

# Statistical Analysis with R for Political Scientists 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

Statistical Analysis with R for Political Scientists Training Course is designed to equip political scientists, policy analysts, and researchers with the essential skills to conduct robust statistical analysis using **R**, a powerful, open-source programming language. In a world increasingly driven by data, the ability to collect, manage, and interpret quantitative information is crucial for making evidence-based decisions and drawing reliable conclusions about complex political phenomena. This course will move beyond theoretical concepts and provide **hands-on experience** in applying statistical methods to real-world political science datasets. Participants will master a range of techniques, from descriptive statistics and data visualization to advanced **regression analysis** and causal inference, enabling them to produce rigorous, reproducible research and impactful policy recommendations.

The curriculum is structured to bridge the gap between substantive political knowledge and **quantitative methods**, ensuring that participants not only learn the technical aspects of R but also understand how to apply them to answer critical questions in political science. Through practical exercises, case studies, and a project-based learning approach, attendees will gain a deep understanding of **data-driven decision-making** and its ethical implications. This course is an investment in professional development, providing a competitive edge in academia, government, non-profits, and political consulting. By the end of this training, you will be proficient in using R for **political data science** and capable of executing the entire research workflow, from data wrangling to effective communication of results.

## Programme Curriculum

### Statistical Analysis with R for Political Scientists Training Course

#### Introduction

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### Course Duration

5 days

### Course Objectives

By the end of this course, you will be able to:

- Master **R programming** fundamentals for data manipulation and analysis.
- Conduct **descriptive statistics** and exploratory data analysis (EDA).
- Create publication-quality **data visualizations** using ggplot2.
- Perform **hypothesis testing** and statistical inference.
- Understand and apply various **regression analysis** models, including linear, logistic, and multiple regression.
- Analyze **time-series data** and panel data in a political context.
- Perform **causal inference** and quasi-experimental analysis.
- Manage and analyze **social media data** and other unstructured text data.
- Generate **reproducible research** reports using R Markdown.
- Evaluate and interpret statistical results for policy and political strategy.
- Critically assess data for bias and understand **data ethics**.
- Work with large and complex **political datasets**.
- Apply learned skills to a **capstone project** on a political science topic of your choice.

### Organizational Benefits

- Enhance **evidence-based policymaking** and strategic planning.
- Improve the rigor and credibility of internal and external research.
- Empower staff with **advanced data analysis skills**, reducing reliance on external consultants.
- Increase the efficiency of **data-driven decision-making** processes.
- Foster a culture of **data literacy** and analytical thinking.
- Ensure **reproducible research** and transparent analytical workflows.
- Better anticipate political trends and public opinion shifts through **predictive analytics**.

- Strengthen the ability to analyze and respond to complex political and social challenges.

## Target Audience

- Political science graduate students and researchers.
- Government and public policy analysts.
- Campaign managers and political strategists.
- Academics seeking to integrate R into their research.
- NGO professionals focused on policy advocacy and monitoring.
- Journalists and data journalists covering political topics.
- Social scientists with an interest in political data.
- Data analysts looking to specialize in political and public sector data.

## Course Outline

### Module 1: R Fundamentals for Political Scientists

- Introduction to **R** and **RStudio**.
- Data types, objects, and basic programming syntax.
- Installing and managing essential R packages (**tidyverse**).
- Importing and exporting data from various sources (CSV, Excel, databases).
- **Case Study**: Cleaning and organizing a dataset of legislative voting records to prepare it for analysis.

### Module 2: Data Wrangling & Manipulation

- Using dplyr for data manipulation: filtering, selecting, arranging, and summarizing data.
- Data cleaning and handling missing values.
- Merging and joining multiple datasets.
- Pivoting and reshaping data using tidyr.
- **Case Study**: Combining campaign finance data from multiple sources and cleaning inconsistencies to analyze donor networks.

### Module 3: Descriptive Statistics & Visualization

- Calculating measures of central tendency and dispersion.
- Creating frequency tables and cross-tabulations.
- Introduction to ggplot2 for creating custom visualizations.
- Generating histograms, bar charts, scatter plots, and box plots to explore political data.
- **Case Study**: Visualizing the distribution of public opinion on a policy issue across different demographics.

### Module 4: Statistical Inference & Hypothesis Testing

- Understanding probability, sampling, and sampling distributions.
- Performing one-sample and two-sample t-tests and chi-squared tests.
- Interpreting p-values and confidence intervals.
- ANOVA for comparing means across multiple groups.
- **Case Study**: Testing the hypothesis that a new voter mobilization campaign significantly increased turnout in targeted districts.

### Module 5: Introduction to Regression Analysis

- Simple and multiple linear regression for continuous outcomes.
- Interpreting regression coefficients and model diagnostics.
- Introduction to logistic regression for binary outcomes (e.g., voting for a candidate).
- Best practices for model selection and interpretation.
- **Case Study:** Analyzing the factors that predict a politician's approval ratings, such as economic indicators or public policy positions.

## Module 6: Advanced Political Data Analysis

- Introduction to **causal inference**: understanding and identifying causal effects.
- Panel data analysis for time-series cross-sectional data.
- An introduction to **text analysis** for political science.
- Analyzing public discourse from social media or legislative transcripts.
- **Case Study:** Using a regression discontinuity design to evaluate the causal effect of winning a tight election on a legislator's policy-making behavior.

## Module 7: Reproducible Research & Reporting

- Using **R Markdown** to create dynamic reports that combine code, output, and text.
- Generating professional tables and figures for publications.
- Principles of **reproducible research** and version control with Git.
- Creating interactive web applications with Shiny.
- **Case Study:** Developing a complete, reproducible research report on a political topic, from data import to final analysis and visualization.

## Module 8: Capstone Project

- Participants choose a political science research question.
- Develop a project plan, including data sourcing and methodology.
- Apply the skills learned throughout the course to execute the analysis.
- Present final findings and a reproducible R Markdown report.
- **Case Study:** Participants will conduct their own research on a topic like voting patterns, policy effects, or political campaign messaging, using real-world data to answer their research question.

## Training Methodology

This course employs a **hands-on, practical, and project-based** training methodology. The structure combines:

- **Interactive Lectures:** Short, focused sessions introducing core concepts and R syntax.
- **Live Coding Demonstrations:** The instructor will code in real-time to illustrate techniques.
- **Guided Exercises:** Participants will immediately practice new skills on provided datasets.
- **Real-World Case Studies:** Each module includes a case study that applies methods to a specific political science problem.
- **Collaborative Sessions:** Group discussions and problem-solving to reinforce learning.
- **Individual Capstone Project:** A culminating project to demonstrate mastery of all course topics.

**Register as a group from 3 participants for a Discount**

Send us an email: [info@fineskilltrainingcenter.com](mailto:info@fineskilltrainingcenter.com) 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   |
|-------------|-------------|----------|---------|
| 07 Sep 2026 | 11 Sep 2026 | Physical | \$1,500 |
| 14 Sep 2026 | 18 Sep 2026 | Physical | \$1,500 |
| 21 Sep 2026 | 25 Sep 2026 | Physical | \$1,500 |
| 28 Sep 2026 | 02 Oct 2026 | Physical | \$1,500 |
| 05 Oct 2026 | 09 Oct 2026 | Physical | \$1,500 |
| 12 Oct 2026 | 16 Oct 2026 | Physical | \$1,500 |
| 19 Oct 2026 | 23 Oct 2026 | Physical | \$1,500 |
| 26 Oct 2026 | 30 Oct 2026 | Physical | \$1,500 |

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

[Register Online Now](#)

Email: [info@fineskilltrainingcenter.com](mailto:info@fineskilltrainingcenter.com) | Website: [www.fineskilltrainingcenter.com](http://www.fineskilltrainingcenter.com)