AMAT601.24/STAT601.24 Diffusion, Markov Processes and Martingales

Instructor: Anatoliy Swishchuk

Offered: Winter 2013

Prerequisites: AMAT 481 or AMAT 483 or consent of the AMAT or STAT Divisions

Description: This course is an introduction to Markov, diffusion processes and martingales, and their applications. Topics include:

-Basic about one- and higher dimensional Brownian motion;

-Gaussian and Levy processes;

-Markov processes and their semi-groups;

-Discrete- and continuous-time martingales and semi-martingales;

-Diffusion processes;

-Ito calculus (Ito stochastic integral, stochastic differential equations, Ito formula);

-Applications in Finance, Insurance and Risk Theory

Textbook: Rogers L.C.G and Williams D. Diffusion, Markov Processes and Martingales. Cambridge University Press, 2000.