

## Comprehensive Statistics Using Stata Course Details

Department: NGO Management & Policy Development

Presented by Magna Skills Development Institute

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## Course Summary

The course prepares students to utilize STATA, one of the most commonly used statistical analysis software packages, and develop a deeper understanding of econometrics. This training specifically deals with management, analysis and graphing of quantitative data using STATA. The training combines theoretical foundations with methodological perspectives, aiming at equipping participants with knowledge on use of quantitative data in social research using STATA

## Course Objectives

- Generate variables that contain summaries of the data
- Create a summary dataset using collapse
- Navigate a dataset using \_n, \_N and subscripted variables
- Rearrange a dataset using reshape
- Combine multiple datasets using merge and append
- Identify duplicate observations
- Export data to a spreadsheet
- Create tailor-made publication quality graphs
- Understand what macros and scalars are
- Be able to use foreach and forvalues loops
- Understand and use if statements
- Understand how Stata stores estimation results
- Be able to access and use stored estimation results
- Know how to export results using user-written commands: estout, outreg, tabout
- Understand how Stata programs work
- Be able to write and use a simple Stata program
- Be able to write a do-file which exports results using file

## Course Outline

### Module one

- Introduction to Statistics Concepts
- Descriptive Statistics
- Inferential Statistics
- Research process

- Concepts and Software for Data Collection and Processing
- Planning data gathering and processing
- Introduction to mixed methods for Quantitative Data Collection (Web, and Mobile tools)
- Use of Mobile Phones for Data Collection (Open Data Kit)
- STATA Basics
- Learn how to use Dialog Boxes
- The command widow
- User-written extensions
- Directory Management
- Obtaining help and perform search
- STATA syntax
- Using Basic Statistical Commands
- Reusing results of STATA commands

## **Module Two**

- Data Structures and Types of Variables
- Distinguishing between Categorical data, Continuous data; Numerical, string and date/time variables
- Managing missing data
- Creating dummy variables
- Other special purpose variables
- Converting datasets into summaries
- Labeling variables, encoding variables and generating new variables
- Data Management using STATA
- Import, Export, load and save datasets
- Create pseudorandom datasets
- Review and document the dataset
- Sorting and ordering
- Appending, merging and reorganizing datasets
- Validate data structure
- Identify duplicate observations
- Alarming and nonsensical data
- Benefits of filtering

## **Module Three**

- Output Management
- Logs for output
- Use of translators for exporting STATA files and output
- Copy and paste from STATA to text editors and spreadsheets
- Reproduction of past work, stored results and saved results
- The command display, explicit subscribing and important prefixes
- Basics of STATA programming
- Executing commands using do-files
- Proper structure of do-files
- Using comments
- Writing long commands

## **Module Four**

- Basics of graphing with STATA
- Basics of Graphing Qualitative Data
- Basics Graphing Quantitative Data
- Dialog Boxes vs. Do-file routines
- Inspecting the data prior graphing
- Reducing the data dimension to speed up graphing
- Setting range of variation
- Subgroups and overlays in STATA Graphics
- Graphing by categorical groups
- Subgroup options
- Formatting graph text
- Superimposing densities and other graphs
- Legends for multiple graphs and multiple axes
- Generalized syntax for overlaying multiple graphs
- The -two way-Command
- Scatter graph
- Linear fits and nonlinear fits
- Parametric density estimators and Non-parametric density estimators

- Soft coded vs. hard coded syntax.
- Using loops for multiple overlays

## **Module Five**

- Advanced graphing
- Combining multiple graphs side-by-side
- Recasting two way plots
- Reproducing formatting
- Creating your own graph scheme
- The graph editor as a scheme maker
- Quantitative Analysis using STATA
- Tests for Statistical Inference
- Tests of Association
- Tests of Difference
- Linear regression analysis
- Ordinary least squares
- Predicted values and residuals
- Correlation and Standardized Regression Coefficients
- Hypothesis testing
- Problems with regression
- Introduction to panel data analysis
- Advantages of panel data analysis
- Panel data sets
- Balanced and unbalanced panels
- Panel data dimensions and frequencies
- Properties of estimators
- Graphing panel data



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**Our Mission:** To provide world-class training solutions that equip professionals with the expertise needed to excel in their careers and contribute meaningfully to their organizations.

**Our Vision:** To be the leading provider of professional training and development across Africa, fostering excellence, innovation, and capacity-building in public and private sectors.

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- **Excellence** – Delivering high-quality training tailored to meet the evolving needs of professionals.
- **Integrity** – Upholding the highest ethical standards in all our engagements.
- **Innovation** – Embracing new technologies and methodologies to enhance learning experiences.
- **Customer-Centric Approach** – Ensuring client satisfaction by providing relevant, practical, and impactful training.
- **Collaboration** – Partnering with industry experts and institutions to provide the best learning opportunities.

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We use a blended learning approach that includes instructor-led training, case studies, workshops, and post-training support.

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By signing this agreement, both parties confirm their commitment to the terms outlined in this proposal.