Applied and Computational Mathematics and Statistics Colloquium

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Will give a lecture entitled:

Financial Risk Modeling: Probabilistic Analysis and Statistics

Friday, October 1st, 2010
4 PM
Location: 127 Hayes-Healy Hall

Abstract:

The problem of modeling quantitative risk measures for decision-making in financial economics, such as actuarial and investment sciences, as well as how to use empirical market data to estimate risks, is an active current research.

Although, in principle, financial decisions can be analyzed within the context of the popular theory of stochastic dominance, quantitative assessments of risks of financial positions in investments, or premium calculations in actuarial science, are still needed. Quantifying risks is a tricky business, as risks depend not only on investors' attitudes towards risk, but also on psychological factors! The current approach to risk modeling is to lay down desirable properties of risk measures and to search for the most appropriate ones, taking into account specific financial situations.

Based upon our current research, we will present, in this talk, the following:

(i) A survey of the state-of-the-art financial risk modeling (from Markovitz mean-variance rule, Value-At-Risk, and Tail-Risk measures to current coherent risk measures, such as distorted probability risk measures and spectral risk measures),

(ii) A focus on a class of coherent risk measures where the concept of Choquet integral plays an essential role (providing a general guideline for constructing reasonable risk measures),

(iii) A look at appropriate statistical procedures for estimating risks (e.g. those based upon nonparametric estimation of distribution functions).