هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission
اعتماد
NCAAA
2024
TP-153

Course Specification
(Bachelor)

Course Title:	**Mathematics of Financial Derivatives**
Course Code:	**AFM 1333**
Program:	**Bachelor of Science in Actuarial and Financial Mathematics**
Department:	**Mathematics and Statistics**
College:	**Science**
Institution:	**Imam Mohammad Ibn Saud Islamic University**
Version:	**2024 – V1**
Last Revision Date:	**None**

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours:					
3 (2 Lectures, 0 Lab, 2 Tutorial)					
2. Course type					
A.	☐University	☐College	☒ Program	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: Level 5 / Year 3					
4. Course general Description:					
This course consists in understanding the concept of Derivatives and its types, be familiar with the knowledge of Options and Futures and knowing about Hedging strategies of some derivatives.					
5. Pre-requirements for this course (if any)**:**					
AFM 1231					
6. Co-requisites for this course (if any)**:**					
None					
7. Course Main Objective(s):					
Understanding the role of a list of frequently used derivatives and how to implement them in hedging some risks.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning	0	0%
3	Hybrid • Traditional classroom • E-learning	0	0%
4	Distance learning	0	0%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	0
3.	**Field**	0
4.	**Tutorial**	30
5.	**Others (specify)**	0
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recall different types of derivatives and their roles	K2, K3	4 lecture hours\week	Direct: Regular Exams
1.2	Define about pricing methods of derivatives.	K2, K3	• 2 tutorial hours\week • Self-study	Direct: Short Quizzes
2.0	**Skills**			
2.1	Use financial derivatives, their various features and various types, like forward, futures, options, Swaps, convertible, warrants, etc.	S1, S2	• Self-study • Real-life problems	Direct: • Participations • Short Quizzes
2.2	Analyze forward contract and its various features.	S3	Self-study	Direct: Participations
2.3	Apply different approaches of pricing financial derivatives like Black-Scholes method and Binomial tree method.	S2	Self-study	Direct: Participations
2.4	Construct hedging strategies using individual or basket of financial derivatives.	S3	Self-study	Direct: Participations
3.0	**Values, autonomy, and responsibility**			
3.1	Debate with independence and in work team.	V1, V2	Personal questions	Direct: Participation
3.2	Develop personal values and attributes such as honesty, empathy and respect for others.	V1, V2	Teamwork and class discussions.	Direct: Homework and Mini projects

. Course Content

No	List of Topics	Contact Hours
1.	Forward contracts: Basics of Financial Derivatives, Forward Contracts, Participants in Derivative Markets, Recent Developments in Global Financial Derivative Markets.	15
2.	Options: Basics of Options, Fundamental Determinants of Option's Price, Options Trading Strategies, Interest rate swaps, Currency Swaps.	15
3.	Futures: Futures Market, Pricing of Futures, Theories of Futures Prices.	15
4.	Hedging process: Hedging Strategy Using Futures, Basis Risk and Hedging, Stock Index.	15
Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework's, Quizzes, Mini projects	During the term	10%
2.	First Midterm	Week 5-6	25%
3.	Second Midterm	Week 10-11	25%
4.	Final Exam	Week 16	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Gupta S.L., FINANCIAL DERIVATIVES THEORY, CONCEPTS AND PROBLEMS PHI, Delhi, Kumar S.S.S. FINANCIAL DERIVATIVES, PHI, New Delhi, 2007. (Main Reference)
Supportive References	Chance, Don M: DERIVATIVES and Risk Management Basics, Cengage Learning, Delhi.
Electronic Materials	None
Other Learning Materials	None

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	▪ Each classroom should be equipped with a whiteboard and a projector. ▪ Laboratories should be equipped with computers and an internet connection.
Technology equipment (projector, smart board, software)	The rooms should be equipped with data show and Smart Board.
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	During the semester and at the end of the course each student will complete two evaluation forms.
Effectiveness of	Instructor	At the end of each semester the course instructor should

Assessment Areas/Issues	Assessor	Assessment Methods
Students' assessment		complete the course report, including a summary of student questionnaire responses appraising progress and identifying changes that need to be made if necessary.
Quality of learning resources	Students	During the semester and at the end of the course each student will complete two evaluation forms.
The extent to which CLOs have been achieved	Instructor	At the end of each semester the course instructor should complete the course report, including a summary of student questionnaire responses appraising progress and identifying changes that need to be made if necessary.
Other	None	

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	MATHEMATICS AND STATISTICS DEPARTMENT COUNCIL
REFERENCE NO.	8/1446
DATE	05/04/1446 (08/10/2024)