Causal Inference with Difference-in-Differences 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

In the age of evidence-based policymaking and data-driven decision-making, the ability to assess causal relationships is more crucial than ever. Causal Inference with Difference-in-Differences (DiD) Training Course is designed for researchers, analysts, economists, and professionals seeking to master one of the most widely-used quasi-experimental research designs. By leveraging panel data and pre/post-treatment comparisons, DiD enables robust evaluation of interventions when randomized controlled trials are not feasible.

This comprehensive, hands-on course equips participants with the theoretical foundations and applied skills needed to execute DiD analysis using modern statistical tools like R, Stata, and Python. Participants will explore real-world case studies across public policy, healthcare, economics, and education to solidify their understanding. Whether you're in academia, government, or the private sector, this training will give you the expertise to perform high-impact, credible research.

Programme Curriculum

Causal Inference with Difference-in-Differences Training Course

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Course Objectives

1. Understand the fundamentals of causal inference in observational studies
2. Define and explain the Difference-in-Differences (DiD) methodology
3. Distinguish between parallel trends and non-parallel trends assumptions
4. Apply DiD using statistical software (R, Stata, or Python)
5. Interpret DiD regression outputs correctly
6. Handle common threats to DiD validity
7. Conduct robustness checks and placebo tests
8. Evaluate heterogeneous treatment effects
9. Combine DiD with other designs (e.g., matching, synthetic control)
10. Understand staggered treatment adoption and event studies
11. Communicate findings through reproducible research reports
12. Analyze policy interventions using DiD frameworks
13. Critically assess published research using DiD methods

Target Audience

1. Policy Analysts
2. Economists and Econometricians
3. Public Health Researchers
4. Social Science Researchers
5. Government Officials and Statisticians
6. NGO Monitoring and Evaluation Teams
7. Graduate Students in Economics/Public Policy
8. Data Scientists and Quantitative Researchers

Course Duration: 5 days

Course Modules

Module 1: Foundations of Causal Inference

- Introduction to causal inference and observational data
- Types of research designs: experimental vs. quasi-experimental
- Challenges in causal identification
- Key assumptions in causal models
- Overview of DiD as a strategy
- **Case Study**: Evaluating minimum wage policy effects

Module 2: Introduction to Difference-in-Differences

- Basic DiD setup and notations
- Understanding counterfactuals
- Pre-treatment and post-treatment comparisons
- Interpreting simple DiD models
- Visualization of trends
- **Case Study**: Impact of a smoking ban on health outcomes

Module 3: Assumptions and Validity Checks

- The parallel trends assumption
- Testing for pre-treatment trends
- Common pitfalls and how to avoid them
- Graphical diagnostics
- Alternative identification strategies
- **Case Study**: Education reform and student performance

Module 4: Implementation in R, Stata, and Python

- Setting up DiD in different platforms
- Writing DiD code in R and Stata
- Visualizing effects and trends
- Running robustness checks
- Automating result reports
- **Case Study**: Economic stimulus and employment trends

Module 5: Extensions and Advanced Topics

- Multiple time periods and staggered adoption
- Event studies and treatment dynamics
- DiD with matching or propensity scores
- Adjusting for clustered errors
- Dealing with heterogeneous treatment effects
- **Case Study**: Infrastructure policy across regions

Module 6: Robustness and Sensitivity Analysis

- Placebo tests and falsification checks
- Alternative specifications
- Subgroup analyses
- Dealing with serial correlation
- Statistical inference in DiD
- **Case Study**: Crime rate and policing policies

Module 7: Communicating Results and Reporting

- Writing policy-relevant summaries
- Creating impact visualization dashboards
- Reproducibility and code documentation
- Ethics in reporting causal research
- Publishing DiD studies
- **Case Study**: COVID-19 lockdown policies and mental health

Module 8: Critically Reviewing DiD Literature

- Framework for evaluating published DiD research
- Common issues in empirical papers
- Replicating published findings
- Peer review and critique techniques
- Applying learning to new datasets
- **Case Study**: Analysis of universal basic income pilot studies

Training Methodology

- Interactive lectures and demos

- Hands-on coding sessions (R, Stata, Python)
- Guided real-world data exercises
- Peer group discussions
- Capstone project with expert feedback
- Certification on successful completion

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
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500

Start Date	End Date	Location	Price
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

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com