3 Raffles Place, #07-01, Bharat Building, Singapore 048617
Fax : (65)-62506369 Tel: (65)-62199062
URL:http://www.eastasiatc.com.sg

S+FINMETRICS™

Financial Modeling Using S-PLUS And S+Finmetrics

3-Day Professional Development Training Course

East Asia Training & Consultancy Pte Ltd invites you to attend a three-day professional development workshop, using S-PLUS & S+Finmetrics module to create and build models.

Course Programme

This course is designed to show how **S-PLUS** can be used in the analysis of financial data. The applications include: computation of risk measures, credit derivative pricing, alternative valuation of derivative securities, term structure of interest rates and commodity prices, stochastic volatility, earning prediction, weather risk analysis.

The statistical concepts and methodologies which will be covered include: heavy tailed and extreme value distributions, copulas, nonparametric regressions, time series and state space models, filtering and prediction, Monte Carlo simulations and scenario generation.

Illustrations rely on methods available with the latest version of **S-PLUS** and **S+Finmetrics** toolbox, as well as a set of tools developed by others. This course will provide participants with a strong foundation for conducting analyses of financial data.

The participants need not have familiarity with **S-PLUS**. However, the knowledge of some fundamentals of any statistical software will be useful. Basic knowledge of elementary statistics will be assumed. This course is not meant to teach the theory of statistical models, but rather to use them and show how S-Plus can be used to fit and analyze them.

Who Should Attend

The course is aimed at forecasters and researchers in: Economic Research, Model Building, Financial Modelling, Currency Strategy, Arbitrage Trading of Equity, Foreign Exchange, Fixed Income and Options Markets, Quantitative Investment Management, Sales & Inventory Forecasting, Traffic Modelling,

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Energy Load Forecasting, University Instruction, Audit, Statistics, Budget Analysis, Financial Analysis, Market Research, Information Technology, Policy, Planning & Research, Portfolio Management, Risk Management, and Quantitative Analysis.

Fee

The fee covers extensive course materials and databases, luncheons, and opportunities to meet and network with S-PLUS researchers and forecasters from different industries across Asia. This is a “hands-on” workshop. Participants are required to bring their own laptops.

Registration

The number of participants is restricted. Please register early to guarantee your place. Please complete the official registration form and email it to us at training@eastasiatc.com.sg to reserve your place. Confirmation will only be made upon receiving full course payment. Further instructions will be sent to confirmed participants.

Financial Assistance

Participants may be eligible for MAS Financial Sector Development Fund (FSDF) support on a case by case basis. Interested applicants should submit their applications to the FSDF Secretariat directly. For enquiries, please contact the FSDF secretariat at 65- 6229 9396 or via email at fsdf@mas.gov.sg.

Course Outline

Day 1

- **Introduction**
  - Overview of Statistical Models in S-Plus
  - S-Plus Objects
  - Manipulating Data

- **Time Series Objects in S-Plus**
  - Creating timeSeries Objects
  - Time Series Manipulations – lags and Differences, Return Definitions, Asset Returns
  - Visualizing Time Series
- **Modeling Extreme Values**
  - Extremes
  - Heavy Tailed Distributions: Generalized Pareto Distribution

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- Return Distributions, P&L Distributions
- VaR Computations for Risk Management

❖ **Time Series Regression Modeling**
- ARMA(p,q) Models
- Unit Root Tests
- Distributed Lag Models

Day 2

❖ **Modeling Volatility**
- Basic ARCH Model
- GARCH Modeling
- GARCH Model Extensions

❖ **Rolling Analysis**
- Rolling Descriptive Statistics
- Price Indicators
- Momentum Indicators and Oscillators
- Volatility Indicators
- Rolling Regression

❖ **State Space Models**
- Representation
- Kalman Filtering
- Forecasting
- Simulation Smoothing

❖ **Factor Models For Asset Returns**
- Factor Model Specification
- BARRA-type Models
- Factor Analysis
- Principal Component Analysis

Day 3

❖ **Multivariate Data Exploration**
- Motivating Example
- Copulas – Definition, Properties, Fitting Data
- Risk Management Using Copulas

❖ **Models For Multivariate Time Series**
- Vector Autoregressive Models

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- Structural Analysis
- Conintegration
- Multivariate GARCH Modeling

❖ **Term Structure of Interest Rates**

- Discount, Spot and Forward Rates
- Quadratic and Cubic Spline Interpolation
- Nelson-Siegel Function

❖ **An Introduction to Portfolio Optimization**

- Arbitrage
- Classical Markowitz Optimization
- KKT Conditions and Portfolio Optimization
- Some Issues in Mean-Variance Optimization

- **General Notes**
  - All sessions will have 45 minutes of discussion on the topic and S-Plus functions and 45 minutes of hands-on tutorial with data sets.
  - The data sets discussed in the examples will be provided. However, participants are encouraged to bring their own data sets.