RMS4001: Simulation Methods in Finance and Risk Management Science

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Prerequisites: RMS2001 or consent of instructor.

Grading Scheme:
1. Assignments (30%)
2. One mid-Term Test on February 26, 2004 (20%)
3. Final exam (50%)

Proposed teaching schedule:
Week 1 – 4: (Mainly using Hull (2000))
- Reviewing Options and Futures
- Binomial Models (Probabilistic Simulation)
- Brownian motion and its statistical simulation
- Ito’s calculus and the Black-Scholes formula

Week 5 – 11: (Mainly using Ross (2002))
- A Broader meaning of simulation
- Some methods in generating random variables
<< Mid-term test is almost here >>
- Examples of discrete simulation
- Simulating diffusion processes and pricing exotic options

Week 11 – 14: (Using Ross (2002) and Lecture Notes)
- VaR with Monte Carlo Simulation (Heavy-tail distributions)
- Simulating interest rate processes
- Some variance reduction methods
- Other topics on simulations
<<Final Examination>>


References: