

EAA Seminar

## CERA, Module A: Foundations and Quantitative Methods of ERM

18 - 21 February 2019 | Barcelona, Spain



Organised by the EAA - European Actuarial Academy GmbH in cooperation with the Col·legi d'Actuaris de Catalunya.

### Introduction

#### CERA Education

The CERA qualification is open to all fully qualified actuaries who want to deepen their knowledge and expertise in the field of enterprise risk management (ERM). CERA was established in 2009, today over 4,000 qualified experts are entitled to use the credential. 27 actuarial associations around the world are CERA member associations.

The CERA credential's mission is to advance the field of enterprise risk management worldwide by providing the preeminent qualification combining technical rigour, practical understanding and professional regulation.

The defining characteristics of the CERA credential as offered by the European Actuarial Academy are:

- Provides the most comprehensive and rigorous training in ERM
- Is a fast-growing globally-recognised credential

- Combines a range of business and professional skills with the mathematics of finance and risk
- Equips risk management professionals to empower better business decisions and more profitable business development
- Has a wide range of applications in insurance and finance, and well beyond
- Is supported by actuarial associations worldwide
- Is recognised and transferable internationally
- Has a rigorous and advanced curriculum underpinned by actuarial science, with an emphasis on ERM and professionalism
- Offers career choices outside the traditional actuarial markets

#### The Seminar 'Foundations and Quantitative Methods of ERM'

The 4-day seminar consists of two parts. The first part of the seminar assists actuaries in broadening their knowledge about modern quantitative financial and actuarial modelling, which form an essential part of the CERA syllabus. This begins with an introduction to the modern theory of risk measures. Next, a number of statistical techniques are discussed, that are highly relevant for the analysis of actuarial and financial data and for the model-building process in risk management. Among others, we will consider extreme value theory, dependence modelling, copulas, and various aspects of integrated risk management. The seminar continues with an introduction to the modelling and the management of interest rate and credit risk. In particular, participants will learn how to price simple interest options or Credit Default Swaps, how to compute risk measures for a bond portfolio, and how to account for counterparty risk.

In the second part of the seminar, the topic Enterprise Risk Management is covered from a more qualitative viewpoint. This will allow participants to understand and handle the entire risk universe including non-quantifiable risks and those risks for which companies traditionally do not hold capital, but manage them in other ways. Topics discussed include the concepts of risk and ERM, an overview over the 42 central elements of ERM, and a session outlining how ERM creates value for any company. Furthermore, the risk management culture including risk consciousness, accountabilities, discipline, collaboration, incentive compensation and communication is presented together with governance issues including market conduct, audit and legal risk. This part of the seminar also explains stakeholders, standards, first steps in the choice of a suitable ERM framework.

The seminar 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 qualitative and quantitative techniques introduced in the lectures, and they are a key element in the preparation for the CERA exam.

## **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.

During this seminar, you will not need your laptop.

## **Purpose and Nature**

This seminar is one part in a course that consists of four 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.

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. Please visit [www.ceraglobal.org](http://www.ceraglobal.org) to get information if your association is entitled to issue the CERA designation.

## **Language**

The language of the seminar will be English. The exam will be in German or English (to be chosen on site).

## **Lecturers**

Dr Peter Brühne

Rüdiger Frey

Rüdiger Frey is Professor of Mathematics and Finance at the Vienna University of Economics and Business (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 co-author of the popular book "Quantitative Risk Management: Concepts Techniques & Tools" (Princeton University Press, second edition 2015), 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.

### Eberhard Müller

Dipl. Math. Eberhard Müller, born 1950, studied mathematics in Hamburg. In 1982, he joined Hannover Re. Until 2015, he served as Chief Risk Officer and Managing Director of the Group Risk Management division (GRM), reporting to the chairman and working with more than 85 employees. After his retirement in January 2016, he now runs his own consultancy riskmueller consulting GmbH. Eberhard Müller is member of the DAV since 1994. He represents the DAV in the ASTIN board of the IAA (currently as treasurer) and is member of several national and international working parties.

### Axel Wolfstein

Axel Wolfstein, born 1960, read mathematics and became a member of the German Actuarial Association DAV in 1995. From 1989 to 1995, he worked in the statistical department of the German insurance association (GDV), and went on from 1995 to 2005 as Head of statistical department of the Verband öffentlicher Versicherer (association of public insurers). Since 2005, he is director of pricing&actuarial at Verti (formerly Direct Line Versicherung AG) and member of the extended board. He is member of several working groups and lectures also for the non-life actuarial exam.

### Jochen Wolf

Since 2005, Jochen Wolf serves as Professor for Mathematics and Economics at the Hochschule Koblenz. Before, 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).

## **Preliminary Programme**

### Monday, 18 February 2019

08.45 – 09.00	Registration
09.00 – 09.15	Welcome and introduction (Frey)
09.15 – 10.30	Risk measures (Wolf)
10.30 – 11.00	Coffee Break
11.00 – 11.30	Risk Measures (Wolf)
11.30 – 12.45	Extreme value theory (Frey)
12.45 – 14.15	Lunch
14.15 – 15.15	Exercises (Wolf, Frey)
15.15 – 16.00	Multivariate Models (Frey)
16.00 – 16.15	Coffee Break
16.15 – 17.15	Copula-Basics (Frey)
17.15 – 17.45	Exercises (Wolf, Frey)

### Tuesday, 19 February 2019

09:00 – 10:30	Copulas (incl. exercises) (Frey)
10:30 – 11:00	Coffee Break
11:00 – 12:15	Integrated risk management (Frey)
12:15 – 12:45	Interest Products (Wolf)
12.45 – 14.15	Lunch
14:15 – 15:45	Interest rate models (incl. exercises) (Wolf)
15:45 – 16:15	Coffee Break
16:15 – 17:45	Interest-rate risk management (Wolf)

### Wednesday, 20 February 2019

09.00 – 09.45	Interest rate risk: exercises (Wolf)
09.45 - 10.30	Credit risk basics (Frey)
10.30 - 11.00	Coffee Break
11.00 – 12.00	Credit risk: modelling and management (Frey)
12.00 – 12.45	Credit risk: applications and exercises (Frey)
12.45 – 14.00	Lunch
14.00 – 14.30	Qualitative Part: CERA basics (Müller)
14.30 – 16.00	Value Creation via ERM (Müller)
16.00 – 16.15	Coffee break
16.15 – 18.15	Elements of ERM, Part 1 (Müller)

### Thursday, 21 February 2019

09.00 – 10.00	Elements of ERM, Part 2 (Müller)
10:00 – 10:30	ERM culture and governance, Part 1 (Wolfstein)
10:30 – 10:45	Coffee Break
10:45 – 12:15	ERM culture and governance, Part 2 (Wolfstein)
12.15 – 13.15	Choosing a suitable ERM, part 1 (Brühne)
13.15 – 14:15	Lunch
14.15 – 15:30	Choosing a suitable ERM, part 2 (Brühne)
15:30 – 15:45	Coffee Break
15:45 – 16:45	Choosing a suitable ERM, part 3 (Brühne)
16:45 – 17:00	Wrap up, discussion, open topics (Brühne)

### Recommended Literature

Course material will be distributed via the EAA. As background reading we recommend the "Panjer Syllabus" of the CERA education as published on the website [www.ceraglobal.org](http://www.ceraglobal.org) and the book "Quantitative Risk Management, 2nd edition" by McNeil, Frey and Embrechts, Princeton University Press 2015.

### **Fees & Registration**

Please register for the seminar as soon as possible because of the expected demand. If there are more persons interested in this seminar 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 later, 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. All 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 module: 1610 € plus 21 % VAT

Please note that the seminar fee includes not only the participation and seminar material but also the hotel package fee for the catering (coffee breaks, lunches incl. one soft drink and water and juice in the seminar room) already. Accommodation, breakfast and dinner are not included in this package fee.

## Venue & Accommodation

The seminar will take place at the hotel

Sallés Hotel Pere IV

Calle Pallars 128-130

08018 Barcelona, Spain

[Hotel website](#)

We have arranged special prices for accommodation. The special rate is 89,00 € per night, including breakfast and VAT. It is valid for bookings by 17 January 2019 out of our allotment "EAA Seminar". Our allotment includes a limited number of rooms. Kindly book your accommodation directly with the hotel by sending an email to [grupos1@salleshotels.com](mailto:grupos1@salleshotels.com) (reference code *EAA seminar*), and note the hotel's reservation terms and conditions and the hotel's cancellation policy

## CPD

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

Austria:	26 points
Belgium:	26 points
Croatia:	15 points
Estonia:	26.5 hours
Finland:	15.25 points
Germany:	27 hours
Hungary:	27 hours
Italy:	approx. 6-8 points (GdLA individual accreditation)
Ireland:	26.5 hours
Latvia:	27 hours
Netherlands:	approx. 26 PE-points (individual accreditation)

Russia:	40 points
Slovakia:	8 points
Slovenia:	50 points
Spain	27 points (CAC), 26 hours (IAE)
Switzerland:	approx. 24 points

## **Exam**

The CERA exams are organised and carried out by the Deutsche Aktuarvereinigung e. V. (German Association of Actuaries). The exam will be, as per your preference, in German or English (to be chosen onsite).

The exam for the CERA module "Foundations and Quantitative Methods of ERM" will take place on Friday, 24 May 2019, 9.00 – 12.00 o'clock, in Cologne, Germany. The details and confirmation of international exam sites are pending.

Fee for the exam: The regular fee for the exam is 300 €. A surcharge of 25 € will be added for the examination sites Ljubljana (Slovenia), Madrid (Spain), Vienna (Austria) and Zagreb (Croatia), for Copenhagen (Denmark) there is a surcharge of 50 €.

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

Registration deadline for the exam is Friday four weeks in advance of the day 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 if there is sufficient lead time.

No responsibility is taken for the accuracy of this information.