

MATH 548 – Mathematical Finance I

Course Description from Bulletin: This is an introductory course in mathematical finance. Technical difficulty of the subject is kept at a minimum by considering a discrete time framework. Nevertheless, the major ideas and concepts underlying modern mathematical finance and financial engineering are explained and illustrated. (3-0-3)

Enrollment: Elective for AM and other majors

Textbook(s):

1. Stanley Pliska, *Introduction to Mathematical Finance: Discrete Time Models*, Blackwell
2. Giuseppe Campolieti, Roman N. Makarov, *Financial Mathematics: A Comprehensive Treatment*, Chapman and Hall/CRC

Other required material: None

Prerequisites: MATH 474 or MATH 475 or equivalent

Objectives:

- c. Return and dividend processes
- d. What all this means for valuation and hedging
- e. Binomial and Markov models
- 3. Financial derivatives
- a. Contingent claims
- b. European and American options
- c. Futures and forward contracts
- 4. Risk and performance measure
- a. Coherent and convex risk measures
- b. Performance measures
- c.