

## 22S:273 Advanced Topics in Actuarial Science - Credit Risk Management for Insurance

### Instructor: Dr. Qihe Tang

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- Course Schedule: 9:30 A – 10:20 A, Monday, Wednesday and Friday, 22 SH
- Office Hours: 10:30 A – 11:30 A, Monday, Wednesday and Friday, or by appointment
- ICON web site: <http://icon.uiowa.edu>
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### Course Description

Risk management has been described as one of the most significant innovations during the history of finance, 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 2008 financial crisis has intensified the need of risk management among financial institutions and insurance companies. Credit risk management is one of the most important topics in risk management. The topic is also timely and imperative in view of the recent downgrade of the U.S. credit rating from AAA to AA+ by Standard & Poor's.

This course is designed for graduate students with good knowledge of probability and statistics to seek an entrance to the area of credit risk management. It will stress the fundamentals and explore topics at a somewhat technical level.

The course covers most of the last three chapters of McNeil-Frey-Embrechts (2005), which include:

- Static Credit Risk Models
- Dynamic Credit Risk Models
- Operational Risk

An important feature of this course is that, while studying the intended materials and a few 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.

## **Main References**

- McNeil, A. J.; Frey, R.; Embrechts, P. Quantitative Risk Management. Concepts, Techniques and Tools. Princeton University Press, Princeton, NJ, 2005.
- A list of papers and book chapters selected from the recent literature of insurance and finance.

## **Evaluation System**

- There will be two homework assignments, counting for 50%.
- At the end of October, a list of papers selected from the recent literature of insurance and finance will be released. Each student will be asked to pick up one from the list, to study it and make a twenty-five-minute presentation on it. This final project counts for 40%.
- Class attendance and engagement in discussions are required and count for the other 10%.
- Each student has the option to choose an A/B/C/D grade or an S/U grade.