UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Processi Stocastici M

2122-1-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.

The student is expected to learn the fundamental properties of some important classes of stochastic processes and to be able _____

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

The course is taught in Italian through class lectures and exercises.

Lectures are aimed at understanding concepts relative to the taught subjects, giving particular attention to

Assessment methods

Oral exam on the subjects taught in the course.

The exam is aimed at verifying the understanding of concepts and fundamental properties of the considered stochastic processes and the capacity of using these concepts and properties to appropriately and critically deal with practical problems. Evaluation of the student communicative ability is an objective of the exam as well.

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