Visiting Professor Program
Academic year 2022/2023

TEACHING COMMITMENT: 16 hours

**COURSE TITLE**

**Stochastic Processes**

**TEACHING PERIOD**

2nd term

**SCIENTIFIC AREA**

Probability

**LANGUAGE USED TO TEACH**

English

**COURSE SUMMARY**

Introduction to diffusion processes. Brownian Motion and its features (Brownian Motion as Gaussian process, as Markov process, as a Martingale, Arcsin Law, Iterated logarithm law, properties of the sample paths). Diffusion processes as continuous time and space Markov processes; some functionals of diffusion processes; Kolmogorov equations (backward and forward); classification of the boundaries and boundary conditions. Diffusion approximation of discrete time-space Markov processes; First Passage time problems. Simulation of diffusion processes.

**LEARNING OBJECTIVES**

Learn basic properties of Brownian Motion and Diffusion processes. Developing modelling skills and necessary competences for the study and the simulation of the models.

**TUTORSHIP ACTIVITIES**

N/A

**LAB ACTIVITIES**

N/A
OTHER ACTIVITIES BESIDES THE COURSE
Seminars addressed to Ph D students and research fellows will be scheduled.

VISITING PROFESSOR PROFILE
The visiting professor will have a highly qualified research profile, with verifiable experience through an excellent record of publications on probability and its applications. Experience in teaching similar topics will be a further qualification.

CONTACT PERSON AT THE DEPARTMENT
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