**London TDM**

# Artificial Intelligence and Data Science Training Courses

**Course Venue:** United Arab Emirates - Dubai

**Course Date:** From 24 May 2026 To 28 May 2026

**Course Place:** Downtown Dubai

**Course Fees:** 5,000 USD

## Introduction

Time series analysis plays an essential role in data science, enabling professionals to analyze data that is observed over time to uncover trends, seasonal patterns, and cyclical behaviors. This 5-day professional course provides a comprehensive introduction to the principles, methodologies, and practical applications involved in time series analysis. Participants will gain hands-on experience and learn how to apply various time series techniques to real-world datasets.

## Objectives

- Understand the fundamental concepts of time series data and its components.
- Learn to visualize and explore time series data for insightful analysis.
- Master time series forecasting models to predict future trends.
- Gain proficiency in using statistical software for time series analysis.
- Apply time series techniques to real-world data science problems.

## Course Outlines

### Day 1: Introduction to Time Series Analysis

- Overview of time series analysis and its importance
- Types and components of time series data
- Time series data exploration and visualization
- Basic statistical concepts for time series
- Introduction to software and tools for time series analysis

### Day 2: Time Series Decomposition and Smoothing Techniques

- Understanding time series decomposition: Trend, seasonal, and residual components
- Moving averages and exponential smoothing
- Decomposition methods: Additive and multiplicative
- Practical exercises on smoothing and decomposition techniques
- Case studies and real-world examples

### Day 3: Time Series Models and Forecasting Techniques

- Introduction to time series forecasting
- Autoregressive (AR) and Moving Average (MA) models
- Autoregressive Integrated Moving Average (ARIMA) models
- Seasonal ARIMA (SARIMA) and ARIMAX models
- Hands-on forecasting exercises using software

### Day 4: Advanced Time Series Modeling

- Introduction to state space models and Kalman filter
- Understanding GARCH models for volatility prediction
- Nonlinear models and machine learning approaches to time series
- Using R and Python for advanced time series modeling
- Interactive sessions with real-world datasets

**Day 5: Practical Applications and Industry Use Cases**

- Time series applications in finance, economics, and supply chain
- Project: Developing a time series model for a business problem
- Evaluating model performance and accuracy
- Presentation of project findings and peer review
- Course recap and Q&A session