TOPICS IN APPLIED MATHEMATICS: OPTIMAL PORTFOLIO THEORY

MATH 663

Spring 2021

Objective: The objective of this course is to study Optimal Portfolio Theory in discrete time and continuous time. It would be interesting to those students who want to see how Probability Theory, Stochastic Processes, Stochastic Analysis, Control Theory, and Optimization Theory, can be applied to model and solve problems in Portfolio Management.

Instructor: Dr. Abel Cadenillas, CAB 639, Telephone: 780-492-0572, E-mail: abel@ualberta.ca, Webpage: `http://www.math.ualberta.ca/~acadenil/`

Lectures: Tuesdays and Thursdays, 9:30am - 10:50 am by Zoom.

Prerequisite: A course in Probability Theory and Stochastic Processes.

Office Hours: Tuesdays and Thursdays from 10:50am to 11:45am.

Dates: Midterm Exam: Tuesday, June 1, 2021 at 10:50am. Final Exam: Thursday, July 29, 2021 at 10:50am.

Evaluation: Homework 20%, Midterm Exam 30%, Final Exam 50%.

Topics: Optimal Portfolios in Single Period Models. Mean-Variance Analysis. Financial Markets in Discrete Time. Optimal Portfolios in Discrete-Time Models. Review of Stochastic Calculus. Financial Markets in Continuous Time. Optimal Portfolios in Continuous-Time Models.