

Course title: Financial Engineering

Course Basic Information	
Academic Unit: (University/Department)	University of Zurich, Department for Banking and Finance
Course title:	Financial Engineering
Level:	Master of Science UZH ETH in Quantitative Finance
Course Status:	Core FIN
Year of Study:	Spring Semester
Number of Classes per Week:	4h (Lectures with practical exercises)
ECTS Credits:	6 ECTS
Time /Location:	According to the timetable in UZH course catalogue
Lecturer:	Prof. Dr. Markus Leippold
Content	
Content of the course	<p>This lecture is intended for students who would like to learn more on equity derivatives modelling and pricing. After introducing fundamental concepts of mathematical finance including no-arbitrage, portfolio replication and risk-neutral measure, we will present the main models that can be used for pricing and hedging European options, e.g., the Black-Scholes model, stochastic volatility and jump-diffusion models, and highlight their assumptions and limitations. We will cover several types of derivatives such as European and American options, Barrier options and Variance Swaps. The course starts with discrete models where basic understanding of probability theory is required. After that, this course uses a fair amount of stochastic calculus. While we would cover the basics of stochastic calculus, basic knowledge in probability theory and stochastic calculus is required. Besides attending class, we strongly encourage students to stay informed on financial matters, especially by reading daily financial newspapers such as the Financial Times or the Wall Street Journal.</p>
Course's objectives:	This course is primarily designed for the master students in Quantitative Finance, Banking and Finance.
The expected outcomes:	<p>On successful completion of this module, students should be able to:</p> <ul style="list-style-type: none"> - Pass a final exam testing the understanding and ability to apply concepts and methods seen in lectures and complementary exercise sessions.