

# GRADUATE SEMINAR

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## Theory of Discrete Time Pricing for European Options

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**August 21, Monday**

**3:30 PM**

**Math and Stat Lounge CW 307.20**

**Abstract:** In this presentation, I will talk about the random behaviour of a share price, creating an “optimal” portfolio of securities and related various problems in Financial Mathematics. In particular, I will discuss the problem of an option pricing.

The theory developed by Black, Scholes and Merton (1973) allows finding a “fair” price of an option and also provides a guidance to optimal stock transactions that allow for the option writer to guarantee the possible pay offs, which depend on a random behaviour of prices on a financial market.

In this talk I mostly will concentrate on the theory of pricing options of European type in the discrete time setting. Everything will be explained from scratch. For example, we introduce an advanced and comprehensive notion of a martingale, but we consider a measurability by a finite partition, not by a  $\sigma$ -algebra. This simplifies the understanding of the theory significantly.