

ISE 563 Financial Engineering - Spring 2022

Time	Friday 4:00 – 6:50 PM	Teaching Assistant	: Xinzhu Shen
Professor	Gordon Delianedis, Ph.D.	Office Hours	: TBD
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Office	: TBD		
Office Hours	: Wed 6-7 PM (PST) (On-line)		

Textbooks Required

Hull, J *Options, Futures, and Other Derivatives, 11th ed., Prentice Hall, 2020*

Grading

Homework 20%

Midterm 30%

Final 50%

Software

Any structured programming language such as VBA, Python, R, Matlab,

Course Objectives

To familiarize the student with the financial background and mathematical tools necessary to analyze and solve financial investment problems. Problems will include the use of derivatives for hedging financial risk, valuation of financial products, portfolio optimization, and evaluation of financial strategies and risk control.

Week	Date	Topic	Readings
1	1/14/2022	Interest Rates and Swaps	H: Ch 4, 6, 7
2	1/21/2022	Futures-Forwards-Options	H: Ch 2, 3, 5, 11, 12
3	1/28/2022	Binomial Model	H: Ch 13, 21.1-21.5, 27.4
4	2/4/2022	Black-Scholes Framework	H: Ch 14, 15, 21.6-21.7, 27.8,28
5	2/11/2022	Black-Scholes Framework	H: Ch 14, 15, 21.6-21.7, 27.8,29
6	2/18/2022	Black-Scholes: Greeks and Hedging	H: Ch 17, 18, 19
7	2/25/2022	Implied Volatility	H: Ch 20, 27.1-27.3
8	3/4/2022	Exotic Options	H: Ch 26, 27.6 - 27.8, 30.4
9	3/11/2022	Midterm	
10	3/18/2022	Spring Break	
11	3/25/2022	Credit Risk	H: Ch 24
12	4/1/2022	Credit Derivatives	H: Ch 24
13	4/8/2022	Interest Rate Models and Derivatives	H: Ch 29, 31
14	4/15/2022	Interest Rate Derivatives	H: Ch 32
15	4/22/2022	Real World Volatility	H: Ch 23
16	4/29/2022	Value-at-Risk	H: Ch 22
17	5/6/2022	Final Exam	

Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. to 5:00 p.m. Monday – Friday. The phone number for DSP is (213) 740-0776.

Desire2learn

Class notes are available at <http://courses.uscden.net>. For general instructional support assistance please contact the Instructional Support Center office at denisc@usc.edu or (213) 821-1421. For any other technical support issue, please contact the Technical Support Center at dentsc@usc.edu or (213) 821-1321.