
Instructor: Ananda Weerasinghe, 414 Carver Hall, 294-8133
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Class times: 11.00 am-12.20 pm, Tues. and Thurs.

Textbook: There is no text book for this course. A list of reference books will be given in class. I intend to use the following books as my references. Several lectures (and examples) in the latter half of the course are influenced by the first two books. But none of them cover all the topics of the course.

- Stochastic Calculus and Financial Applications by J. Michael Steele
- Stochastic Calculus for Finance, Volume II, Steven E. Shreve
- Stochastic Differential Equations, Bert Oksendal
- Probability, Leo Breiman


Course Objectives: First, we intend to study properties of Brownian motion, basic Martingale theory and some applications. Then, we develop stochastic integration theory with respect to Brownian motion. Stochastic integration can be defined with respect to general martingales, but for simplicity, we concentrate on Brownian integrals. Next, we intend to study Itô’s formula and applications. Stochastic differential equations, Ornstein-Uhlenbeck process and geometric Brownian motion model (with applications in finance) will also be discussed. In many of our applications and examples, we focus on models from mathematical finance. No prior knowledge in finance is expected for this course.

Your final grade will be determined by several homework assignments. If you have any concerns or questions, please contact me.

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me privately as soon as possible. Please request that a Disability Resources staff person to send a SAAR form verifying your disability and specifying the accommodation you will need.