Categorical Data Analysis 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

Categorical Data Analysis is a critical skill in modern data science, business analytics, machine learning, and applied statistics, enabling professionals to extract actionable insights from nominal, ordinal, and binary data. Categorical Data Analysis Training Course provides a hands-on, end-to-end understanding of categorical variables, contingency tables, hypothesis testing, and classification modeling, widely used in marketing analytics, healthcare research, social sciences, finance, and policy evaluation.

Designed with an industry-aligned, case-study-driven approach, this training blends statistical theory with real-world applications using tools like R, Python, and SQL-ready datasets. Learners will gain mastery in logistic regression, chi-square testing, log-linear models, and categorical machine learning techniques, empowering them to make data-driven decisions, improve predictive accuracy, and communicate insights through data storytelling and visualization.

Programme Curriculum

Categorical Data Analysis Training Course

Introduction

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them to make data-driven decisions, improve predictive accuracy, and communicate insights through data storytelling and visualization.

Course Duration

5 days

Course Objectives

1. Understand categorical data structures and data types
2. Apply exploratory data analysis (EDA) for categorical variables
3. Perform chi-square tests and association analysis
4. Analyze contingency tables and cross-tabulations
5. Interpret odds ratios and risk measures
6. Build and evaluate binary & multinomial logistic regression models
7. Implement log-linear modeling techniques
8. Handle high-dimensional categorical data
9. Apply feature encoding techniques
10. Conduct model diagnostics and goodness-of-fit testing
11. Use categorical data in machine learning workflows
12. Translate results into business insights and recommendations
13. Communicate findings using data visualization and storytelling

Target Audience

1. Data Analysts
2. Data Scientists
3. Business Intelligence Professionals
4. Market Research Analysts
5. Healthcare & Clinical Researchers
6. Social Science Researchers
7. Machine Learning Engineers
8. MBA & Analytics Students

Course Modules

Module 1: Foundations of Categorical Data

- Types of categorical data
- Real-world data examples
- Data collection challenges
- Data quality & preprocessing
- **Case Study:** Customer demographic segmentation

Module 2: Exploratory Analysis & Visualization

- Frequency tables & proportions
- Bar plots, mosaic plots
- Cross-tabulation analysis
- Association measures
- **Case Study:** Product preference analysis

Module 3: Chi-Square & Hypothesis Testing

- Chi-square goodness-of-fit
- Independence testing
- Fisher’s exact test
- Assumptions & limitations
- **Case Study:** Website conversion analysis

Module 4: Logistic Regression Models

- Binary logistic regression
- Multinomial & ordinal models
- Odds ratios interpretation
- Model evaluation metrics
- **Case Study:** Credit approval prediction

Module 5: Log-Linear Models

- Model formulation
- Interaction effects
- Model selection
- Likelihood ratio tests
- **Case Study:** Healthcare diagnosis patterns

Module 6: Categorical Data in Machine Learning

- Feature encoding strategies
- Handling class imbalance
- Tree-based models
- Categorical boosting methods
- **Case Study:** Customer churn prediction

Module 7: Advanced Topics & Diagnostics

- Overfitting & regularization
- Model validation techniques
- Residual analysis
- Bias & fairness considerations
- **Case Study:** Hiring data bias analysis

Module 8: Business Applications & Storytelling

- Translating results to decisions
- KPI mapping
- Dashboard integration
- Stakeholder communication
- **Case Study:** Marketing campaign optimization

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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

Start Date	End Date	Location	Price
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

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

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