1. Mechanics of Futures Markets
2. Hedging Strategies Using Futures
3. Interest Rate Markets
4. Determination of Forward and Future Prices
5. Interest Rate Futures
6. Swaps
7. Mechanics of Options Markets
8. Properties of Stock Option Prices
9. Trading Strategies Involving Options
10. Binomial Trees
11. Wiener Processes and Ito’s Lemma
12. The Black-Scholes Model
13. Options on Stock Indices, Currencies and Futures
14. The Greek Letters
15. Volatility Smiles

1. Review of Black-Scholes
2. Review of Greeks
3. Volatility Smiles
4. Basic Numerical Procedures
5. Value at Risk
6. Time Series
7. Estimation of Volatilities and Correlations
8. Credit Risk
9. Credit Derivatives
10. Exotic Options
11. Weather, energy, and insurance derivatives
12. More on models and numerical procedures
13. Martingales and measures
14. Interest Rate Derivatives
15. Convexity, timing, and quanto adjustments
16. Models of Short Rate
17. Heath-Jarrow-Morton
18. Swaps revisited
19. Real Options
MA5075 Class Information

• Lecture: Mondays & Wednesdays 5:00–6:30PM.

• Lecture Room: Vincent Hall 20

• Office Hours: Mondays 3:30–4:30PM & Wednesdays: 2:30–3:30PM

• Office: Vincent Hall 112b

• Contact: spirn@math.umn.edu & 612-625-1349


• Grade Information:
  - Homework: 50 %
  - Midterm: 20 %
  - Final: 30 %