



In the framework of the activities of the PhD programme in Mathematical Sciences

Prof. **Luciano Campi**, University of Milan
and
Prof. **Giorgia Callegaro**, University of Padua

will offer a PhD course on

Stochastic control and games with different information structures

Abstract

We will start by giving a short introduction of the most important approaches for solving stochastic control problems and games based on partial differential equations and backward stochastic differential equations. In those problems an agent or a group of players are willing to optimize some objectives, which depend on the state of a controlled stochastic dynamic system. In this part, the latter will be assumed to be fully observable. Then, we will tackle the more realistic case where the agent/players have only a partial information on the state variable. Filtering theory will play a crucial role in this class of problems. After that, we will pass to the case when the agent/players can have different information structures on the state. Finally, we will consider some relevant applications in energy economics, Bayesian persuasion and finance. A good knowledge of the basis of stochastic calculus is required to fully understand the content of the course.

Scheduling

The course will be held at the Department of Mathematics

Via C. Saldini n.50 – Milan

from January 22 to February 14, 2025

with the following scheduling:

2 P.M. – 5 P.M., Wednesday 22 January 2025

2 P.M. – 5 P.M., Thursday 23 January 2025

2 P.M. – 5 P.M., Wednesday 12 February 2025

2 P.M. – 5 P.M., Thursday 13 February 2025

10 A.M. – 12 P.M. and **2 P.M. – 3 P.M.**, Friday 14 February 2025

Room: **Aula Dottorato**, 1st floor