EAA Web Session
CERA, Module 0: A Refresher Course in Financial Mathematics and Risk Measurement

1/2 December 2025 | 9:00-15:45 CET | online

Introduction

The European Actuarial Academy is one of the main providers of actuarial education – especially when it comes to Enterprise Risk Management (ERM). The concept of ERM has gained significant momentum in the insurance industry and beyond.

We offer a series of four training courses and exams (through DAV) to all actuaries who want to deepen their knowledge in Enterprise Risk Management and gain the international ERM-credential CERA. 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 web session **A Refresher Course in Financial Mathematics** gives an introduction to modern financial mathematics and derivative pricing. It is designed to prepare actuaries without adequate training in these fields for the quantitative parts of the CERA education. The web session is moreover an ideal learning opportunity for actuaries who want to become acquainted with or refresh their knowledge in these highly relevant fields.

The online course begins with a repetition of basic concepts in probability theory including characteristics of random variables such as moments and quantiles. In order to prepare the analysis of dynamic financial models we introduce the idea of conditional expectations and we discuss stochastic processes in discrete time. The online session continues with an introduction to financial mathematics. We study risk neutral valuation and the hedging of derivatives in

discrete-time models. The last part of the web session is devoted to an introduction to financial mathematics in continuous time. Topics covered include stochastic processes in continuous time such as Brownian motion and the Ito formula, the Black Scholes model and the Greeks very basic term structure models and the pricing and hedging of simple stock and bond options. The web session consists of lectures interspersed by short exercise sessions where participants can apply the probabilistic techniques hands-on.

Participants

The web session is open to all persons who are interested in deepening their quantitative skills in the fields of financial mathematics and risk measurement.

Purpose and Nature

The 1.5 day web session serves a double purpose. On the one hand, it is a bridging course designed to prepare actuaries with a more qualitative background for the quantitative parts of the CERA education. On the other hand, it is an independent refresher course for actuaries wanting to brush up their quantitative skills in the fields of financial mathematics.
This web seminar is not a formal part of the CERA education.
Please visit www.ceraglobal.org for more information on the CERA designation.

Language

The language of the web session will be English.

Lecturers

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.

Jochen Wolf

Since 2005, Jochen Wolf has been 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 Association of Actuaries (DAV).

Preliminary Programme

Monday, 1 December 2025

09:00 – 09:05	Introduction and Welcome
09:05 – 10:15	Probability Theory for Mathematical Finance
10:15 – 10:30	Break
10:30 – 11:30	Probability Theory and Risk Measures
11:30 – 11:45	Break
11:45 – 12:45	Risk Neutral Valuation 1
12:45 – 14:00	Break
14:00 – 15:45	Discrete-Time Stochastic Processes

Tuesday, 2 December 2025

09:00 – 10:15	Risk Neutral Valuation 2
10:15 – 10:30	Break
10:30 – 11:30	Tools for Continuous Time Finance
11:30 – 11:45	Break
11:45 – 12:45	Tools for Continuous Time Finance and the Black Scholes Model
12:45 – 14:00	Break
14:00 – 15:45	The Black Scholes Model, Term Structure Models and Financial Applications

All the above times are given in CET (Central European Time).

Fees & Registration

Early Bird Registration Fee (until 20 October 2025):
- For private customers in the EU: €540.00 + VAT of the billing country (example Germany: €642.60 incl. 19% VAT)
- For private customers outside the EU: €642.60 (incl. 19% VAT)
- For businesses within the EU (excl. Germany, with valid VAT ID): €540.00 (net, reverse charge applies)
- For businesses in Germany: €642.60 (incl. 19% VAT)

Regular Registration Fee (from 21 October 2025):
- For private customers in the EU: €600.00 + VAT of the billing country (example Germany: €714.00 incl. 19% VAT)

- For private customers outside the EU: €714.00 (incl. 19% VAT)
- For businesses within the EU (excl. Germany, with valid VAT ID): €600.00 (net, reverse charge applies)
- For businesses in Germany: €714.00 (incl. 19% VAT)

Important VAT Information:
- For private customers with a billing address in an EU country: VAT will be charged at the applicable rate in the country of the billing address. The final amount, including VAT, will be calculated upon invoicing.
- For customers with a non-EU (third country) billing address: Only a non-company billing address is accepted for VAT compliance reasons. 19% VAT applies to all non-EU private customers.
- For businesses within the EU (excluding Germany), Iceland, Liechtenstein, Norway, Switzerland, and the UK with a valid VAT ID: The reverse charge mechanism applies (net price; VAT will not be charged). Please ensure your valid VAT ID is entered correctly during registration.
- For all customers with a billing address in Germany: 19% VAT applies.

Please submit your registration using this online form. Closer to the event, you will receive further login details to join the web session.

Your registration is binding. Cancellation is only possible up to 4 weeks before the first day of the event. If you cancel later, the full participation 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.

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

Registration is open until two working days before the web session. If registration has already been closed for this web session, please call us or send an email to contact@actuarial-academy.com in order to find out whether a late registration is still possible.

Technical Requirements

Please check with your IT department if your firewall and computer settings support web session participation (the programme Zoom will be used for this online training). Please also make sure to join the web session with a stable internet connection.

CPD

For this web session, the following CPD credits are available under the CPD scheme of the relevant national actuarial association:

Austria: 10 points
Belgium: 10 points

Bulgaria:	15 points
Croatia	individual accreditation
Czech Republic:	10 hours
Denmark:	10 credits
Estonia:	10 hours
Finland:	7 points
France:	60 points
Germany:	10 hours
Greece:	13 points
Hungary:	10 hours
Iceland:	10 credits
Ireland:	10 hours
Italy:	approx. 4 credits (GdLA individual accreditation)
Latvia:	10 hours
Lithuania:	10 hours
Netherlands:	approx. 10 PE points (individual accreditation)
Norway:	10 points
Poland:	10 hours
Portugal:	10 hours
Serbia:	5 hours
Slovakia:	8 points
Slovenia:	50 points
Spain:	CAC: 10 hours, IAE: 10 hours
Switzerland:	15 points
USA:	SOA (Section B): up to 12.00 hours

No responsibility is taken for the accuracy of this information.