Financial Engineering II

Instructor: Dr Yaowen Hsu

OBJECTIVE: To give the students a solid knowledge of basic asset pricing theory and mathematical techniques used in financial economics.

Textbooks

1. Ingersoll, Jonathan E., 1987, *Theory of Financial Decision Making*, Rowman & Littlefield.
2. Sundaram, Rangarajan K. (1996), *A First Course in Optimization Theory*, Cambridge University Press.

Topics to be covered (Preliminary)

Review of the mathematics in Euclidean spaces, Concavity and Convexity, Unconstrained Optimization, Equality-constrained Optimization, Theorem of Lagrange, Inequality-constrained optimization, Theorem of Kuhn and Tucker, Martingales, Utility Theory, Modern Portfolio Theory, Asset Pricing Basics.

GRADING: Tests/Mid-term Exam: 30%. Tests/Final Exam: 30%. Presentation: 30%. Class Discussion: 10%.