COURSE DETAIL

MATHEMATICAL STATISTICS: VALUATION OF DERIVATIVE ASSETS

Country Sweden

Host Institution Lund University

Program(s) Lund University

UCEAP Course Level Upper Division

UCEAP Subject Area(s) Statistics Mathematics

UCEAP Course Number 147

UCEAP Course Suffix

UCEAP Official Title MATHEMATICAL STATISTICS: VALUATION OF DERIVATIVE ASSETS

UCEAP Transcript Title VAL DERIVATVE ASSET

UCEAP Quarter Units 6.00

UCEAP Semester Units 4.00

Course Description

What is a reasonable value for a derivative on the financial market? The course consists of two related parts. The first part looks at option theory in discrete time. The purpose is to introduce fundamental concepts of financial markets such as free of arbitrage and completeness as well as martingales and martingale measures. Tree structures to model time dynamics of stock prices and information flows are used. The second part studies models formulated in continuous time. The models used are formulated as stochastic differential equations (SDE:s). The theories behind Brownian motion, stochastic integrals, Ito-'s formula, measures changes, and numeraires are presented and applied to option theory both for the stock and the interest rate markets. Students derive e.g. the Black-Scholes formula and how to create a replicating portfolio for a derivative contract.

Language(s) of Instruction

English

Host Institution Course Number MASM24/FMSN25

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Host Institution Campus

Lund

Host Institution Faculty

Science and Engineering

Host Institution Degree

Host Institution Department Mathematics

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