



# CURSO

FACULTAD DE CIENCIAS ECONÓMICAS Y EMPRESARIALES

## Markov Chains

**Prof. Alain Jean-Marie**  
INRIA (Francia)

**Fechas:** 19, 20, 21, 26, 27 y 28 de abril de 2017

**Dirigido:** Alumnos de máster y doctorado en Economía, ADE, Matemáticas o Ingeniería

**Programa:**

<b>Primera semana (10h): Markov Chains</b> 19 abril (16:00-19:00) A general review of the theory of Markov chains.	<b>Segunda semana (10h): Optimal Stochastic Control</b> 26 abril (16:00-19:00) Modeling optimal decision problems in discrete time with Markov Decision Processes (MDP);
20 abril (16:00-19:00) The basic models of general use for the general scientific public.	27 abril (16:00-19:00) Examples: stock management, optimal option choice, optimal tracking.
21 abril (10:00-14:00) Examples of modeling with Markov chains.	28 abril (10:00-14:00) Continuous-time MDPs and their Bellman equations.

**Lugar:** A11 Aulario Esgueva (Económicas/Ingeniería) **Idioma:** Español

**Contacto:** Si estás interesado, por favor, envía un e-mail a: [pcabo@eco.uva.es](mailto:pcabo@eco.uva.es)

Matrícula gratuita

DEP. ECONOMÍA APLICADA  
(MATEMÁTICAS)

## Programa

19 abril (16:00-19:00)

A general review of the theory of Markov chains, both in discrete and continuous time; probabilities of transition, stationary probabilities, convergence of distributions, classification of states;

20 abril (16:00-19:00)

The basic models of general use for the general scientific public; birth-and-death processes; reversible processes; inventory models;

21 abril (10:00-14:00)

More examples of modeling with Markov chains: queuing models, population models; advanced Markov modeling: phase-type distributions, Markov-modulation.

26 abril (16:00-19:00)

Modeling optimal decision problems in discrete time with Markov Decision Processes (MDP); State spaces, action spaces, costs, optimization criteria; Bellman equations for MDPs;

27 abril (16:00-19:00)

Examples of decision problems solved with MDPs: stock management, optimal option choice, optimal tracking;

28 abril (10:00-14:00)

Continuous-time MDPs and their Bellman equations; techniques for solving MDPs: numerical techniques, propagation of properties; more examples and applications.