MATHEMATICAL TOOLS FOR ASSET PRICING AND RISK ANALYSIS

G. BERKOLAIKO

This course is aimed at filling the gap between Mathematics curriculum as taught in undergraduate classes and the level required for deeper understanding of graduate classes in Finance and Economics. It is aimed at Masters level students. Links with existing PhD level Math classes will be highlighted in order to encourage interested students to take further classes.

List of possible topics (with Finance applications):


(4) Dynamics: linear stability of ODEs and difference equations, generating functions. Applications to dynamical models in Economics and to volatility modeling via auto-regressive processes (AR, ARMA, ARCH).


(6) Advanced Finance applications: market risk, credit risk, risk aggregation, pricing under trading costs.