FRE 6331 Financial Risk Management and optimization (1.5 Credits)

Professor: Daniel H. Totouom-Tangho

Description

This course provides solutions to the inter-temporal problems in financial management including management of portfolios, credit risks and market making. Dynamic and stochastic dynamic programming techniques as well as optimal control and stochastic control principles of optimality are presented, and their financial contexts emphasized. Both theoretical and practical facets of inter-temporal management of financial risks and risk pricing are also stressed.

The content coverage will blend theory and analytics with computational methods implementation in (Matlab/ R/ C++ or Java) to solve problems of practical importance in Financial Risk Management and portfolio optimization.

Pre-Requisite: Students are expected to know calculus and elementary probability.

Reference: Recommended, not required,

- Handout will be given
- Financial Risk Modelling and Portfolio Optimization with R, Bernhard Pfaff , ISBN: 978-0-470-97870-2

Grading

Grading will be 70% final project, and 30% class participation and homeworks. Grades will be A, A-, B+, B, B-, C+, C, or F.

Indicative program:

- Statistical factor models and PCA for risk analysis and forecasting
- Value at Risk of a portfolio with Treasury, Credits and equity
- Dynamic Asset Allocation approach
- Black–Litterman model