האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

Syllabus

FINANCIAL MATHEMATICS - 80668

Last update 25-10-2017

HU Credits: *3*

Responsible Department: *mathematics*

Academic year: *0*

Semester: *2nd Semester*

Teaching Languages: *Hebrew*

Campus: *E. Safra*

Course/Module Coordinator: *Prof Yuri Kifer*

Coordinator Email: *kifer@math.huji.ac.il*

Coordinator Office Hours:

Teaching Staff:
Prof Yuri Kifer

Course/Module description:
Financial mathematics is not about predicting the price of stocks but about the

theory which describes how derivative securities such as options should be priced. Any derivative security is based on another security such as stock whose price evolution is assumed to be described by a stochastic process. The most familiar type of derivative securities are European options which are contracts giving the right to buy a
stock for a prescribed price at a prescribed time.

Course/Module aims:
This is a mathematical course based mainly on
probability theory and
it is not intended to give practical tools
directly applicable in real financial markets.

Learning outcomes - On successful completion of this module, students should be able to:
The students will learn few basic mathematical models and approaches for the analysis of financial markets

Attendance requirements(%):

Teaching arrangement and method of instruction: lectures

Course/Module Content:
martingales, optimal stopping,Brownian motion, models of security markets: Black-Scholes and Cox-Ross-Rubinstein, derivative securities, binomial approximations, complete and incomplete markets, hedging and superhedging, risk evaluation, arbitrage, fundamental theorems of security markets

Required Reading:
R.F.Bass, The basics of financial mathematics,
www.math.uconn.edu/~bass/finlmath.pdf

Additional Reading Material:
R.J.Williams, Introduction to the mathematics of finance, AMS 2006.
S.Shreve, Stochastic calculus for finance, vol.1,2, Springer 2004.
A.Shiryaev, Essentials of stochastic finance, World Scientific, 1999.
D.Lamberton and B.Lapeyre, Introduction to stochastic calculus applied to finance, Chapman&Hall, 2008.

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 0 %
Participation in Tutorials 0 %
Project work 100 %
Assignments 0 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: