

**Call for application for a Professional Training on Data Analysis by using E-Views, Python and R Programming**

**Course Code:** EPRN09/PT/23

**DATES:** (12 days): from 22nd April to 03rd May 2024

**Venue:** University of Rwanda, Gikondo Campus

1. **Introduction**

Data analysis involves examining raw data using various techniques to uncover patterns, correlations, and insights. EPRN Rwanda is organizing a professional training on three software E-Views, Python and R Programming.

1. **Course content**
	1. **E-VIEWS- 4 days**

The E-Views software provides powerful statistical, forecasting and modeling tools, based on an innovative, easy-to-use, object-oriented graphical user interface. The combination of performance and ease of use makes E-Views the tool of best choice for all researchers and other experts in the context econometrics and time series. With E-Views you can quickly develop a statistical relation from your data and then use the relation to forecast future values of the data.

Content:

* Introduction to E-Views.
* Introduction to Econometrics and statistics.
* Creating a working file.
* Data transformation.
* Creating variables
* Examine data and perform statistical analyses with their interpretation.
* Importing data files from other sources.
* Run a linear regression and plot results.
* Perform model specification and hypothesis testing.
* Create univariate and bivariate graphs.
* Run bivariate and multivariate regression analyses.
* Cross sectionally dependent panel unit root test.
* Set up and interpret time series models in E-Views.
* Run vector autoregressive models, vector error correction models, ARCH/GARCH model, impulse response functions, Lagged variable models.
* Forecast macroeconomic variables for Policy Analysis.
	1. **Python – 4 days**

Python is a very powerful high-level, object-oriented programming language with an easy-to-use and simple syntax. When you are writing a data analysis program that runs in a distributed system and interacts with lots of other components, it would be preferable to work with Python.

Content:

* Overview of Python, Features and advantages, Installation, and setup
* Coding techniques and best practices.
* Create and use data.
* Import and export data.
* Data manipulation: Introducing Pandas, Objects, Data Indexing and Selection, Data Indexing and Selection, Handling Missing Data, Combining Datasets, Aggregation and Grouping.
* Perform basic data visualization.
* Program flow control in Python.
* Lists and Tuples.
* Inputs and Output in Python.
* Modules and Functions in Python.
* Use object-oriented programming in Python.
* How to import and use Python modules.
* Generators, comprehensions, and Lambda expressions.
* How to use Python interactively and through a script.
	1. **R programing - 4 days**

R is a language and environment for statistical computing and graphics. It provides a wide variety of statistical (linear and nonlinear modelling, classical statistical tests, time-series analysis, classification, clustering, …) and graphical techniques, and is highly extensible. It is used by statisticians, data analysts, researchers, and marketers to retrieve, clean, analyze, visualize, and present data. This course is a scientific-programming foundations course and is a useful complement and precursor to the more simulation-application oriented R Programming for Simulation

Content:

* Introduction to R and RStudio.
* Basic R programming concepts and techniques.
* Accessing R packages.
* Data types and structures: Vector, Matrices, data frames and lists.
* Data Processing: Reading data into R, exporting datasets, Sub-setting, Factor variables, treating outliers, aggregating variables, creating, and dropping variables, etc.
* Writing R functions, Profiling R code for Reproducible Research/Assignments.
* Debugging R Programs.
* Organizing and commenting R code.
* Filtering, selecting, arranging data.
* Use R for data cleaning.
* To analyze and produce descriptive statics and its interpretation.
* Data Visualization.
* Understanding and performing hypothesis tests and linear regression in R.
* Spatial Data.
1. **Training methods**

The training course will be run in a workshop style with a high degree of participants’ involvement. Adult learning methodologies will be employed, and participants will not be passive. Debate and open discussions will be encouraged. The trainer will use a mix of presentations to define and explain key concepts and practical exercises. Trainees are encouraged to bring their own laptops. EPRN will provide software (training version).

1. **Certificate**

EPRN will issue completion certificates to participants who will successfully attend the course and pass the course test.

**Note:** At the end of the course, the trainer will deliver a test, and ONLY participants who will get at least 60% will get the certificates. Others will be advised to wait until another training opportunity for the same course becomes available which they will attend free of charge (this chance is provided only once).

1. **Training fees, venue, date and refreshments**
* **Members:** 60,000 Rwf
* **Non-members:** 100,000 Rwf

This training will be held at University of Rwanda, Gikondo Campus (former SFB building) from 22nd April to 3rd May 2024. EPRN will provide SOFTWARE (training version) free-of-charge.

1. **Payment process**

Interested applicants are encouraged to pay the registration fees through the following bank details:

* Bank Account: **00040 06945750 07** RWF (Bank of Kigali)
* Title of the Account: Economic Policy Research Network

Scan the bank slip and send it to: info@eprnrwanda.org OR bring the hard copy of bank slip to EPRN office at University of Rwanda- Gikondo Campus (former SFB).

You can also pay through MTN MOMO PAY **(\*182\*8\*1\*030683#)** or through PayPal on our website ([www.eprnrwanda.org](http://www.eprnrwanda.org)) and notify us through info@eprnrwanda.org

**NB: Tailor-Made Course**

We can also do this as tailor-made course to meet organization-wide needs.

**If you need further clarifications, call us through: 0788357648 or write to us:** **info@eprnrwanda.org**

Kigali, 09/04/2024



**Mr. Seth KWIZERA**

**Executive Director**