



**Parkland College**  
**Arba Minch**  
**Short Term Trainings Programs**

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**Research Design, Data Management and Statistical Analysis using Stata**

**About the Course**

In the socio-economic and business context, conducting research, data management and data analysis are imperative for informed decision making. The availability of several datasets and research techniques open the gateway of conducting systematic research which will be helpful for consumers, businesses and organizations. A sound knowledge about the methodology of conducting research and use of Stata as a research, data management and analysis tool is very beneficial for the researchers. Upon completion, the participants will develop competence in quantitative techniques through hands-on practices in study design, data collection, and management, as well as the analysis and interpretation of data.

**Target Participants**

The training is designed for participants who intend to learn how to plan, implement effective research studies including data management and analysis. This course will benefit the people working in the private sector, government institutions, research institutions and NGOs.

**Course Duration**

- 21 Days at 8 hours a day

**What you will learn**

By the end of this course, the participants will be able to:

- Understand and appropriately use statistical terms and concepts
- Design and Implement universally acceptable research
- Develop of functional research protocol
- Design both quantitative and qualitative data collection tools
- Perform data analysis tasks with Stata
- Perform simple to complex data management tasks using software
- Statistical tests using Stata software
- Writing reports from survey data

**Course Outline**

**1. Introduction to research**

- 1.1.Introduction to research
- 1.2.Different types of research
- 1.3.Formulation of research problem statement
- 1.4.Formulation of research hypothesis



## **2. Overview of Evaluation**

- 2.1.Evaluation Objectives
- 2.2.Evaluation Criteria
- 2.3.Evaluation Questions

## **3. Research Design**

- 3.1.Quantitative Research Approaches
- 3.2.Qualitative Research Approaches

## **4. Sampling**

- 4.1.Sampling Techniques
- 4.2.Sample size determination

## **5. Data Collection Methods in Research**

- 5.1.Quantitative data collection methods
- 5.2.Qualitative data collection
- 5.3.Creating an evaluation framework

## **6. Data Collection tools in Research**

- 6.1.Survey Questionnaire design
- 6.2.FGD guide design
- 6.3.KII guide design

## **7. Developing Research Protocol**

- 7.1.What is a research protocol?
- 7.2.Basic concepts of a research protocol
- 7.3.Structure of a research protocol

## **8. Mobile Data Collection and Processing (ODK)**

- 8.1.Introduction to mobile data gathering
- 8.2.Design of survey forms using ODK build and XLSForm
- 8.3.Use ODK collect to gather data
- 8.4.Use ODK aggregate to upload data to the server
- 8.5.Work with spatial data (GPS coordinates)

## **9. Data Processing**

- 9.1.Data coding
- 9.2.Data capture
- 9.3.Data editing
- 9.4.Data imputation
- 9.5.Treatment of outliers

## **10. Introduction to Stata statistical software**

- 10.1. Stata interface and features
- 10.2. Key terminologies used in Stata
- 10.3. Views: Variable, Data views, Syntax editor
- 10.4. Data file preparation
- 10.5. Data entry into Stata
- 10.6. Data manipulation: merge files, spit files, sorting files, missing values

## **11. Basic Statistics using Stata**

- 11.1. Descriptive statistics for numeric variables



- 11.2. Frequency tables
- 11.3. Distribution and relationship of variables
- 11.4. Cross tabulations of categorical variables
- 11.5. Stub and Banner Tables

## **12. Graphics using Stata**

- 12.1. Introduction to graphs in Stata
- 12.2. Graph commands in Stata
- 12.3. Different types of Graphs in Stata

## **13. Statistical Tests using Stata**

- 13.1. One Sample T Test
- 13.2. Independent Samples T Test
- 13.3. Paired Samples T Test
- 13.4. One-Way ANOVA

## **14. Statistical Associations in Stata**

- 14.1. Chi-Square test
- 14.2. Pearson's Correlation
- 14.3. Spearman's Rank-Order Correlation

## **15. Predictive Models using Stata**

- 15.1. Linear Regression
- 15.2. Multiple Regression
- 15.3. Logistic Regression
- 15.4. Ordinal Regression

## **16. Longitudinal Analysis using Stata**

- 16.1. Features of Longitudinal Data
- 16.2. Exploring Longitudinal data
- 16.3. Longitudinal analysis for continuous outcomes

## **17. Qualitative Data Analysis using NVivo**

- 17.1. Introduction to NVivo
- 17.2. NVivo workspace
- 17.3. Uploading qualitative data into NVivo
- 17.4. Coding and making nodes
- 17.5. Use of queries
- 17.6. Project visualization

## **18. Survey Report writing and Dissemination**

- 18.1. Survey report format
- 18.2. Survey report content
- 18.3. Survey findings dissemination
- 18.4. Use of survey findings for decision making

## **Prerequisites**

Familiarity with basic statistical knowledge is ideal. No prior working knowledge of Stata software is required for this course.

## **Training Approach**



This course is delivered by our seasoned trainers who have vast experience as expert professionals in the respective fields of practice. The course is taught through a mix of practical activities, theory, group works and case studies.

Training manuals and additional reference materials are provided to the participants.

### **Certification**

Upon successful completion of this course, participants will be issued with a certificate.

### **Tailor-Made Course**

We can also do this as a tailor-made course to meet organization-wide needs. A training needs assessment will be done on the training participants to collect data on the existing skills, knowledge gaps, training expectations, and tailor-made needs.