Research Ethics and Integrity in the Age of Big Data Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Longitudinal Data Analysis is a crucial methodology for social scientists seeking to understand dynamic changes, causal relationships, and patterns over time within populations, institutions, and social behaviors. Longitudinal Data Analysis for Social Scientists Training course equips researchers, data analysts, policy makers, and academicians with robust statistical tools, advanced data modeling techniques, and software skills necessary to manage and interpret complex longitudinal data. Participants will gain hands-on expertise in repeated measures analysis, growth curve modeling, mixed-effects models, and time-series analysis, essential for high-impact social science research and evidence-based policy formulation.

In an era dominated by big data, predictive analytics, and data-driven decision-making, social scientists must leverage longitudinal data to uncover trends, forecast societal shifts, and inform interventions. This course addresses contemporary challenges in longitudinal studies such as handling missing data, data structuring, and modeling time-varying covariates. By integrating practical case studies, real-world datasets, and advanced analytical tools like R, Stata, and SPSS, participants will be empowered to produce insightful research that contributes to social innovation, public policy, and academic advancement.

Programme Curriculum

Longitudinal Data Analysis for Social Scientists Training Course

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Course Objectives

1. Understand the fundamentals of longitudinal data analysis in social sciences.
2. Master advanced statistical models for longitudinal data.
3. Apply time-series analysis techniques for social research.
4. Develop skills in growth curve modeling and trajectory analysis.
5. Gain proficiency in mixed-effects and multilevel modeling.
6. Address challenges in handling missing data and data imputation.
7. Explore methods for modeling time-varying covariates.
8. Utilize software tools like R, Stata, and SPSS for data analysis.
9. Interpret and communicate longitudinal research findings effectively.
10. Enhance capabilities in predictive analytics for social trends.
11. Design evidence-based policy recommendations from longitudinal data.
12. Engage in data visualization techniques for longitudinal insights.
13. Apply real-world case studies for practical data application.

Target Audiences

1. Social Science Researchers
2. Policy Makers and Government Analysts
3. Academic Scholars and Professors
4. Graduate and Postgraduate Students
5. Public Health Analysts
6. Data Scientists and Statisticians
7. NGO and Development Program Evaluators
8. Market and Social Trend Analysts

Course Duration: 5 days

Course Modules

Module 1: Introduction to Longitudinal Data Analysis

- Definition and significance in social research
- Types of longitudinal data
- Key differences from cross-sectional data
- Overview of analytical methods
- Ethical considerations in longitudinal studies
- **Case Study:** Longitudinal study on youth unemployment trends

Module 2: Data Preparation and Management

- Structuring longitudinal datasets
- Coding time variables
- Managing panel data

- Addressing missing data techniques
- Software options for data management (R, Stata, SPSS)
- **Case Study:** Preparing data for a multi-wave health survey

Module 3: Exploratory Data Analysis and Visualization

- Visualizing data over time
- Identifying trends and patterns
- Exploring intra-individual vs. inter-individual variations
- Using ggplot2 and other visualization libraries
- Creating informative time plots and trajectory graphs
- **Case Study:** Visual trends in educational attainment over decades

Module 4: Statistical Models for Longitudinal Data

- Fixed-effects vs. random-effects models
- Introduction to mixed-effects models
- Application of Generalized Estimating Equations (GEE)
- Choosing appropriate models for data
- Assumptions and limitations of models
- **Case Study:** Mixed-effects modeling in income inequality studies

Module 5: Growth Curve and Trajectory Analysis

- Understanding growth modeling
- Linear vs. nonlinear trajectories
- Estimating growth parameters
- Interpreting model outputs
- Practical exercises with growth modeling in R
- **Case Study:** Analyzing cognitive development in children over time

Module 6: Time-Series Analysis for Social Scientists

- Basics of time-series data
- Autoregressive models (AR, ARIMA)
- Stationarity and seasonality
- Forecasting social phenomena
- Application with real datasets
- **Case Study:** Time-series forecasting of crime rates

Module 7: Handling Missing Data and Time-Varying Covariates

- Types of missing data (MCAR, MAR, MNAR)
- Imputation techniques: Multiple Imputation, FIML
- Modeling time-varying predictors
- Assessing the impact of missing data on analysis
- Using statistical packages for imputation
- **Case Study:** Health disparities study with incomplete data

Module 8: Interpretation, Reporting, and Policy Application

- Best practices in interpreting model results
- Communicating findings to non-technical audiences
- Crafting policy briefs from research
- Ethical reporting standards
- Visual storytelling with longitudinal data

- **Case Study:** Policy recommendation based on poverty dynamics research

Training Methodology

- Interactive lectures and expert-led discussions
- Practical hands-on sessions with statistical software
- Group-based data analysis projects
- Real-world case study analysis and simulations
- One-on-one mentoring and feedback sessions
- Continuous assessments and quizzes

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

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