

P. G. D. A. V. COLLEGE

DEPARTMENT OF ECONOMICS AND IQAC



AN ONLINE CERTIFICATE COURSE

DATA

ANALYSIS

USING R

We are pleased to inform you that the

**DEPARTMENT OF ECONOMICS AND THE IQAC
P.G.D.A.V. COLLEGE**

is organising a short-term Certificate Course on

‘DATA ANALYSIS USING R’

from 15th September to 6th October 2023.





R is a powerful open-source programming language. It is a very flexible and vast language used in statistical and econometric applications. Economists and social scientists use R for reproducible analysis. Reproducible analyses are those which can be re-run by any other person and would produce the same results. And R is particularly good at that. Also, the R language is used extensively in Data Science, and it offers some of the highest-paying jobs in the world today.

This certificate course has been designed for beginners who know nothing about R. We will start with the basic knowledge about R and slowly build upon that. We will use the RStudio, an integrated development environment (IDE) for R. This course will help participants to learn R and its use in research in social sciences. Participants will learn how to manage large datasets, clean and visualize data, do econometric and statistical analysis of datasets. In a world where data is being touted as the new oil, an introductory course on data analysis will enhance the participants' skill sets.

DURATION

The certificate course will be of 30 hours duration. There will be 2 hours of live online sessions (4-6 pm) every day for 15 days over Google Meet or Zoom platform.

ELIGIBILITY

It is open to all the students, researchers, and faculty members across colleges and universities. The student should have a computer or a laptop with an internet facility. Basic knowledge of statistics is desirable. Certificate will be provided to only those participants who will be present in all the online session. Participants are required to attempt all quiz and assignments.

COURSE FEE

All aspirants are requested to pay the registration fee of Rs. 500/- per person (non-refundable) by NEFT/UPI/IMPS/PayTm.

Details of the account are:

- Account Number: 3841718332
- Name of the account holder: PGDAV College Morning
- Bank and Branch: Central Bank of India, PGDAV College Branch
- IFSC Code: CBIN0283940 (CBIN-zero-28394-zero)
- MICR Code: 110016069

REGISTRATION

Registration is mandatory. After paying the fees, the participants are required to register online using the link:

<https://forms.gle/wEu8L5TmUBbnhkee7>.

Participants should complete registration on or before 13th September 2023.

COURSE CONTENT

Unit-1: Introduction to R

Installing R and RStudio, Familiarization of RStudio, Basic components in RStudio, Installing R packages, R Syntax, and programming

Unit-2: Data Types and Data Structure

Numeric, Integer, Character, Logical, Complex, Missing data, Vectors, Matrix and Arrays, Factors, List, Data Frames, Logical Operators, Conditional Statements (if, else, else if statements in R), While loops, For loops, Repeat loops and Creating functions in R

Unit-3: Data Extraction and Data Manipulation

Extracting economic and financial data (World Bank, RBI etc), filtering the data, data wrangling, data munging in R, Introduction to R Markdown for creating reports, presentation etc.

Unit-4: Data Visualization

Inbuilt functions in R for visualization and using ggplot, ggplot2 packages for visualization (pie chart, bar chart, line chart, histogram, box plot, scatter plot, Normal QQ plot etc)

Unit-5: Basic Statistics and Regression

Descriptive statistics, Probability distribution, Hypothesis Testing, Regression vs Correlation, Simple Linear Regression, Multiple Linear Regression, Testing the assumptions of CLRM (Multicollinearity, Autocorrelation, Heteroscedasticity), Remedial measures in case of violation of CLRM assumptions, Introduction to Time Series Econometrics and Handling Large Scale Data (NSS)

Unit-6: Introduction to GitHub repository and Version control in RStudio

RESOURCE PERSONS

Dr Avanindra Nath Thakur, Jindal Global University, Sonapat.

Dr Jyotirmoy Bhattacharya, Ambedkar University, Delhi.

Mr. Anuj Goyal, Shaheed Bhagat Singh College, University of Delhi.

Mr Indranath Mukherjee, Vice-President, Analytics AXA XL.

Mr Ishan Anand, IIT, Delhi.

Dr Lokendra Kumawat, Ramjas College, University of Delhi.

Mr Rajib Prasad, Vidyasagar College for Women, Calcutta University.

Mr Akshay Garg, U.B.S., Mumbai.

Ms Neetu Jain, P.G.D.A.V. College, University of Delhi.

Dr Indranil Chowdhury, P.G.D.A.V. College, University of Delhi.

Dr Rimpay Kaushal, P.G.D.A.V. College, University of Delhi.

Dr Varun Bhushan, P.G.D.A.V. College, University of Delhi.

Mr Abhinav Parashar, P.G.D.A.V. College, University of Delhi.

For any query, please mail us at
dataanalysis_r@pgdav.du.ac.in

Best Regards!

Prof. Krishna Sharma
Principal, PGDAV College

Dr. Rimpay Kaushal
Convenor

Prof. Girdhar Sharma
Convenor, IQAC