# Course Specification

(Postgraduate Programs )

| | |
|---|---|
| Course Title: | **Valuation and Hedging** |
| Course Code: | **AFM 6214** |
| Program: | **Executive Master of Science in Actuaries and Financial Mathematics** |
| Department: | **Mathematics and Statistics** |
| College: | **Science** |
| Institution: | **Imam Mohammad Ibn Saud Islamic University** |
| Version: | **2024 – V1** |
| Last Revision Date: | **None** |

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## 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 | ☐ Department | ☐Track | ☒ Others |
| **B.** | ☐ Required | | ☒ Elective | | |
| **3. Level/year at which this course is offered: Level 4 / Year 2** | | | | | |
| **4. Course general Description:** | | | | | |
| This course provides an in-depth understanding of the principles and techniques of valuation and hedging in financial markets. Students will learn how to evaluate financial instruments and utilize hedging strategies to manage risk effectively. | | | | | |
| **5. Pre-requirements for this course** (if any): | | | | | |
| None. | | | | | |
| **6. Co-requisites for this course** (if any): | | | | | |
| None. | | | | | |
| **7. Course Main Objective(s):** | | | | | |
| The main objective of this course is to:<br>• Understand the fundamental concepts of asset valuation.<br>• Apply various valuation methods to financial instruments.<br>• Identify and analyze risks in financial markets.<br>• Develop and implement hedging strategies using derivatives.<br>• Evaluate the effectiveness of hedging techniques. | | | | | |

### 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<br>• Traditional classroom<br>• 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 | Use variety of hedging strategies. | K1 | • Lectures<br>• Reading | Direct:<br>• Quizzes<br>• Homework<br>• Exams |
| 1.2 | Describe the importance of valuation and hedging strategies for different assets. | K2 | • Lectures<br>• Illustrative examples | Direct:<br>• Quizzes<br>• Assignment<br>• Exams |
| 1.3 | List the characteristics of the different evaluation methods. | K2 | • Lectures<br>• Reading<br>• Illustrative examples | Direct:<br>• Quizzes<br>• Assignment<br>• Exams |
| **2.0** | **Skills** | | | |
| 2.1 | Evaluate the possible hedging strategies using different derivatives securities to reduce risk of firms. | S1 | • Lectures<br>• Self-Learning<br>• Discussion | Direct:<br>• Exams<br>• Homework<br>• Direct Questions |
| 2.2 | Apply the possible speculation and arbitrage strategies using different derivatives securities to increase profitability at both the individual level and firm level. | S2 | • Lectures<br>• Self-learning<br>• Problem solving | Direct:<br>• Exams<br>• Quizzes<br>• Homework<br>• Assignment |
| 2.3 | Analyze the payoff of each derivatives securities from the point of view of both the issuer and the holder. | S3 | • Lectures<br>• Reading<br>• Self-learning | Direct:<br>• Exams<br>• Quizzes<br>• Homework<br>• Assignment |
| **3.0** | **Values, autonomy, and responsibility** | | | |
| 3.1 | Create connections within groups, demonstrating adaptability to new circumstances, both independently and collaboratively. | V1 | • Discussion<br>• Self-learning | Direct:<br>• Panel discussion<br>• Assignment |
| 3.2 | Develop the highest standards of ethical conduct and professional behavior, along with critical, | V2 | • Active Learning<br>• Case studies | Direct:<br>• Assignment<br>• Projects |

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|---|---|---|---|---|
| | **interpersonal, and communication skills, and maintain a commitment to lifelong learning.** | | | |

## C. Course Content

| No | List of Topics | Contact Hours |
|---|---|---|
| 1. | **Introduction to Valuation:** Overview of valuation, Time value of money, Present value and future value oncepts. | 10 |
| 2. | **Valuation Methods:** Discounted Cash Flow (DCF) Analysis, Comparable company analysis, Precedent transactions analysis, Option pricing models (Black-Scholes, Binomial). | 10 |
| 3. | **Financial Derivatives:** Types of derivatives (options, futures, swaps), Market mechanics and pricing. | 10 |
| 4. | **Risk Management and Hedging:** Understanding Risk: market, credit, operational, Hedging fundamentals, Hedging with futures and options. | 10 |
| 5. | **Advanced Hedging Strategies:** Delta hedging, Cross-hedging, Using swaps for hedging. | 10 |
| 6. | **Case Studies and Practical Applications:** Real-world valuation and hedging examples, Group projects on valuation and hedging strategies. | 10 |
| | **Total** | **60** |

## D. Students Assessment Activities

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|---|---|---|---|
| 1. | **Quizzes, Mini projects, Real-life project** | **During the semester** | **30%** |
| 2. | **Midterm** | **Week 8-9** | **30%** |
| 3. | **Final Exam** | **Week 15** | **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** | ***Investment Valuation: Tools and Techniques for Determining the Value of Any Asset,*** Aswath Damodaran, 3rd Edition, 2012, Wiley Finance. |
| **Supportive References** | ***Options, Futures, and Other Derivatives,*** John Hull, 10th Edition, 2017, Pearson. |
| **Electronic Materials** | **None.** |
| **Other Learning Materials** | Basic Computer applications (like MS- office, media player, Google chrome) for enhanced knowledge & learning. MS- Project will be more helpful to understand practical side of project management. |

## 2. Educational and Research Facilities and Equipment Required:

| Items | Resources |
|---|---|
| **facilities**<br>(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.) | ▪ **Each class room should be equipped with a whiteboard and a projector.**<br>▪ **Laboratories should be equipped with computers and an internet connection.** |
| **Technology equipment**<br>(projector, smart board, software) | ▪ **The rooms should be equipped with data show and Smart Board.** |
| **Other equipment**<br>(depending on the nature of the specialty) | ▪ **Projectors**<br>▪ **Printers, scanners, etc.** |

## 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 Students assessment | **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.** |
| 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.** | **20/1446** |
| **DATE** | **11/08/1446 (10/02/2025)** |