R BASICS & BEYOND

INTRODUCTION TO DATA ANALYSIS WITH R

A 12-week Live Cohort Course

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THE LEARNING JOURNEY

GRAPH — Global Health Research and Analyses for Public Health

FROM NOVICE TO PROFICIENT ANALYST

FOUNDATIONS
Learn the basics of R, RStudio, and data exploration.

DATA WRANGLING
Manipulate data with the dplyr package.

DATA VIZ
Master ggplot2, the most popular data visualization package in R

FINAL PROJECT
Build a capstone project for your portfolio, and receive a shareable certificate

R Basics & Beyond
Unlock the Power of Data Analysis

Become a part of a guided cohort in the course "R Basics and Beyond. An Introduction to Data Analysis with R". This 12-week learning journey will help you build strong foundations in the R programming language and experience real data analysis and reporting. Keep a steady flow with weekly live classes and study halls, get personalized help, and become a part of a community of like-minded professionals.
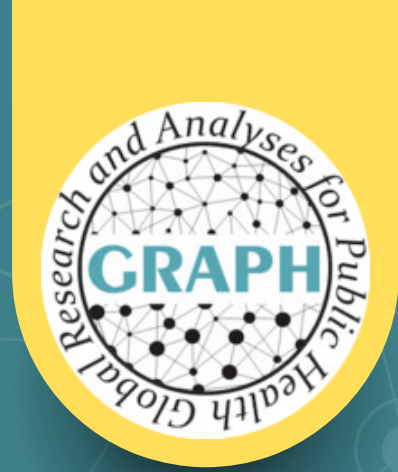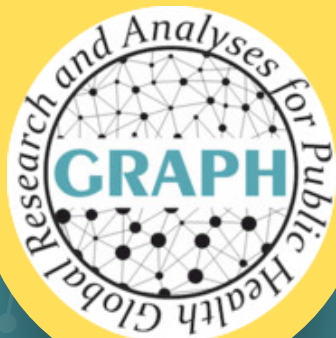
OUR TRAINING OFFER

R BASICS & BEYOND

INTRODUCTION TO DATA ANALYSIS WITH R

A **3-MONTH** GUIDED COURSE

Included in the course:

- Structured study plan
- Weekly live workshops
- Real-life data exercises
- Live study sessions in dedicated study halls
- Private community forums
- Personalized feedback
- Sharable certificate

KEY OBJECTIVES OF THE COURSE

Master the RStudio IDE, practice with RMarkdown, data visualisation with ggplot2 and data wrangling

Meet like-minded people with interest in data analysis oriented career paths

Develop an in-depth understanding of the principles of data analysis and its use in professional and academic environments

Create a project portfolio demonstrating advanced practical skills in data analysis

Gain hands-on experience with real world data sets

Become a member of the next generation of data scientists who are using data-driven insights to shape the future
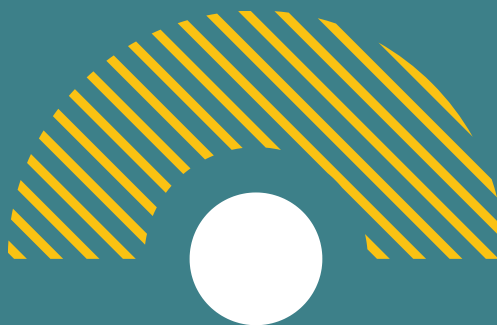
MODULE 1
R FOUNDATIONS

This module will take you through the essential elements of RStudio and the R programming language, laying foundations for the data manipulation and visualization modules.

Topics Covered:

1. Installing R and RStudio
2. The RStudio Integrated Development Environment
3. Coding basics
4. Creating projects in RStudio
5. R Markdown
6. Data classes and structures
7. Subsetting data in R
8. Debugging and getting help

MODULE 2
DATA WRANGLING WITH DPLYR

In this module you will learn how to effectively manipulate data using dplyr package. You will understand how to filter, mutate, group and summarize your data to extract key insights and prepare data for downstream analysis.

Topics Covered:

1. Selecting and renaming
2. Filtering data
3. Mutating
4. Conditional mutating
5. Grouped summaries
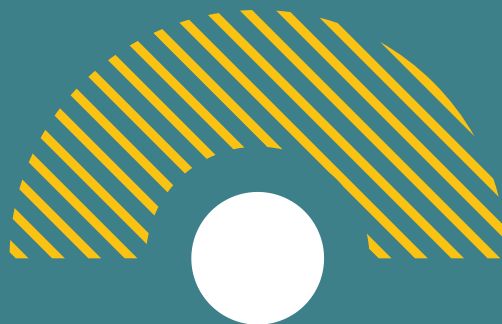6. Grouped filters
7. Pivoting data
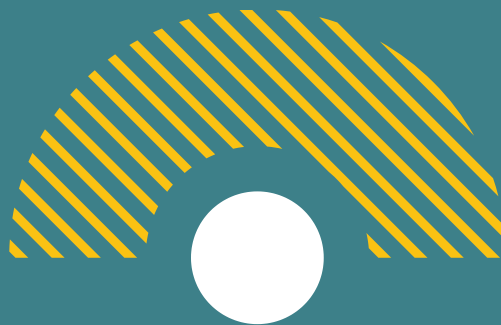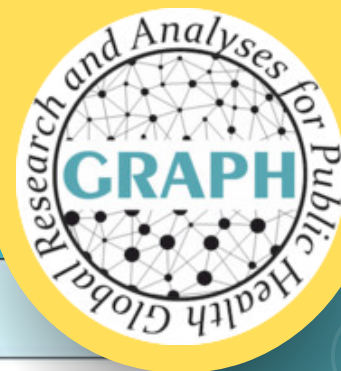
MODULE 3
DATA VISUALIZATION WITH GGPLOT2

In this module you will master the most popular data visualization package in R, learning how to create stunning visualizations of your data using ggplot2.

Topics Covered:

1. Fundamentals of creating plots with ggplot2
2. Visualization strategies for univariate, bivariate, and multivariate data
3. Scatterplots and line graphs for visualizing relationships
4. Histograms and boxplots for visualizing distributions
5. Simple, stacked, and grouped barplots
6. Time series plots
7. Customizing labels, color palettes, themes, and more

COURSE SCHEDULE

Week	Prework	Workshop
1	• Install R & RSudio • Install and set up Cosmos	• Orientation
2	• How to use RStudio • R coding basics	• Catching R errors
3	• Data dive: Ebola in Sierra Leone • How to use RStudio projects	• Public health panorama: exploring datasets across continents
4	• Intro to Rmarkdown • Getting help from StackOverflow & ChatGPT	• Rmarkdown practice: building your first data report
5	• How to use pipes • Selecting & renaming columns	• Extracting and exporting data subsets: rabies KAP survey from Pakistan
6	• Filtering rows • Mutating values	• Transforming and visualizing data: insights into Melanesian diets and lifestyles
7	• Conditional mutating, case_when • Group by & summarize	• Grouping, summarizing and plotting data: TB treatments and costs in India
8	• Other grouped operations • Pivoting datasets	• Data pivoting practice: dietary diversity in Vietnam
9	• Intro to ggplot2 • Scatterplots & Smoothing	• Practicing ggplot2: plotting global HIV prevalence and incidents
10	• Lines, scales, labels • Histograms	• Lines, scales, labels, and themes: plotting data from COVID-19 in Switzerland
11	• Boxplots • Barplots	• Histograms, boxplots & barplots: GI diseases in Mali • Intro to final project.
12	–	Final project work time (optional attendance)

WHY GRAPH COURSES?

At GRAPH Courses, we're committed to making high-quality data science education accessible and impactful. **Based at the University of Geneva, Switzerland,** our program combines academic rigor with practical, industry-relevant skills.

Our bootcamp-style approach ensures an immersive learning experience. You'll gain **technical skills and develop a portfolio of real-world projects**, setting you apart in the job market.

What sets us apart is our **supportive learning ecosystem**. With live workshops, personalized code reviews, and a global community of peers, you're never alone. Our experienced instructors and mentors are dedicated to your success.

As a **non-profit backed by academic institutions**, we offer this comprehensive bootcamp at an affordable price without compromising on quality. Choose GRAPH Courses to invest in a transformative experience that will equip you with the skills and confidence to thrive in the data-driven world.

INSTRUCTORS & MENTORS

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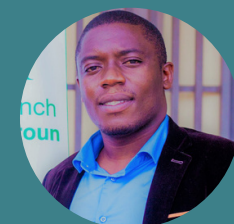
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OUR PARTNERS

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EPFL

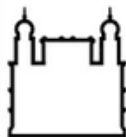UNIVERSIDADE FEDERAL DO RIO DE JANEIRO

World Health Organization

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SDSC

APHRC African Population and Health Research Center

MedBridge International

gdhub
Geneva Digital Health Hub

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