

Module title		Abbreviation
Stochastic Models for Risk Analysis		12-RM-RA-192-m01
Module coordinator		Module offered by
Dean of Studies Mathematik (Mathematics)		Faculty of Business Management and Economics
ECTS	Method of grading	Only after succ. compl. of module(s)
5	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	graduate	--
Contents		
<p>Point and interval estimation for the value at risk Point and interval estimation for the conditional value at risk Prediction of value at risk in time series Risk of forecasts in time series, in particular exponential smoothing under covariates Conditional heteroscedasticity: ARCH, GARCH, EGARCH, DVEC, BEKK, DCC Aggregated losses and their empirical analysis Empirical analysis of statistical distributions Nonparametric bounds for the value at risk and conditional value at risk Empirical estimation of nonparametric bounds for value at risk and conditional value at risk Market model: definition, derivation, parameters, empirical analysis Capital asset pricing model: definition, parameters, empirical analysis Asset portfolios: definition, risk parameters Estimation of portfolio parameters: variance, value at risk, conditional value at risk, shortfall Optimum portfolios: concepts, theory, numerical analysis</p>		
Intended learning outcomes		
The student is able to estimate risk measures and the parameters of risk models from data. In particular, the student knows software packages and routines which enable empirical risk evaluation in a business context.		
Courses (type, number of weekly contact hours, language — if other than German)		
Ü (2) + V (2)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)		
Written examination (approx. 60 minutes)		
Allocation of places		
<p>30 places. Should the number of applications exceed the number of available places, places will be allocated as follows: (1) Master's students of Information Systems will be given preferential consideration. (2) The remaining places will be allocated to students of other subjects. (3) When places are allocated in accordance with (1) and (2) and the number of applications exceeds the number of available places, places will be allocated by lot among applicants from this group.</p>		
Additional information		
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Workload		
150 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in		
<p>Master's degree (1 major) Information Systems (2019) Master's degree (1 major) China Business and Economics (2021) Master's degree (1 major) China Language and Economy (2021) Master's degree (1 major) Economathematics (2021)</p>		

