Course: Math 38200; Continuous Time Models in Financial Mathematics

Text: Arguin: A First Course in Stochastic Calculus

COURSE LEARNING OUTCOMES:

After completing this course, student should have the skills below with the associated Departmental Learning Outcomes (outlined at the bottom of the page, and labeled a-g). They should be able to:

1. Describe distributions of random variables *(a, e)*
2. Describe distributions of random vectors *(a, e)*
3. Analyze stochastic processes *(b, d, e)*
4. Perform computations with Brownian motion *(a, b, e)*
5. Determine if a stochastic process is a martingale *(d, e, g)*
6. Compute Ito integrals *(a, e)*
7. Solve stochastic differential equations *(a, e)*
8. Apply stochastic calculus to finance *(a, c, e)*

DEPARTMENTAL LEARNING OUTCOMES:

The mathematics department, in its various courses, aims to teach students to

a) perform numeric and symbolic computations
b) construct and apply symbolic and graphical representations of functions
c) model real-life problems mathematically
d) use technology appropriately to analyze and solve mathematical problems
e) state and apply mathematical definitions and theorems
f) prove fundamental theorems
g) construct and present a rigorous mathematical argument