FB5772A: APPLIED FINANCIAL ANALYTICS FOR RISK MANAGEMENT

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Applied Financial Analytics for Risk Management

Subject Code
FB - College of Business (FB)

Course Number
5772A

Academic Unit
College of Business (CB)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
2

Level
P5, P6 - Postgraduate Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
FB5772B

Part II Course Details

Abstract

The recent development of FinTech trends in the global market has formed a new fundamental revolution in the financial environments. The investment bank model and rating agency's' methodology were challenged and revised during the financial crisis and the traditional financial engineering technique was changed dramatically by the FinTech implementations. This course will introduce students to the general financial products in the market, e.g. credit ratings, fixed incomes, derivatives, structured finance including financial and real-estate assets and FinTech applications. A brief introduction of AI applications will be made during the course to let our students understand the impacts of new technology in the financial market.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe the insights regarding the general financial products in the market	40	x	x	x
2	Explain various stochastic models and credit migration models for financial assets	30	x	x	x
3	Discuss and debate the recent global trends in various financial markets	30	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 the lectures to think critically and logically by interactively discussing the main issues. Real-world examples are discussed in the lectures to help students understand the current trend in the financial market	1, 2, 3	
2	In-class discussions	Students will participate the in-class discussion and get a better understanding of the essential materials by interpreting what they learn from the lecture	1, 2, 3	

3	Coursework, Quiz and Final Examination	Students will participate in the final exam, coursework and quiz to test their ability to understand, discover and innovate. Students will have to demonstrate to be able to master not only the details of the quantitative frameworks discussed in the course but also the big picture of what they learn.	1, 2, 3	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	In-class Learning Activities	1, 2, 3	20	-	Yes
2	Coursework	1, 2, 3	40	-	Yes
3	Quiz	1, 2, 3	15	-	No

Continuous Assessment (%)

75

Examination (%)

25

Examination Duration (Hours)

3

Assessment Rubrics (AR)

Assessment Task

In-class Learning Activities (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Attendance and punctuality; performance in class activities

Excellent

(A+, A, A-) Proactively participate in class discussion by offering innovative ideas and asking questions related to the subject of financial analytics for risk management.

Good

(B+, B, B-) Proactively participate in class discussion by offering some innovative ideas and asking questions related to the subject of financial analytics for risk management.

Fair

(C+, C, C-) Occasionally active when urged to participate in class discussion by offering some acceptable ideas and asking limited questions related to the subject of financial analytics for risk management.

Marginal

(D) Not too active in class discussion and asking no questions related to the subject of financial analytics for risk management.

Failure

(F) No participate in class discussion and asking no questions related to the subject of financial analytics for risk management.

Assessment Task

Coursework (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Performance in applying the knowledge and concepts covered from the course

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

Failure

(F) No evidence of familiarity with the subject matter; very weak in critical and analytic skills; limited, or irrelevant use of literature.

Assessment Task

Quiz (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Students perform in the quiz and demonstrate the ability to understanding the subject matter

Excellent

(A+, A, A-) Excellent understanding and arguments in a logical order in the subject matter.

Good

(B+, B, B-) Good understanding and arguments in a logical order in the subject matter

Fair

(C+, C, C-) Basic understanding and arguments in the subject matter.

Marginal

(D) Limited understanding and arguments in the subject matter.

Failure

(F) Weak understanding and arguments in the subject matter.

Assessment Task

Examination (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Students perform in the written exam and demonstrate the capacity of applying the knowledge of financial analytics for risk management

Excellent

(A+, A, A-) Very strong capacity in applying the knowledge with a superior grasp of the credit issues of financial analytics for risk management.

Good

(B+, B, B-) Strong capacity in applying the knowledge with good grasp of the credit issues of financial analytics for risk management.

Fair

(C+, C, C-) Good capacity in applying the knowledge and basic awareness of the credit issues of financial analytics for risk management.

Marginal

(D) Limited capacity in applying the knowledge and awareness of the critical issues of financial analytics for risk management.

Failure

(F) No capacity in applying the knowledge and awareness of the critical issues of financial analytics for risk management.

Assessment Task

In-class Learning Activities (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Attendance and punctuality; Performance in class activities

Excellent

(A+, A, A-) Proactively participate in class discussion by offering innovative ideas and asking questions related to the subject of financial analytics for risk management.

Good

(B+, B) Proactively participate in class discussion by offering some innovative ideas and asking questions related to the subject of financial analytics for risk management.

Marginal

(B-, C+, C) Occasionally active when urged to participate in class discussion by offering some acceptable ideas and asking limited questions related to the subject of financial analytics for risk management.

Failure

(F) Hardly participate in class discussion and asking no questions related to the subject of financial analytics for risk management.

Assessment Task

Coursework (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Performance in applying the knowledge and concepts covered from the course

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

Marginal

(B-, C+, C) Student who is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.

Failure

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

Assessment Task

Quiz (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Students perform in the quiz and demonstrate the ability to understanding the subject matter

Excellent

(A+, A, A-) Excellent understanding and arguments in a logical order in the subject matter.

Good

(B+, B) Good understanding and arguments in a logical order in the subject matter

Marginal

(B-, C+, C) Basic understanding and arguments in the subject matter.

Failure

(F) Weak understanding and arguments in the subject matter.

Assessment Task

Examination (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Students perform in the written exam and demonstrate the capacity of applying the knowledge of financial analytics for risk management

Excellent

(A+, A, A-) Very strong capacity in applying the knowledge with a superior grasp of the credit issues of financial analytics for risk management.

Good

(B+, B) Strong capacity in applying the knowledge with good grasp of the credit issues of financial analytics for risk management.

Marginal

(B-, C+, C) Good capacity in applying the knowledge and basic awareness of the credit issues of financial analytics for risk management.

Failure

(F) No capacity in applying the knowledge and awareness of the critical issues of financial analytics for risk management.

Part III Other Information

Keyword Syllabus

Market and Credit Risk
- the principle of financial market
- the reasons and impacts of 2008 financial crisis
- the most recent development of financial products and FinTech applications
- the definition of a credit event, yield to maturity, and yield curve
- the effects of interest rate affecting the credit related products and their corresponding measures, such as duration and convexity
- rating agency’s rating theory
- stochastic simulation of derivative prices and risk managements
- how to apply risk management skills into the practical product designs
- the structure of securitizing various collateralized obligations, such as real-estate, CDO, and account receivables

Operational Risk
- the nature of operational risk
- KYC, AML and Compliance risk
- Market normality and attitude for financial business

Reading List

Compulsory Readings

	Title
1	NIL

Additional Readings

	Title
1	John C. Hull (2021). Options, Futures & Other Derivatives. 11th Ed., Prentice Hall.
2	Harry H. Panjer (2006). Operations Risk: Modeling Analytics. Wiley Inter-science.