



International Training
Center Paris

TRAINING SCHEDULE

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FINANCIAL ECONOMETRICS AND TIME SERIES ANALYSIS TRAINING

Overview:

The Financial Econometrics and Time Series Analysis training program is designed to provide participants with a deep understanding of econometric techniques for financial data analysis. The program covers key topics such as time series analysis, panel data models, volatility modeling, and machine learning methods for finance. Participants will learn how to apply these techniques to financial data, including stock prices, exchange rates, and interest rates. The program also covers the latest developments in financial econometrics, including high-frequency data analysis and the use of big data.

Objectives:

- Understand the principles of econometric analysis for financial data
- Learn how to apply time series analysis, panel data models, and volatility modeling to financial data
- Gain an understanding of machine learning methods for finance and their applications
- Learn how to analyze high-frequency financial data and use big data in financial econometrics
- Develop practical skills in using econometric software to analyze financial data

Overall, this Financial Econometrics and Time Series Analysis training program is suitable for finance professionals, economists, and analysts who want to deepen their knowledge of financial econometrics and time series analysis. The program covers a broad range of topics, from univariate time series models to advanced topics such as high-frequency data analysis and Bayesian methods. Participants will learn how to apply these techniques to real-world financial data, and how to interpret and communicate the results to stakeholders. The program includes lectures, case studies, and hands-on exercises using statistical software packages such as R or Python.

Targeted Groups:

- Quantitative analysts
- Financial engineers
- Investment researchers
- Data analysts in finance
- Professionals focusing on financial data analysis

Planning:

Day 1: Introduction to Financial Econometrics and Time Series Analysis

- Overview of financial econometrics and its applications
- Introduction to time series analysis and forecasting
- Stationarity and non-stationarity in time series data
- Univariate time series models: AR, MA, ARMA, and ARIMA
- Applications in finance: asset returns, exchange rates, and interest rates

Day 2: Multivariate Time Series Analysis and Cointegration

- Introduction to multivariate time series analysis
- Vector Autoregression (VAR) and Vector Error Correction Model (VECM)
- Testing for cointegration in financial time series
- Granger causality and impulse response analysis
- Applications in finance: portfolio optimization, risk management, and asset pricing

Day 3: Volatility Modeling and Forecasting

- Introduction to volatility modeling and forecasting
- ARCH and GARCH models for volatility estimation
- Extensions of GARCH models: EGARCH, TGARCH, and IGARCH
- Volatility forecasting using GARCH models
- Applications in finance: risk management, option pricing, and portfolio optimization

Day 4: Nonlinear Time Series Models and Regime Switching Models

- Introduction to nonlinear time series models
- Threshold autoregression (TAR) and smooth transition autoregression (STAR)
- Markov-switching models and hidden Markov models
- Applications in finance: modeling stock market crashes, regime shifts in interest rates, and predictability of asset returns

Day 5: Advanced Topics in Financial Econometrics and Time Series Analysis

- Long memory models: fractional integration and ARFIMA models
- Bayesian methods in financial econometrics
- High-frequency data analysis and market microstructure
- Panel data analysis and dynamic factor models
- Applications in finance: algorithmic trading, high-frequency trading, and risk management for large portfolios