Financial Math Qualifier Topics, Part 1

Spring 2024

Representative Textbooks

- *Stochastic Calculus for Finance I* by Steven Shreve.
- *Options, Futures and Other Derivatives* by John Hull.

Topics for Part 1

Part 1A
1. Forward and futures contracts.
3. Determination of forward and future prices.

Part 1B
2. Properties of options.
3. Trading strategies involving options.

Part 1C
2. Expectation and variance.
3. Independence.
5. Martingales.
Part 1D

1. One-step binomial model.
3. Risk-neutral pricing.
4. European options.
5. American options.
6. Delta hedging.
7. Arrow-Debreu market model.
8. Discrete-time market model.
10. Arbitrage.