Materia 4_03: Advanced Statistics models for Data Analysis

Materia:	Advanced Statistics models for Data Analysis	**ECTS:**	10
Descriptores	• Multivariate data, dimensionality reduction, principal component analysis, factor analysis, discriminant analysis, cluster analysis. • Introduction to projection to latent structures (PLS). Partial least squares regression. Partial least squares discriminant analysis. Time Series Descriptive Analysis. Basics of Stochastic Processes. ARIMA models. ARIMAX models. Introduction to multivariate models (VAR, VEC, VECM, others)		
Objetivos generales	This subject has the objective of introducing the main existing multivariate techniques to perform consistent analysis of data in any field.		
Competencia específica	CE [4-03] Apply multivariable data analysis techniques to draw conclusions and support decision-making processes on relevant issues of a social, scientific, or ethical nature		
Resultados de aprendizaje	• Appreciate the range of multivariate techniques available. • Summarize and interpret multivariate data. • Use multivariate techniques appropriately, undertake multivariate hypothesis tests, and draw appropriate conclusions. • Evaluate the results from multivariate analyses and with a scientific touch present the results orally and in written form. • Summarize the most important results from a scientific report on some area in multivariate analysis. • Describe graphically the behavior of a Time Series. • Know and identify the components of a Time Series. • Understand the concept of Stochastic Process and its application to characterize a Time Series. • Predict the value of a variable of interest from its past values and from the current and/or past values of other variables. • Predict the value of multiple variables simultaneously from their past values and from the current and/or past values of other variables • Understand the characteristics of projection to latent structures techniques. • Develop capacity for modelling complex problems using PLS techniques. • Apply multivariate statistical methodologies in the study and analysis of phenomena and systems.		
Métodos de evaluación	• Evaluation: Written open-ended test and Problems • Assessment instruments: Checklists and Rating Scales		