Epidemic stochastic models

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\textbf{Timetable:} 10 hrs. First lecture on April 27, 2016 (dates already fixed, see the calendar) Torre Archimede, Room 2BC/30.

\textbf{Course requirements:} Probability, Ordinary differential equations and Stochastic processes.

\textbf{Examination and grading:} according with the teacher

\textbf{SSD:} MAT/06

\textbf{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.

\textbf{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