

THE UNIVERSITY OF HONG KONG
FACULTY OF BUSINESS AND ECONOMICS

School of Economics and Finance

FINA0601/FINA4341 – Quantitative Risk Management

GENERAL INFORMATION	
Instructor: Dr. T. Lin Email: tlin@hku.hk Office: Room 914 K K Leung Building Phone: 2241 5935 Lecture: Semester 1, Thursday 1:30 – 4:20 pm in KKLG110 Consultation times: by appointments Pre-requisites: FINA0402/ FINA3350 Mathematical Finance Co-requisites: NA Mutually exclusive: FINA3806/ FINA3340 Risk Management and STAT3322/ STAT4608 Market Risk Analysis Course Website: MOODLE via HKU portal	
COURSE DESCRIPTION	
The objective of this course is to introduce concepts, techniques and framework for quantitative risk management at financial institutions. Financial firms, with their complicated list of positions in a mixture of instruments, are exposed to various sources of financial risk. This class focuses mainly on market risk, the risk of unexpected changes in prices and rates. The first part of the course introduces basic concepts in risk management and builds the toolkit for measuring risk quantitatively. The second part of the course is devoted to studying the widely accepted Value at Risk (VaR) systems, including calculations, back testing and flaws of VaR. The course also touches on other aspects of financial risk such as liquidity risk, credit risk and operational risk.	
COURSE OBJECTIVES	
<ol style="list-style-type: none"> 1. To understand the goal and benefit of risk management 2. To examine alternative ways to quantify risks, with emphasis on VaR 3. To introduce risk regulations and its implications on financial institutions 	
COURSE LEARNING OUTCOMES	
Course Learning Outcomes	Aligned Faculty Goals
CLO1. Explain the goal and benefit of risk management.	1, 2, 3, 4, 5
CLO2. Work with different derivative products for risk management purposes.	1, 2, 5
CLO3. Calculate and compare different risk measures.	1, 2, 5

CLO4. Compute VaR and extreme values using analytical and simulation approaches.	1, 2, 5
CLO5. Understand the development in risk management regulations.	1, 2, 4, 5

COURSE TEACHING AND LEARNING ACTIVITIES

Course Teaching and Learning Activities	Expected contact hour	Study Load (% of study)
T&L1. Lectures	36 hours	30%
T&L2. Assignments and project	36 hours	30%
T&L3. Self-study	48 hours	40%
Total	120 hours	100%

Assessment Methods	Weights	Aligned Course Learning Outcomes
A1. Participation	5%	CLO 1, 2, 3, 4, 5
A2. Assignments	20%	CLO 1, 2, 3, 4, 5
A3. Project	20%	CLO 1, 2, 3, 4, 5
A4. Mid-term Examination	20%	CLO 1, 2, 3, 4, 5
A5. Final Examination	35%	CLO 1, 2, 3, 4, 5
Total	100%	

STANDARDS FOR ASSESSMENT

Course Grade Descriptors

A+, A, A-	Exhibited high level of understanding of the course materials through excellent performance in class discussion, assignments and term tests.
B+, B, B-	Exhibited reasonably high level of understanding of the course materials through good performance in class discussion, assignments, and term tests.
C+, C, C-	Exhibited fair level of understanding of the course materials.
D+, D	Exhibited limited level of understanding of the course materials.
F	Exhibited low level of understanding of the course materials.

Assessment Rubrics for Each Assessment

A1 In-Class and Tutorial Performance				
A+ A A-	B+ B B-	C+ C C-	D+ D	F
Extremely well prepared for class discussion, very active in sharing views and attended	Partially prepared for class discussion, quite active in sharing views and attended	Not well prepared for class discussion, limited active in sharing views and attended	Not well prepared for class discussion, no sharing of views and attended some	Poorly prepared for class discussion and no sharing of views and experience and

almost all lectures and tutorials.	most of the lectures and tutorials	many of the lectures and tutorials.	of the lectures and tutorials	rarely attended lectures and tutorials.
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A2 Assignments: for numerical questions/homework, please refer to the following table:

A+ A A-	B+ B B-	C+ C C-	D+ D	F
Submitted all homework with excellent accuracy.	Submitted well written homework with good accuracy.	Submitted homework with fair level accuracy.	Submitted homework with limited accuracy.	Poorly written homework or no submission.

A2 Assignments: for essay type problems, please refer to the following grading criteria:

Grade	Depth and breadth of Coverage, critical elements, structure, language and conventions
A+,A, A-	<p>All aspects were addressed and researched in great depth.</p> <p>Demonstrated a clear understanding of and the ability to apply the theory, concepts and issues relating to the topic.</p> <p>Clearly identified the most critical aspects of the task and adopted a critical perspective.</p> <p>Developed excellent argument and offered a logically consistent and well-articulated analysis and insight into the subject.</p> <p>Drew widely from the academic literature and elsewhere whilst maintaining relevance.</p> <p>All aspects conformed to a high academic / professional standard.</p>
B+, B, B-	<p>Most aspects were addressed and researched in depth.</p> <p>Demonstrated a good understanding and some application of the theory and issues relating to the topic.</p> <p>Identified critical aspects of the task and adopted a critical perspective.</p> <p>Showed some evidence of analysis, supported by logical argument and insight into the subject.</p> <p>Drew on relevant academic and other material.</p> <p>Most aspects conformed to a high academic / professional standard.</p>
C+, C, C-	<p>Most aspects were addressed and researched adequately.</p> <p>Demonstrated a good understanding of the theory, concepts and issues relating to the topic but limited application relating to the topic.</p> <p>Some presented argument showed some insight but not always consistent and logical.</p>

	Drew upon an adequate range of academic and other material. Most aspects conformed to an acceptable academic / professional standard.
D+, D	Basic aspects were addressed and researched adequately. Demonstrated mainly description, showing basic understanding of the topic but no application. Showed little evidence of analysis but no clear and logical argument relating to the subject. Drew primarily upon course materials. Limited aspects conformed to academic / professional standards.
F	Basic aspects were superficial, inadequate or absent. Demonstrated limited understanding of the topic and drew conclusions unrelated to the topic. The written work was not of an academic / professional standard.

A3 and A4 Midterm and Final Exam

Midterm and final exam may include three types of questions: multiple choice, calculation problems, and essay questions. Multiple choice and calculation problems are graded according to the marks assigned to each question. Essay questions are graded according to the following criteria:

A+ A A-	B+ B B-	C+ C C-	D+ D	F
Idea development is insightful and sophisticated; Supporting evidence is convincing, accurate and detailed. Well written with clear focus.	Idea development is clear and thoughtful; Supporting evidence is sufficient and accurate. Well written.	Idea development is simplistic and lacking in relevance; Supporting evidence insufficient but accurate. Somewhat well written.	Idea development is superficial and ineffective; Supporting evidence is insufficient and inaccurate. Writing is unclear.	Idea development is absent; Supporting evidence is vague or missing. Poorly written.

COURSE CONTENT AND TENTATIVE TEACHING SCHEDULE

Sept 1: Goal and Benefit of Risk Management
 Sept 8: Banks; Managing Risk Exposures
 Sept 15: Interest Rate Risk
 Sept 22: Value at Risk and Expected Tail Loss
 Sept 29: Volatility
 Oct 6: Volatility
 Oct 13: Midterm Test
 Oct 20: Reading Week

Oct 27: Market Risk VaR: Model Based Approach
Nov 3: Market Risk VaR: Historical Simulation Approach
Nov 10: Regulations
Nov 17: Dr. Lam YF "Regulatory reporting of market risk under the Basel IV framework"
Nov 24: Student Presentations, Other Topics

REQUIRED/RECOMMENDED READINGS & ONLINE MATERIALS

1. "Risk Management and Financial Institutions," fourth edition by John C. Hull
2. Lecture Notes

MEANS/PROCESSES FOR STUDENT FEEDBACK ON COURSE

- Course evaluation at the term end.

COURSE POLICY

Class Conduct

Students are required to attend all classes on time. If you miss a class, it is entirely your responsibility for what you have missed. In case you have to leave the class early, please inform the instructor beforehand and leave quietly.

No use of mobile phone or chatting is allowed when the class is in session. Remember to turn off or mute the phone before each session. The instructor has the discretion to give penalty in case of class misconduct.

Respect your instructors and your fellow students. Be considerate to others.

Academic Dishonesty

The University Regulations on academic dishonesty will be strictly enforced! Please check the University Statement on plagiarism on the web: <http://www.hku.hk/plagiarism/>

Academic dishonesty is any act that misrepresents a person's own academic work or that compromises the academic work of another. It includes (but not limited to) cheating on assignments or examinations; plagiarizing, i.e., representing someone else's ideas as if they are one's own; sabotaging another's work.

If you are caught in an act of academic dishonesty or misconduct, you will receive an "F" grade for the subject. The relevant Board of Examiners may impose other penalty in relation to the seriousness of the offense.

ADDITIONAL COURSE INFORMATION

- Announcement, assignments, and lecture notes will be posted on the course MOODLE website. Hard copy of lecture notes will be distributed in class.
- No late assignments will be accepted. A peer evaluation MAY be conducted to survey group assignment contribution at the end of the term. Grades based on group work will be adjusted accordingly.