

MATH 563/STAT 558: Risk Modeling and Analysis

Instructor: Xiaochen Jing
Office: 261 Computing Applications Building
Office Hours (CST): By appointments
Email: xjing4@illinois.edu

For easy reference, please use [MATH 563/STAT 558] as the starting of the email subject.

Teaching Assistant: Longhao Jin
Email: longhao2@illinois.edu

Class time and location: TR 9:30-10:50 am, 327 Gregory Hall

Online format: video recording of lectures will be uploaded on Canvas.

Canvas Course webpage: <https://canvas.illinois.edu/courses/17191>

Course Description

This course aims to provide quantitative tools for measuring risks and modeling dependencies. Topics include risk measures, stochastic orders, copulas and dependence measures.

Textbook

[1] McNeil, A. J., Frey, R., and Embrechts, P. (2015), Quantitative Risk Management: Concepts, Techniques and Tools

[2] Denuit, M., Dhaene, J., Goovaerts, M., and Kaas, R. (2005), Actuarial Theory for Dependent Risks: Measures, Orders and Models (Electronical version available through UIUC library)

Learning Objectives

1. Loss Distribution;
2. Risk Measurement;
3. Multivariate Modeling;
4. Dependence Modeling;
5. Dependence Measurement;
6. Risk Aggregation and Capital Allocation;
7. Others

Grading & Assessment

Homework (40%)

Midterm Examination (20%)

Individual Project (20%)

Final Exam (20%)

Grade is determined by the mapping below:

Grade	Score
A-, A, A+	90 - 100
B-, B, B+	80 - 90
C-, C, C+	65 - 80
D-, D, D+	50 - 65
F	0 - 50

Academic Integrity Statement

The University of Illinois at Urbana-Champaign Student Code should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: <http://studentcode.illinois.edu/>.

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <http://studentcode.illinois.edu/>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

Accommodations Statement

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-4603, e-mail disability@illinois.edu or go to the DRES website.

Emergency Response Statement

Emergency response recommendations can be found at the following website: <https://police.illinois.edu/emergency-preparedness/>. I encourage you to review this web- site and the campus building floor plans website within the first 10 days of class. <https://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/>

Family Educational Rights and Privacy Act (FERPA) Statement

Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See <https://registrar.illinois.edu/academic-records/ferpa/> for more information on FERPA.

Sexual Misconduct Policy and Reporting Statement

The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University's Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: <https://wecare.illinois.edu/resources/students/#confidential>. Other information about resources and reporting is available here: <https://wecare.illinois.edu/>.