Stat 958:587 Advanced Simulation Methods for Finance

General Information:

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Office: Room 574, Hill Center
Meeting Hours: Thursday 6:40pm - 9:30pm (10 minutes break in between),
Meeting Place: ARC 206 (Busch Campus)
Office Hours: Friday 10:30am-12:00pm or by appointments

Textbooks (Recommended):

— Jackel P., Monte Carlo Methods in Finance (Wiley)
— Glasserman P., Monte Carlo Methods in Financial Engineering (Springer)
— Venables, W.N. and Ripley, B.D., Modern Applied Statistics with S-Plus (Springer)

Grading:

Homework assignments, final project, in-class presentation (or a final exam).

Syllabus and Emphasis:

The emphasis of this course will be on Modern simulation methods and advanced statistical computing techniques for financial applications. We will introduce

— Monte-Carlo simulation methods,
— Variance reduction technique,
— Bootstrap methods,
— Markov chain Monte Carlo methods,
— Bayesian method and computing
— Sequential Monte Carlo method,
— Hidden Markov models (if time allows)
   etc.

Recommend JAVA, C++ or R for programming and data analysis.