### Module description

<table>
<thead>
<tr>
<th>Module title</th>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>Stochastic Models for Risk Assessment</td>
<td>12-RM-RW-161-m01</td>
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<table>
<thead>
<tr>
<th>Module coordinator</th>
<th>Module offered by</th>
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<tbody>
<tr>
<td>Dean of the Faculty of Business Management and Economics</td>
<td>Faculty of Business Management and Economics</td>
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<table>
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<tr>
<th>ECTS</th>
<th>Method of grading</th>
<th>Only after succ. compl. of module(s)</th>
</tr>
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<tbody>
<tr>
<td>5</td>
<td>numerical grade</td>
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<table>
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<tr>
<th>Duration</th>
<th>Module level</th>
<th>Other prerequisites</th>
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<tbody>
<tr>
<td>1 semester</td>
<td>graduate</td>
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### Contents

- Etymological background of the risk concept
- Definitions of risk Basic concepts and terminology of stochastic risk modelling: risk phenomenon, risk object, 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
- 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

### Intended learning outcomes

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.

### 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

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.

### Additional information

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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)
Module description

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)