Financial Valuation Methodology

Programme course

6 credits

Finansiell värderingsmetodik

TPPE53

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial
Engineering and Logistics

Date determined
2017-01-25

Main field of study

Industrial Engineering and Management

Course level

Second cycle

Advancement level

A1X

Course offered for

- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Mathematics, Master's programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering

Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites

Introductory courses in statistics, probability theory, and financial theory (Corporate Finance and/or Financial Markets and Instruments, and Financial Risk Management or comparable courses). An introductory course in stochastic processes is recommended.

Intended learning outcomes

The main aim of the course is to provide knowledge on an advanced level on financial valuation methodologies, mainly concerning contingent claims. After the course the student should be able to derive the Black-Scholes-Merton partial differential equation and to price exotic options using numerical techniques. Another objective is to provide insights into yield-curve modeling, specifically short rate models and the Heath-Jarrow-Morton framework.

Course content

Introduction to continuous stochastic processes and stochastic calculus. Option valuation in continuous time. Black-Sholes and alternative option models. Exotic options. Change of probability measure. Risk neutral valuation. Numerical methods for valuing derivatives. Models of the term structure of interest rates and valuation of interest rate derivatives.

Teaching and working methods

The teaching is organized in lectures, seminars and problem sessions. The seminars will be used for presentations and discussions of the group assignments. The problem sessions aim to support the students in the learning of the course material.

Examination

UPG2	Assignments	2 credits	U, G
TEN1	Written examinations	4 credits	U, 3, 4, 5

Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

Supplementary courses:
Financial optimization

Department

Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent

Fredrik Persson

Examiner

Jonas Ekblom

Course website and other links

http://www.iei.liu.se/prodek/utbildning/tppe53

Education components

Preliminary scheduled hours: 24 h
Recommended self-study hours: 136 h

Course literature

Additional literature

Books

Hull, J.C., *Options, Futures, and Other Derivaties*

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.