UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Stochastic Processes M

2021-1-F8204B017

Learning objectives

The aim of the course is to introduce the main concepts concerning some classes of stochastic processes of particular methodological and applied relevance.

Contents

General definition of stochastic process

Markovian processes

Poisson process and Brownian motion

Point processes

Spatial processes

Detailed program

Introduction to the theory of stochastic processes

Discrete time Markov chains:

- Chapman-Kolmogorov equations

- Classification of states
- Limit results.

Brief introduction to continuous time Markov chains.

Brownian motion

Poisson process

Point processes

Spatial processes:

- stationarity and isotropy
- variogram and covariogram
- main isotropic models.

Prerequisites

Knowledge of probability theory as taught in the course "Probabilità applicata ".

Teaching methods

Class lectures.

Assessment methods

Oral exam.

Textbooks and Reading Materials

Ross S., Probability models, Academic Press, 2003.

Durrett R., Essentials of stochastic processes, Springer, 1999.

Notes on spatial processes are available on the web-site of the course.

Semester

First term (six weeks) of the second semester.

Teaching language

Italian