IE 525 – Numerical Methods in Finance, Spring, 2014

General Information

Required Text:

Credit: 4 Graduate Hours.


Course Description: Numerical methods for the modeling, pricing, and risk management of various financial instruments including derivatives: (STOCHASTIC) randomization and anti-gaming, Monte Carlo simulation, variance reduction techniques, quasi Monte Carlo methods; (DETERMINISTIC) finite difference methods for ordinary and partial differential equations, explicit and implicit schemes, boundary conditions, and free boundary problems for American options; (DATA) data-driven financial model calibration and optimization, financial data pattern analysis and synthesis, filtering and machine learning, analytics in high-frequency data environment.

Meeting Schedule: Two 80-minute lectures each week.

Specific Information for This Semester: Spring, 2014

Meeting Time and Location:
MW 1:00-2:40pm; 161 Noyes Laboratory

Instructor:
Jackie Shen: jhshen@illinois.edu, http://publish.illinois.edu/jackieshen/teaching, 216D Transportation.
Office Hour: Tues 2:00-3:00pm. This complimentary office hour is on top of the 2-hour TA office hours each week, mainly to address issues that the TA’s may have not been able to clarify.

Teaching Assistant:
- Mouna Soumahoro: soumaho2@illinois.edu; 256 Mechanical Engineering Building; Office Hours: Tues: 4:00pm-5:00pm, Thurs 11:00am-12:00pm.

Homework:
- Assigned progressively on the Monday’s and Wednesday’s, or once on the Monday’s.
- Collected on the Monday’s (or the following Wednesday for holiday Monday’s).
- Graded by TA’s, and returned on the Monday’s. No late homework will be accepted*.

Grading Weights:
Homework 30%; Midterm Exam 35%; Final Exam: 35%.
Weekly; Wed, March 12; Wed, May 7

Calendar:
For holidays and the academic calendar, check out: http://illinois.edu/calendar/list/557

Academic Integrity and Student Responsibilities:
Cheating in any format is prohibited, and is subject to the University Procedures and Sanctions as defined in the Part 4 of Article 1 “Student Rights and Responsibilities”:
http://www.admin.illinois.edu/policy/code/article1_part4_1-401.html