Stochastic Optimization with Applications in Portfolio and AL-Management (SO)

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Course Description:

1. Introduction to the representation of uncertainty: distributions, quantiles, densities, moments, correlations, copulas, factor spaces.
2. Introduction to optimization theory: objective and constraints, linearity and convexity, duality, optimality conditions
3. Introduction to optimization practice: Linear, quadratic and nonlinear programming
4. Introduction to stochastic optimization: EVPI, VSS, periods and stages
5. Risk and return efficiency: The efficient frontier
6. Mean variance models including sign constraints, transaction costs
7. Deviation risk functionals, mean-risk models and two-fund theorems
8. Multiperiod models: Duality and martingales
9. Fundamental theorems

Time schedule:

October 2006-January 2007
Tuesdays: 17:30 - 19:00

Location:

Leopold Schmetterer Seminarrraum des Institutes für Statistik, Universitätsstrasse 5 (3. Stock/9)

Examination:

tba

Course literature:

Birge and Louveaux: Stochastic optimization
Danzig: Financial optimization
Michaud: Efficient asset management