



Bangladesh Institute of Governance and Management (BIGM)

Short Training Course on
Statistical Modeling in Python



About the Course:

Python is a high-level, interpreted, general-purpose programming language. It is most popular for data wrangling, visualization, general machine learning, deep learning, and etc.

In this training course, basic concepts of python, data preprocessing, data visualization, several statistical analysis methods required for statistical modeling, and a number of machine learning algorithms will be discussed using python.

Course Objectives:

This course aims to provide training in statistical modeling in Python for students, graduates, and professionals who either work with data or want to acquire necessary skills in statistical data analytics. The course is designed in such a way that it will render both fundamental and intermediate training in Statistical Modeling with different packages / libraries of Python.

Expected Outcomes/Benefits:

After successful completion of the course, participants will be able to:

- Write python programs for data processing and visualization
- Enhance both fundamental and intermediate statistical modeling skills in Python
- Run statistical models in Python
- Conduct empirical research in Economics, Social Sciences, and Business
- Demonstrate basic understanding of machine learning in Python

Minimum Course Requirements:

The graduates from the following disciplines with appropriate qualifications can participate in this course:

- Graduates from Business/Economics/Statistics/Mathematics/Development Studies/Social Sciences/Computer Science with a minimum statistical basic knowledge.

Course Details:

Course Delivery Mode: Physically at BIGM premises.

Class Time: 4:30 PM – 7:30 PM (Saturday) and 5:30 PM – 7:30 PM (Sunday)

Duration: Five weeks long course (October 30, 2022 to December 3, 2022)

Number of Sessions: 10

Course Fee: 10,000 TK



Course Outline

Session	Area	Topics Covered
Session – 01	Fundamentals of Python	Python IDE installation, user interface, basic python programming, an overview of python libraries (NumPy and pandas), importing data with pandas.
Session – 02	Data Cleaning & Transformation in Python	Data entry, cleaning, sub setting, transformation, and handling the problem of missing data will be discussed in this session.
Session – 03	Data Exploration & Visualization in Python	Various data visualization using matplotlib that includes bar graphs, scatter plots, line plots, histograms, and boxplots.
Session – 04	Linear Regression in Python	Fundamentals of regression, assumption of regression, variable selection, validation of regression, demonstration of regression, demonstration and interpretation on a real dataset.
Session – 05	Logistic Regression in Python	Detailed implementation of logistic regression on a real dataset.
Session – 06	Multivariate Analysis in Python	Overview of multivariate analysis using Factor Analysis, LDAB, and PCA. Detailed implementation of any one of them.
Session – 07	Time Series Analysis in Python	Forecasting, decomposition, ACF, PACF, ADF test, and ARIMA.
Session – 08	Hypothesis Testing in Python	Fundamentals of hypothesis testing, one & two population mean tests, non-parametric tests, and ANOVA.
Session – 09	Machine Learning in Python	Binary logistic classifier, random forest, SVM, and Neural network.
Session – 10	Panel Data Analysis in Python	Fixed effect model, random effect model, Hausmann test, the detailed implementation of a panel data analysis on real data.

Other Quantitative and Methodological Training Courses provided by Research Wing of BIGM:

Quantitative Analysis with STATA



Research Methodology for Young Researchers

R for Data Science



Dr. Mohammad Tareque
Director, BIGM

Mohammad Tareque, PhD a career civil servant, currently serves as the Director at Bangladesh Institute of Governance and Management (BIGM). Prior to joining BIGM, Dr. Tareque worked as an Alternate Executive Director at the World Bank and Finance Secretary (Finance Division), Ministry of Finance, Bangladesh.

Under his dynamic leadership and visionary thinking, BIGM is contributing to the nation with its academic excellence, research, and training potential.



Dr. Krishna Gayen
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Ms. Sima Rani Dey
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