BU463 Risk Management and Derivatives (Postgraduate)

Instructor Information	Zhu Jie Home Institution: Shanghai University Email: zhu_jie@t.shu.edu.cn Office Hours: Determined by Instructor		
Term	June 27, 2022 - July 22, 2022	**Credits**	4 units
Class Hours	Monday through Friday, 120 mins per teaching day		
Discussion Sessions	2.5 hours each week, conducted by teaching assistant(s)		
Total Contact Hours	66 contact hours (1 contact hour = 45 mins, 3000 mins in total)		
Required Texts (with ISBN)	Options, Futures, and Other Derivatives, 10th Edition, John C. Hull, Pearson Press		
Prerequisite	N/A		

Course Overview

This course covers derivatives such as options, forward contracts, futures contracts, and swaps. Students will learn to make decisions by taking into account such features as interest rates, and rates of return. They will learn about the concept of arbitrage, and when consideration of such is sufficient to price different investments. Applications to call and put options will be given.

Learning Outcomes

1. Students will learn when arbitrage arguments are not sufficient to evaluate investment opportunities.
2. Students will learn to make use of utility theory and mathematical optimization models to determine optimal decisions.
3. Dynamic programming will be introduced and used to solve sequential optimization problems.
4. The use of simulation in financial engineering will be explored.

Course Procedure

The subject is taught in lectures, tutorials and self-managed learning materials in print and electronic formats. The lectures provide the structure of the topic area, discussion of the theory and some practical examples. The tutorials provide an opportunity to discuss ideas, ethical issues and make practical application of these theories to financial investment and innovation. Students are expected to at least attempt to solve these questions beforehand and actively participate in tutorial discussions.

Lecture Materials

Course Text: Options, Futures, and Other Derivatives, 10th Edition, John C. Hull, Pearson Press

Reference Book: Fundamentals of Futures and Options Markets, 9th Edition, John C. Hull, Pearson Press

Grading Policy

Assignment 1 & 2	20%
Mid-term exam	30%
Final Exam	50%

Grading Scale is as follows

Number grade	Letter grade	GPA
90-100	A	4.0
85-89	A-	3.7
80-84	B+	3.3
75-79	B	3.0
70-74	B-	2.7
67-69	C+	2.3
65-66	C	2.0
62-64	C-	1.7
60-61	D	1.0
≤59	F (Failure)	0

Class Schedule

Date	Lecture	Readings
Day 1	Introduction	Chapter1
Day 2	Mechanics of Futures Markets	Chapter 2
Day 3	Hedging Strategies Using Futures	Chapter 3
Day 4	Interest Rates	Chapter 4
Day 5	Determination of Forward and Futures Prices	Chapter 5
Day 6	Interest Rate Futures	Chapter 6
Day 7	Swaps	Chapter 7
Day 8	Securitization and the Credit Crisis of 2007	Chapter 8
Day 9	Review/Assignment due	
Day 10	Mid-term Exam	
Day 11	Mechanics of Options Markets	Chapter 10
Day 12	Properties of Stock Options	Chapter 11
Day 13	Trading Strategies Involving Options	Chapter 12
Day 14	Binomial Trees	Chapter 13
Day 15	Wiener Processes and Ito's Lemma	Chapter 14
Day 16	The Black-Scholes-Merton Model	Chapter 15
Day 17	Employee Stock Options	Chapter 16
Day 18	Greek Letters	Chapter 19
Day 19	Review/Assignment due	
Day 20	Final Exam	