

Math 294, The Mathematics of Finance, Winter 2010

Lectures:	9:00-9:50 AM, Mondays, Wednesdays, and Fridays in APM B412
Instructor:	Jason Schweinsberg (jschwein@math.ucsd.edu)
Office:	6157 Applied Physics and Mathematics (534-6949)
Office Hours:	3:30-4:30 PM on Mondays 10:00-11:30 AM on Tuesdays other times by appointment
Textbook:	R. J. Williams <i>Introduction to the Mathematics of Finance</i> . American Mathematical Society, 2006.
Course Web Page:	http://www.math.ucsd.edu/~jschwein/294.html (or go to http://www.math.ucsd.edu and click on "Course Web Sites")
Prerequisites:	Math 180A or equivalent

Overview of the course: This course will provide an introduction to the Mathematics of Finance, focusing on the pricing of derivatives. The key ideas will be developed first in discrete-time models. Continuous-time models will be discussed in the second half of the course. The prerequisite for the course is an undergraduate probability course at the level of Math 180A. More advanced notions from probability theory, such as filtrations, conditional expectation, martingales, Brownian motion, and stochastic calculus, will be used in the course, and previous exposure to these ideas may be helpful. However, these topics will be developed as the course progresses. No previous background in finance will be assumed.

References: The textbook includes most of the material that we will cover in the course. Another good introductory textbook is *A Course in Financial Calculus* by Alison Etheridge. A reference that covers the topics of the course, as well as more advanced topics, in much greater depth is the two-volume work by Steven Shreve, which is on reserve in the Science and Engineering Library. The first volume is called *Stochastic Calculus for Finance I: The Binomial Asset Pricing Model*, and the second volume is *Stochastic Calculus for Finance II: Continuous-Time Models*.

Homework: There will be homework assignments due approximately once a week, usually on Wednesdays. Late homework will not be accepted. You are permitted to consult the instructor or other students while working on the homework, but you must acknowledge this help by making a note on your homework. Also, you should write your final solutions independently and may not copy homework from other students or any other source.

Grading Policy: Your course grade will be based on your performance on the homework assignments. There will not be a final exam.