# Time Series and Forecasting with Python Training

Duration: **3 Day**

BILGINÇ IT Academy
info@bilginc.com
bilginc.com

## Overview

This three-day course is aimed at those who are familiar with data analysis and are interested in learning about how to analyse, model, and generally yield value from time series assets.

This course will be of interest if you are interested in developing your own skills to move from analytics to Data Science, or if you are working with Data Scientists and want to learn more about what is possible when working with time data.

You will be introduced to key concepts and tools for use in time series analysis and forecasting including time series characteristics, time series components, time based statistics, model development, exploratory analysis and visualisation, as well as techniques and strategies for model deployment.

Throughout the course you will engage in activities and discussions with one of our Data Science technical specialists. Theoretical modules are complimented with comprehensive practical labs.

**Target Audience**

Members of the audience are required to have a some technical expertise such as table structure, working with tabular data in Python, and simple data analysis.

They may be Mid/Senior Leadership seeking a greater understanding of how to implement Data Science within their organization.

They may come from other technical backgrounds such as Data Analysts, Software Developers, and Data Engineers who either work with Data Scientists or are using this course in their journey towards training as a Data Scientist.

In the latter case, audience members may ask for recommendations for their next steps in training towards becoming Data Scientists. We recommend the following refreshed courses which are due to launch in 2023 and 2024 in this suggested sequence:

- Maths and Statistics for Data Science with Python
- Practical Big Data Analytics (with Python and Spark)
- Generative AI Essentials
- Fundamentals of Deep Learning with Python (followed by selected Python & NVIDIA training)

## Prerequisites

We recommend that delegates are familiar with fundamental data science concepts, such as those found on our QA Introduction to Data Science for Data Professionals, as well as programming techniques found in QA Python for Data Handling. You should also have an interest in developing Data Science within your organisation or in becoming a Data Scientist.

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## Outline

1. Introduction to Time Series Forecasting

- Interpreting time series visualisations and understanding the business need for forecasts
- Identify decomposition components: trend, seasonality, noise
- Identify methods for handling shocks
- Calculate a moving average
- Identify how regression methods can be applied in simple forecasts

2. Introduction to Forecasting with ARIMA

- Use of Python to forecast with Arima methods
- Model development and testing process
- Tuning and assessing the forecasting model

3. Time Series Modelling with Prophet

- Exploration of Facebook Prophet
- Build and evaluate a model using prophet

4. Time Series Modelling with Deep Learning

- Understand deep learning approaches for time series modelling
- Build a deep learning time series model
- Evaluate a deep learning time series model

5. Time Series Modelling Activity