

# Data Science for Financial Engineering

**Seminar Code: 403.14**

## Seminar's Duration

One day - 8 hours

## The Seminar

Data Science for Financial Engineering is a cross-disciplinary field which relies on the techniques and methods of mathematical optimization, regression analysis, stochastic calculus and spreadsheet analytics, for structuring high-yield and well-diversified investment portfolios. This executive training seminar is solidly founded on two fundamental principles: Sound theoretical content and highly practical value.

Participants will acquire an in-depth grasp of the whole underlying knowledge which underpins many of the quantitative techniques exploited in the area of modern investment management. The seminar's unique and special feature is the 'teaching- by-example' approach, since all portfolio models shall be practically demonstrated on a real-time basis, through extensive use of spreadsheets. People will gain exposure to the superior quality training of Prof. Xidonas and his guest speakers, all leading experts in the area. The number of participants is strictly limited, so as a productive and informal team interaction to be secured.

## Who Should Attend?

The seminar constitutes a crash course product, being thoroughly conceived particularly for investment professionals, whose business scope is strongly related to the asset and fund management industry.

## Highlights

- Learn how to implement various types of financial engineering models
- Solid coverage of all risk management theory and practice mechanics
- Find out how to apply research edge portfolio construction prototypes
- Strong applied dimension with integrated real market data applications
- Unique 'teaching by example' educational approach
- Real-time practical demonstration of all models
- Extensive use of spreadsheets
- Panel discussions with field leaders

## Professional Scope

The seminar shall be particularly useful for:

- Portfolio managers
- Fund managers
- Wealth managers
- Risk managers
- Investment advisors
- Private bankers
- Investment products salespeople
- Sophisticated private investors
- Quantitative analysts
- Academic researchers

## The Instructor

Dr Panos Xidonas (<http://xidonas.blogspot.com>) is Associate Professor of Finance at ESSCA Grande École (<http://www.essca.fr>), Paris, France.

Seminar Code: 403.14

## The Seminar's Program

**08:30-09:00**     **Registration**

**09:00-10:30**     **Financial Risk Analysis**

- Handling prices & returns data
- The standard normal distribution
- Arithmetic & geometric returns
- Basic financial statistics
- Statistical whiskers
- Delta normal VaR
- Conditional VaR
- Historical simulation
- Bootstrapping VaR
- Simulation with large number of bootstraps
- Wiener processes & Monte Carlo simulation
- Monte Carlo simulation with multiple Wiener paths
- Portfolio bootstrapping

**10:30-10:45**     **Coffee break**

**10:45-12:15**     **Portfolio Management**

- Calculation of VCV matrices
- Basic mean-variance portfolio optimization
- Mean-variance portfolio optimization with out-of-sample
- Strategic asset allocation with return views
- Basic mean-VaR portfolio optimization
- Portfolio VaR
- Calculating the market portfolio
- Efficient frontier with CML
- The SIM regression mechanics
- Risk analysis with the SIM
- Portfolio performance evaluation
- Testing CAPM
- Portfolio MAD
- Portfolio optimization with genetic algorithms
- Portfolio optimization with scenarios
- Portfolio optimization with transaction costs
- Strategic asset allocation with MIQP
- Case study

**12:15-13:15**     **Lunch Break**



Seminar Code: 403.14

**13:15-14:45      Volatility Modeling & Econometrics**

- Development & application of the EWMA model
- Development & application of the GARCH model
- Autocorrelation & the Ljung-Box test
- The ARMA model
- The ARIMA model

**14:45-15:00      Coffee Break**

**15:00-17:00      Panel discussion with the guest speakers**

**The Instructor**



Dr. Xidonas is Associate Professor of Finance at ESSCA Grande École. He publishes his research in journals, such as the *European Journal of Operational Research*, the *European Journal of Finance*, the *Quantitative Finance*, the *Annals of Operations Research* etc. Dr. Xidonas possesses substantial experience in conducting large scale theoretical and applied research, with focus on the fields of applied mathematics, investment management and information systems. He is a R&D team leader with strong professional credentials, specialized in the area of financial engineering analytics. Moreover, he has an extended consulting track record as a quantitative investment strategist, having delivered premium advice within the underlying industry.

**Cost**

Early bird registration until May 15<sup>th</sup>: 350 EUR

After May 15<sup>th</sup>: 420 EUR

**Contact Details & Info**

Ms. Sonia Petropoulou, +30 210 6062 374, [spetropoulou@kpmg.gr](mailto:spetropoulou@kpmg.gr)