R for Data Analysis & Visualization

A 10-Week Live Cohort Bootcamp

From R Fundamentals to Reproducible Analytics & Interactive Dashboards

Delivered by **SI Analytics**

Build real-world analytics, visualization, and dashboarding skills using **R, tidyverse, ggplot2, Plotly, and Quarto**.

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Bootcamp Overview

R for Data Analysis and Visualization is a structured, mentor-guided **10-week live cohort program** designed to take learners from foundational R programming concepts to **professional-grade data analysis, visualization, and reproducible reporting**.

This bootcamp emphasizes:

- Practical, hands-on learning

- Real datasets and applied analytics

- Strong data storytelling and visualization principles

- Reproducible research workflows using modern R tools

Participants graduate with **job-ready skills** and a **public portfolio of analytics projects** built entirely in **R**, demonstrating real-world competence and analytical depth.

Bootcamp Features

✓ Weekly live instructor-led sessions

✓ Structured pre-work and guided code-along exercises

✓ Hands-on workshop assignments with expert feedback

✓ Mentor-guided practical and problem-solving sessions

✓ Private learning community and peer collaboration

✓ Real-world datasets and applied case studies

✓ Capstone analytics and interactive dashboard project using R

✓ Shareable SI Analytics Certificate of Completion

✓ Lifetime access to curated learning resources

Duration
10 Weeks

Format
Live + Guided Self-Paced Learning

Learning Structure

How the Bootcamp Works

Each week of the R for Data Analysis and Visualization bootcamp follows a consistent, learner-friendly structure designed to balance flexibility with accountability and steady progress.

(1) **Pre-work (2–3 hours)**

Pre-recorded videos, guided readings, and structured code-along exercises to prepare learners for the live session.

(2) **Live Workshop (2 hours)**

Instructor-led deep dives with hands-on practice, real-time problem solving, and guided demonstrations.

(3) **Post-Workshop Assignment**

Applied task submitted for review and feedback to reinforce learning and build practical competence.

(4) **Optional Support Session**

Alternate live session for learners who cannot attend the primary workshop, ensuring inclusivity and continuity.

> This structure balances **flexibility** with **accountability**, ensuring steady progress and meaningful skill development throughout the program.

Course Modules Overview

10-Week Structured Learning Journey

The R for Data Analysis & Visualization bootcamp is organized into a progressive sequence of modules designed to build strong analytical foundations and advance learners toward professional-grade, reproducible analytics and interactive dashboards using R.

MODULE 1

R Foundations for Data Analysis

MODULE 2

Data Visualization with ggplot2

MODULE 3

Data Wrangling & Analysis with tidyverse

MODULE 4

Reproducible Reporting with Quarto

MODULE 5

Interactive Apps & Dashboards with Shiny

MODULE 6

Capstone Project & Portfolio Deployment

Module 1

R Foundations

This module establishes a strong foundation in **R programming** and analytical thinking. Learners are introduced to core R concepts, data structures, and development environments that underpin professional data analysis workflows.

KEY TOPICS

- R syntax and core programming concepts

- Data types, vectors, lists, and data frames

- Control structures and functions

- Working in RStudio and VS Code

- Introduction to Quarto for reproducible analysis

- Exploratory data analysis concepts

- Responsible use of AI tools for coding support

Outcome: Learners gain confidence writing clean, readable **R code** for data analysis and building reproducible analytical workflows.

Module 2

Data Visualization with ggplot2

This module focuses on communicating insights through **clear, elegant, and effective data visualizations**. Learners master the Grammar of Graphics framework and apply best practices for visual storytelling using R.

KEY TOPICS

- Data visualization principles and storytelling
- Grammar of Graphics using **ggplot2**
- Custom themes, color palettes, and layout design
- Faceting, annotations, and informative labels
- Building publication-ready and presentation-quality charts

Outcome: Learners create polished, professional visualizations suitable for reports, academic publications, and executive presentations.

Module 3

Data Wrangling with tidyverse

This module equips learners with the skills to **clean, transform, and analyze real-world datasets** using modern, readable, and reproducible R workflows built on the tidyverse ecosystem.

KEY TOPICS

- Data cleaning and preprocessing
- Filtering, grouping, and summarization
- Feature engineering and transformations
- Handling missing data and data types
- Joining, reshaping, and tidying datasets

Outcome: Learners confidently manipulate complex datasets using **tidyverse workflows** to support analysis, visualization, and reproducible reporting.

Module 4

Reproducible Reporting with Quarto

This module introduces **reproducible research and reporting workflows** using **Quarto**. Learners design structured analytical documents that seamlessly integrate R code, data, tables, and visualizations into shareable outputs.

KEY TOPICS

- Quarto documents, projects, and directory structure

- Embedding R code, tables, and plots

- Parameterized reports for reusable analytics

- Styling, formatting, and layout customization

- Publishing reports and dashboards to GitHub Pages

Outcome: Learners produce fully **reproducible, transparent, and shareable analytical reports** suitable for professional, academic, and organizational use.

Module 5 & Capstone

Dashboards with Quarto

This module focuses on building **professional, interactive dashboards** using **Quarto** in R. Learners integrate data analysis, visualization, and narrative storytelling to design dashboards suitable for web publishing and decision-making contexts.

KEY TOPICS

- Quarto fundamentals for dashboards
- Building interactive dashboards with Quarto
- Theming and branding analytical applications
- Deploying Quarto dashboards to GitHub Pages

CAPSTONE PROJECT

Participants design and deploy a **fully interactive R-based analytics dashboard**, demonstrating end-to-end proficiency from data wrangling and analysis to visualization, storytelling, and deployment.

Outcome: A public, shareable analytics portfolio piece built entirely in **R**, showcasing professional-grade dashboarding and analytical skills.

Grading & Assessment

Grading Rubric

Final performance in the R for Data Analysis and Visualization bootcamp is assessed using a balanced combination of participation, practical assignments, and a comprehensive capstone project.

Pre-work and quizzes	**15%**
Code-along submissions	**15%**
Workshop assignments	**20%**
Workshop participation	**10%**
Final capstone project	**40%**

Passing Requirement: Learners must achieve a minimum overall score of **80%** to successfully complete the bootcamp and receive the SI Analytics Certificate of Completion.

Why SI Analytics?

SI Analytics is a global analytics education and innovation hub committed to **quality**, **rigor**, and **practical impact**. We design learning experiences that bridge theory and practice, empowering professionals to apply analytics confidently in real-world contexts.

◆ Expert-led instruction grounded in real-world analytics

◆ Strong emphasis on visualization and storytelling

◆ Mentor-guided learning and a supportive global community

◆ Proven track record across public health, business, and development sectors

◆ Learner-centered, outcomes-driven program design

We do not just teach tools.
We build analytical thinkers and problem solvers.

Instructors & Mentors

Dr. Olugbenga Asaolu

Strategic Evidence & Data Science Leader

LinkedIn Profile

Dr. Elysee Yuyishime

Data Scientist & Global Health Researcher

LinkedIn Profile

Michael Sileshi

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