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**Advanced Topics - Quantitative Risk Management**

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本科生    硕士生

Undergraduate    Master

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English

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Advance Mathematics，Probability Theory and Mathematics Statistics

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Lectures and discussions

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(1) Attendance and participation 20%  
(2) Assignment and mini-papers 80%

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2 credits

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Dr Qihe Tang is currently a Professor of Actuarial Science in the Department of Statistics and Actuarial Science, the University of Iowa. He did his Ph.D. study in the Department of Statistics and Finance, the University of Science and Technology of China during 1998-2001 and received his Ph.D. degree in July 2001.  For over a decade he has devoted himself to teaching and research in actuarial science. His research ranges over various important areas of insurance, finance, applied probability, and extreme value theory with a focus on applications to risk management. He has published close to 100 papers with majority in top-tier journals in actuarial science and applied probability. He is currently an associate editor for a few internationally prestigious journals including Insurance: Mathematics and Economics, TEST, and Applied Stochastic Models in Business and Industry. For more details see his homepage http://www.stat.uiowa.edu/~qtang.

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This course is designed for senior undergraduates, graduate students, and junior faculty with a certain background of probability and statistics to seek an entrance to the area of quantitative risk management. It will stress the fundamentals and explore topics at a somewhat technical level.

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During the history of finance, risk management has been described as one of the most important innovations of the twentieth century, or as the third major revolution following the Markowitz portfolio theory and the Black-Scholes-Merton option pricing theory. In recent decades, we have witnessed explosive development of the field of financial risk management. The recent Great Recession, which was triggered by the collapse of the sub-prime mortgage market in the United States in 2008, is arguably one of the worst global recessions since the Great Depression in 1930’s. It has intensified the need for risk management among the insurance and finance industries.  
Topics include:  
- Basic Concepts in Risk Management  
- Multivariate Models  
- Copulas and Dependence  
- Aggregate Risk  
- Extreme Value Theory  
An important feature of this course is that, while studying the intended topics and some selected papers, we shall initiate and focus on interesting research problems, either theoretical or applied, in the interdisciplinary area of statistics, insurance, and finance. The course is particularly suitable for those who desire to pursue research on risk management in insurance.

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McNeil, A. J.; Frey, R.; Embrechts, P. Quantitative Risk Management. Concepts, Techniques and Tools. Princeton University Press, Princeton, NJ, 2005.

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P.; Klüppelberg, C.; Mikosch, T. Modelling Extremal Events for Insurance and Finance. Springer-Verlag, Berlin, 1997.  
Nelsen, R. B. An Introduction to Copulas. Second edition. Springer, New York, 2006.  
A list of papers and book chapters selected from the recent literature of insurance, finance and risk management

窗体底端