Module Description

MA4706: Portfolio Analysis

TUM Department of Mathematics

Module level: Master
Language: English
Module duration: one semester
Occurrence: summer semester

Credits*: 6
Total number of hours: 180
Self-study hours: 120
Contact hours: 60

* 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:
The module examination is based on a written exam (60-90 minutes). It is examined how deep students understand the theoretical fundamentals of Portfolio Optimization and Analysis and whether they are familiar with the capital asset pricing model, its applications and risk measures as well as whether they are able to implement portfolio optimizations numerically.

Exam type: written
Exam duration (min.): 60-90
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:
MA2504 Fundamentals of Convex Optimization

Contents:

Study goals:
At the end of the module the student is able to understand the fundamentals of Portfolio Optimization and Analysis. He is familiar with the seminal work of Harry Markowitz on mean-variance theory. The student understands the theoretical background and practical impact of efficient portfolios and the capital asset pricing model. He also knows the most important risk measures and is able to evaluate and manage portfolios according to their risk-return profiles. Case Studies and examples in the lecture or in the (computer) exercises give a further insight into the concepts of portfolio analysis used in the investment industry.

Teaching and learning methods:
The module consists of the lecture supplemented by an exercise session. The lecture material is presented with slide presentations and mathematical proofs are presented on the blackboard. The students are encouraged to study course references and course subjects. The exercise session consists of theoretical and computer-oriented exercises. In the theoretical exercises students will work under instructor assistance on assignments, sometimes in teamwork. In computer-oriented exercises students simulate price processes of financial assets and determine optimal portfolios. The exercises contribute to a better understanding of the lecture materials.
Media formats:
blackboard, assignments, computer-oriented exercises

Literature:
Interessante Internet Seiten von Sharpe:
http://www.stanford.edu/~wfsharpe/mia/mia.htm

Responsible for the module:
Zagst, Rudi; Prof. Dr.: zagst@tum.de

Courses (Type, SH) Lecturer:
0000001036 Portfolio Analysis (Programming Practical) [MA4706] (1SWS P, SS 2016/17)
Zagst R, Sloot H

0000001723 Portfolio Analysis [MA4706] (2SWS L, SS 2016/17)
Sloot H [L], Zagst R

0000001724 Portfolio Analysis (Exercise Session) [MA4706] (1SWS P, SS 2016/17)
Zagst R, Sloot H

For further information about this module and its allocation to the curriculum see:
https://campus.tum.de/tumonline/wbModHB.wbShowMHBReadOnly?pKnotenNr=709807

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