

ISE 563 FINANCIAL ENGINEERING - Spring 2016

Th 2:00 – 4:50 p.m., Room OHE 136
Professor: Cesar Acosta Ph.D.
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Office hours: TBD
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Teaching Assistant: TBD
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Textbook

Hull J., *Options, Futures, and Other Derivatives*, 9th ed., Prentice Hall, 2014, ISBN 9780133457476

References

Ross, S., *An Elementary Introduction to Mathematical Finance*, Cambridge Univ. Press, 3rd ed., 2011

Pre-requisites: Required, ISE 220 Probability Concepts in Engineering or equivalent.
Strongly recommended, ISE 331 Introduction to Operations Research, Probability Models, ISE 460 Engineering Economy, or equivalent courses.

Course Objectives: To familiarize students with investment problems and the mathematical tools needed to solve them. Investment problems such as assets pricing, portfolio selection and optimization, hedging, and optimization of financial strategies. In particular the use of derivative instruments to reduce investments risk. To attain this objective the knowledge of some advanced mathematical tools is required. This course will familiarize the students with stochastic processes and stochastic calculus as they are required to price derivative assets.

Week	Topic
1	Introduction
2-3	Portfolio Management
4-5	The Arbitrage Theorem
6	Modeling Derivatives in discrete time
7-8	The Binomial model & Black & Scholes Formula
8	Midterm TBA
9-10	Brownian Motion
11-12	Martingales
13-14	Stochastic Calculus
15-16	Ito's lemma, Black & Scholes Formula

Grading Policy:

Homework 30%
Midterm 30%
Final Exam 40%

Academic Integrity. The Viterbi School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus (www.usc.edu/dept/publications/SCAMPUS/). Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

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. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776