THE UNITED REPUBLIC OF TANZANIA

INSTITUTE OF ACCOUNTANCY ARUSHA

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Short Course: Qualitative and Quantitative Data Analysis Using STATA

1. Overview

All associations that are being observed in any research must be valid, i.e. not due to bias. Multiple regression models are used to determine predictors. Therefore, research analysts, research scholars, Government practitioners, managers, market researchers etc. should be able to understand and interpret multiple regression methods and outputs. This course is ideally suited to participants who have, or whose organizations may have, qualitative and/or quantitative data but are unsure of how to analyze them or are unsure of how to get the most information out of their data. Participants will be made aware of how they can confirm the hypotheses or answer research questions using various types of data and various types of analyses. Equally important, participants will be able to conduct inferential statistics and estimate measures of effect using STATA. They will be able to build causal or predictive statistical models, and interpret outputs. In the same vein, they will learn how to set up and perform hypothesis tests, interpret p-values, and report the results of their analysis in a way that is interpretable for clients or the public. The orientation of the course is towards theoretical, applied, computational as well as field data-based research. This course covers topics in developing and testing theories using qualitative and quantitative methods. The course consists of three main parts (1) theoretical modeling: assumptions, deriving testable hypotheses or research questions (2) time series analysis (3) Survey data analysis. Mainly, the course builds on inferential statistics. Participants will learn STATA. STATA is arguably the best

software for data management and statistical analysis. It is designed for researchers of all disciplines.

2. Course Objectives and Learning Outcomes

The primary objective of the course is to enable the participants develop suitable methodology for addressing the problem and learn about various tools and techniques to analyze and interpret the data quantitatively as well as qualitatively. Participants will learn how to identify problems to study, develop hypotheses and research questions. Moreover, participants will learn how to specify independent and dependent variables and check for the validity and reliability of studies. Overall, the course will expose participants to the process of qualitative and quantitative statistical analysis of social science, finance, education, business and management problems in both private and public sectors. In the process of learning, participants will be exposed to various techniques of large data handling and analysis through STATA.

At the end of the course, participants should be able to:

2.1	demonstrate an understanding of statistical modeling	**Knowledge and Understanding**
2.2.	Demonstrate understanding of multivariate analysis, factor analysis, correlation analysis and reliability analysis.	
2.3	Understand and formulate study problem and statistical hypotheses.	
2.4	Develop a insights into forecasting of time series	
2.5	Demonstrate competence in using software package, STATA	
2.6	Analyze survey, time series and panel data	
2.7	Formulate inferences, calculate likelihoods, and make decisions	**Intellectual/thinking/ Cognitive Skills**
2.8	Interpret statistical output/results	

2.9   Critically evaluate statistical models and forecasting tools

2.10   Develop general skills in analyzing and exploring data, which can be used in different fields   **Transferable Skills**

3. Course Contents

3.1.   Nature of regression analysis and review of basic statistical concepts
    3.1.1. Descriptive vs. Inferential statistics
    3.1.2. Random variables
    3.1.3. Mean, variance, covariance, and correlation
    3.1.4. Causation vs. Correlation

3.2.   Model specification and diagnostic testing
    3.2.1.   Model selection criteria and specification errors
    3.2.2.   Detecting the presence of unnecessary variables
    3.2.3.   Tests for omitted variables and incorrect functional form

3.3.   Estimation of unknown parameters using Ordinary Least Squares (OLS), interpreting the meaning and significance of parameters: Examples of applications in finance, social sciences, education, business, management, etc. using STATA.

3.4.   Multiple regression and hypothesis testing: Estimation by OLS. How to perform hypothesis testing using qualitative and quantitative data. Applications using STATA.

3.5.   Dynamic models and diagnostic testing: The effects of heteroskedasticity, autocorrelation and multicollinearity. How to perform unit root and co-integration tests on business and management, financial and social science data. Testing volatility using dynamic linear models (e.g. ARMA, ARCH, GARCH).

3.6.   Forecasting of uncertainty and forecasting for policy analysis.

3.7.   Interval estimation and hypothesis testing

3.8.   Qualitative response regression models: Logistic regression models for binary outcomes
    3.8.1.   logistic regression
    3.8.2.   Application, variable selection techniques,
    3.8.3.   Fitting the model
    3.8.4.   Interpretation of output and regression diagnostics

4. Teaching and Learning

Teaching and learning will be achieved via a mixture of lectures and seminars/workshops. We believe that an integrated lecture and seminar is the preferred route to introduce the course material and do problem solving based exercises.

5. Who Should Attend

The course is aimed at researchers who need to perform analysis on data from sample surveys as well as secondary data. Participants may be Faculty and Research Scholars (*Masters & Ph.D. candidates*), Statisticians, Research Analysts, Data Analysts, Economists, Programme Managers, Market Researchers, Local and Central Government practitioners, Survey Agents, etc.

6. Dates and Venue

The course will be conducted from 27th August 2018 to 31st August 2018 at the **Institute of Accountancy Arusha**, Njiro Hill**, Arusha.**

7. Fees and Mode of Payment

The fee for the course is TZS 500,000/= (Five hundred thousand only) to cover for training material, tea and lunch. Payment may be in cash, cheques or bankers draft addressed to the Rector, Institute of Accountancy Arusha or directly to our Bank Account **No. 01410300130 NBC**, Arusha Branch.

8. Contact Persons
For more details, kindly contact

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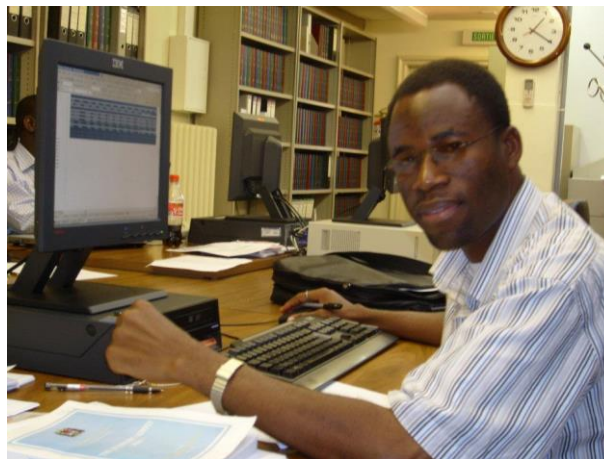Cell phone: +255 782 993077 Or +255 754 023059

APPLY TO

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Brief Profile of Facilitator

Dr. Epaphra Manamba is an experienced senior lecturer, researcher and consultant. He has expertise in applied research and econometrics, programming and forecasting, and research methods. His experience in research areas includes inferential statistics, survey data analysis, linear and nonlinear time series and panel data analyses. His expertise in econometric models includes probit and logit models, and time series models such as AR, ARMA, ARCH and GARCH models. He has published more than 20 articles in refereed journals and a book on Quantitative Methods for Finance.

Key Credentials

Ph.D., Economics, University of Dar es Salaam
MA, Economics, University of Dar es Salaam
BA, Economics, University of Dar es Salaam

Skills: **Applied Research & Econometrics, Inferential Statistics, Logistic/Logit models for binary data.**

Some Research Workshops and Presentations in International Conferences

March 19-24, 2015	University of Oxford, United Kingdom
March 22-25, 2014	University of Oxford, United Kingdom
Sept-Nov. 2007	World Trade Organization, Geneva, Switzerland
June-Nov. 2006	African Economic Research Consortium, Nairobi, Kenya
June-Oct, 2003,	African Economic Research Consortium, Nairobi, Kenya

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