Working with Administrative Data in R Training Course

Professional Development Training Course Outline

Category	Demography and Population Studies	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Administrative data has become a cornerstone for informed decision-making across organizations, governments, and research institutions. Leveraging these datasets requires advanced skills in data management, statistical analysis, and reproducible programming workflows. Working with Administrative Data in R Training Course is specifically designed to empower participants to efficiently manipulate, analyze, and visualize administrative datasets using the R programming language. Participants will gain hands-on experience in importing, cleaning, and transforming complex administrative datasets while adhering to data privacy and ethical standards. With an emphasis on practical application, this course equips professionals with the technical competencies needed to extract actionable insights from large-scale administrative records.

R offers a dynamic environment for working with structured datasets, including healthcare records, governmental data, and organizational logs. This course emphasizes robust data wrangling techniques, advanced statistical modeling, and visualization best practices to support evidence-based decision-making. Participants will also explore reproducible workflows, automated reporting, and case study applications that simulate real-world challenges in administrative data analysis. By the end of this course, learners will be able to confidently manage administrative datasets, derive meaningful insights, and communicate findings effectively to stakeholders, enhancing both organizational efficiency and data-driven strategies.

Programme Curriculum

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Course Objectives

1. Master data import and export techniques in R for diverse administrative datasets
2. Apply advanced data cleaning and preprocessing workflows
3. Conduct exploratory data analysis to identify trends and patterns
4. Implement reproducible data analysis pipelines
5. Create dynamic visualizations for administrative data reporting
6. Integrate multiple administrative datasets using R
7. Conduct statistical modeling for decision support
8. Apply predictive analytics techniques to administrative data
9. Ensure compliance with data privacy and ethical standards
10. Develop automated reporting and dashboards in R
11. Apply R for longitudinal and time-series administrative data
12. Troubleshoot common data management and analysis challenges
13. Utilize case study analysis for problem-solving in real organizational contexts

Organizational Benefits

1. Improved efficiency in handling large-scale administrative datasets
2. Enhanced accuracy and reliability of data-driven decision-making
3. Streamlined reporting workflows with automated solutions
4. Increased organizational capacity for predictive analytics

5. Strengthened compliance with data privacy regulations
6. Better inter-departmental data integration and sharing
7. Enhanced visualization and communication of key insights
8. Reduced errors and redundancy in administrative processes
9. Faster turnaround for analytical reporting and stakeholder updates
10. Increased competitiveness through data-driven strategic planning

Top Keywords / SEO-Friendly Content
administrative data, R programming, data analysis, data visualization, statistical modeling, data wrangling, predictive analytics, reproducible workflows, data privacy, automated reporting, longitudinal data analysis, time-series analysis, organizational efficiency

Target Audiences

1. Data analysts
2. Research coordinators
3. Policy makers
4. Healthcare administrators
5. Government statisticians
6. Academic researchers
7. IT professionals in data management
8. Organizational managers

Course Duration: 10 days

Course Modules

Module 1: Introduction to Administrative Data and R Environment

- Understanding administrative datasets
- Overview of R programming environment
- Installing packages and dependencies
- Basic data types and structures in R
- Importing sample administrative datasets
- Case study: Health department patient records

Module 2: Data Cleaning and Preprocessing Techniques

- Handling missing and inconsistent data

- Standardizing variable formats
- Removing duplicates and errors
- Using tidyverse for data cleaning
- Creating reproducible scripts for preprocessing
- Case study: Government social service records

Module 3: Data Wrangling and Transformation

- Merging and joining datasets
- Filtering and subsetting data
- Creating derived variables
- Reshaping data for analysis
- Efficient use of dplyr and tidyr packages
- Case study: Education department enrollment data

Module 4: Exploratory Data Analysis

- Descriptive statistics and summaries
- Visualizing distributions and patterns
- Correlation and cross-tabulations
- Identifying outliers and anomalies
- Using ggplot2 for graphical exploration
- Case study: Transportation administrative logs

Module 5: Statistical Modeling for Administrative Data

- Regression analysis and hypothesis testing
- ANOVA and categorical data modeling
- Model diagnostics and validation
- Using built-in R modeling functions
- Interpretation of results for decision-making
- Case study: Public health disease incidence modeling

Module 6: Time-Series and Longitudinal Data Analysis

- Understanding temporal administrative datasets
- Creating time-series objects in R

- Trend analysis and seasonality detection
- Forecasting techniques for administrative metrics
- Applying longitudinal data methods
- Case study: Monthly revenue collection records

Module 7: Predictive Analytics Techniques

- Overview of predictive modeling concepts
- Feature selection and engineering
- Implementing regression and classification models
- Evaluating predictive performance
- Integrating predictive insights into decision-making
- Case study: Employee retention prediction

Module 8: Data Visualization and Reporting

- Creating interactive dashboards
- Customizing graphs and plots
- Automating reports using R Markdown
- Presenting findings to stakeholders
- Storytelling with data
- Case study: Municipal budget reporting

Module 9: Reproducible Workflows in R

- Structuring projects for reproducibility
- Version control with Git and RStudio
- Automating scripts and processes
- Documentation and commenting best practices
- Reproducible analysis pipelines
- Case study: Multi-department dataset analysis

Module 10: Handling Big Administrative Datasets

- Strategies for large dataset processing
- Memory management in R
- Efficient data manipulation with data.table

- Parallel computing in R
- Optimizing code for speed and accuracy
- Case study: National census datasets

Module 11: Ethical Considerations and Data Privacy

- Understanding data protection regulations
- Anonymizing and pseudonymizing data
- Ethical handling of sensitive information
- Compliance reporting practices
- Risk assessment and mitigation strategies
- Case study: Healthcare patient privacy management

Module 12: Advanced Analytical Techniques

- Multivariate analysis
- Cluster analysis and segmentation
- Principal component analysis (PCA)
- Integrating statistical methods for insights
- Interpretation and visualization of advanced models
- Case study: Tax audit and fraud detection

Module 13: Automating Administrative Workflows

- Scripting repetitive tasks
- Scheduling and running automated processes
- Notifications and alerts with R
- Integration with external software
- Ensuring reliability of automated workflows
- Case study: Automated payroll processing

Module 14: Case Study Analysis and Problem-Solving

- Applying R skills to real organizational challenges
- Data cleaning, transformation, and modeling
- Visualization and reporting
- Collaborative problem-solving exercises

- Presentation of case findings
- Case study: Social service program evaluation

Module 15: Capstone Project

- Full-cycle administrative data analysis
- Independent project implementation
- Comprehensive data cleaning and modeling
- Visualization and automated reporting
- Peer review and presentation
- Case study: Integrated government administrative dataset

Training Methodology

- Interactive lectures and practical exercises
- Hands-on sessions with R and administrative datasets
- Group discussions and collaborative problem-solving
- Case study simulations based on real-world scenarios
- Step-by-step guided tutorials and exercises
- Continuous assessment and feedback

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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