



Credit risk has drawn lots of attentions since the subprime crisis. In this course, we consider credit risk modeling and credit derivatives evaluation. Contents of this course should include the following

1. Credit Risk Modeling - Structural Form and Reduced Form.
2. Credit Derivatives - Single Name (CDS) and Multi Names (BDS, CDO)
3. Estimation of Default Probability.
4. Copula Methods.
5. 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. 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. Darrell Duffie & Kenneth J. Singleton, "Credit Risk: Pricing, Measurement, and Management," Princeton University Press, 2003.
- IV. Tomasz R. Bielecki and Marek Rutkowski, "Credit Risk: Modeling, Valuation and Hedging," Springer Finance 2002.

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Location: Room 206, TSMC BLD

Office Hours: TBD

Prerequisites:

Stochastic Financial Theory, Continuous-Time Finance, or equivalent courses.

Grading:

Assignments 30%, Exams(midterm and final) 40%, Course Project 30%.