Forecasting with R Training Course

Professional Development Training Course Outline

Category	Logistics and Supply Chain Management	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Forecasting with R Training Course is designed to equip participants with advanced statistical and computational skills to predict future trends using the R programming language. This course integrates practical applications of time series analysis, regression modeling, and machine learning techniques to enhance decision-making processes in diverse sectors. Participants will learn to leverage R's powerful libraries, enabling precise demand forecasting, sales prediction, and resource optimization. By applying R in forecasting, organizations can reduce uncertainty, improve operational efficiency, and make data-driven strategic decisions.

The course emphasizes hands-on learning through real-world datasets, interactive exercises, and case studies, ensuring participants gain both theoretical knowledge and practical skills. It is ideal for analysts, data scientists, managers, and researchers seeking to advance their forecasting capabilities. The training also highlights trends in predictive analytics, automation in forecasting, and integration of R with business intelligence tools, enabling organizations to stay competitive in a rapidly evolving data-driven environment.

Programme Curriculum

Forecasting with R Training Course

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Course Objectives

1. Understand the fundamentals of forecasting and predictive analytics using R.
2. Master time series data handling, visualization, and decomposition in R.
3. Apply ARIMA, Exponential Smoothing, and other statistical forecasting models.
4. Integrate machine learning techniques with R for enhanced predictive accuracy.
5. Develop reproducible and automated forecasting workflows using R scripts.
6. Perform model validation, error analysis, and performance evaluation.
7. Forecast sales, demand, and resource needs for organizational planning.
8. Analyze and interpret forecasting results for informed decision-making.
9. Learn to use R libraries such as forecast, tseries, prophet, and caret.
10. Understand scenario analysis and simulation techniques in R.
11. Apply forecasting techniques to finance, marketing, and supply chain contexts.
12. Develop custom dashboards and visualizations for presenting forecasts.
13. Solve real-world forecasting challenges through case study applications.

Organizational Benefits

- Improved data-driven decision-making capabilities
- Enhanced operational efficiency and resource planning
- Increased forecasting accuracy for financial and inventory planning
- Reduced risks associated with market volatility
- Ability to implement automation in forecasting workflows
- Integration of predictive insights into strategic planning
- Better understanding of trends and patterns in organizational data
- Enhanced reporting and visualization capabilities
- Strengthened analytical skills of staff
- Competitive advantage through predictive analytics adoption

Target Audiences

1. Data Analysts and Data Scientists
2. Business Intelligence Professionals
3. Supply Chain and Operations Managers
4. Financial Analysts and Planners
5. Marketing Analysts
6. IT Professionals involved in analytics
7. Researchers in quantitative fields
8. Managers responsible for strategic planning

Course Duration: 5 days

Course Modules

Module 1: Introduction to Forecasting with R

- Overview of forecasting concepts
- Introduction to R environment and tools
- Data handling and preprocessing in R
- Time series visualization techniques
- Case study: Forecasting retail sales trends

Module 2: Time Series Analysis and Decomposition

- Understanding components of time series
- Seasonal, trend, and residual analysis
- Decomposition using R functions
- Detecting anomalies and outliers
- Case study: Airline passenger data analysis

Module 3: ARIMA Modeling

- Fundamentals of ARIMA and auto-ARIMA
- Stationarity testing and differencing
- Model selection and parameter tuning
- Forecasting future values
- Case study: Monthly sales prediction

Module 4: Exponential Smoothing Techniques

- Simple, double, and triple exponential smoothing
- Holt-Winters method
- Model evaluation and comparison
- Forecast visualization
- Case study: Inventory demand forecasting

Module 5: Machine Learning for Forecasting

- Regression models in R
- Decision trees and random forests
- Feature engineering for predictive models
- Model training and validation
- Case study: Predicting energy consumption

Module 6: Forecast Accuracy and Performance Metrics

- Evaluating forecast errors
- RMSE, MAPE, and MAE metrics
- Cross-validation techniques
- Improving model accuracy
- Case study: Financial forecasting

Module 7: Scenario Analysis and Simulation

- Monte Carlo simulation in R
- What-if scenario modeling
- Risk assessment using forecasting
- Sensitivity analysis
- Case study: Supply chain risk mitigation

Module 8: Reporting and Visualization of Forecasts

- Creating dashboards in R
- Interactive visualizations using shiny and ggplot2
- Communicating forecasting insights
- Automating reports and visualizations
- Case study: Marketing campaign forecast presentation

Training Methodology

- Instructor-led interactive sessions
- Hands-on exercises with real-world datasets
- Step-by-step guided R coding sessions
- Group discussions and collaborative problem solving
- Individual and group-based assignments
- Case study analysis for practical application

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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