# Course: Bayesian Inference in Hidden Markov and Related Models

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http://www.biometricsociety.net/2016/06/27/course-bayesian-inference-in-hidden-markov-and-related-models/

The registration for the course "Bayesian Inference in Hidden Markov and Related Models" is now open at http://congresos.adeituv.es/bayesian/ficha.en.html

This course will be held in Burjasot-Valencia from 30 November to 2 December 2016.

Abstract:

Hidden Markov models (HMMs) have been originally developed for engineering applications in speech and hand-writing recognition and image segmentation. Then, HMMs became popular within the statistical community as efficient tools for the classification of dynamic data (HMMs are dynamic extension of finite mixture models), with applications in a many different areas, ranging from economics and finance to ecology and environmental sciences, medicine, genetics, epidemiology.

The course will present the basic concepts for dealing with Bayesian inference in HMMs, i.e. parameter estimation, model choice, and variable selection. Inference will be performed numerically, by using Markov chain Monte Carlo methods.

Models related to HMMs will be also presented: finite mixture models at the beginning of the course, and Markov switching autoregressive models, spatial hidden Markov models, hidden Markov mixed models at the end.

All methodological topics will be discussed jointly with applications to real data case studies.

Sessions where trainees can directly apply HMMs via the use of the R package will be part of the course.

Speaker: Luigi Spezia.

Luigi Spezia holds a degree in Economics from Catholic University of Milan and a PhD in Statistics from University of Trento. He has been working for Biomathematics & Statistics Scotland (BioSS) since February 2008. His research interests include Bayesian modelling in time and space; Bayesian model choice and variable selection; computational statistics; environmental and ecological statistics. His expertise is in developing temporal and spatial models with a latent Markov process, e.g. hidden Markov models and spatial hidden Markov models for the classification of the observations into a small set of homogeneous groups; Markov switching autoregressive models for the analysis of non-linear and non-normal time series. He applied his models to air quality control, stochastic hydrology, image analysis, biogeography, and animal movement.

The list of Luigi's publications is available at [http://www.bioss.ac.uk/~luigi](http://www.bioss.ac.uk/~luigi).

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