Trading Algorithm & Financial Portfolio Optimization with Python

Duration: 4 Days

Days	Topics
Day 1	**Getting Started with Python** • Introducing Python • Installing Python on Windows • Installing Python on Linux and other Operating Systems • Introducing Python IDLE • Programming in Interactive Mode • Programming in Scripting Mode **Introduction to NumPy** • NumPy Arrays • NumPy Operations • NumPy Indexing **Introduction to Pandas** • Series • Data Frames • Missing Data • Merging, Joining, and Concatenating DataFrames • Pandas Common Operations • Data Input and Output
Day 2	**Introduction to Visualization in Python** • Matplotlib Basics • Pandas Time Series Visualization **Introduction to Data Sources** • Pandas DataReader • Quandl **Introduction to Time Series with Pandas** • Datetime Index • Time Resampling • Time Shifts • Pandas Rolling and Expanding **Introduction to Time Series** • Time Series Basics • Introduction to Statsmodels • ETS Theory • EWMA Theory • EWMA Code Along • ETS Code Along
Day 3	**Introduction to Time Series [Contd.]** • ARIMA Theory • ACF and PACF • ARIMA with Statsmodels

	Introduction to Python Finance Fundamentals • Sharpe Ratio Slides • Portfolio Allocation Code • Portfolio Optimization • Types of Funds • Short Selling • CAPM - Capital Asset Pricing Model • Stock, Splits and Dividends • EMH • Efficient Frontier • Sharp Ratio
Day 4	**Introduction to Trading Algorithms** • Pipeline Trading Algorithm • Leverage • Hedging • Portfolio Analysis with PyFolio • Futures on Quantopian **Introduction to Quantopian** • Quantopian Research Basics • Quantopian Algorithms Basics • First Trading Algorithm • Quantopian Pipelines Factors • Quantopian Pipelines Filters • Quantopian Pipeline – Masking and Classifiers