

# Time Series Analysis with RapidMiner

## Course Overview

Time Series Analysis with RapidMiner is a one-day expert seminar regarding the analysis and handling of time series data science techniques. It introduces basic concepts in time series analysis such as lagging, windowing, and exploratory data analysis techniques such as moving averages, integration, and differentiation. It also introduces the most common analytical methods for modeling specifically with time series data such as ARIMA and seasonality forecasting.

After successfully completing this course, participants will have a solid understanding of how RapidMiner Studio supports the analysis of time series data. Participants will be able to successfully execute techniques for basic analysis of series data and will understand the most important differences between these methods and how to choose the most suitable one based on the project objectives. They will also be prepared to utilize several different approaches to predictive modeling using time series data. Practical exercises during the course prepare students to take the knowledge gained and apply it to their own time series data challenges. The class exercises and labs are hands-on, so students will internalize the topics covered, which will provide a jumpstart to the real world application of these techniques.

## Prerequisites & Target Audience

This class is aimed at Analysts and Data Scientists. It assumes a basic knowledge of computer programming principles and higher mathematics (through calculus). It also requires either the successful completion of the basic-level training courses (RapidMiner & Data Science: Foundations and RapidMiner & Data Science: Advanced) or successful completion of the RapidMiner Analyst Certification exam (or functional equivalence in terms of knowledge of RapidMiner and basic data science).

## Course Outline

- Introduction to Time Series Data
- Exploratory Data Analysis for Series Data
  - Differentiation
  - Moving Averages
  - Fourier Transformation and Logarithms
  - Advanced Series Transformations
- Series Aggregation and Summarization with Windowing
- Predictive Modeling Using ARIMA Methods
- Predictive Modeling Using Exponential Smoothing Forecasting Methods
  - Holt Winters for seasonality adjustments
- Windowing and Predictive Modeling Using Conventional Machine Learning Algorithms
- Other Time Series Data Considerations