ISOM4520
Statistics for Financial Risk Management

LECTURE
Instructor: Dr. Vahid ASGHARI
Email: vahid@ust.hk
Office Hours: LSK 4016A, Fridays 9:00 AM to Noon

Class	Weekday	Start Time	End Time	Room	Start Date	End Date
L1	Friday	15:00	17:50	LSK1007	31/1/2024	10/5/2024
T1	Tuesday	17:30	18:20	LSKG021	31/1/2024	10/5/2024

Teaching assistant: YIN Zhendong (Enoch)
Email: imyin@ust.hk
Office Hours: Send an email to make an appointment

Tutorial section: Tutorial sections will be arranged to learn Python and practice the exercises.

REFERENCE BOOK
Peter F. Christoffersen., "*Elements of Financial Risk Management*", 2ndEdition.

SYLLABUS
This syllabus is subject to change in the event of extenuating circumstances.

Week	Topic
Week 1	Basics of trading and portfolio management
Week 2	Review of regression modeling
Week 3	Stylized facts of financial returns + Measures of portfolio risk [Assignment #1]
Week 4	Beta, IV, and technical indicators, conditioners and plots [Assignment #2]
Week 5	Combining strategies, Portfolio measures [Assignment #3]
Week 6	Volatility Estimation and GARCH [Assignment #4]
Week 7	Optimization Principles and Heuristic Methods [Assignment #5]
Week 8	**Midterm Exam**
Week 9	**Midterm break**
Week 10	Monte Carlo Simulation and Risk Term Structure [Assignment #6]
Week 11	Tail Behavior
Week 12	Credit Risk Management 1
Week 13	Credit Risk Management 2
Week 14	**Project Presentation**

COURSE WEBSITE

OBJECTIVES AND INTENDED LEARNING OUTCOMES
This course provides an introduction to financial risk management. Topics include how to measure market risks, statistical properties of returns and volatility, volatility modeling, Value at Risk (VaR), RiskMetrics, historical simulation, assessing VaR methods, back testing and stress testing. Students will learn how to use R to perform risk management tasks. On completion of the course, students will be able to:

1. Generate a basic trading strategy and analyze it from a financial risk perspective
2. Analyze and assess financial risks based on appropriate analytical and quantitative techniques.
3. Critically compare and evaluate different risk models and risk measures for different trading strategies
4. Discuss and interpret clearly and effectively the technical details and results of statistics for risk management to both technical and managerial audiences.
5. Work effectively and efficiently in teams.

EVALUATION
Your grade in the course is based on:
Midterm 30% + Final 30% + Homework 30% + Term Project 10% [+20%]

A. Midterm 30%
Warning: No make-up midterm exams will be given. Absence from the midterm exam will not be excused except for medical reasons supported by proper documentation submitted no later than 24 hours after the exam is taken (in these cases, your final exam will be re-weighted accordingly, i.e., it will be worth 60% of your course grade)

B. Final Exam 30%
Warning: If the final exam is missed, you won't pass the course. No make-up final exam will be provided except for medical reasons supported by proper documentation submitted no later than 24 hours after the exam is taken.

C. Homework assignment 30%.
There will be 6 Group HW. There should be 3-4 persons in each group with at least one member comfortable with Python programming.

D. Term Project 10%:
The term project is properly presenting the assignments using PPT. 20% extra grades are dedicated to any group that meets certain requirements in the project details [will be detailed out in the project requirements]

GRIEVANCE PROCEDURE

If you disagree with the grades that have been assigned to your work, you can meet instructors within one week after the grades have been published on the course website. Be specific about what it is that you don't agree with.

ACADEMIC INTEGRITY

Academic dishonesty includes, but is not limited to, cheating, plagiarizing, fabricating of information facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of other groups, or tampering with the academic work of other groups. All exam answers must be your own, and you must not provide any assistance to other students during exams. Current university policy on academic dishonesty is "if a student is discovered cheating however minor the offence, the course grade will appear on the students' record with an X, to show that the grade resulted from cheating." This X grades stays on the record until graduation. If the student cheats again and "earns" another X grade, the student will be dismissed from the university.