Description:
The objective of this Ph.D. seminar is to study the application of risk management techniques to problems in Operations Management (OM) and other related fields in economics and management. In the first part of the class, we review the literature and develop the concepts of risk preferences, utility theory, economic valuation and risk measures under uncertainty and investigate their properties (pros and cons) from an optimization standpoint.

In the second part of the course, we review some traditional (OM) problems in inventory, capacity planning and supply chain using a risk management approach. We discuss the implications of different valuation techniques and risk preferences on the optimal operating policies.

In the third part, we discuss the concepts of operational and financial hedging. We investigate how the presence of financial markets and their correlation to operating performance can be exploited to minimize risk and maximize overall economic value. We review the traditional literature on option pricing and real options and the recent developments on hedging in incomplete markets.

We conclude the course reviewing some concrete applications and empirical work in connection to the theory and models discussed during the semester.

This course is designed for Ph.D. students in the areas of operations management, operations research and economics. The course is a mixed of lectures and students’ presentations. The content shall include book chapters, published research articles and working papers. Previous exposure to microeconomics, probability theory and stochastic dynamic programming is recommended.

Lectures:
We will meet once a week for 3 hours (15-minute break).
Time & Room: T.B.A.

Grading:
Homework 20%
Presentations 40%
Final 40%
References


