

Module Description

MA5415: Quantitative Risk Management

TUM Department of Mathematics

Module level: Master	Language: English	Module duration: one semester	Occurrence: irregularly
--------------------------------	-----------------------------	---	-----------------------------------

Credits*: 5	Total number of hours: 150	Self-study hours: 105	Contact hours: 45
-----------------------	--------------------------------------	---------------------------------	-----------------------------

* The number of credits can vary depending on the corresponding SPO version. The valid number is always indicated on the Transcript of Records or the Performance Record.

Description of achievement and assessment methods:

Written exam

Exam type: written	Exam duration (min.): 60	Possibility of re-taking: In the next semester: No At the end of the semester: Yes	Homework: No
------------------------------	------------------------------------	---	------------------------

Lecture: No	Conversation: No	Written paper: No
-----------------------	----------------------------	-----------------------------

(Recommended) requirements:

MA1401 Introduction to Probability Theory, MA2003 Measure and Integration, MA2402 Basic Statistics, MA2409 Probability Theory

Contents:

Basic concepts in Risk Management, Basel II and Solvency II, risk measures: examples and discussions, multivariate models: dependence modelling, normal and normal mixture models, copulas, simple dimension reduction methods, extreme value theory.

Study goals:

At the end of the module students understand the basics of the trade of a financial risk manager. They know and understand the most important models and can apply methods used in the financial and insurance world to assess and evaluate risk. They are also able to do relevant data analyses and perform simple simulation studies. In particular, they are able to estimate VaR (Value at Risk) and Expected Shortfall (ES) in different realistic situations.

Teaching and learning methods:

Solve exercises, theoretical and practical (R programming)

Media formats:

Slides, blackboard, tutorial sheets, R-programming

Literature:

McNeil, A.J., Frey, R. and Embrechts, P. (2005): Quantitative Risk Management: Concepts, Techniques and Tools,

Princeton University Press.

Carmona, R. (2004): Statistical Analysis of Financial Data in S-Plus, Springer, New York.

Glasserman, P. (2004): Monte Carlo Methods in Financial Engineering, Springer, New York.

Responsible for the module:

Klüppelberg, Claudia; Prof. Dr.: cklu@tum.de

Courses (Type, SH) Lecturer:

For further information about this module and its allocation to the curriculum see:

<https://campus.tum.de/tumonline/wbModHb.wbShowMHBRReadOnly?pKnotenNr=668467>

Generated on: 16.07.2017 16:22