



## **Visiting Professor Program Academic Year 2024/2025**

**TEACHING COMMITMENT:** 16 hours

**COURSE TITLE**

**Statistics for Stochastic Processes**

**TEACHING PERIOD**

2nd term

**SCIENTIFIC AREA**

Probability and Statistics

**LANGUAGE USED TO TEACH**

English

**COURSE SUMMARY**

The goal of this course 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**

By the end of the course, the student is able to transform a real problem into a statistical one and interpret results in an effective way for phenomena evolving during the time. Moreover it is expected that the student is able to employ mathematical/statistical models for a better

identification of the dependence and for forecasting the behaviour of the stochastic dynamic system under observation. Computational skills are acquired by means of the open source software R.

---

### **VISITING PROFESSOR PROFILE**

The Visiting Professor will have a high quality profile in terms of research production and previous expertise in teaching time series analysis, according to international standards of quality. Affiliation to a prestigious academic institution will also constitute a preferential feature. The candidate will also be an expert in probability and statistics and, in particular, in time series.

### **CONTACT REFERENT**

Cristina Zucca  
cristina.zucca@unito.it