

Math 565 Monte Carlo Methods in Finance

Course Description from Bulletin: In addition to the theoretical constructs in financial mathematics, there are also a range of computational/simulation techniques that allow for the numerical evaluation of a wide range of financial securities. This course will introduce the student to some such simulation techniques, known as Monte Carlo methods, with focus on applications in financial risk management. Monte Carlo and Quasi Monte Carlo techniques are computational sampling methods which track the behavior of the underlying securities in an option or portfolio and determine the derivative's value by taking the expected value of the discounted payoffs at maturity. Recent developments with parallel programming techniques and computer clusters have made these methods widespread in the finance industry. (3-0-3).

Enrollment: Graduate elective

Textbook(s): Paul Jaeckel, *Monte Carlo Methods in Finance*, Wiley, 2009

- b. Quasi-Monte Carlo methods
 - c. Parallel Computing
5. Selected topics

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Assessment:	Homework	25%
	Computer Programs/Project	25%
	Final Exam	50%

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