Spring 2005

Stochastic Analysis for Mathematical Finance

University of Rome "Tor Vergata"

This course will give an elementary introduction to the Itô theory of stochastic integration with applications to mathematical finance. The following topics will be covered:

1. Brownian motion
2. Construction of Brownian motion
3. Wiener integrals
4. Itô integrals
5. Stochastic integrals for martingales
6. The Itô formula
7. Girsanov theorem
8. Stochastic differential equations
9. Arbitrage and option pricing
10. Black-Scholes analysis
11. Wiener-Itô decomposition theorem

Textbook

Kuo, H.-H.: Introduction to Stochastic Integration, to appear in Universitext (UTX), Springer-Verlag, 2005

Hui-Hsiung Kuo
Fulbright Lecturing Scholar
University of Rome "Tor Vergata", Centro Vito Volterra
Piano 3, Edificio "B" Ricerca, Stanza n. 6

and

Nicholson Professor of Mathematics
Louisiana State University
Baton Rouge, LA 70803, USA