KOENIG SOLUTIONS · COURSE OUTLINE

Applied Data Science for Financial Decision-Making & Investment Management

Learn to apply data science, Excel, Power BI and Python to analyse, forecast and manage investment decisions.

7	26
MODULES	TOPICS

5-6 Weeks

COURSE OVERVIEW

This course covers how data science and analytics support financial decision-making, starting with core concepts and the data analytics process. It then builds skills in Excel and Power BI for financial data visualisation, followed by Python for automating time series and return, volatility and correlation analysis. Later modules apply these tools to portfolio decision models such as risk metrics, scenario analysis and credit spread scoring, then to forecasting methods including time series models, yield curve forecasting and regression. The course closes with practical fixed income and equity case studies, plus an introduction to AI tools, risk reporting automation and machine learning for signal detection.

WHO THIS COURSE IS FOR

- **Investment Analysts**
- **Portfolio Managers**
- **Financial Data Analysts**
- **Risk Analysts**
- **Fixed Income Analysts**
- **Equity Analysts**

PREREQUISITES

Note

- For Beginner in data science/coding, but with strong financial and investment background (e.g., reserve management).
- Interested in using data science for better portfolio insights, forecasting, and risk-return optimization.

LEARNING OBJECTIVES

- Explain how data science and analytics apply to financial decisions
- Build interactive dashboards in Excel and Power BI for financial KPIs
- Apply Python to analyse time series, returns and volatility
- Calculate portfolio risk metrics such as Sharpe ratio and VaR
- Analyse spread modeling and credit risk scenarios
- Develop forecasting models using ARIMA and regression techniques
- Evaluate fixed income and equity case studies for trade ideas
- Identify uses of AI and machine learning in signal detection

COURSE SYLLABUS

7 Modules, 26 Topics

Proposed Curriculum – Beginner to Intermediate (5-6 Weeks)

01

Foundations of Data Science & Analytics

Outcome: Understand how data can be used to support decision-making in finance.

TOPICS

- What is data science? What is analytics? How it applies in finance
- **Key concepts:** structured vs unstructured data, data types, data sources
- **Overview of the data analytics process:** ask → acquire → analyze → act

02

Excel + Power BI for Financial Data Visualization

Outcome: Build interactive dashboards to communicate investment storylines clearly.

TOPICS

- Basics of using Excel for data cleaning & trend analysis
- Using Power BI for dashboarding and visual storytelling
- Interactive charts for financial KPIs, yield curves, spread analysis, equity heatmaps, sector performance, ratios

03

Python for Finance & Investment Analysis (No Coding Background Needed)

Outcome: Automate repetitive analysis, generate cleaner insights, prepare for deeper modeling.

TOPICS

- **Introduction to Python:** Jupyter Notebooks, Pandas, Matplotlib
- **Working with time series:** prices, yields, economic indicators
- Calculating returns, volatilities, correlations, dividend yield, beta, volatility
- Fetching data from Excel/Bloomberg files

04

Financial Data Analytics & Decision Models

Outcome: Integrate basic analytics into real portfolio decision scenarios.

TOPICS

- Portfolio return and risk metrics (Sharpe, VaR, duration)
- **Scenario analysis:** using historical data to simulate future risk
- Spread modeling and credit risk analysis
- Data-driven ranking and scoring (e.g., credit spreads, yield pick-up)

05

Forecasting & Predictive Modelling

Outcome: Build simple predictive models for scenario analysis and tactical shifts.

TOPICS

- Time series forecasting (ARIMA, exponential smoothing)
- **Yield curve forecasting and backtesting factor-based strategies:** value, quality, momentum
- **Basic regression:** how inflation, GDP, or rates affect portfolio

06

Practical Case Studies & Tools

Outcome: Bridge analytics with actionable insights at the portfolio level.

FIXED INCOME

- Spread-based trade identification using data
- Forecasting index yield under rate scenarios
- Duration-risk-reward matrix

EQUITY

- Ranking stocks based on quantitative scores
- Building data-based sector over/underweight positions
- Detecting trends and signals from market data

07

Add-On Tools & Insights

TOPICS

- Introduction to ChatGPT & AI tools in portfolio monitoring
- Introduction to risk reporting automation with Python/Excel
- Introduction to basics of Machine Learning for signal detection

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

Classroom Training | Live Online Classes (ILO) | Fly-Me-A-Trainer (FMAT) | Flexi (Self-Paced) | 1-on-1 Training

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