Course Syllabus

Math 181: THE MATHEMATICS OF FINANCE

Fall 2001

1 Background in Finance and Probability

1. Introduction and Course Description

2. Review of probability

3. Discrete Random Walks

4. Random walks with Gaussian increments

5. Equity models using random walks; the price of risk

2 Financial Derivatives

6. Financial derivatives (puts, calls)

7. No-arbitrage assumption; self-financing portfolios

8. Derivation of discrete Black-Scholes

9. Derivation of continuous Black-Scholes

10. Black-Scholes (cont.)

11. European put and call

12. American put and call

13. Hedging - the greeks

14. Hedging (cont.)

3   Monte Carlo Methods

4   Other Financial Securities