

## **Course Details:**

**Course Title:** Financial of Risk Management

**Credit Hours:** 3

**Course Code:** FIN-834

**Pre-requisite:** FIN-837

**Program:** EMBA

## **Course Description:**

This course provides an understanding of risk and examines modern techniques for managing various risks. Financial risks are generally classified into market risk, which relates to movement in the prices or volatilities; credit risk, which relates to the ability of counterparties to fulfill their contractual obligations; liquidity risk, which relates to the conduct of transactions at prevailing market prices. The course will cover measurement techniques for financial risks (equity, fixed income, currency, commodity) and instruments. It will cover tools such as duration, portfolio beta, factor sensitivities, and value at risk (VAR). It will also discuss how risk measurement tools can be used for active management of the risk/return profile of financial institutions.

**Course Objectives:** To provide participants with an in-depth knowledge of risk identification, measurement, and management techniques. This topic is essential for professionals involved in risk management, trading, hedge funds, treasury management, corporate financial strategy, and regulatory supervision of financial institutions.

## **Course Learning Outcomes:**

CLO 1: Examine the overall risk environment in which corporate entities operate to develop the risk management strategy.

CLO 2: Determine a framework to measure idiosyncratic and systematic risks that enterprises face in their businesses.

CLO 3: Interpret results of risk analysis which helps in devising risk management strategy.

CLO 4: Compare hedging strategies using financial derivatives to manage speculative risks.

## **Program Goals & Learning Objectives:**

The goals & learning objectives of the EMBA Program are:

### **Goal 1: Students will be capable of critical thinking**

LO 1.1: Students will be able to solve problems with the application of business knowledge.

LO 1.2: Students will be able to evaluate competing decision criteria and alternatives

### **Goal 2: Students will demonstrate leadership skills**

LO 2.1: Students will be able to develop the ability to lead and manage in teams

LO 2.2: Students will be able to make sound decisions

### **Goal 3: Students will learn to communicate effectively**

LO 3.1: Students will be able to communicate effectively in oral presentations

LO 3.2: Student will be able to create professional reports

### **Goal 4: Students will deal with the ethical dilemmas that arise in a business environment**

LO 4.1: Students will be able to identify ethical concerns emanating from a business situation

LO 4.2: Students will be able to apply ethical guidelines to address business problems by examining a set of alternatives

## **Mapping - CLOs with LOs**

Learning Objective	LO 1.1	LO 1.2	LO 2.1	LO 2.2	LO 3.1	LO 3.2	LO 4.1	LO 4.2	Not mapped	Evaluation Item
CLO 1	✓									Assignment
CLO 2	✓									Quiz
CLO 3	✓									Quiz
CLO 4		✓								Assignment

**Note:** ✓ indicates mapped and assessed CLO, ● indicates mapped but not assessed CLO and X indicates unmapped

## **Required Course Material:**

The required text(s) for this course include:

### **Text Books:**

1. An Introduction to Derivative Securities, Financial Markets, and Risk Management-Robert A. Jarrow, Arkadev Chatterjea. Norton and Company, New York.
2. Financial Risk Management: Models, History, and Institutions. Allan M. Malz. John Wiley & Sons, Inc. 2011
3. Elements of Financial Risk Management. Peter F. Christoffersen. Elsevier. 2012.
4. Options, Futures, and Other Derivatives. 8th Edition. John C. Hull. Pearson. 2012.
5. Financial Risk Management. Steven Allen. Wiley Finance. 2013.
6. John, C, Hull, Risk Management and Financial Institutions, 4<sup>th</sup> Edition Wiley Finance Series, 2015.

## **Course Evaluation:**

Grading will be done as per NBS criteria. The breakup is as follows:

	<b>Weightages</b>
<b>In Class Experiential Activities</b>	30% (Week 5 & Week 8)
<b>Project / Assignment / Quiz</b>	30%
<b>Mid Term Exam</b>	15%
<b>Final Term Exam</b>	25%

## **Weekly Schedule:**

Week	Lecture No. and topic	Preparation Material	Session Outcomes (Students should be able to...)
1	<b>Introduction</b> <ul style="list-style-type: none"><li>• Defining, Measuring, and Managing Risk</li><li>• The Regulator's Classification of Risk</li><li>• Portfolio Risk Management</li><li>• Corporate Financial Risk Management</li><li>• Derivatives and Risk Management</li><li>• Financial Innovation</li><li>• Traded derivative securities</li></ul>	Reading: Chapter 1: Derivatives and Risk Management. Book 1	Students should be able to examine different risks in business organizations and understand different financial instruments used to hedge risks. Organizations work. (CLO 1)
2	<b>Interest Rate Risk</b> <ul style="list-style-type: none"><li>• Types of rates</li><li>• Measuring interest rates</li></ul>	Reading: Chapter 4- Interest Rates. Book 4.	Students will understand different rates, measurements,

	<ul style="list-style-type: none"> <li>• Zero rates</li> <li>• Bond pricing</li> <li>• Determining treasury zero rates</li> <li>• Forward rates</li> <li>• Forward rate agreements</li> <li>• Duration</li> <li>• Convexity</li> </ul>		bond pricing, forward rates, duration, and convexity in bond pricing. (CLO1)
3	<b>Market Risk - Introduction</b> <ul style="list-style-type: none"> <li>• Risk Management and the firm</li> <li>• A Brief taxonomy of Risks</li> <li>• Asset Returns definitions</li> <li>• A Generic Model of Asset Returns</li> <li>• Introducing the Value-at-Risk (VaR) Risk Measure</li> </ul>	Reading: Chapter 1: Risk Management and Financial Returns. Book 3	Students will learn about different types of risks, understand the risk, and return trade-offs and learn about value-at-risk, which is a model to measure the market risk. (CLO2)
4	<b>Market Risk - Value-at-Risk (VaR)</b> <ul style="list-style-type: none"> <li>• Defining Value at Risk</li> <li>• Defining Historical Simulations</li> <li>• Pros and Cons of Historical Simulations</li> <li>• Variance- Covariance method</li> <li>• Calculating individual security's VAR</li> <li>• Calculating Portfolios VAR</li> </ul>	Reading: Chapter 2: Historical Simulation, Value-at-Risk, and Expected Shortfall. Book 3	Students will be able to apply different risk models within the value-at-risk framework. (CLO2)
5	<b>Market Risk - Measurement and Application</b> <ul style="list-style-type: none"> <li>• Estimation of Systematic Risk and Value-at-Risk</li> <li>• Lab Activity: Data collection of a Pakistan Stock Exchange Listed firm and conduct systematic risk and value-at-Risk analysis.</li> </ul>	Reading: Class Notes and Excel Work file  <b>Class Activity Week</b>	Students can estimate systematic risk and value at risk using MS Excel. (CLO2)
6	<b>Credit Risk - Introduction</b> <ul style="list-style-type: none"> <li>• Defining Credit Risk</li> <li>• Credit-Risky Securities</li> <li>• Transaction cost Problem in Credit Contracts</li> <li>• Default and Recovery: Analytic concepts</li> <li>• Assessing creditworthiness</li> <li>• Counterparty Risk</li> </ul>	Reading: Chapter 6: Credit and Counterparty Risk. Book 2	Students will be able to understand credit risk in different types of securities, learn about recovery rates, and understand the creditworthiness analysis of counterparties

			entering financial contracts. (CLO1)
7	<b>Credit Risk - Measures</b> <ul style="list-style-type: none"> <li>• Credit Ratings</li> <li>• Historical Default Probabilities</li> <li>• Recovery Rates</li> <li>• Estimating default probabilities from bond prices</li> <li>• Credit Risk Mitigation</li> </ul>	Reading: Chapter 23: Credit Risk. Book 4.	Students can measure and interpret credit risk using default probabilities and credit ratings. (CLO1)
8	<b>Credit Risk - Measurement and Application</b> <ul style="list-style-type: none"> <li>• Estimation of Probability of Default (PD) using Black-Scholes-Merton Model</li> <li>• Lab Activity: Data collection of a Pakistan Stock Exchange Listed firm and estimation of PD using Excel</li> </ul>	Reading: Class Notes and Excel Work file  <b>Class Activity</b>	Students will learn how to estimate the probability of default using companies' income statements and balance sheet data. (CLO2)
9	<b>Mid-Term Examination</b>		
10	<b>Derivative markets and instruments: Forwards and Futures</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Forward Contracts</li> <li>• The Over-the-Counter Market for Trading Forwards</li> <li>• Future Contracts</li> <li>• Exchange Trading of a futures Contract</li> <li>• Hedging with Forwards and Futures</li> </ul>	Reading: Chapter 4: Forwards and Futures. Book 1	Students will understand the basics of forwards and futures derivative instruments. Students will learn the differences between these two instruments and understand OTC and exchange-traded derivative instruments. (CLO1)
11	<b>Futures Hedging</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• To Hedge or Not to Hedge</li> <li>• Hedging with Futures</li> <li>• Risk-Minimization Hedging</li> <li>• Futures versus Forward Hedging</li> </ul>	Reading Chapter 13: Futures Hedging. Book 1 Case Study: Enron Gas Services EGS-Harvard cases	Students will be introduced to the hedging techniques using futures. (CLO4)

12	<b>Options</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Options</li> <li>• Call Options</li> <li>• Put Options</li> <li>• Exchange-Traded Options</li> <li>• Long and Shorts in Different Markets</li> <li>• Order Placement Strategies.</li> </ul>	Reading Chapter 5: Options. Book 1	Students will be able to understand the basics of Options contracts. Students will learn different options contracts and how to trade in the derivative trading market. (CLO3)
13	<b>Option Trading Strategies</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Traders in Option Markets</li> <li>• Profit Diagrams</li> <li>• The Nitty-Gritty Details of Options Trading</li> <li>• Options Strategies</li> <li>• Hedged Strategies</li> <li>• Spread Strategies</li> <li>• Combination Strategies</li> </ul>	Reading: Chapter 15. Option Trading Strategies. Book 1.	Students will be able to understand different types of option trading strategies. Students will also learn to form different option trading strategies to achieve certain payoffs. (CLO4)
14	<b>Interest Rate Swaps</b> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• A Brief History</li> <li>• Institutional Features</li> <li>• Valuation</li> <li>• Interest Rate Swaps</li> </ul>	Reading: Chapter 22: Yields and Forward Rates. Book 1.	Students will be able to understand the basics of interest rate swaps, their valuation, and trading dynamics. (CLO4)
15	<b>Liquidity and Leverage Risk</b> <ul style="list-style-type: none"> <li>• Funding Liquidity Risk</li> <li>• Markets for Collateral</li> <li>• Leverage and forms of Credit in Contemporary Finance</li> <li>• Transactions Liquidity Risk</li> <li>• Liquidity Risk Measurement</li> <li>• Liquidity and Systemic Risk- BASEL III</li> </ul>	Reading: Chapter 12: Liquidity and Leverage. Book 2	Students will learn about the funding liquidity risk, the market for collateral, leverage, and systemic risk. Students will also be introduced to BASEL III and its importance for liquidity and funding stability. (CLO1)
16	<b>The Global Financial Crisis</b> <ul style="list-style-type: none"> <li>• The US Housing Market</li> <li>• Securitization</li> <li>• The Crisis</li> <li>• What Went Wrong?</li> <li>• Lessons from the Crisis</li> </ul> <b>Regulatory Response to Financial Crisis</b> <ul style="list-style-type: none"> <li>• Basel II.5</li> </ul>	Reading: Chapter 6: The Credit Crisis of 2007 & Chapter 16: Basel II.5, Basel III, and Other Post-Crisis Changes. Book 6	Students will learn about the causes and effects of the 2007-09 global financial crisis. Furthermore, Students will learn in detail about regulatory responses to the global financial crisis as

	<ul style="list-style-type: none"> <li>• Basel III</li> <li>• Contingent Convertible Bonds</li> <li>• Dodd–Frank Act</li> <li>• Legislation in other Countries</li> </ul>		given by the Basel accord for global and the Dodd-Frank Act for the US financial system. (CLO3)
17	<b>Presentation</b>		
18	<b>Final Examination</b>		

## **Details of Assessments:**

### **Assignment 1**

{brief to include description, objective, deliverables (If multiple, then assign specific weight to each)}. If you are using an evaluation rubric (which is suggested and will be preferred), please add it under the description)

### **(Sample rubric)**

<b>Project Component</b>	<b>Details</b>	<b>Marks</b>
<b>Case Report</b>		
Quality of Content	The content quality, including timely progress reports	20
<b>Presentation</b>		
Presentation layout	How slides are made and the ambiance	5
Quality of Presentation	Each student will be graded individually	15
Q/A Session	Judged on the basis of answers given and questions asked	10
<b>Total</b>		<b>50</b>

### **Project:**

Students will prepare a project report on an applied topic and present their work in week 17. The writeup of the report and presentation of findings will play an important role in deciding the overall grading of the students.

### **Class Activity:**

Students will be given different tasks to perform in computer labs related to estimating different types of risks, interpreting, and discussing results. Students will be marked as per their performance in these activities. Efficiency and effectiveness of risk analysis and quality of discussion, interpretation, and inferences drawn will play an important role in deciding the overall grading of the students.

## **Course Policies:**

### **Attendance:**

- In the event of a missed session, the student must consult LMS and their classmates for missed content.
- Class attendance will be taken in the first 5 minutes of the class. Do not be late for class otherwise, you will be marked **absent** for the session(s). If you are away on official NUST duty, the student must inform the instructor on time with an official note.
- It is the student's responsibility to monitor his/her attendance continuously. **Do Not ask the instructor to change/modify the attendance** unless there has been an accidental oversight. In such an event, the student should inform the instructor of the error (with proof) **before** the month ends.

### **Discipline / Deadline Extension Policy:**

Students are intimated in advance that there is no room for deadline extensions in this module for individual and group activities/ submissions. The sole reason for this is the provision of similar grounds for each student. Therefore do not ask for any such favors. Prove yourself as an educated, well-groomed individual during your stay.

### **Class Participation:**

Students are encouraged to participate and present their ideas/views during the module in a respectable manner. Remember that there is no right or wrong answer, so try to share your perspective freely and confidently. However, always remember that speak only when you be given a turn; always raise your hand before speaking to grab the audience's attention.

### **Examination:**

The course will have two exams to measure students' understanding of the subject, mid-term in the 9<sup>th</sup> and final in the 18<sup>th</sup> week of the course. Students are required to present their arguments in a systematic and well-balanced approach. The use of headings will be highly appreciated. The Students are encouraged to read and reference various materials to present a thorough understanding of the module.

### **Academic Integrity:**

Students are required *not to indulge in plagiarism and dishonesty*, which will be dealt with strictly following the plagiarism policy. Students are free to discuss with their peers and allowed to study in groups; however, on account of individual submissions, whether be it assignments/ projects, you are required to submit your reflection on the assigned topic.

### **Missed Classes:**

Students are encouraged not to miss classes; however, in the case of such eventuality, they are required to follow up with peers and come up well prepared in the classes to come. Make sure it is the student's sole responsibility to compensate for the losses incurred, and *No excuses will be dealt with on this account*.

### **Consultation & Contact:**

I am available in my office on Monday and Friday, but you need to seek an appointment through my official email @nbs.nust.edu.pk at least a day in advance, other than in emergency cases.

### **Cell Phone Policy:**

When cell phones ring and students respond in class or leave class to respond, it disrupts the class. Students using cell phones or similar communication devices during scheduled classes is prohibited. All such devices must be turned off. An exception to this policy is possible in special circumstances at the instructor's discretion.

### **Reading Policy:**

Students are responsible for coming prepared to class. The required reading material assigned for each class must be prepared before the session, which is necessary for conducting a discussion-based interactive session.

**In addition to the portfolio assignments, we will use at least 4-5 HBR cases during this course.** Students will be required to read some of the articles as and when assigned by the instructor via MS Teams, and present a response within their respective group.

### **Dates to Remember:**

<b>Date</b>	<b>Item Due</b>
3 <sup>rd</sup> week	Project Titles Finalized
5 <sup>th</sup> week	Class Activity
6 <sup>th</sup> week	Quiz No. 1
8 <sup>th</sup> week	Class Activity
12 <sup>th</sup> Week	Assignment No. 1 Submission
13 <sup>th</sup> Week	Quiz No. 2
15 <sup>th</sup> Lecture	Assignment No. 2 Submission
16 <sup>th</sup> Week	Project Report Submission

### **Dos and Don'ts:**

<b><i>DO</i></b>	<b><i>DO NOT</i></b>
Come to class <b><u>on time</u></b> and have completed the reading material.	Submit assignments and quizzes late. Such assignments and quizzes will not be accepted.
Take notes during the lectures.	<b><u>Cause disturbance</u></b> in class.
Research topics and news items for constructive (and respectful) in-class debates.	Eat/Drink food in class.
Let the lecturer know in advance if you need to miss a class.	Ask the lecturer to reschedule deadlines.
Constantly monitor the course outline and have it with you at all times.	<b><u>Ask the lecturer to change attendance details.</u></b>
<b><u>Switch off/Put your phones on silent</u></b> during class.	<b><u>Forget writing some form of identification on each document due for submission.</u></b>

Follow submission instructions for any  
assessment content

Make up your format of labeling/submission of  
assessed material – you **will** lose marks for this