Syllabus

Numerical Analysis (22:839:510)

Spring 2010

Section & Index Number: 40-70192

Class times: Wednesday 6-9 pm

Location: 1WP-402

Instructor: Qidong (Tony) Zhang
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Office hours: By appointment

Textbook: No textbook required

Assessment: Homework: 30%
Midterm: 30%
Final: 40%

Class material: As need arises supplementary material will be used

Topics: Building blocks of the Wall Street quant’s toolset
Some classical probability problems leading to Brownian Motion
Gaussian copula and its problem
Basics of numerical analysis
Binomial models
Principles and methods of Monte Carlo simulation
Finite difference methods for PDE/SDE
Option valuation by Monte Carlo methods
Option valuation by finite difference methods
Curve constructions: interpolation and smoothing techniques
Term structure of interest rate modeling