MTH 9876: Credit Risk Models

Professor Andrew Lesniewski
Baruch College, CUNY
Fall 2016

Space-time coordinates: Tue, 6:05 – 9:00 pm, room VC 9-140
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Topics covered by the course include:

- Credit derivatives markets
- Single name credit modeling
- Credit default swaps
- Valuation of credit default swaps
- Credit convexity and CMDS
- CDS portfolio indices and synthetic CDOs
- Copula models of times to default
- Modeling default baskets
- Pricing synthetic tranches in the Gaussian copula model
- Base correlations, copula skew models
- Modeling counterparty risk
- CVA and other XVAs
- Systemic risk and CCPs, CME-LCH basis
- Wrong way risk
- BSDEs and no arbitrage modeling of counterparty credit risk

Homepage: Baruch MFE private forum site is available to registered students. If you're not registered but would like forum access, please contact the course TA.

Textbook: Lecture notes to be posted online. A list of recommended readings will be provided with each set of notes. Good general references are:

1. D. O'Kane: *Modelling Single-name and Multi-name Credit Derivative.* New York, NY: Wiley Finance (2009).
2. A. Green: *XVA, Credit, Funding and Capital Valuation Adjustment*, NY: Wiley Finance (2016).
3. J. Gregory: *The XVA Challenge*, New York, NY: Wiley Finance (2015).

Assignments: Will be approximately biweekly. Some problems will involve some programming in a language of your choice. Assignments can be printed out and submitted or e-mailed to the TA.

Grading: Homework: 40%, Final Exam: 60%

Prerequisites: familiarity with financial models, stochastic methods, and computing skills.