Meta-Analysis of Individual Participant Data (IPD) Training Course

Professional Development Training Course Outline

Category	Research and Data Analysis	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Meta-analysis of Individual Participant Data (IPD) represents the cutting-edge methodology in evidence synthesis, providing unprecedented precision, robustness, and personalized insights beyond traditional aggregate data meta-analyses. By analyzing raw participant-level data across multiple studies, researchers can detect subtle treatment effects, explore heterogeneity, and generate high-quality, clinically relevant evidence. Meta-Analysis of Individual Participant Data (IPD) Training Course empowers participants with hands-on expertise in designing, conducting, and interpreting IPD meta-analyses using state-of-the-art statistical software, ensuring actionable outcomes for healthcare, clinical trials, and policy-making.

The course leverages a combination of interactive lectures, practical workshops, case studies, and real-world datasets to build advanced analytical skills. Participants will learn best practices in data harmonization, missing data handling, risk-of-bias assessment, and advanced modeling techniques, including multilevel and time-to-event analyses. By the end of the program, learners will be equipped to conduct rigorous, reproducible, and high-impact IPD meta-analyses, contributing to evidence-based medicine and data-driven decision-making.

Programme Curriculum

Meta-Analysis of Individual Participant Data (IPD) Training Course

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Course Duration

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Course Objectives

1. Understand the fundamentals of IPD meta-analysis and its advantages over aggregate data meta-analysis.
2. Master data collection, harmonization, and management for multi-study datasets.
3. Apply advanced statistical modeling techniques, including one-stage and two-stage IPD meta-analysis.
4. Perform subgroup and interaction analyses to explore treatment effect heterogeneity.
5. Implement strategies for handling missing data, imputation, and bias adjustment.
6. Evaluate risk of bias, study quality, and data integrity in multi-trial datasets.
7. Conduct survival and time-to-event analyses using participant-level data.
8. Integrate longitudinal and repeated-measures data in meta-analytical frameworks.
9. Interpret effect estimates, forest plots, and funnel plots for IPD outcomes.
10. Utilize R, Stata, and SAS for reproducible IPD meta-analytical workflows.
11. Develop protocols and statistical analysis plans aligned with PRISMA-IPD guidelines.
12. Critically appraise published IPD meta-analyses and replicate analyses for validation.
13. Communicate results effectively for academic, clinical, and policy audiences.

Target Audience

1. Clinical researchers and trialists
2. Biostatisticians and epidemiologists
3. Health data scientists and analysts
4. Systematic review methodologists
5. Public health professionals
6. Evidence synthesis specialists
7. Medical and healthcare policymakers
8. Graduate students in biostatistics, epidemiology, or health sciences

Course Modules

Module 1: Introduction to IPD Meta-Analysis

- IPD and aggregate data
- Advantages for clinical and policy research
- Overview of statistical frameworks
- Ethical and regulatory considerations
- Case Study: IPD meta-analysis of diabetes interventions

Module 2: Protocol Development & Study Selection

- Developing IPD meta-analysis protocols
- PRISMA-IPD guidelines
- Defining inclusion/exclusion criteria
- Search strategy and data access
- Case Study: Multi-center cardiovascular trials

Module 3: Data Acquisition & Harmonization

- Collecting individual participant datasets
- Standardizing variables across studies
- Managing inconsistent data formats
- Data cleaning workflows
- Case Study: Breast cancer treatment trials

Module 4: Risk of Bias & Quality Assessment

- Assessing study-level and participant-level bias
- Tools for IPD quality assessment
- Detecting selective reporting
- Sensitivity analyses
- Case Study: Anti-hypertensive medication trials

Module 5: One-Stage vs Two-Stage Meta-Analysis

- Conceptual differences and advantages
- Statistical assumptions
- Model selection strategies
- Practical implementation in R/Stata
- Case Study: Pain management interventions

Module 6: Statistical Modeling in IPD

- Mixed-effects models
- Meta-regression techniques
- Random vs fixed-effects approaches
- Model diagnostics and validation
- Case Study: Asthma treatment outcomes

Module 7: Handling Missing Data

- Missing data patterns and mechanisms
- Multiple imputation techniques
- Sensitivity analysis for missing data
- Reporting standards
- Case Study: Oncology trials with incomplete follow-up

Module 8: Subgroup & Interaction Analyses

- Identifying effect modifiers
- Interaction term interpretation

- Visualizing subgroup effects
- Clinical relevance assessment
- Case Study: Antidepressant trials

Module 9: Survival & Time-to-Event Analysis

- Kaplan-Meier curves and Cox models
- Frailty models for clustered data
- Censoring and competing risks
- Integrating time-varying covariates
- Case Study: Cardiovascular outcome trials

Module 10: Longitudinal & Repeated Measures Data

- Modeling trajectories over time
- Mixed-effects models for repeated outcomes
- Handling correlated observations
- Visualization of longitudinal trends
- Case Study: Weight loss interventions

Module 11: Software Implementation

- R packages
- Stata commands
- SAS procedures for IPD analysis
- Reproducible workflow design
- Case Study: Diabetes and hypertension IPD datasets

Module 12: Reporting & Interpretation

- Forest plots, funnel plots, and effect sizes
- Translating statistical outputs into clinical insights
- PRISMA-IPD reporting checklist
- Critical appraisal of published IPD studies
- Case Study: Mental health intervention meta-analysis

Module 13: Sensitivity & Robustness Analyses

- Leave-one-study-out analysis
- Influence diagnostics
- Alternative model specifications
- Robustness visualization techniques
- Case Study: Stroke prevention trials

Module 14: Publication & Knowledge Translation

- Manuscript preparation strategies
- Targeting journals and preprints
- Data visualization for policymakers
- Engaging stakeholders with results
- Case Study: Global vaccination program evaluation

Module 15: Advanced Topics & Emerging Trends

- Network IPD meta-analysis
- Bayesian IPD models
- Machine learning applications in IPD
- Integration with real-world evidence
- Case Study: COVID-19 treatment IPD network meta-analysis

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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