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 Pricing II: Interest Rate and Credit Risk**
Course Code:	**EF4821**
Course Duration:	**1 semester**
Credit Units:	**3**
Level:	**B4**
Proposed Area: *(for GE courses only)*	☐ Arts and Humanities ☐ Study of Societies, Social and Business Organisations ☐ Science and Technology
Medium of Instruction:	**English**
Medium of Assessment:	**English**
Prerequisites: *(Course Code and Title)*	**EF4820 Derivatives Pricing I: Stock and FX**
Precursors: *(Course Code and Title)*	**Nil**
Equivalent Courses: *(Course Code and Title)*	**Nil**
Exclusive Courses: *(Course Code and Title)*	**Nil**

Part II Course Details

1. Abstract

This course aims to further study the theoretical and numerical methods in pricing fixed income securities and interest rate derivatives. It covers important term structure (short-rate) and LIBOR market models, and credit risk models. This course aims to enable students to efficiently implement a wide range of models for pricing and hedging fixed income derivatives, and to equip students with the capability of performing integrated numerical computations in pricing and hedging derivatives that are important in practice.

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.	Describe the key ideas and models that are important to the fixed income securities and associated financial derivatives		√	√	√
2.	Identify the key elements of quantitative methods in pricing and hedging fixed income securities and derivatives			√	√
3.	Apply the basic quantitative methods to price and hedge complex structured financial products			√	√

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	
1	Lectures	√	√	√	
2	Project	√	√	√	

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: 50%					
Assignments	√	√	√	30%	
Projects	√	√	√	20%	
Examination: 50% (duration: 2 hours, if applicable)					
Examination	√	√	√	50%	
				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)
Coursework and Examination		Demonstrate a superior grasp of the techniques, and capable of delivering stable, efficient, and correct solution	Demonstrate a good grasp of the techniques, and capable of delivering workable and correct solution	Demonstrate adequate grasp of the techniques, and capable of delivering workable solution with some minor errors	Demonstrate limited grasp of the techniques, and capable of delivering some key components of the solution only	Demonstrate very little grasp of the techniques, and incapable of delivering any key component of the solution

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

1. Keyword Syllabus

Fixed Income Securities and Options,
Interest Rate Derivatives and Libor Market Models
Term Structure Models (Vasicek, CIR, Multi-Factor Affine Models)
Credit Derivatives

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.	Kerry Back, A Course in Derivative Securities: Introduction to Theory and Computation, Springer (ISBN 978-3-540-27900-6)
2	John C. Hull, Options, Futures, and Other Derivatives, Prentice Hall (ISBN 0-13-046592-5)

2.2 Additional Readings

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

1.	P. Wilmott, Paul Wilmott Introduces Quantitative Finance, Wiley
2.	Darrel Duffie and Kenneth Singleton, Credit Risk, Princeton