

## 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 DERIVATIVE 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 numeraire 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 Campus

Lund

## Host Institution Faculty

Science and Engineering

## Host Institution Degree

## Host Institution Department

Mathematics

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