



**Centro de Investigação em Matemática e Aplicações  
Programa de Doutoramento em Matemática  
Departamento de Matemática**

## **Seminário**

**8 de junho de 2017 quinta-feira  
CLAV – Anfiteatro 1 - 11:00 horas**

### **Individual growth models in a random environment – an application to cattle growth**

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### **Abstract**

The stochastic differential equations (SDE) models are adequate to describe the behavior of dynamic phenomena permanently influenced by chance, thus constituting a valuable modeling tool in a wide range of applications in various areas. In particular, in the context of modeling the individual growth of organisms (animals or plants) it can model the growth of an organism in an environment subject to random fluctuations that affects the individual growth rate. In this seminar, it will be presented a class of SDE models developed to describe individual growth in a random environment, whose results were applied to the weight of Mertolengo cattle, an autochthonous breed with high representation in the Alentejo region. The topics of estimation and forecasting will be addressed. We characterize the time it takes to an animal reach a certain weight. When this is a weight of economic interest, we can highlight the importance of these results and, in this context, expected profit optimization issues will be approached.

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