MT-356 Stochastic Models in Finance

Overview of Probability theory, Random variables, Multivariate distribution, Conditional probability and distributions, Conditional expectations, Stochastic process, Random walks, Markov chains, Martingales, Stopping times, Binomial models, Brownian motion, Poisson process, Stochastic Calculus, Stochastic (Ito) integration, Stochastic differential equations. The Black-Scholes models, Feynman-Kac formula, Black-Scholes Partial differential equations, Girsanov theorem.

Recommended Books:

1. "Introductory Stochastic Analysis for Finance and Insurance", X. Sheldon Lin, John Wily & Sons Inc., 2006.
2. "Probability and Stochastic Process", Yates R.D and Goodman D.J, John Wily & Sons Inc., 2nd Edition, 2005.