



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

TIC55_DIP_MAT

Visiting Professor Program Academic year 2020/2021

DEPARTMENT OF MATHEMATICS "GIUSEPPE PEANO"

TEACHING COMMITMENT: 16 hours

COURSE TITLE

Stochastic Differential Equations

TEACHING PERIOD

1st term

SCIENTIFIC AREA

Mathematics (Analysis and Probability)

LANGUAGE USED TO TEACH

English

The Degree Course is entirely taught in English

COURSE SUMMARY

The aim of the course is to introduce to Stochastic Differential Equations. Hence the integration theory in the Ito sense is introduced as well as some path properties of Brownian motion which are not covered by classical course on stochastic processes. The proofs of the main results of the course are carried out completely. They show important links between Analysis and Probability. The course also provides basic concepts on parabolic equations of Kolmogorov type.

LEARNING OBJECTIVES

At the end of the course, students will know several important methods to study stochastic models; in particular they will know the Ito stochastic integral and the related stochastic differential equations. Moreover, they will understand relations between stochastic differential equations and Kolmogorov equations. They will be able to study applications of stochastic differential equations to solve problems in applied sciences.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES (IF APPLICABLE)

VISITING PROFESSOR PROFILE DESCRIPTION

The visiting professor will have a highly qualified research profile certified by relevant publication in high level journals. Due to the interdisciplinarity of the topic the visiting professor's interests will be borderline between mathematical analysis and probability theory, in particular SDEs, Markov process, Lévy processes and the theory of generators.

CONTACT PERSON AT THE DEPARTMENT

Prof. Bruno Toaldo
bruno.toaldo@unito.it