Introduction to Stochastic Financial Mathematics

Module title

Module coordinator
Dean of Studies Mathematik (Mathematics)

Module offered by
Institute of Mathematics

ECTS
9

Method of grading
Numerical grade

Only after succ. compl. of module(s)

Duration
1 semester

Module level
Undergraduate

Other prerequisites

Contents
Arbitrage and no-arbitrage, annuities and bonds, valuation of deterministic cash flows, actuarial present value, term structures and yield curves, forwards, payout profiles of options and other derivatives, fundamental theorem of asset pricing in the stochastic one-period model, risk neutral price measures, replication and completeness, stochastic multi-period models, valuation of European options in the binomial model, Black-Scholes formula.

Intended learning outcomes
The student is acquainted with the fundamental concepts and methods of stochastic financial mathematics, can apply them to practical problems and knows about typical fields of application.

Courses
V (4) + Ü (2)

Method of assessment
a) written examination (approx. 90 to 180 minutes, usually chosen) or b) oral examination of one candidate each (15 to 30 minutes) or c) oral examination in groups (groups of 2, 10 to 15 minutes per candidate)

Language of assessment: German and/or English creditable for bonus

Allocation of places

Additional information

Referred to in LPO I
(Examination regulations for teaching-degree programmes)

Module appears in
Bachelor' degree (1 major) Mathematics (2015)
Bachelor' degree (1 major) Economathematics (2015)
Bachelor' degree (1 major) Computational Mathematics (2015)
Bachelor' degree (1 major) Economathematics (2017)
Bachelor' degree (1 major) Economathematics (2021)