



Credit risk has drawn tremendous attentions since the financial crisis. In this course, we consider credit risk modeling, credit derivatives evaluation, risk measures, and risk management of credit portfolios. Contents of this course should include the following

1. Credit Risk Modeling - Bottom-Up Approach and Top-Down Approach.
2. Correlation Structure - Copula Methods.
3. Defaultable bonds and Credit Derivatives - Single Name (CDS) and Multi Names (BDS, CDO) Evaluation and Calibration.
4. Estimation of (Joint) Default Probability.
5. Risk Measures and Credit Value at Risk.
6. Importance Sampling and Large Deviations.

Recent research papers on these areas will be reviewed. Students are expected to implement major results from some reference papers. No textbooks. Papers and course notes will be provided. Major reference books are

- I. Damiano Brigo, Fabio Mercurio, "Interest Rate Models - Theory and Practice: With Smile, Inflation and Credit," Springer Finance, 2007.
- II. David Lando, "Credit Risk Modeling: Theory and Applications," Princeton University Press, 2004.
- III. John Hull, "Risk Management and Financial Institutions," Pearson International Edition, 2007.

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Class Time: M2 M3 M4

Location: Room 206, TSMC BLD

Office Hours: TBD

Prerequisites:

[Stochastic Financial Theory](#), [Continuous-Time Finance](#), or equivalent courses.

Grading: Assignments 30%, Exams and Course Project 70%.