Causal Inference in Social and Political Research Training Course

Professional Development Training Course Outline

Category	Political Science and International Relations	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Causal Inference in Social and Political Research Training Course provides a comprehensive introduction to the principles and practice of **causal inference** in social and political research. It moves beyond simple **correlation** and **association**, equipping participants with the theoretical frameworks and practical skills to establish credible **cause-and-effect relationships** from both experimental and **observational data**. By mastering modern **research design** and **statistical methods**, students will be able to critically evaluate empirical evidence, design robust studies, and make more reliable, evidence-based claims. The training focuses on bridging the gap between theoretical knowledge and practical application, ensuring participants can confidently apply these advanced analytical techniques to their own research questions.

In a world increasingly driven by **big data** and complex social phenomena, understanding the **impact** of policies, programs, and interventions is more crucial than ever. This course introduces the **potential outcomes framework** and **causal graphs (DAGs)** as foundational tools for thinking about causality. Participants will gain hands-on experience using industry-standard statistical software to implement a variety of **quasi-experimental designs** and other cutting-edge methods. From **policy evaluation** to **behavioral science**, the skills learned here are essential for anyone seeking to conduct rigorous, transparent, and **reproducible research** that can inform public debate and shape effective policy.

Programme Curriculum

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Course Objectives

1. Understand the core concepts of **causality** and distinguish them from mere **correlation**.
2. Master the **potential outcomes framework** and **Rubin causal model**.
3. Utilize **causal graphs (DAGs)** to visualize assumptions and identify confounding variables.
4. Design and analyze data from **randomized controlled trials (RCTs)**.
5. Apply **quasi-experimental methods** like **instrumental variables** and **regression discontinuity design** .
6. Implement **matching methods** and **propensity score analysis** to address selection bias.
7. Conduct **difference-in-differences analysis** for panel data.
8. Estimate causal effects using **machine learning** and **econometric models**.
9. Address common challenges such as **selection bias** and **unmeasured confounding**.
10. Critically evaluate and replicate published research on **causal claims**.
11. Translate theoretical concepts into practical, **reproducible research designs**.
12. Effectively communicate causal findings to both academic and non-academic audiences.
13. Develop a strong foundation for advanced **impact evaluation** and **policy analysis**.

Target Audience

- Academic Researchers and PhD students in social and political sciences.
- Policy Analysts and Public Policy Professionals in government and NGOs.
- Data Scientists and Statisticians who need to move beyond predictive modeling.
- Economists and Econometricians seeking modern causal tools.
- M&E (Monitoring and Evaluation) Specialists.
- Survey and Polling Professionals.
- Research Assistants and aspiring academics.
- Professionals in fields like public health, urban planning, and sociology.

Course Outline

Module 1: Foundations of Causal Inference

- Core Concepts: Defining causality vs. correlation, the "why" question.
- Potential Outcomes Framework: The counterfactual and causal effects.
- Directed Acyclic Graphs (DAGs): A visual language for causal assumptions.
- Sources of Bias: Exploring confounding, selection bias, and measurement error.
- **Case Study**: Does attending a specific political rally increase voter turnout?

Module 2: The Gold Standard - Randomized Experiments

- RCT Design: Principles of randomization and treatment assignment.
- Analysis of RCTs: Estimating average treatment effects (ATEs) and other parameters.
- Challenges and Limitations: Ethical considerations and external validity.
- Randomization Checks: Verifying successful randomization in practice.
- **Case Study**: The impact of a randomized job training program on employment rates.

Module 3: Quasi-Experimental Designs Part 1: Regression Discontinuity and Instrumental Variables

- Regression Discontinuity (RDD): Exploiting sharp and fuzzy thresholds for causal inference.
- Instrumental Variables (IV): Finding valid instruments to address unmeasured confounding.
- Assumptions and Tests: Understanding the key assumptions of RDD and IV.
- Practical Implementation: Step-by-step guidance in R/Python.
- **Case Study**: The effect of being just above the poverty line on health outcomes using RDD.

Module 4: Quasi-Experimental Designs Part 2: Difference-in-Differences and Synthetic Control

- Difference-in-Differences (DiD): Using panel data to estimate policy effects.
- Parallel Trends Assumption: The crucial assumption for valid DiD analysis.
- Synthetic Control Method: Constructing a synthetic counterfactual for a single treated unit.
- Implementation and Visualization: Visualizing parallel trends and synthetic controls.
- **Case Study**: The effect of a new minimum wage law on local employment.

Module 5: Causal Inference with Observational Data

- Matching Methods: The logic of matching on observed characteristics.
- Propensity Score Analysis: Using propensity scores to balance treatment and control groups.
- Inverse Probability Weighting (IPW): A different approach to confounding adjustment.
- Double Robust Estimation: Combining matching and weighting for more robust results.
- **Case Study**: The impact of a social media campaign on political polarization.

Module 6: Causal Inference and Machine Learning

- Predictive vs. Causal Questions: Re-framing problems for causal analysis.
- Heterogeneous Treatment Effects: Using ML to discover varying effects across subgroups.
- Causal Forests and other Metalearners: Modern algorithms for causal analysis.
- Model Selection and Validation: Avoiding overfitting in causal models.
- **Case Study**: Predicting the individual-level causal effect of an education program.

Module 7: Advanced Topics and Research Frontiers

- Causal Mediation Analysis: Understanding the pathways through which an effect occurs.
- Sensitivity Analysis: Assessing how robust your findings are to unmeasured confounding.
- Target Trial Emulation: Designing observational studies to mimic randomized trials.
- Big Data and Causal Inference: New opportunities and challenges.

- **Case Study**: Decomposing the causal effect of voter registration drives.

Module 8: Putting It All Together: A Research Project

- **Project Design**: Developing a causal research question and design strategy.
- **Data Preparation**: Cleaning and organizing data for causal analysis.
- **Implementation**: Applying learned methods to a real-world dataset.
- **Interpretation and Communication**: Presenting findings clearly and transparently.
- **Case Study**: The final project will be based on a participant's own research question.

Training Methodology

The course adopts a **blended learning approach**, combining live lectures with hands-on computer labs and interactive discussions. The methodology is designed to move participants from theory to practice seamlessly.

- **Lectures**: Provide a solid theoretical grounding in key concepts and methods.
- **Case Studies**: Illustrate how to apply causal inference methods to real-world social and political questions.
- **Practical Labs**: Guided sessions using **R** and **Python** to implement the techniques discussed.
- **Group Discussions**: Fostering critical thinking and peer-to-peer learning.
- **Independent Project**: A final capstone project where participants apply the full **causal roadmap** to their own data.

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

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