

COURSE SYLLABUS
FOR FULL-TIME UNDERGRADUATE PROGRAMS

(Issued under Decision No.1380/QĐ-ĐHKTQĐ on 15/8/2016 by the University President)

1. COURSE NAME: Financial Risk Management

Code: TOTC1101

Number of Credits: 02

2. DEPARTMENT IN CHARGE OF INSTRUCTION:

Department of Mathematical Finance

Office: Faculty of Economic Mathematics –Floor 4, Building 7

Office Hours: 8am-5pm, from Monday to Friday

Office Telephone: (84) 04 3628 3007

3. PRE-REQUISITE:

Course pre-requisites: Econometrics 2, The model for analyzing and evaluating financial assets 1.

4. COURSE DESCRIPTION:

Financial Risk Measurement is an optional subject for third-year and fourth-year students majoring Applied Mathematics for Economics.

Risk measurement plays an important part in financial Risk Management. Risk measurement helps banks, finance companies and securities companies more actively manage financial activities and mitigate loss thanks to forecast these risks. The subject provides models measuring risks in financial investment, security and insurance, stress test...Supported software and quantitative technique will be discussed to equip practical tools for students after graduation,

5. COURSE OBJECTIVES:

- ✓ The subject provides students with basic financial risk measurement models: market risk measurement model, credit risk measurement model, operational risk measurement model and stress test.
- ✓ The subject provides students with risk measurement analysis skill, stress test analysis, applying those models by a software to real market data and presentation skill...

6. COURSE CONTENT:

TENTATIVE SCHEDULE

<i>No</i>	<i>Contents</i>	<i>Total hours</i>	<i>In details</i>		<i>Notes</i>
			<i>Theory</i>	<i>Practice, Discussion, Exams</i>	
1	Chapter 1	6	4	2	<i>Practice with computer software and report in group.</i>
2	Chapter 2	10	6	4	
3	Chapter 3	14	5	9	
	Total	30	15	15	

CHAPTER 1 – RISK MEASUREMENT OVERALL

This chapter presents basic definition of risk measurement, common statistical distributions and risk scales. This chapter also introduces financial derivatives which is used as risk hedge.

1.1. Basic concepts

1.1.1. Financial Risk

1.1.2. Financial Risk Measurements

1.2. Probability Distributions

1.2.1. Common probability distributions

1.2.2. Other probability distributions

1.3. Derivatives

References:

- 1) Hoàng Đức Mạnh, Financial Risk Measurement lecture note.
- 2) Greg N. Gregoriou, Christian Hoppe and Carsten S. (2010), When: The Risk Modeling Evaluation Handbook, Mc Graw Hill.
- 3) Jean – Paul Chavas (2004), Risk Analysis in Theory and Practice, Elsevier Academic Press.

CHAPTER 2 – RISK MEASUREMENT MODELS

This chapter discusses common risk models in market risk, credit risk and operational risk. The back testing will also be discussed.

2.1. Market Risk Measurement

2.1.1. Standard Deviation

2.1.2. VaR model

2.1.3. Expected Loss model

- 2.2. Credit Risk Measurement
 - 2.2.1. Credit Rating
 - 2.2.2. Logistic model
 - 2.2.3. Discrimination Method
- 2.3. Operational Risk Measurement
- 2.4. Models Post testing

References:

- 1) Hoàng Đức Mạnh, Financial Risk Measurement lecture note.
- 2) Alexander J.McNeil, R.Frey and P.Embrechts (2005), Quantitative Risk Management, Princeton University Press.
- 3) Greg N. Gregoriou, Christian Hoppe and Carsten S. (2010), When: The Risk Modeling Evaluation Handbook, Mc Graw Hill.
- 4) Gunter Loffler, Peter N.Posch (2007), Credit Risk Modeling using Excel and VBA, John Wiley and Sons.
- 5) Kenvin Dowd (2002), An Introduction to Market Risk Measurement, John Wiley and Sons.
- 6) Ron Kenett, Yossi Raanan (2010), Operational risk management: A practical approach to intelligent data analysis, John Wiley and Sons.

CHAPTER 3 – RISK MEASUREMENT IN APPLICATION

This chapter provides empirical practice on risk measurement. Supporting soft wares are introduced to students for work after graduation. Post testing and stress testing are also discussed.

- 3.1. Market Risk Measurement
 - 3.1.1. Expected Loss Estimation
 - 3.1.2. Post-testing
- 3.2. Credit Risk Measurement
 - 3.2.1. Probability of Default
 - 3.2.2. Probability of Default and Credit Score
 - 3.2.3. Credit Rating
 - 3.2.4. LGD and EAD calculation
 - 3.2.5. Post Testing
- 3.3. Stress test
 - 3.3.1. Macroeconomic Scenario for Time Series Model
 - 3.3.2. Back Testing

References:

- 1) Hoàng Đức Mạnh, Bài giảng Đo lường rủi ro tài chính.
- 2) Alexander J.McNeil, R.Frey and P.Embrechts (2005), Quantitative Risk Management, Princeton University Press.

- 3) Gunter Löffler, Peter N.Posch (2007), Credit Risk Modeling using Excel and VBA, John Wiley and Sons.
- 4) Jean – Paul Chavas (2004), Risk Analysis in Theory and Practice, Elsevier Academic Press.
- 5) Kenvin Dowd (2002), An Introduction to Market Risk Measurement, John Wiley and Sons.

7. REQUIRED TEXTBOOKS & COURSE MATERIALS:

Hoàng Đức Mạnh, Financial Risk Measurement Lecture Note.

8. RECOMMENDED TEXTS & OTHER READINGS:

- 1) Alexander J.McNeil, R.Frey and P.Embrechts (2005), Quantitative Risk Management, Princeton University Press.
- 2) Greg N. Gregoriou, Christian Hoppe and Carsten S. (2010), When: The Risk Modeling Evaluation Handbook, Mc Graw Hill.
- 3) Gunter Löffler, Peter N.Posch (2007), Credit Risk Modeling using Excel and VBA, John Wiley and Sons.
- 4) Jean – Paul Chavas (2004), Risk Analysis in Theory and Practice, Elsevier Academic Press.
- 5) Kenvin Dowd (2002), An Introduction to Market Risk Measurement, John Wiley and Sons.
- 6) Ron Kenett, Yossi Raanan (2010), Operational risk management: A practical approach to intelligent data analysis, John Wiley and Sons.

9. ASSESSMENT & GRADING POLICY:

- ✓ Attendance (min 80%): 10%
- ✓ Discussion and homework: Complete teacher's requirement
- ✓ Practice and presentation: 30%
- ✓ Final exam: 60%

Hanoi, 2016

HEAD OF DEPARTMENT

PRESIDENT

(signed)

(signed)

PhD. Hoang Duc Manh

Prof.Dr. Tran Tho Dat