IAI announces 2nd Capacity Building Programme in New Mathematics for Stochastic & Risk Management

Date & Venue: 30th November, 2013| Hotel Sea Princess, Juhu Tara Road, Juhu Beach, Santacruz (West), Mumbai - 400049

CPD Credit: Four hours

Note: CPD credit can be claimed for any area of practice including Enterprise Risk Management (i. e. for CERA requirements), however such credit can be taken only for one area of practice.

Who should attend: Actuaries, whether fully qualified or not, at all levels wanting an introduction to the new concepts in Quantitative analysis; Developers and users of economic capital models; Board and Executive Risk Committee members with a quantitative background; Regulators.

The Programme is open to non-IAI members also, however, in case of over registration IAI members will have priority.

Participants to carry: Preferably laptop but not essential.

Participation Fee (includes Course material & Lunch/Tea):

- IAI Members Rs. 25,000/- (Rs. Twenty five thousand)
- Non-Members Rs. 30,000/- (Rs. Thirty thousand)

Registration Details: (**Rights of admission reserved)**

- Number of participants: Limited to 30 on first-come-first served basis, IAI members to have priority.
- Registration Start & End Date: 1st October, 2013 - 25th November, 2013
- Dress Code: Business Casuals
- Point of Contact for any query: Quintus Mendonca Quintus@actuariesindia.org

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Introduction to the Programme

There are a number of new statistical and mathematical techniques being used in actuarial mathematics. These are increasingly important in risk management. This course gives an introduction to three important techniques for both new and experienced actuaries. The emphasis would be on:

- Understanding where and why the new tools are needed;
- How the mathematics is used and potentially misused; and
- The strengths and weaknesses of the methods.

The course is an introduction to the concepts and their uses– the use of formulas is minimised as much as possible in favour of understanding. Hands on spreadsheet exercises would be available for participants who wish to see how the methods are applied in practice. These spreadsheets supply the examples of the methods that are demonstrated in the course, so all charts and tables are able to be reproduced by participants after the course.

Course Content

- Extreme Value Theory – what goes on in the tails of the distributions?
- Modelling volatility – GARCH processes, asymmetrical volatility, illiquid assets.
- Correlation and Copulas – how do we move beyond correlation to describe relationships?
- Examples of the methods for general use and for economic capital calculations.

Outline

Extreme Value Theory

- Extreme Value Theorems; Generalised Pareto Distribution;
- Thresholds; estimation methods; pragmatic application
- Shape and scale parameters; estimation methods;
- Quantile plots.
- Examples
- Use in estimates of capital requirements.

Modeling Volatility

- Period of measurement; illiquid assets; overlapping time periods;
- Heteroscedasticity; GARCH processes; asymmetrical volatility;
- Parameter estimation – non-parametric and semi-parametric estimates; maximum likelihood estimation;
- Examples
- Interpretation and use in estimates of capital requirements.

Copulas and correlations

- Measures of interrelationship - Pearson's and Spearman's correlations, Kendall's tau
- Period of measurement; Dynamic conditional correlation models
- Definition of copulas, examples; tail dependence.
- Important copulas; estimation; use and misuse of copulas.
- Interpretation and use in estimates of capital requirements.

Incorporation into economic capital models

- A simple example of an economic capital model demonstrating the use of these three techniques will be worked through.

Spreadsheets will be distributed to participants with user modifiable applications of all topics. These spreadsheets will allow participants, who wish, to experiment with applications during the workshop and afterwards. The spreadsheets will not be adapted for speed, but to allow participants to gain maximum insight into how techniques are implemented, and the strengths and weaknesses of the processes.

Presenter

Dr Frank Ashe has a consulting practice specialising in risk management, investments and the application of behavioural psychology to economics and finance. Risk management covers the gamut from technical matters in option risk, to strategy, to comparative corporate governance and risk culture. He maintains a part-time Associate Professorship at the Macquarie University Applied Finance Centre where he spent 2002 to 2006 as a full-time Associate Professor.

Dr Ashe has worked in consultancies, insurers, investment management firms, bond dealers, and financial software houses in Australia and Canada. His 30+ years of practical experience have been predominantly in the measurement and management of financial risk and return, with an emphasis on asset-liability management and developing risk measurement and management tools for novel situations.

Dr Ashe has been presenting the 2-day course required for CERA qualification by the Actuaries Institute (Australia) since 2010. He is a regular presenter at industry seminars and colloquia through Asia, teaches financial risk management in East Asia and was President of the Australian Q-Group from 2002 to 2011.

Dr Ashe obtained his PhD in Operations Research from the University of New South Wales. He majored in Pure and Applied Mathematics, Statistics, and Actuarial Science, with First Class Honours in Mathematics, from Macquarie University.