



## EAA Seminar **CERA, Module: Quantitative Methods of ERM** 4-6 March 2015 | Cologne, Germany



Organised by the EAA - European Actuarial Academy GmbH

### 1. Introduction

#### **CERA Education.**

Over the last decade, the concept of Enterprise Risk Management (ERM) has gained significant momentum in the insurance industry and beyond. This came with the recognition of risk as being something not per se to be avoided, but to be optimally exploited in the frame of a company's risk appetite. ERM is going beyond traditional risk management in that it is holistic, and encompasses strategic risk management as well as risk culture.

Many of these developments are reflected in regulatory changes, such as the MaRisk in Germany, or the upcoming Solvency II (although these focus on policyholder protection and less on opportunities). Solvency II will require an actuarial and a risk management function in all (re-)insurance undertakings. Actuaries should see this as an opportunity to broaden their role, and to show that they are ideally equipped to carry out these tasks.

Against this backdrop, in November 2009, several actuarial associations launched the CERA credential as a global risk management designation for actuaries. CERA pursues the following goals:

- Strengthen international recognition of the actuarial profession's enterprise risk management (ERM) expertise
- Promote the development of more actuaries internationally with training in ERM
- Present new opportunities for actuaries worldwide to use their expertise in an expanding range of areas
- Send a strong message to employers and candidates that the skill set of actuaries offers significant risk management expertise

Based on the 2011-implemented education and examination system of the German Actuarial Association, the EAA offers a series of training courses and exams (through DAV) to study for the CERA designation to all actuaries who want to deepen their knowledge in Enterprise Risk Management.

By passing this training and examination course, members of the German Actuarial Association gain their CERA designation. Members of other national actuarial associations have to get in touch with their association to check the possibilities to use the EAA route.

### **The Seminar 'Quantitative methods of ERM'**

The present seminar deals with quantitative methods in ERM; these form an essential part of the CERA syllabus. We begin with an introduction to the modern theory of risk measures. Next we discuss a number of statistical techniques that are highly relevant for the analysis of actuarial and financial data and for the model-building process in risk management. Among others we cover extreme value theory, Bayesian models and credibility theory, dependence modelling and copulas and various aspects of integrated risk management.

The second half of the seminar discusses various aspects of financial mathematics. After a quick revision of the concept of risk-neutral valuation we discuss term structure and credit risk models. Among others, participants will learn how to price simple interest options or Credit Default Swaps and how to account for counterparty risk.

The course consists of lectures and exercise sessions. In fact, exercise sessions where various exercises and supplementary examples are discussed form an integral part of the seminar: they help the participants to understand the quantitative techniques introduced in the lecture and they are a key element in the preparation for the CERA exam.

## **2. Participants**

The seminar is open to all persons who are interested to obtain comprehensive skills on Enterprise Risk Management. Given the fairly quantitative nature of the material discussed participants should be familiar with basic results of modern statistics, actuarial and financial mathematics. We recommend that participants with weaker quantitative skills do some preparatory reading, using for instance the slides and lecture notes of the course.

### 3. Purpose and Nature

This seminar is one part in a course that consists of six modules. They can be booked as a whole series to fulfil the requirements for receiving the CERA designation, or individually as CPD training. Written exams on the course are offered subsequently.

During this seminar, you will not need your laptop.

**Please contact your actuarial association regarding the recognition of the seminars and the exams. The national association has to be at least Acceding Party of the CERA Global Association so that an actuary who passes this course may receive the CERA credential.**

### 4. Lecturers

#### Rüdiger Frey

Rüdiger Frey is Professor of Mathematics and Finance at WU. Prior to that he held positions as Professor of Optimization and Financial Mathematics at the University of Leipzig and various academic positions at the University of Zurich and at the Federal Institute of Technology (ETH) in Zurich. He holds a diploma in mathematics from the University of Bonn where he received his PhD in financial economics in 1996. His main research fields are quantitative risk management, dynamic credit risk models and the pricing and hedging of derivatives under incompleteness and market frictions. Rüdiger has published research papers in leading international academic journals and has given seminars at a number of important international conferences and institutions. He is coauthor of the popular book "Quantitative Risk Management: Concepts Techniques & Tools" (Princeton University Press 2005), which was rated as one of the Top 10 Technical Books of 2006 on Financial Engineering, by Financial Engineering News. Rüdiger has also been involved in consulting projects for Swiss and German insurance companies and banks and is frequently giving practitioner training courses.

#### Jochen Wolf

Since 2005, Jochen Wolf has been Professor for Mathematics and Economics at the Hochschule Koblenz. Before that he worked for several years at the German financial supervisor BaFin where he was responsible for various aspects of insurance supervision. At BaFin he was also involved in the Solvency II project. Prior to joining BaFin, Prof. Wolf held various research positions in stochastic analysis at Universität Jena and at the Université Paris-Nord. He holds a diploma in mathematics from the Universität Mainz and a doctorate in mathematics (focus probability) from the Universität Jena. Professor Wolf is actively involved in the actuarial education at the German actuarial association (DAV).

### 5. Language

The language of the seminar will be English. The exam will be, as per your preference, in German or English (to be chosen onsite).

## 6. Preliminary Programme

### Wednesday, 4 March 2015

08.45-09.00	Registration
09.00	Introduction & welcome and opening of day 1
09.00-10.30	lecture Risk Measures
10.30-11.00	Coffee Break
11.00-12.45	lecture/ Extreme Value Theory and Applications in Risk Management
12.45-13.45	Lunch
13.45-15.15	lecture EVT and Exercise Session
15.15-15.45	Coffee Break
15.45-17.30	Bayesian Statistics and Applications in Insurance

### Thursday, 5 March 2015

09.00-10.30	Exercise Session/lecture Dependence Modelling
10.30-11.00	Coffee Break
11.00-12.45	lecture/ Dependence Modelling and Copulas
12.45-13.45	Lunch
13.45-15.15	lecture/ Integrated Risk Management
15.15-15.45	Coffee Break
15.45-17.30	Exercise session, Lecture Risk Neutral Valuation and Term Structure Modelling

### Friday, 6 March 2015

09.00-10.30	Exercise Session/lecture term Structure Models
10.30-11.00	Coffee Break
11.00-12.45	lecture Term Structure Models/Credit Risk Modelling
12.45-13.45	Lunch
13.45-15.15	lecture/ Credit Risk Modelling
15.15-16.00	Exercise Session
16.00-16.15	Farewell-Coffee

## Recommended Literature

Course material will be distributed via the EAA. As background reading we recommend the book "Quantitative Risk Management" by McNeil, Frey and Embrechts, Princeton University Press 2005.

## 7. Fees & Registration

Please register as soon as possible because of the expected demand. If there are more persons interested than places available we will give priority to the registrations received first. 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 possible 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 to take 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.

Fee for this CERA seminar part: 740 € plus 19 % VAT

The seminar fee includes participation and seminar material.

Please note that the hotel charges a package fee of 160.50 € (total sum for 3 days) per person for the catering (coffee breaks, lunches incl. one soft drink and drinks in the seminar room). This fee is to be paid by all participants during the seminar, independent of a room reservation at the hotel.

Accommodation, breakfast and dinner are not included in this package fee.

## 8. Venue

The seminar will take place at the

Mercure Hotel Severinshof Köln City  
Severinstraße 199, 50676 Cologne, Germany  
Phone: +49 221 2013  
Fax: +49 221 2013666  
[Hotel website](#)

We arranged special prices for accommodation. The special price is 102 € per night, including breakfast. It is valid for bookings by 2 February 2015 out of our allotment "EAA". Kindly book your accommodation as soon as possible directly with the hotel, as our allotment includes only a limited number of rooms, and note the hotel's cancellation policy.

## 9. CPD

For each seminar, the following CPD points are available under the CPD scheme of the relevant national actuarial association:

Austria: 19 points  
Belgium: 19 points  
Bulgaria: 12 points  
Czechia: 2-3 points (individual accreditation)  
Estonia: 19 hours  
Hungary: 19 hours  
Germany: 19 hours  
Italy: approx. 4 credits (GdLA individual accreditation)  
Netherlands: approx. 19 PE-points (individual accreditation)  
Russia: 40 points  
Slovakia: 8 points  
Slovenia: 50 points  
Switzerland: 15 points

## 10. Exam

The CERA exams are organised and carried out by the Deutsche Aktuarvereinigung e. V. (German Association of Actuaries). The language of the exam will be English.

The exam for the CERA module “Quantitative Methods of ERM” will take place on Saturday, 23 May 2015, 9.00 – 11.00 o'clock, in Cologne, Germany. Further, already confirmed exam sites are Zurich, Switzerland and Ljubljana, Slovenia.

Fee for the exam: 160 € plus VAT (if applicable) in Cologne and Zurich, 185 € plus VAT (if applicable) in Ljubljana.

The exam fee includes participation. Accommodation and catering are not included.

Registration deadline for the exam is Friday 4 weeks in advance of the start of the exam.

**Please contact your actuarial association regarding the recognition of the seminars and the exams.**

It is possible to arrange the exams in your country in collaboration with your local actuarial association.

No responsibility is taken for the accuracy of this information.