



# Short Training Course on Quantitative Analysis with **STATA**

**Batch-4**

## Course background

Vision of BIGM is to become a center of excellence in teaching and research on policy options regarding governance and development and to establish an effective, transparent and accountable public service in Bangladesh.

The mission of BIGM is focused on enhancing the human capital through impactful training and knowledge dissemination. In this regards, BIGM launched its first short training course on “Hands-on Quantitative Analysis for Executives”, using 5 real world projects, on June 22, 2019 and since successfully completed three batches. This training is provided by a dedicated team of researchers. Now, we are heading towards to begin our 4<sup>th</sup> batch of this online short training course on “Quantitative Analysis with STATA”. This course aims to provide training on statistical modeling in STATA for professionals who either work with real data or want to acquire necessary skills in data analytics.

### Course Objectives:

- Providing intermediate and advanced training on statistical modeling in STATA
- Enhancing the skills of professionals or students on data analytics

### Learners will be able to learn:

- Run statistical models and advanced data visualization techniques in STATA
- Build statistical models using real data
- Conduct empirical research in Economics, Social Sciences, and Business.
- Enhance both intermediate and advanced statistical modeling skills

### Course is designed for:

- Researchers from both academic and non-academic institutions
- People working in consultation, research firms and software companies
- People engaged in financial industries and R&D of private sectors
- People involved in NGOs, GOB and market research programs
- Applicants intend to learn statistical computing for PhD/higher studies

## Course Details

Saturday (5.30 p.m -8.30 p.m) & Monday (7.00p.m - 9.00p.m)

Duration: 10 Sessions in Five weeks (25 hours)

## Course Team Members

### Course Adviser

Dr. Mohammad Tareque, Director, BIGM

### Course Director

Dr. Krishna Gayen, Wing Chief (Research), BIGM

## Key Resource Persons

Sima Rani Dey Assistant Professor	Sima Rani Dey completed her M.Sc. in Statistics from Jahangirnagar University and M.S. from National Graduate Institute for Policy Studies (GRIPS), Japan. Macroeconomics issues are her research interest. She also has good command in SPSS, Eviews, Minitab, STATA, R, MATLAB etc.
Tanzila Sultana Research Associate	Tanzila Sultana did M.Sc. in Economics from Jahangirnagar University. She has advance knowledge on conducting statistical analysis using STATA, Eviews, and R. Her research interests are Behavioral and Experimental Economics, Labor Economics and Education.
Faroque Ahmed Research Associate	Faroque Ahmed has completed his graduation & post-graduation in Statistics from the Islamic University, Kushtia. He does his research works applying Big Data Analytics and Machine Learning techniques. He also has a good command in EVIEWS, STATA, SPSS, R and Python.

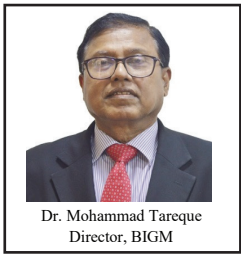
## Course Module

Session	Chapters	Session Details
<b>Session-1</b> November 20, 2021	Basic understanding of data and statistics I (Importance of data & Statistics Understanding data and structure of data Types of data Presentation of data and its tools)	<b>Application in STATA:</b> Introducing and installing STATA, reading data in STATA from different types of files.
<b>Session-2</b> November 22, 2021	Basic understanding of data and statistics II (Measures of central location: Mean, mode, median Measure of variation: variance, standard deviation)	Basic statistical analysis such as measures of central location and measures of variation.
<b>Session-3</b> November 27, 2021	Tests of hypothesis (Testing evidence in favor of a certain belief)	<b>Application in STATA:</b> Probability and random variables, population and sample, sampling distribution, concept and formulation of Hypothesis, steps in testing hypothesis, P-value and Significance level, one and two population mean test, paired t-test, chi-square test, analysis of variance (ANOVA)
<b>Session-4</b> November 29, 2021	Linear Regression Analysis (Linear approach of studying relationship)	<b>Application in STATA:</b> Formulation of linear equations, differentiation, optimization of linear equation using differentiation, linear relationship between variables, dependent and independent variables, simple and multiple linear regression, correlation, estimation and explanation of linear regression coefficients
<b>Session-5</b> December 4, 2021	Logistic Regression Analysis (Regression for binary dependent variable)	<b>Application in STATA:</b> Binary response variable, dummy variable, preparing variables for logistic regression, building a logistic model, estimation and explanation of logistic regression coefficients
<b>Session-6</b> December 6, 2021	Multivariate Techniques (Dimension reduction, classification and factor extraction)	<b>Application in STATA:</b> Principal component analysis, factor analysis, cluster analysis
<b>Session-7</b> December 11, 2021	Time Series Analysis I (Data having time index)	<b>Application in STATA:</b> Basic of time series stationarity, autocorrelation lag variable and lagged difference, moving averages & trend
<b>Session-8</b> December 13, 2021	Time Series Analysis II (Data having time index)	<b>Application in STATA:</b> Preparing time series data, testing stationarity, ACF and PACF, ARMA & ARIMA forecasting
<b>Session-9</b> December 18, 2021	Panel Data Analysis (Multiple measurements over time)	<b>Application in STATA:</b> One-way error & two-way error component model, Fixed effect model, random effect model, Hausman test
<b>Session-10</b> December 20, 2021	IV Regression	<b>Application in STATA:</b> IV regression

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

Data Analytics and Modeling with R  Research Methodology for Young Researchers

Data Analytics and Modeling with Python

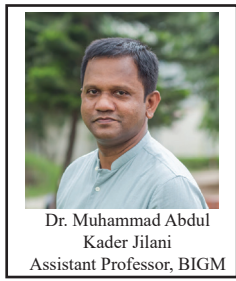


Dr. Mohammad Tareque  
Director, BIGM

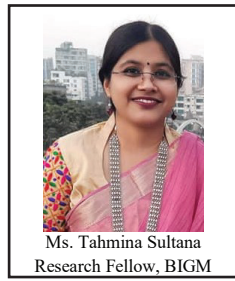
BIGM is headed by Dr. Mohammad Tareque, former Finance Secretary of the Government of Bangladesh. He also served as an Alternate Executive Director, World Bank. Under his dynamic leadership and visionary thinking, BIGM is contributing to the nation with its academic excellence, research and training potentials.



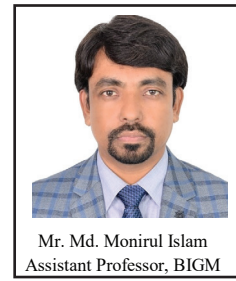
Dr. Krishna Gayen  
Senior Research Fellow, BIGM



Dr. Muhammad Abdul  
Kader Jilani  
Assistant Professor, BIGM



Ms. Tahmina Sultana  
Research Fellow, BIGM



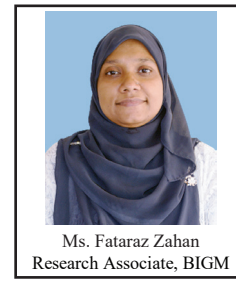
Mr. Md. Monirul Islam  
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Ms. Sima Rani Dey  
Assistant Professor, BIGM



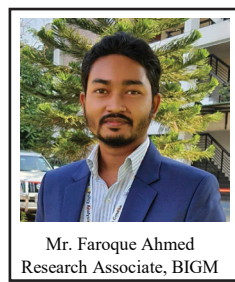
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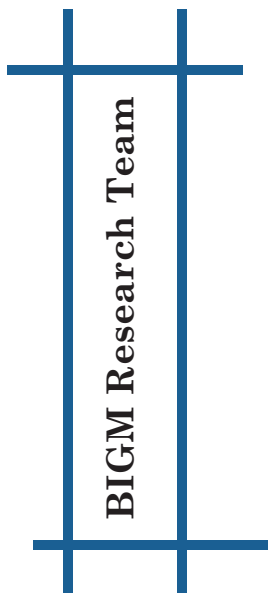
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