



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

TIC38\_DIP\_MAT

## Visiting Professor Program Academic year 2019/2020

**DEPARTMENT OF MATHEMATICS "GIUSEPPE PEANO"**

**TEACHING COMMITMENT: 16 hours**

### COURSE TITLE

Statistics for stochastic processes

### TEACHING PERIOD

2nd term

### SCIENTIFIC AREA

Probability

### LANGUAGE USED TO TEACH

English

The Degree Course is entirely taught in English

### COURSE SUMMARY

The goal of lectures is to introduce statistical inference for time series taking into account both the theoretical/mathematical aspects and their practical application to data analysis.

Time series are considered, aiming to characterize properties, asymptotic behavior, estimations and forecasting, spectral analysis as well as decomposition in trend and seasonal components. Such concepts are applied to the analysis of simulated data or existing databases in order to infer and validate a model supporting the data.

### LEARNING OBJECTIVES

At the end of the course, students will have understood how to model time series with focus on forecasting and estimation of the moments, of the spectrum and of the parameters of time series models.

Moreover they will know which are the main steps of the analysis of a dataset, and which tools are available to this aim:

- descriptive statistics, moment and spectrum estimation
- formulation of models, parameter estimation, model selection, model verification
- forecasting

**VISITING PROFESSOR PROFILE**

The visiting professor will be an internationally recognised scholar with an established track of high quality research output on international journals on topics coherent with the course contents

**CONTACT PERSON AT THE DEPARTMENT**

Elvira Di Nardo

elvira.dinardo@unito.it