

Financial Modelling in R – 2 day workshop

Objectives: Scope and Purpose/Background

This workshop provides an introduction to the statistical software R and illustrates some of the basic as well as the advanced features.

Basic features covered are

- Data analysis and statistics with R
- Import of data sets and preparation of reports
- Graphical displays

Advanced features covered are

- Time series modelling and simulation
- Volatility modelling in R
- Portfolio optimisation in R
- Extreme value theory



The main focus of the workshop is on applications in Finance. In hands-on sessions, the attendees practice how to use R and relevant R packages for financial modelling. Rmetrics, which is a collection of several hundreds of functions in the area of Financial Engineering and Computational Finance, is introduced via illustrative examples.

Learning Outcomes:

After successful completion of the workshop, the participants will

- be able to
 - import datasets into R and analyse them statistically,
 - apply concepts from time series modelling
 - utilize financial modelling packages.
- have acquired a good knowledge of how to apply the functionalities to other examples and their own portfolio problems.

Further Information:

The workshop duration is 2 days.

Workshop Format

The workshop is presented is split into Theory and Practical Sessions. Attendee numbers are limited to ensure that personalised tuition is available.



Practical sessions

The hands-on sessions enable attendees to apply packages and functions introduced in the lectures. The instructors take you through all the steps of financial modelling examples in R and let you experiment with functionalities of various packages.

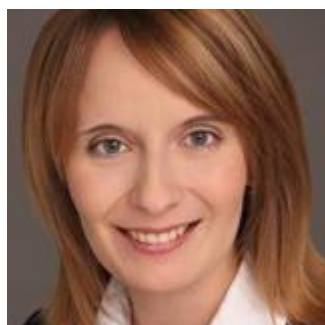
Target Audience:

Practitioners at banks, risk professionals, traders, consultants and academics, who wish to learn the basics of the statistical software R and its use in Finance.

Presenters:



Dr. Ronald Hochreiter is an expert in Data Science and Optimisation under Uncertainty. He obtained his PhD in Computational Management Science from the University of Vienna in 2005 and his habilitation in Quantitative Business Administration from the WU Vienna University of Economics and Business in 2013. He published numerous scientific articles in international journals and is an active member of various scientific communities. He teaches and supervises theses at all levels (Bachelor, Master, PhD and MBA) at different universities. He actively consults companies in the area of Finance, Energy, Health Economics as well as general Data Science, and develops new algorithms for various tasks in the field of business analytics and predictive analytics. He is the cofounder of Big Data Expert and QUANT4MARKET, managing director of QUANT4MARKET and in charge for the architecture and developing the QUANT4MARKET technologies.



Dr. Christina Erlwein-Sayer is a visiting researcher working on the topic of financial analytics in general and models and tools for portfolio construction and Asset and Liability Management in particular. Dr Erlwein-Sayer is sponsored under a joint project between OptiRisk Systems and its partner Fraunhofer ITWM in Kaiserslautern, Germany. She completed her PhD in Mathematics at Brunel University, London in 2008. Prior to the current assignment Dr Erlwein-Sayer had presented workshops on behalf of OptiRisk at the IIM Calcutta Financial Research and Trading Laboratory in Kolkata, and also in Mumbai. Dr Erlwein-Sayer was also the lead member of the training partnership between OptiRisk Systems and Fraunhofer ITWM and presented at many of the workshops; notable of these was the training delivered to the World Bank in Washington. Dr Erlwein-Sayer is fluent in German (her native language) and in English.

Registration Fees: £1025 + VAT

Delegates are also welcome to participate **online** at a 50% discounted rate to the prices listed above. This workshop will be streamed live online to delegates all around the world. Discounted rates for group bookings can be also arranged on request.



Timetable - Day 1

TIME	TOPIC
9:00	Registration & Coffee
9:30	First Steps in R <ul style="list-style-type: none"> • Preparations and installations in R <ul style="list-style-type: none"> ▪ Background on R and contributed packages ▪ R Console and R GUI • Data import, data types and variables <ul style="list-style-type: none"> ▪ Elementary import functions ▪ Data and date types • Graphics in R <ul style="list-style-type: none"> ▪ Command “plot” and graphical display
13:00	Lunch
	First Steps in R & Analysis of financial data <ul style="list-style-type: none"> • Descriptive data analysis <ul style="list-style-type: none"> ▪ Basic statistics in R ▪ Financial time series • Monte Carlo Simulation <ul style="list-style-type: none"> ▪ Monte Carlo methods ▪ Random numbers and scenario generation
17:00	End

Timetable - Day 2

TIME	TOPIC
9:00	Registration & Coffee
9:30	Analysis of financial data & Modelling <ul style="list-style-type: none"> • Time series modelling and simulation <ul style="list-style-type: none"> ▪ Simulating from given distributions ▪ Simulating outliers
13:00	Lunch
	Financial Modelling in R <ul style="list-style-type: none"> • Volatility modelling in R <ul style="list-style-type: none"> ▪ ARCH model ▪ GARCH model ▪ Value at Risk • Portfolio optimisation with R Introduction of various Finance packages in R • Extreme Value Theory <ul style="list-style-type: none"> ▪ Extreme Value distributions ▪ Parameter estimation
17:00	End