Course: Computational Methods for Option Pricing


Prerequisite: Numerical Methods (22:839:510) or permission by instructor

Homework assignments: to be submitted using MATLAB

Week   1. Classification of partial differential equations
    2. Numerical solution by finite difference methods
    3. Solving the heat equation by explicit method
    4. Solving the heat equation by implicit method
    5. Convergence, consistency and stability of numerical schemes
    6. Pricing by Binomial trees
    7. Pricing American options by binomial trees
    8. Simulating geometric Brownian motion
    9. Option pricing by Monte Carlo methods
   10. American, European and Asian options
    11. Option pricing by finite difference
   12. Applying finite difference method to Black-Schole equation
   13. Option pricing by explicit and implicit method
   14. Pricing American option by Crank-Nicolson method
  15. Final Exam