DERIVATIVES & FINANCIAL ENGINEERING

Course description and faculty profile

DERIVATIVES AND FINANCIAL ENGINEERING

Derivatives and Financial Engineering is concerned with the valuation of derivative securities like options and futures and their use in investment and hedging strategies. In particular, we will discuss the binomial model and the Black-Scholes model for option valuation. Further topics are implied volatility, interest rate risk, and credit risk. The students will acquire practical experience with models via the use of spreadsheets.

Learning Objectives

Upon completion of this course, you will be able to:

- Value simple derivatives in binomial models
- Set up hedge positions with derivatives to manage risks
- Design simple arbitrage trades based on derivatives mispricing
- Assess the limitations of option pricing models
- Use derivatives to structure cash flows in an optimal fashion
- Use option pricing concepts to assess credit risk
- Understand the impact of real options on firm value

Key Concepts

In order to achieve the goals of this course, you must master the following key concepts:

- Option valuation in the binomial model
- Black-Scholes model
- Monte Carlo simulation
- Hedging and greeks
- Exotic options
- Implied volatility and alternatives to Black-Scholes

Prof. Dr. Christian Schlag

Christian Schlag is Professor of Finance in the Finance department at Goethe University and Director of the Finance PhD program. His research explores a variety of topics in finance including the valuation of derivative securities, portfolio choice, and asset pricing. Prof. Schlag coauthored scholarly articles on these subjects, which have been published in journals such as Journal of Financial and Quantitative Analysis, Review of Finance, Journal of Banking and Finance, and Journal of Derivatives. Prof. Schlag is a member of the review board for economics and business administration at Deutsche Forschungsgemeinschaft (DFG). He is also a member of several academic associations like the American and the European Finance Association and a frequent visitor at European and American universities.

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Course schedule

Date	Sessions
Fri., Nov. 7, 2014	19:30-21:30
Sat., Nov. 8, 2014	14:30-16:30
Fri., Dec. 5, 2014	14:00-16:00 19:30-21:30
Fri., Dec. 19, 2014	14:00-16:00 19:30-21:30
Fri., Jan. 9, 2015	14:00-16:00 17:00-19:00
Fri., Jan. 23, 2015	14:00-16:00 19:30-21:30
Sat., Jan. 24, 2015	9:00-11:00 11:30-13:30

Location: Goethe University, Campus Westend, **House of Finance**, Grueneburgplatz 1, Frankfurt

Room: **Commerzbank/ E.22**