PROGRAMA DE CURSO

Código	Nombre
MA6924	Seminario Avanzado de Matemáticas II **Lectures on Weak dependence and modelling nonlinear time series**

Nombre en Inglés

SCT		Horas de Cátedra	Horas Docencia Auxiliar	Horas de Trabajo Personal
3		5		5

Requisitos	Carácter del Curso
	Electivo de Magister y Doctorado

Resultados de Aprendizaje

Metodología Docente	Evaluación General
• Clase expositiva	• Trabajo personal

Unidades Temáticas

Número	Nombre de la Unidad	Duración en Semanas
	Lectures on Weak dependence and modelling nonlinear time series **Paul Doukhan** AGM UMR8088 University Paris-Seine and CIMFAV, Universidad de Valparaiso, Chile Dependence is a main feature of real life data sets (think e.g. of Meteorology, Medical, or Econometric data), ergodic theory yields essential tools to derive laws of large numbers, but this is not enough for statistical features and Rosenblatt introduced a strong mixing condition able to deal	

with this in 1956. However papers by Rosenblatt and by Andrews demonstrated in 1984 that the simplest autoregressive model does not always fit such conditions. The aim of the mini-course is to also describe an alternative condition introduced in a joint paper with Sana Louhichi in 1999. Thus an elementary reflexion on some simple and necessary objects like independence, covariances, or association properties will help to understand and develop models. We shall also derive moment bounds of sums and dependent Lindeberg inequalities useful for statistical purposes with some possible application to functional estimation.

The lectures will thus be spliced into different items

- Probabilist tools for independence and orthogonality
- models of non linear times series illustrated in a statistical framework
- Moment inequalities and Central limit theorems under dependence
- A taste of application to nonparametric statistics

Complementary material may be found in the monograph Stochastic Models for Time Series (Springer, 2018).

Bibliografía General

Vigencia desde:	Otoño 2019
Elaborado por:	Paul Doukhan
Revisado por:	