

**Meeting:** 1000, Albuquerque, New Mexico, SS 4A, Special Session on Financial Mathematics: The Mathematics of Derivative Securities

1000-90-101      **Jeremy Staum\*** ([j-staum@northwestern.edu](mailto:j-staum@northwestern.edu)), Dept. of IE/MS, 2145 Sheridan Road, Evanston, IL 60208-3119. *Conjugate Duality in Pricing, Hedging, and Portfolio Optimization*. Preliminary report.

We consider the problems of pricing derivative securities and of portfolio optimization, in particular, the problems of establishing good deal bounds for derivative prices in incomplete markets and of robust utility maximization. Application of the theory of conjugate duality in optimization over locally convex linear topological spaces yields conditions for arbitrage-freedom of good deal bounds, for existence and uniqueness of optimal portfolios, and for optimality of a portfolio or hedge. (Received August 19, 2004)