

DEPENDENCE MODELS VIA HIERARCHICAL STRUCTURES

Dr. Luis E. Nieto-Barajas



In this course we will review some of the concepts presented in the book Nieto-Barajas (2025) "Dependence models via hierarchical structures" by Cambridge University Press. We will explain, step by step, how to construct dependence models, starting from exchangeable sequences, Markov processes, moving average type processes for temporal dependence, spatially dependent models and, in general, spatio-temporal models. All constructions maintain a desired property of fixing a marginal distribution a-priori and keeping this marginal distribution invariant, regardless of the type of dependence induced. This is a key feature that makes these series of hierarchical constructions appealing. Models are illustrated with simple examples and graphical representations to better convey the ideas. We will provide R/BUGS code for fitting the models.

Core message: *"choose your preferred distribution and create a network of dependent variables with the same marginal (invariant) distribution"*.

At the end of the course one book will be given away among the attendants.

DURATION

4 horas

LANGUAGE

Spanish/English

ABOUT THE SPEAKER

Luis E. Nieto-Barajas is Full Professor and Head of the Department of Statistics at the Instituto Tecnológico Autónomo de México (ITAM). He was previously President of the Mexican Statistical Association (2020–2021). For his thesis, he won the Savage Award (2001) and Francisco Aranda Ordaz Awards (2002–2004). He has published more than 55 peer reviewed papers in international journals.