EF4327: FIXED INCOME SECURITIES

Effective Term
Semester A 2023/24

Part I Course Overview

Course Title
Fixed Income Securities

Subject Code
EF - Economics and Finance

Course Number
4327

Academic Unit
Economics and Finance (EF)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
EF3320 Security Analysis and Portfolio Management
EF4321 Derivatives and Risk Management

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

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

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Demonstrate a solid understanding of the fixed income market, including various fixed income securities, the size and growth of their market share, the term structure of interest rates, and the various return measures such as yield-to-maturity and total return of a bond investment.	10	x	x	
2	Explain and apply the concepts of discount factors, the pricing of fixed-rate and floating-rate bonds, and fixed-income portfolios.	15		x	x
3	Explain and apply the concept of duration, its related risk measures, including VaR and ES, and the basic interest rate risk management, including cashflow matching and immunization.	10		x	x
4	Explain and apply the concepts of convexity, factor duration, and refined interest rate risk management.	15		x	x
5	Explain and apply the law of one price and bootstrapping the discount factors from the prices of different fixed-income securities.	20		x	x
6	Acquire basic understanding of commonly used interest-rate derivatives, such as interest-rate futures and options, credit derivatives, and structured products. Explain and apply the concepts of forward rate and forward discount factors, the contract and pricing of forwards, futures, swaps, and forward swap contracts.	15		x	x
7	Use the binomial tree methods to model the evolution of short-term interest rates and to price various fixed income securities.	15	x	x	x

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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures, in-class discussions	The course will also develop students' creative and innovative abilities through numerous assessment tasks/activities that involve the discovery and innovative process. Lectures are designed to help students develop their discovery abilities through class discussions and circumstance simulation. Lectures will focus on basic concepts and framework. Students are expected to discover the methodology of interest rate models and applications. The final exam which covers the topics in the lectures and in-class discussion will also reflect students' accomplishments in discovery and innovation.	1, 2, 3, 4, 6	3 hours lecture per week
2	Assignments, Group projects/ case studies	Group projects/case studies and assignments enable students to discover and innovate through the use of applicable interest rate models. Students will learn to use these tools and conduct analyses on interest rate and investment products such as bonds and interest rate derivatives.	1, 2, 3, 4, 5, 6, 7	
3	Mid-term Examination	The mid-term examination enables students to timely check their grasp of the topics in the first six weeks.	1, 2, 3	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Group projects / case studies	5, 6, 7	20	Students will perform in-depth analyses on the interest rate model, followed by the induction of innovative solution towards specific business problems. This is an important step in developing students' abilities and skills to discover and innovate.
2	Assignments	1, 2, 3, 4	20	To enhance students' understanding of lecture materials.Students will discover the basics of interest-rate related asset and the stochastic process. With the knowledge, students will be able to deal with the bond market and become prospective quantitative analyst.
3	In-class discussions, attendance	1, 2, 3, 4, 6, 7	5	These activities will motivate students' participation in class and enhance their communication skills, critical thinking, and creative and innovative skills.
4	Mid-term Examination	1, 2, 3	10	The mid-term examination which covers topics in the first six weeks and in-class discussions will reveal students' accomplishments in discovery and innovation.

Continuous Assessment (%)

55

Examination (%)

45

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

Group projects / case studies,

Criterion

Based on in-class presentation/project write-up.

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base; the ability to solve complicated relevant problems quickly and accurately.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature; the ability to develop solutions to most complicated problems in the material.

Fair (C+, C, C-)

Evidence of grasp the key concepts and understanding of the subject; ability to develop solutions to simple problems in the material.

Marginal (D)

Sufficient familiarity with the subject matter to enable the student to progress without repeating the course; completion of all the required assessments.

Failure (F)

Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature; missing part(s) of the assessments.

Assessment Task

Assignments

Criterion

Based on performance on take-home problem sets

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base; the ability to solve complicated relevant problems quickly and accurately.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature; the ability to develop solutions to most complicated problems in the material.

Fair (C+, C, C-)

Evidence of grasp the key concepts and understanding of the subject; ability to develop solutions to simple problems in the material.

Marginal (D)

Sufficient familiarity with the subject matter to enable the student to progress without repeating the course; completion of all the required assessments.

Failure (F)

Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature; missing part(s) of the assessments.

Assessment Task

In-class discussions/ attendance

Criterion

Based on active participation/class attendance.

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base; the ability to solve complicated relevant problems quickly and accurately.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature; the ability to develop solutions to most complicated problems in the material.

Fair (C+, C, C-)

Evidence of grasp the key concepts and understanding of the subject; ability to develop solutions to simple problems in the material.

Marginal (D)

Sufficient familiarity with the subject matter to enable the student to progress without repeating the course; completion of all the required assessments.

Failure (F)

Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature; missing part(s) of the assessments.

Assessment Task

Mid-term Examination

Criterion

Based on 2-hour mid-term exam.

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base; the ability to solve complicated relevant problems quickly and accurately.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature; the ability to develop solutions to most complicated problems in the material.

Fair (C+, C, C-)

Evidence of grasp the key concepts and understanding of the subject; ability to develop solutions to simple problems in the material.

Marginal (D)

Sufficient familiarity with the subject matter to enable the student to progress without repeating the course; completion of all the required assessments.

Failure (F)

Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature; missing part(s) of the assessments.

Assessment Task

Final Examination

Criterion

Based on 2-hour final exam.

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

Fair (C+, C, C-)

Student who is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material

Marginal (D)

Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.

Failure (F)

Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature.

Part III Other Information

Keyword Syllabus

Fixed income securities, Bond markets, Bond pricing, Yield-to-maturity, Bond duration and convexity, Spot rates, Interest rate risk management, Forward rates, Fixed-income derivatives, Term-structure of interest rates, Mortgage-backed securities, Binomial-tree methods.

Reading List

Compulsory Readings

	Title
1	Fixed Income Securities: Valuation, Risk, and Risk Management, Wiley, by Pietro Veronesi
2	Fixed Income Securities: Tools for Today's Markets, 3rd Edition, University Edition, by Bruce Tuckman and Angel Serrat, Wiley

Additional Readings

	Title
1	Options, Futures, and Other Derivatives, 9th edition, by John C. Hull, Pearson
2	A Course in Derivative Securities: Introduction to Theory and Computation, by Kerry Back, Springer