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:	Fixed Income Securities
Course Code:	EF5157
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)*	EF5042 Corporate Finance and EF5052 Investments
Equivalent Courses: *(Course Code and Title)*	EF5154 Advanced Topics in Debt Markets
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course aims at introducing the analytical techniques, products, applications, and institutions in debt markets to students.

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.	Demonstrate a solid understanding of the basics of fixed income securities and the main theories of the term structure of interest rates.	10%	√	√	
2.	Explain and apply the concepts of duration and convexity in the context of interest rate risk management.	15%	√	√	
3.	Understand interest rate derivatives (forwards, futures, swaps, options) and apply them for hedging purposes.	15%	√	√	√
4.	Understand and construct binomial trees and apply them for pricing interest rate derivatives (caps, floors, futures, European and American swaptions, callable bonds).	20%	√	√	√
5.	Understand the mechanism and role of residential mortgage backed securities.	15%	√	√	
6.	Understand Monte Carlo simulation on binomial trees and apply it to price path-dependent options and residential mortgage-backed securities.	15%	√	√	√
7.	Understand and apply the Black formula for pricing caps, floors, and swaptions.	10%	√	√	√
		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	4	5	6	7	
Lectures, in-class discussions	Lectures are designed to help students develop their discovery abilities through class discussions and circumstance simulation. Lectures will focus on basic concepts and frameworks. Students are expected to discover the methodology of interest rate models and applications. In-class discussions will motivate students' participation and enhance their communication skills, critical thinking, and creative and innovative skills.	√	√	√	√	√	√	√	3 hours lecture per week
Group assignments and group projects	To enhance students' understanding of the lecture material. Students will perform in-depth analyses and further discover the working mechanism of interest-rate related assets. Eventually, they provide innovative solutions to specific business problems. This is an important step in developing students' abilities and skills to discover and innovate. With the knowledge, students will be able to confidently work with fixed income securities and become prospective quantitative analysts.	√	√	√	√	√	√	√	Two group assignment /projects during the semester, altogether 2 times 6 hours during the semester
Short weekly tests	At the beginning of every lecture (starting from Week 2) students take a short test (5-10 minutes), which consist of one or two simple questions from the previous week's material. These short tests encourage students to keep up week-by-week with the material, and hence enable them to actively and constructively participate in class discussions.	√	√	√	√	√	√	√	5-10 minutes per week (starting from Week 2)

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	5	6	7		
Continuous Assessment: 50 %									
Group assignments/projects	√	√	√	√	√	√	√	40%	
Short weekly tests	√	√	√	√	√	√	√	10%	
Examination: 50 % (duration: 2 hours, if applicable)									
Final 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)
1. Coursework (group assign-ments/projects, weekly short tests)	Demonstrate the capability of applying financial theories of fixed income securities and interest rate derivatives learned in the course by completing the various assigned group assignments and projects. Provide evidence of keeping up week-by-week with the material.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Final Examination	Demonstrate good understanding of the financial theories and applications of fixed income securities and interest rate derivatives.	High	Significant	Moderate	Basic	Not even reaching marginal levels

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

1. Keyword Syllabus

Fixed income securities, Bond markets, Yield-to-maturity, Bond duration and convexity, Spot rates, Forward rates, Term-structure of interest rates, Mortgage-backed securities, Prepayment risk, Convertible bonds, Binomial-tree method, Credit derivatives, Structured products

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. *Fixed Income Securities: Valuation, Risk and Risk Management by Pietro Veronesi. John Wiley & Sons, 2011. ISBN 978-0-470-10910-6 (paper) or 978-0-470-58689-1 (e-book).*

2.2 Additional Readings

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