

MATH 6385-01, Lec 20639

Continuous-Time Models in Finance

Spring, 2020

Instructor:	Edward P. C. Kao
Time:	TTH 2:30 – 4:00 pm
Class Room:	SEC 201
Office:	629-PGH (713) 743-3456, website: www.math.uh.edu/~edkao edkao@math.uh.edu
Office Hours:	TTH 9:00 - 2:15 p.m., or by appointment
Course Objective:	The course is an introduction to continuous-time models in finance. We use the stochastic volatility model of Heston as the principal paradigm and choose Fourier transform and its variants as the tools for pricing. We introduce stochastic calculus, Brownian motion, Levy processes, change of measures, martingale and semi-martingale and the notion of time change of a stochastic process. We then apply these ideas in pricing financial derivatives whose underlying assets are equities, foreign exchanges, and fixed income securities. The use of MATLAB is expected.
Grading Guide:	Homework 50% Final (a take home project) 50%
Primary Text:	<i>The Heston Model and Its Extensions in Matlab and C#</i> , by Fabrice Douglas Rouch, Wiley, 2013.
Supplemantray Text:	<i>Arbitrage Theory in Continuous Time</i> , 3 rd edition, by Tomas Bjork, Oxford University Press, 2009. (Primary)