

EF4620: AI APPLICATIONS IN INVESTMENT MANAGEMENT

Effective Term

Semester A 2026/27

Part I Course Overview

Course Title

AI Applications in Investment Management

Subject Code

EF - Economics and Finance

Course Number

4620

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

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

This course introduces students to the practical applications of advanced derivative instruments and artificial intelligence (AI) in modern finance. With a strong industry focus, it explores how derivatives are applied in structuring and risk management, while AI-driven technologies (including machine learning and multi-agent systems) are increasingly used to support investment research, portfolio construction, and automated decision workflows. Students will gain insight into the intersection of traditional quantitative finance and emerging AI applications, supported by real-world case studies and hands-on exercises.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Explain the structure and real-world uses of various financial assets	30	x		
2	Identify and evaluate practical AI applications in financial research, workflow automation and portfolio construction.	30	x	x	
3	Apply tools like Python or LLMs to implement basic financial models and automated workflows using AI.	20		x	x
4	Communicate key takeaways from AI-assisted financial research in a clear and structured format for academic or professional audiences.	20		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	Lecture	Students will engage in conceptual and industry-focused discussions on financial assets and AI frameworks	1, 2	3 hours lecture each week
2	Group project	Students are required to develop a mini-prototype or strategy involving an AI-enhanced financial solution	2, 3, 4	
3	Presentations	Showcase and critique of final projects to simulate industry	4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- for nil entry)	Allow Use of GenAI?
1	Assignments, Group Project and Presentation	1, 2, 3, 4	100	-	Yes

Continuous Assessment (%)

100

Assessment Rubrics (AR)**Assessment Task**

Group project Report and Presentation

Excellent (A+, A, A-)

Demonstrates a deep and comprehensive understanding of AI concepts and their application in investment management. Can independently design and implement robust AI solutions to address real-world financial problems. Shows strong analytical reasoning and communicates findings professionally.

Good (B+, B, B-)

Demonstrates a good understanding of key AI techniques and applies them effectively to financial problems with appropriate justification. Show competent analytical reasoning and the ability to communicate results clearly.

Fair (C+, C, C-)

Shows a basic understanding of AI methods and their application in investment management. Can perform fundamental analyses in investment contexts with a guidance or support.

Marginal (D)

Demonstrates a limited and fragmentary understanding of AI concepts with limited ability to apply methods appropriately. Shows minimal analytical insight limited awareness of the broader implications of AI in finance.

Failure (F)

Fails to demonstrate adequate understanding of key AI or investment management concepts. Shows no ability to apply AI methods appropriately. Work lacks analysis, coherence, or awareness of financial applications.

Part III Other Information

Keyword Syllabus

- Financial Market, Asset Management
- Real-World Use Cases: Credit derivatives, asset swaps, and hedging strategies
- AI in Finance: Supervised learning, NLP, LLMs, multi-agent systems
- Use of AI tools: Python, Replit, Dify.ai, ChatGPT, Bloomberg API
- Portfolio construction using AI agents
- Automation of research workflows
- Prompt engineering and decision systems

Reading List**Compulsory Readings**

Title	
1	Nil

Additional Readings

	Title
1	Hull, J. C. "Options, Futures, and Other Derivatives," Pearson