

November 4<sup>th</sup>, 2019

KAP 414

2:00 P.M. – 3:00 P.M.

## **Professor Michail Anthropelos**

(University of Praeus, Greece &  
Boston University)

### **“Optimal Investment, Derivative Demand & Arbitrage”**

**Abstract:** This paper studies the optimal investment and the derivative pricing under an inventory-based price impact model with competitive market makers. We establish two effects due to price impact: constrained trading and non-linear hedging costs. To the former, investor’s wealth process in the impact model are identified with those in a model without impact, but with constrained trading, where the (random) constraint set is generically neither closed nor convex. On the other hand, the non-linearity of hedging costs heavily affects the notion of arbitrage-free pricing. We provide three such definitions, which coincide in the frictionless case, but which dramatically differ in the presence of price impact. Additionally, we show arbitrage opportunities, should they arise from claim prices, can be exploited only for limited position sizes, and may be optimally ignored if outweighed by hedging considerations. Furthermore, we point out that, in segmented markets, it is likely to have arbitrage-inducing prices arising endogenously as equilibrium prices. This is a joint work with S. Roberson and K. Spiliopoulos (BU).