武汉大学经济与管理学院
2016/2017 Term 1

Stochastic Finance

Instructor: Dr Bo Chen
Assistant Professor

Tel: TBA
Office: TBA
Email: TBA
Course website: TBA

Course Description:
This course derives a general continuous time model of a financial market under uncertainty. Starting with term structure of interest rate the modeling framework will be extended to cover equity as well as exchange rate risk. Special emphasis will be given to the pricing of hedging of interest rate and exchange rate depending financial contracts like caps, floors, swaptions, currency concerted options and structured products.

The course aims to provide students with an understanding of the arbitrage pricing theory and its application for risk management of derivative contracts. It enables students to decompose complex financial products into basic financial structures.

Course Material
Lecture notes (Primary)

Reference:
Bjork, T. (2004), *Arbitrage Theory in Continuous Time*.
Hull, J.(2008), *Options, Futures, and other Derivative Securities*.

Assessment
Final Exam 100%

Class Schedule[1]

Week	Topic
1a	Overview of the course Administrative matters
1b	Notions of Interest Rates Basic Interest Rate Derivatives

[1] Subject to changes

2a	Tutorial
Stock Market	
2b	Mathematical-Tools: A quick Introduction
3-6	No-Arbitrage and the Black-Scholes Differential Equation Pricing and Hedging of European Type Call Options Risk-and Sensitivity Measures. The Greeks Case Study: Calendar Spread Option Two-dimensional Black-Scholes Model Case Study. Exchange Option
7	Tutorial
Interest Rate Market	
8-11	Gaussian Term Structure Model Forward Risk Adjusted Measure Change of Measure Technique and Option Pricing The (LIBOR) Market Model and the Pricing Caps and Floors Model of an International Financial Market Exchange Rate Options and Interest Rate Uncertainty
12	Tutorial