

EF4327: FIXED INCOME SECURITIES

Effective Term

Semester A 2024/25

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	Explain and apply the concepts of forward rate and forward discount factors, as well as the contract and pricing of forwards, futures, swaps, and forward swap contracts. Discuss commonly used interest-rate derivatives, such as interest-rate futures and options, credit derivatives, and structured products.	15		x	x
7	Apply 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.

Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Students will engage in formal lectures to gain knowledge about fixed income securities.	1, 2, 3, 4, 6	3 hours lecture per week
2	Peer Discussion	Students will engage in structured discussion with peers to identify areas to improve on in their returned assessment tasks.	1, 2, 3, 4, 5, 6, 7	

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 Participation	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.
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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 Participation

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