

Quantitative Risk Management

Department: Fudan International Summer Session

Course Code	ECON170027		
Course Title	Quantitative Risk Management		
Credit	3	Credit Hours	54
Course Nature	<input type="checkbox"/> Specific General Education Courses <input type="checkbox"/> Core Courses <input type="checkbox"/> General Education Elective Courses <input type="checkbox"/> Basic Courses in General Discipline <input type="checkbox"/> Professional Compulsory Courses <input type="checkbox"/> Professional Elective Courses <input type="checkbox"/> Others		
Course Objectives	Understanding and ability to implement modern quantitative risk measurement and management techniques.		
Course Description	We focus on the methodology dealing with risks in financial markets. The course will encompass both theoretical and applied aspects of risk management. The course starts with a short review and introduction on the required knowledge of probability theory and statistics. A general introduction to various risks in financial markets and their measurements will be given in the latter part of the course.		
Course Requirements: Calculus, Probability theory, Statistics(recommended)			
Teaching Methods: Black board, and PPT.			

Instructor's Academic Background:

Dr. Yuwei Zhao, Young Investigator at the Shanghai Center of Mathematical Sciences, Fudan University. Dr. Yuwei Zhao received his PhD degree on Jan 2014 from University of Copenhagen under the supervision of Prof. Dr. Thomas Mikosch. His main research fields are extreme value theory and time series analysis.

Course Schedule:

1. A review on probability theory and statistics
2. Overview of financial risks and risk management
3. Characteristics of financial data
4. Extreme value theory
5. Numerical methods: Bootstrapping and Monte Carlo
6. Multivariate models and copula (I)
7. Multivariate models and copula (II)
8. Aggregate risk
9. Class exam
10. Market risk
11. Credit risk
12. Portfolio credit risk management
13. Portfolio credit derivatives
14. Advanced topics in risk management

The design of class discussion or exercise, practice, experience and so on:

Exercise and practice

Grading & Evaluation:

Project: 30%; Final exam: 70%.

There will be no make-up exam.

Teaching Materials & References:

1. McNeil, A., Frey, R., and Embrechts, P. (2015) *Quantitative risk management*, Revised edition, Princeton Press.
2. Embrechts, P., Klüppelberg, C., Mikosch, T., (1997). *Modelling extremal events*. Springer-Verlag.

Table column size can be adjusted according to the content.