

# Epidemic stochastic models

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**Timetable:** 10 hrs. First lecture on April 27, 2016, 11:00, (dates already fixed, see the calendar)  
Torre Archimede, Room 2BC/30.

**Course requirements:** Probability, Ordinary differential equations and Stochastic processes.

**Examination and grading:** according with the teacher

**SSD:** MAT/06

**Aim:** We present an introduction to the formulation of some types of deterministic and stochastic epidemic models. We begin with the well-known deterministic SIS and SIR epidemic models. we also consider some delay models in Mathematical Biology. Two different types of stochastic models are presented: discrete time Markov chain and stochastic differential equations. We ends with a discussion about stability.

**Course contents:**

1. Basic deterministic models in epidemiology: SIR, SIS, SIRS
2. Delay deterministic models
3. Discrete time stochastic models in epidemiology
4. Continuous time stochastic models in epidemiology with or without delays
5. Global stability