

Module title		Abbreviation
Stochastic Models for Risk Assessment		12-RM-RW-161-m01
Module coordinator		Module offered by
Dean of the Faculty of Business Management and Economics		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>Etymological background of the risk concept Definitions of risk Basic concepts and terminology of stochastic risk modelling: risk phenomenon, risk object, risk variable, risk source, risk factor, risk cause, direct peril, indirect peril, loss under risk, profit under risk, loss variable, profit variable, risk distribution, risk indicator, risk parameter Classification of business risks Risk policy, risk management Risk analysis: risk identification, risk description, risk exploration, risk-relevant measurements, risk evaluation, risk assessment, risk modelling Risk management: risk minimisation, risk protection, risk avoidance, risk mitigation, bearing of risk, risk prevention Risk control, risk monitoring Norms and standards of risk management: ISO 31000, ONR 49000 -- 49004, IEC/ISO 31010, COSO II, AIRMIC, IRM, ALARM FMEA (Failure Mode and Effect Analysis) as a tool of risk analysis and risk assessment: historical and thematic background, methodology, discussion of the FMEA assessment methodology Risk matrix, risk diagram Score diagram Stochastic risk parameters and risk measures as distribution parameters Probability distributions: Gaussian, Laplace, Student's t, extreme value, logistic, exponential, Weibull, gamma, negative Gaussian, Burr, hyperbolic, generalised hyperbolic Elementary stochastic risk measures: variance, standard deviation, signal-to-noise ratio, coefficient of variation, Sharpe ratio, nonconformance probability, expected shortfall, shortfall probability, risk parameters under reference values, Stone family Value at Risk and Conditional Value at Risk: definition, formal representations, values under special probability distributions Axioms of risk measures: distribution invariance, subadditivity, superadditivity, additivity, comonotonous additivity, nonnegative homogeneity, translation invariance, convexity, continuity, coherence</p>		
Intended learning outcomes		
<p>The student knows the schemes and concepts of risk analysis, risk assessment, risk measurement, and the theoretical background. The student knows the concepts of advanced stochastic risk modeling. In a practical business situation, the student is able to identify an appropriate scheme of risk assessment and corresponding meaningful risk measures.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
V (2) + Ü (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 Wirtschaftsinformatik (Business 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

Master's degree (1 major) Business Information Systems (2016)
Master's degree (1 major) Business Management (2015)
Master's degree (1 major) China Business and Economics (2016)
Master's degree (1 major) China Language and Economy (2016)
Master's degree (1 major) Management (2018)
Master's degree (1 major) China Business and Economics (2019)
Master's degree (1 major) China Language and Economy (2019)