Propensity Score Matching for Quasi-Experimental Designs 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 today’s data-driven research landscape, ensuring accurate causal inference in non-randomized studies is crucial. Propensity Score Matching (PSM) for Quasi-Experimental Designs Training Course is designed to equip researchers, data analysts, and policy evaluators with advanced skills to address selection bias and improve the credibility of their results. With the rise in demand for causal inference, program evaluation, and impact assessment in health, education, social science, and economics, mastering PSM techniques has become a strategic necessity for researchers and analysts. This course combines theoretical depth with practical application, focusing on real-world case studies and hands-on simulations using statistical software.

This course offers a robust understanding of quasi-experimental design, matching algorithms, treatment effect estimation, and sensitivity analysis. Through carefully curated modules, participants will explore how PSM reduces bias in observational studies, ensuring valid and reliable outcomes. Participants will gain fluency in applying PSM using tools like R, STATA, or SPSS, while also learning to critically interpret and present their findings.

Programme Curriculum

Propensity Score Matching for Quasi-Experimental Designs Training Course

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Course Objectives

1. Understand the fundamentals of quasi-experimental designs in non-randomized studies.
2. Explore the theoretical framework behind propensity score matching.
3. Identify the key assumptions for causal inference using PSM.
4. Learn to estimate propensity scores using logistic regression.
5. Apply nearest neighbor, caliper, and kernel matching algorithms.
6. Conduct balance diagnostics to assess matching quality.
7. Evaluate average treatment effects using matched samples.
8. Perform sensitivity analysis for hidden bias detection.
9. Use R, STATA, or SPSS for PSM implementation.
10. Integrate PSM in program evaluation and impact studies.
11. Interpret PSM results for evidence-based policy recommendations.
12. Build publishable research outputs using matched observational data.
13. Critically appraise PSM applications in peer-reviewed literature.

Target Audiences

1. Public health researchers
2. Educational evaluators
3. Government policy analysts
4. Data scientists in social sciences
5. Economists conducting impact assessments
6. Graduate students in quantitative fields
7. NGO monitoring and evaluation officers
8. Healthcare outcomes researchers

Course Duration: 5 days

Course Modules

Module 1: Introduction to Quasi-Experimental Designs

- Definition and importance of quasi-experiments
- Comparison with randomized controlled trials
- Selection bias in observational studies
- Role of PSM in quasi-experiments
- Overview of real-world applications
- **Case Study**: Evaluating an education reform program

Module 2: Understanding Propensity Scores

- Concept and mathematical foundation
- Confounders and covariates
- Logistic regression for score estimation
- Common pitfalls in score estimation
- Overlap and common support regions
- **Case Study**: Healthcare access in rural populations

Module 3: Matching Techniques and Algorithms

- Nearest neighbor matching
- Caliper matching
- Radius and kernel matching
- Matching with/without replacement
- Visualizing matched pairs
- **Case Study**: Employment outcomes in microfinance recipients

Module 4: Balance Diagnostics and Quality Checks

- Covariate balance before and after matching
- Standardized mean differences
- Visual diagnostic plots (Love plots)
- Statistical tests for balance
- Iterating matching until balance
- **Case Study**: Tobacco control policy evaluation

Module 5: Estimating Treatment Effects

- Average Treatment Effect (ATE)
- Average Treatment Effect on Treated (ATT)
- Unmatched vs. matched estimation
- Confidence intervals and statistical inference
- Adjusting standard errors
- **Case Study**: Impact of mentoring on student success

Module 6: Sensitivity and Robustness Analysis

- Unobserved confounders
- Rosenbaum bounds
- E-value computation
- Stratification sensitivity checks
- Interpreting robustness results
- **Case Study**: Agricultural subsidies and crop yield

Module 7: Software Implementation (R, STATA, SPSS)

- Installing and configuring packages
- Code walkthrough for PSM
- Running diagnostics and treatment effect estimation
- Exporting results and plots
- Troubleshooting common errors
- **Case Study**: Comparing R and STATA outputs for the same dataset

Module 8: Real-World Applications and Reporting

- Reporting guidelines for matched studies
- Visualizing impact using graphs and tables
- Ethical considerations and limitations
- Integrating findings in reports and publications
- Writing PSM results for grant proposals
- **Case Study**: Public health campaign effectiveness report

Training Methodology

- Interactive live webinars and Q&A sessions

- Guided hands-on exercises with real datasets
- Downloadable scripts and step-by-step tutorials
- Group-based activities and problem-solving tasks
- Continuous assessment through mini-projects
- Final evaluation with project-based report presentation

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