

Invitation to a Course on Basic Statistical Methods in Insurance

31st October 2007 to 3rd November 2007
Salzburg University

- Lecturers:**
- Prof. Dr. Marcus Hudec
Department of Scientific Computing, Vienna University
Director of Data Technology, Vienna
Visiting professor at Salzburg University
- Dr. Michael Schlögl
Head of Motor Insurance Department
Wiener Städtische Versicherung AG – Vienna Insurance Group, Vienna
Visiting professor at Salzburg University
- Dates:**
- Wed. 31st Oct. 9.00–13.00 and 14.30–18.00
Thur. 1st Nov. 9.00–13.00 and 14.30–18.00
Fri. 2nd Nov. 9.00–13.00 and 14.30–16.30 (19.00 concert and reception)
Sat. 3rd Nov. 9.00–12.00
- Contents:**
- The course covers all aspects of basic statistical methods in insurance required to become a fully qualified actuary according to the core syllabus of the International Actuarial Association and the core syllabus of Groupe Consultatif, according to the regulations of the Actuarial Association of Austria (AVÖ), as well as according to the regulations of the German Actuarial Association (DAV). The methods and models will be illustrated by specific applications (e.g. life tables, curve fitting, analysis of insurance portfolios, modelling risk and claims structure, bonus/penalty systems). The emphasis will be on a practical and data oriented approach. The course is suited to all those who want to acquire knowledge of basic statistical methods in insurance. It is also of interest to experienced practitioners. Basic stochastic knowledge is required. Please find the structure of the course below.
- Course fees:**
- €796. The course fees cover the 4 overnight accommodations from Tuesday to Saturday in the Castellani Parkhotel including breakfast. The fees for participants who do not need accommodation are €480. Lunches and coffee breaks are included in the fees as well as the concert and the reception on Friday evening.
- Information:**
- For further information, please contact Sarah Lederer by fax (+43 662 8044 155) or e-mail (sarah.lederer@sbg.ac.at) with your telephone number. Your questions will be answered as soon as possible.

Registration: Please send the attached registration form by post or fax it to +43 662 8044 155, and arrange for the amount to be transferred (at no cost to the recipient) to the following account before 24th August 2007. After this date registration with hotel accommodation is only possible upon request. The registration and payment deadline for participants who do not need accommodation is 5th October 2007.

Salzburg Institute of Actuarial Studies (SIAS)
IBAN: AT 792 040 400 000 012 021 BIC: SBGSAT2S

Location: Lecture Hall 402 in the Faculty of Science
A-5020 Salzburg, Hellbrunner Straße 34
The concert and the reception on Friday evening will be held in the historic Bibliotheksaula in the centre of Salzburg's Old Town.

Course Structure

1. Principles of data analysis

Process of data analysis (from the design of data collection up to the deployment of results); exploratory versus confirmatory analysis

2. Graphical methods for data analysis

Histogram; empirical distribution function; boxplot

3. Theoretical distributions

Random variable; density and probability function; distribution function; survival function and hazard rate

4. Special distribution functions

Binomial distribution; Poisson distribution; normal distribution; log-normal distribution; Weibull distribution; other distributions relevant to the insurance business

5. Comparison of empirical data and theoretical distributions

Graphical techniques

Superimposing of histogram and density; comparison of distribution functions; pp-plots; qq-plots

Statistical tests

Chi² test; Kolmogorov-Smirnov test

6. Descriptive measures

Measures of central tendency; measures of dispersion

7. Parameter estimation

Point estimation; maximum likelihood principle; confidence intervals

8. Testing hypotheses

Foundations (type 1 error, type 2 error); significance and p-value; classical test statistics; calculation of power and sample size

9. Measures of dependency

Two-dimensional distributions; association; correlation; copula functions

10. Stochastic risk models

Simple stochastic processes (e.g. Markov processes); time series models; seasonal smoothing

11. Principles of biometric calculations

Life tables; curve fitting and interpolation; parametric modelling