City University of Hong Kong
Course Syllabus

offered by Department of Economics and Finance
with effect from Semester A 2022 /23

Part I Course Overview

Course Title:	Derivatives and Risk Management
Course Code:	EF5050
Course Duration:	1 semester
Credit Units:	3
Level:	P5
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	EF5052 Investments
Equivalent Courses: *(Course Code and Title)*	EF5156 Financial Risk Management (From the old curriculum)
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course aims to introduce the students to the use, pricing and hedging of basic financial derivatives such as futures, forwards, options and swaps and the principles of financial risk management. Upon completion of this course, students will be able to apply a variety of derivatives models; use options, futures contracts, and swaps to do arbitrage and to form hedging portfolios; and use derivative securities to manage the risk of financial assets.

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.	The students should be able to price basic financial derivative products.	35%	√	√	
2.	The students should be able to use basic financial derivative products to hedge market risk.	35%		√	√
3.	The students should be able to design strategies that alter the risk exposure of companies or institutions exposed to financial risk.	30%	√	√	√
		100%			

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 self-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	
Lectures	To provide basic concepts and structure. The lecturer encourages students to think critically and logically, to solve the problems by themselves rather than giving away the solutions without engaging students.	√	√	√	-
Homework Problems	The homework problems consist of short questions and calculation questions, with a focus on the prevailing risk management strategies adopted by companies. Students are expected to apply the risk-management theories and to critically analyse the related issues in the financial market.	√	√	√	-
Quiz(zes)/Project(s)	The Quiz(zes) / project(s) which cover the topics in lectures and coursework will reflect the learning outcomes of students as well as their accomplishments of discovery and innovation.	√	√	√	-
Final Exam	The final examination which covers the topics in lectures and coursework will reflect the learning outcomes of students as well as their accomplishments of discovery and innovation.	√	√	√	-

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		
Continuous Assessment: 60 %					
Coursework (homework problems/quiz(zes)/project(s) etc.)	√	√	√	60%	
Examination: 40 % (duration: 2 hours)					
Final Examination	√	√	√	40%	
				100%	

Students are required to pass both coursework and examination components in order to pass the course.

5. Assessment Rubrics

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

Applicable to students admitted in Semester A 2022/23 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
Coursework (homework problems/quiz(zes)/project(s) etc.)	Demonstrate the understanding of course materials by completing problem solving questions and exercise as assigned / applying derivatives models to real-life risk-management.	Demonstrate very strong knowledge in derivatives pricing & hedging, a superior grasp of the critical issues, and strong capability in applying different models.	Demonstrate good knowledge in derivatives pricing & hedging, a good grasp of the critical issues, and strong capability in applying different models.	Demonstrate marginal knowledge in derivatives pricing & hedging, limited knowledge of the critical issues, and no awareness of using different pricing models.	Demonstrates very little knowledge in derivatives pricing & hedging, no awareness of the critical issues and the use of different pricing models.
Final Examination	Demonstrate the capability of mastering theories and a variety of derivatives models and the capability of applying them in managing the risk of financial assets.	Demonstrate very strong knowledge in derivatives pricing & hedging, a superior grasp of the critical issues, and strong capability in applying different models.	Demonstrate good knowledge in derivatives pricing & hedging, a good grasp of the critical issues, and strong capability in applying different models.	Demonstrate marginal knowledge in derivatives pricing & hedging, limited knowledge of the critical issues, and no awareness of using different pricing models.	Demonstrates very little knowledge in derivatives pricing & hedging, no awareness of the critical issues and the use of different pricing models.

<u>Applicable to students admitted before Semester A 2022/23</u>

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
Coursework (homework problems/quiz(zes)/project(s) etc.)	Demonstrate the understanding of course materials by completing problem solving questions and exercise as assigned / applying derivatives models to real-life risk-management.	Demonstrate very strong knowledge in derivatives pricing & hedging, a superior grasp of the critical issues, and strong capability in applying different models.	Demonstrate good knowledge in derivatives pricing & hedging, a good grasp of the critical issues, and strong capability in applying different models.	Demonstrate adequate knowledge in derivatives pricing & hedging, some knowledge of the critical issues, and sign of awareness of using different pricing schemes.	Demonstrate marginal knowledge in derivatives pricing & hedging, limited knowledge of the critical issues, and no awareness of using different pricing models.	Demonstrates very little knowledge in derivatives pricing & hedging, no awareness of the critical issues and the use of different pricing models.
Final Examination	Demonstrate the capability of mastering theories and a variety of derivatives models and the capability of applying them in managing the risk of financial assets.	Demonstrate very strong knowledge in derivatives pricing & hedging, a superior grasp of the critical issues, and strong capability in applying different models.	Demonstrate good knowledge in derivatives pricing & hedging, a good grasp of the critical issues, and strong capability in applying different models.	Demonstrate adequate knowledge in derivatives pricing & hedging, some knowledge of the critical issues, and sign of awareness of using different pricing schemes.	Demonstrate marginal knowledge in derivatives pricing & hedging, limited knowledge of the critical issues, and no awareness of using different pricing models.	Demonstrates very little knowledge in derivatives pricing & hedging, no awareness of the critical issues and the use of different pricing models.

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

1. Keyword Syllabus

Futures, Options, Swaps, Options Pricing, Hedging, Risk Management, Market Risk, Value at Risk, Stochastic Processes

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.	Options, Futures and Other Derivatives, by John Hull, Pearson

2.2 Additional Readings

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

1.	Paul Wilmott Introduces Quantitative Finance, by Paul Wilmott, Wiley
2.	A Course in Derivative Securities: Introduction to Theory and Computation, by Kerry Back, Springer
3.	Dynamic Hedging: Managing Vanilla and Exotic Options, by NN Taleb, Wiley
4.	My Life as a Quant: Reflections on Physics and Finance, by Emanuel Derman, Wiley