

**City University of Hong Kong
Course Syllabus**

**offered by Department of Economics and Finance
with effect from Semester A 2017/18**

Part I Course Overview

Course Title:	Derivatives Analysis and Advanced Investment Strategies
Course Code:	EF 4420
Course Duration:	1 Semester
Credit Units:	3
Level:	B4
Proposed Area: <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	CB3410 Financial Management or FB3410 Financial Management EF3320 Security Analysis and Portfolio Management
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	EF4320 Advanced Security Analysis and Portfolio Management EF4321 Derivatives and Risk Management

Part II Course Details

1. Abstract

This course aims to develop students' ability to analyse derivative instruments and markets and use options, futures contracts and swaps to do hedging, arbitrage and risk management. Key topics include forward and futures contracts, forwards pricing, interest rate and currency swap, option contracts, Option pricing (binomial tree, risk neutral method, Black-Scholes-Merton model), and Greeks and hedging. Through periodic assignments as well as lectures, students will learn how to price derivatives.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Explain the role and functions of derivatives securities and markets.	40%	✓		
2.	Derive the price of standard options forwards and swaps through analytical, binomial and numerical methods.	25%	✓	✓	
3.	Choose the optimal composition of derivatives to alter risk positions in portfolios.	20%	✓		
4.	Design arbitrage strategies based on derivatives securities.	15%		✓	✓
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.				Hours/week (if applicable)
		1	2	3	4	
Lectures	Class discussions enable students to understand the no-arbitrage argument that is fundamental to pricing derivatives.	√	√	√	√	3 hours per week
	Class discussions encourage students to explore the use of the pricing methods for real-world contingent claims.		√		√	
Assignments	Assignments enable students to apply the methodology they learn to value various financial assets.		√	√	√	

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.				Weighting*	Remarks
	1	2	3	4		
Continuous Assessment: 50%						
Midterm Exam	√	√	√	√	30%	
Group Assignments	√	√	√	√	20%	
Examination: 50% (duration: 2 hours, if applicable)						
Final examination	√	√	√	√	50%	
					100%	

* The weightings should add up to 100%.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Midterm Exam	Test students' understanding of materials covered prior to the exam.	High	Significant	Moderate	Basic	Worse than Marginal
2. Group Assignments	Applying the valuation framework to solve real-world problems.	High	Significant	Moderate	Basic	Worse than Marginal
3. Final Exam	Comprehensive examination of all covered knowledge and techniques.	High	Significant	Moderate	Basic	Worse than Marginal

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

Forward and futures contracts, forwards pricing, short selling, stock index futures contracts, basis risk and hedge ratio, interest rate futures.

Interest rate swap, currency swaps

Options markets, option contracts, put-call parity, trading strategies involving options, volatility spreads, option pricing (binomial trees, risk-neutral method, Black-Scholes-Merton model), Greeks, delta hedging and portfolio insurance, options on stock index, currency options, and futures options

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	John C. Hull, Fundamentals of Futures and Options Markets (8th Edition), Pearson, 2014
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2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

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