



Seminar  
**“Stochastic Modeling – Theory and Reality from an Actuarial Perspective”**  
26<sup>th</sup>/27<sup>th</sup> May 2011 | Prague / Czech Republic



organised by the EAA - European Actuarial Academy GmbH in cooperation with the International Actuarial Association (IAA)

## 1. Introduction

As recently as the mid-1990s, most models used in financial analysis of insurance were deterministic. Based on sets of static parameters and assumptions, these models largely ignored random fluctuations that were likely to occur. Sensitivity analyses were performed but were generally limited to a fixed number of defined scenarios. This deterministic approach is rapidly being replaced by stochastic modeling that can better inform insurers on pricing, financial planning, and capital assessment strategies. Huge advancements in computing power have made it possible for actuaries and financial planners to better understand the increasingly complex risk profiles of insurers' evolving product design.

This seminar is based on the book “Stochastic Modeling – Theory and Reality from an Actuarial Perspective (copyright © 2010 International Actuarial Association) which intends to provide actuaries with a comprehensive resource that details current stochastic methods, provides background on the stochastic technique as well as their advantages and disadvantages.

## 2. Participants

The seminar is suited for actuaries, actuarial students and other professionals involved and interested in actuarial modeling in life and non-life.

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### 3. Purpose and Nature

The seminar will cover a wide range of topics presented in the book “Stochastic Modeling – Theory and Reality from an Actuarial Perspective”. The first day of the seminar will focus on life & health actuarial issues. The day will start with an introduction to stochastic modeling, including a practical discussion of when stochastic models are appropriate or necessary and when they may not be. The day continues with an in-depth discussion of the various techniques and models that are commonly used in stochastic projections. The lecturers will present stochastic models for interest rates, mortality, and morbidity, among other risk factors, and will demonstrate how these models can be developed, calibrated, implemented and reviewed. The first day will also involve a detailed case study (or case studies) illustrating the use of stochastic models in life and health business.

The second day of the seminar will focus on non-life actuarial issues, including especially property and casualty coverage. As with the first day, the morning session will focus on the technical aspects of stochastic models and the afternoon session will be a case study format intended to demonstrate the practical application of these models.

All participants will receive a copy of the book “Stochastic Modeling – Theory and Reality from an Actuarial Perspective” which is presented by the International Actuarial Association (IAA) in collaboration with Milliman. A guide for practitioners interested in understanding this important emerging field, this book presents the mathematical and statistical framework necessary to develop stochastic models in any setting (insurance or otherwise). Sufficient mathematical detail is presented but no advanced background in mathematics or statistics is required.



### 4. Lecturers

#### Andrew H. Dalton

Is an Actuary in Milliman’s Philadelphia office and a primary author contributing to Life sections of the book “Stochastic Modeling – Theory and Reality from an Actuarial Perspective”. Andrew’s professional experience includes work on actuarial appraisals for mergers and acquisitions, as set and liability analysis, cash flow testing, and economic capital for life and health companies. Andrew is a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. He holds a Masters Degree in Business Administration, concentrating in Finance and Statistics, from the Leonard N. Stern School of Business of New York University.

#### Mark R. Shapland

Is a Consulting Actuary in Milliman’s Milwaukee office and a primary author contributing to Non-Life sections of the book. Mark’s area of expertise is non-life insurance, particularly pricing (personal and commercial lines), reserving (including reserve variability and asbestos liabilities), individual risk and association-type dividend plans and premium rates for large accounts, reinsurance, data management, and dynamic risk modeling. Mark has international experience, having worked in Europe for four years, as well as shorter assignments in many other countries. He also has extensive experience in the development of actuarial software tools and is the lead actuary for the Milliman Reserve Variability software

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development team. Mark is a Fellow of the Casualty Actuarial Society, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries.

### Jeffrey R. Courchene

Jeff's area of expertise is international property and casualty insurance: particularly reserving, reinsurance analysis, mergers and acquisitions (M&A) activity, advanced pricing techniques, and dynamic financial modeling. Jeff has extensive experience in matters related to both personal and commercial lines of business in the United States, United Kingdom, and continental Europe. His experience includes leading the review of reserves of various European (re)insurers as part of due diligence assignments, leading dynamic financial modeling projects both in the United States and Europe, and contributing to Milliman internal Solvency II working party as an author and presenter. Jeff is a Fellow of the Casualty Actuarial Society and a Member of the American Academy of Actuaries.

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more information will follow

## 5. Language

The language of the seminar will be English.

## 6. Programme

### Thursday, 26<sup>th</sup> May 2011

09.30 – 09.50	Registration
09.50 – 10.00	Introduction & welcome and opening of day 1
10.00 – 11.30	Introduction to Stochastic Modeling – when should it be used? Technical Background for Stochastic Modeling: Stochastic Techniques Monte Carlo Simulation Binomial Models Introduction to Interest Rate Models
11.30 – 11.45	Coffee break
11.45 – 13.00	Technical Background for Stochastic Modeling – Continued: Mortality models Lapse Rate Models Claim continuance and termination models Practical Application of Stochastic Models: Financial Projections Valuation
13.00 – 14.00	Lunch
14.00 – 15.30	Applications of Stochastic Modeling (Life Insurance) Case Study #1 (Calculating Embedded Value or Economic Capital)
15.30 – 15.45	Coffee break
15.45 – 17.00	Applications of Stochastic Modeling (Life Insurance) Case Study #2 (To Be Determined)
approx. 19.00	Dinner

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## Friday, 27<sup>th</sup> May 2011

09.00 – 09.05	Opening of day 2
09.05 – 11.00	Introduction to Non-Life Stochastic Models Non-Life Claims Models Triangle-based Models Frequency/Severity Models Catastrophe Models Non-Life Financial Models Non-Life Dynamic Risk Models
11.00 – 11.15	Coffee break
11.15 – 12.45	Introduction to Non-Life Stochastic Models - Continued
13.00 – 14.00	Lunch
14.00 – 15.15	Applications of Stochastic Modeling (Non-Life Insurance) Case Study #1 (Bootstrap Modeling)
15.15 – 15.30	Coffee break
15.30 – 16.30	Applications of Stochastic Modeling (Non-Life Insurance) Case Study #2 (Building a Dynamic Financial Analysis Model)
16.30	Concluding remarks, closing of seminar

Attendees are encouraged to bring a laptop computer with Microsoft Excel installed.

## 7. Fees & Registration

Please register for the seminar as soon as possible because of the expected demand. We recommend registration until 31<sup>st</sup> March 2011. If there are more persons interested in this seminar than places available we will give priority to the registrations having been first to arrive. Please send your registration as soon as possible by using our online registration form at [www.actuarial-academy.com](http://www.actuarial-academy.com).

Your registration is binding. Cancellation is only possibly up to 4 weeks before the first day of seminar. If you cancel at a later date, the full seminar fee is due. You may appoint someone who takes your place, but must notify us in advance. EAA has the right to cancel the event if the minimum number of participants is not reached.

Please always give your invoice number when you effect payment. Bank charges are to be borne by the participant. We will send you an invoice, please allow a few days for handling.

**Your early-bird registration fee is €710 plus 20 % VAT until 31<sup>st</sup> March 2011 the latest. After this date the fee will be €790 plus 20 % VAT.**

## 8. Accommodation

The seminar will take place in the Hotel Park Inn Prague, Svobodova 1, 12000 Prague 2, Czech Republic.

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European Actuarial Academy  
developing actuaries



We have arranged special prices for accommodation: A single room costs € 100 per night. This price is valid for bookings out of our allotment "EAA" up to 27 April 2011. Please book your accommodation directly with the hotel. Kindly book early, as our allotments include only a limited number of rooms, and note the hotels' cancellation policy.

## 9. CPD

For this seminar, the following CPD points are available:

Austria: 11 points  
Bulgaria: 12 points  
Czechia: 2-3 points (individual accreditation)  
Estonia: 11 hours  
Germany: 11 hours  
Netherlands: approx. 14 PE-Points (individual accreditation)  
Russia: 40 points  
Slovakia: 8 points  
Switzerland: 15 points

No responsibility is taken for the correctness of this information.

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