

DEPARTMENT OF ECONOMICS
UNIVERSITY OF DELHI

Subject: **DISCIPLINE SPECIFIC ELECTIVE COURSE**

Sem.: VI/VIII

Course & Code: Financial Derivatives ECON077

Duration (per week): 4 (3 Lectures + 1 Tutorial)

Date & Time 25/11/2024 at 4:00 PM

Venue: 104, Department of Economics, Delhi University

Convenor: Reetika Garg, Satyendra Gupta

College Teachers:

Dr. Animesh Naskar	HRC
Dr. Vaibhav Puri	SGGSCC

Learning Objectives

The Learning Objectives of this course are as follows:

- To equip students with essential tools for understanding Finance at undergraduate level.
- To provide analytical knowledge to understand complex financial Derivatives.
- To provide advanced skills for pricing and formulating trading strategies using Derivative products

Learning outcomes

The Learning Outcomes of this course are as follows:

- After studying this course, students would be able to understand the core concepts of financial derivatives. The course would develop an analytical knowledge for understanding the mechanics and characteristics of derivative products such as Future, Options and SWAP agreements.
- After studying this course, students would be able to understand and formulate complex trading strategies adopted using financial derivative products

Agenda of the Meeting

- To discuss detailed Topic-wise / Unit-wise Reading list
- To discuss Evaluation criteria and Exam pattern

Syllabus

1. SYLLABUS OF DSE: FINANCIAL DERIVATIVES

Unit 1: Futures Contract & SWAP (15 Hours)

Part I: Futures/Forward Contracts: Properties, Pricing and Hedging

a) Introduction to derivatives and options; forward and futures contracts; options; other derivatives

Hull Chapter - 2: Mechanics of Futures Markets (Sections 2.1 - 2.4 & 2.11)

b) Forward and future prices

Hull Chapter-5: Determination of Forward & Futures Prices (Sections 5.1 - 5.5, 5.9, 5.11 & 5.12)

c) Stock index futures & the use of futures for hedging Hull Chapter - 3: Hedging Strategies using Futures

Part II: Interest Rate Futures*

d) Interest rate futures & duration-based hedging strategies

Hull Chapter - 6: Interest rate futures (6.1 to 6.4) [exclude page-158 & 159]

Part III: SWAP & FRA

e) Forward Rate, Forward Rate Agreement and SWAP

Hull Chapter - 4: Interest rate (4.1 to 4.3, 4.6 and 4.7)

Kolb Chapter – 37: Forward Rate Agreements (Page 575- 577) Hull Chapter - 7: Swaps (7.1 to 7.4)

Kolb Chapter – 1: Swap Contracts (Page 11-13); Chapter - 28: Pricing and Valuation of SWAP (page 407- 410)

Unit 2: Options Contract (30 Hours)

Part I: Introduction and Properties of Option Contracts

f) Option markets; call and put options; factors affecting option prices; put-call parity

Hull Chapter - 10: Mechanics of options markets (10.1 to 10.7);

Hull Chapter -11: Properties of stock options (Full Chapter)

Part II: Option Strategies

g) Option trading strategies: spreads; straddles; strips and straps; strangles Hull
Chapter -12: Trading strategies involving options (Full Chapter)

Part III: Pricing of Options, BSM and Greek letters

h) The principle of arbitrage; discrete processes and the binomial tree model; risk neutral valuation, Black Scholes Merton (BSM) Model, Greek letters

Hull Chapter - 13: Binomial trees. Sections 13.1-13.4, 13.6 - 13.9 & Appendix
(Derivation of BSM) Hull Chapter - 14: Section 14.6 ITO[^]'S Lemma*

Hull Chapter - 15: The Black–Scholes–Merton Model: Sections 15.3, 15.4, 15.5, 15.6,
15.8, 15.9, 15.11 Hull Chapter - 19: The Greek Letters (Until Rho only)

Note: Topics that are star marked (*) are optional and will not be evaluated.

Recommended readings

Hull, John C., Options, Futures and Other Derivatives, Pearson Education, Inc, 9th Edition
(Global Edition), 2018.

Robert W. Kolb, James A. Overdahl, Financial Derivatives: Pricing and Risk Management,
John Wiley & Sons, 2010

Evaluation & Assessment

Internal Assessment (IA): 30 marks

- The Internal Assessment would comprise of 6 marks for attendance and two tests of total 24 marks.

Continuous Assessment (CA): 40 marks

- As per the University guidelines

End Semester (Final) Exam: 90 marks

- It was decided that for the End Semester examination there would be an open choice to attempt any 5 questions out of 6. There will be 2 questions from Unit I and 4 questions from unit II. All questions will carry equal marks.