQ) and 'User Guides' (Launch, ACES, FASTER, Grace, Portal, Galaxy). Below these is a 'Cluster Status' section with a 'Launch' button. The main content area features a featured article titled 'Molecular Jump-Rope: Multiringed Metal-Complexes That Really Know How To Jump' by Dr. John Gladysz. The article includes a diagram of a person jumping rope and a chemical structure of a platinum complex with the text '6 examples'.

HPRC webpage: hprc.tamu.edu

Launching Tutorials OnDemand on Grace

The screenshot shows the TAMU HPRC OnDemand (Grace) web interface. The top navigation bar includes 'TAMU HPRC OnDemand (Grace)', 'Apps', 'Files', 'Jobs', 'Clusters', 'Interactive Apps', 'Dashboard', and 'My Interactive Sessions'. The 'Interactive Apps' menu is open, displaying a list of applications categorized by type: BIO, GUI, and Imaging. The 'Imaging' category is expanded, showing a list of applications including ChimeraX, Diffusion Toolkit & TrackVis, FSL, Fiji, ImageJ, VMD, cisTEM, CryoSPARC 3.3.1, CryoSPARC 4, and CryoSPARC 4.5.1. At the bottom of this list, 'Tutorials OnDemand' is highlighted with a red box. A red arrow points from a text box to the 'Tutorials OnDemand' option. The text box contains the instruction: 'Scroll down to the bottom of the drop-down menu'. Other elements visible on the page include 'Pinned Apps' (Drona Joblisting, Grace dashboard, Jupyter Notebook), a 'Message of the Day' section with 'IMPORTANT POLICY INFORMATION', and a 'Servers' section listing various software environments like Jupyter Notebook, JupyterLab, RStudio, and Spark-Jupyter Notebook.

Tutorials OnDemand

This app will launch Tutorials OnDemand on the [Grace cluster](#).

What tutorial would you like to access?

Fundamentals of R

Select "Fundamentals of R"

Number of hours (max 10)

8

Set number of hours to 8

Email

This field is optional.

Launch

Click "Launch" once the correct parameters have been selected

* The Tutorials OnDemand session data for this session can be accessed under the [data root directory](#).

Session was successfully created. ✕

[Home](#) / [My Interactive Sessions](#)

Interactive Apps

BIO

 Beauti

 CRISPR-Local

 Gap5

 IGV

 JBrowse

 Mauve

 RNAlysis

 Structure

 XtalOpt

Tutorials OnDemand (11562830)

1 node | 2 cores | Running

Host: [>_c310](#)

✕ Delete

Created at: 2024-10-01 09:29:00 CDT

Time Remaining: 7 hours and 54 minutes

Session ID: [b50faf7f-97ea-49c0-bd64-6e58c79201d1](#)

 [Connect to Tutorials OnDemand: Fundamentals of R](#)

Click this button when it says
“Connect to Tutorials
OnDemand: Fundamentals of
R” (this will take a minute)

Transition to Workbook

Fundamentals of R

- Mathematics Operations**
- Data types
- Variables
- Built-in functions
- Vectors
- Flow control
- Matrices
- Data Frames and Tibbles
- dplyr
- Importing and Exporting Data
- Regression
- Principal Component Analysis
- Data Visualization with ggplot2

Texas A&M University High Performance Research Computing

Start Over

Mathematics Operations

In it's simplest form, R can be used as a calculator (although it can do so much more!). Let's get started in R by doing some basic arithmetic!

Arithmetic Operators

- Addition: `+`
- Subtraction: `-`
- Multiplication: `*`
- Division: `/`
- Exponentiation: `^`
- Modulo: `%%`

Use the correct operators to complete the equations in the code chunks below.

R Code [Start Over](#) [Run Code](#)

```
1 # Add 12 and 3
2
3
```

R Code [Start Over](#) [Run Code](#)

```
1 # Subtract 7 from 11
2
3
```

R Code [Start Over](#) [Run Code](#)

```
1 # Multiply 27 by 9
2
3
```

R Code [Start Over](#) [Run Code](#)

```
1 # Divide 46 by 8
2
3
```



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<https://hprc.tamu.edu>

HPRC Helpdesk:

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Phone: 979-845-0219

Take our short course survey!



HPRC Survey

https://u.tamu.edu/hprc_shortcourse_survey

Help us help you. Please include details in your request for support, such as, Cluster (Faster, Grace, ACES, Launch), NetID (UserID), Job information (Job id(s), Location of your jobfile, input/output files, Application, Module(s) loaded, Error messages, etc), and Steps you have taken, so we can reproduce the problem.

