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

Host Institution Course Title
MATHEMATICAL STATISTICS: VALUATION OF DERIVATIVE ASSETS

Host Institution Course Details
https://www.lunduniversity.lu.se/lubas/i-uoh-lu-MASM24

Host Institution Campus
Lund

Host Institution Faculty
Science and Engineering

Host Institution Degree

Host Institution Department
Mathematics

Course Last Reviewed
2023-2024

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