

# Modelling the academic performance in Spanish high school: an epidemiological approach with uncertainty\*

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## Abstract

Academic underachievement is a concern of paramount importance in Europe, and particularly in Spain, where around of 30% of the students in the last two courses in high school, referred to as *Bachillerato*, do not achieve the minimum knowledge academic requirement. To analyse this problem, we propose an epidemiological–mathematical model to study the dynamics of the academic performance in Spain. Our approach is based on the idea that both, good and bad study habits, are a mixture of personal decisions and influence of classmates. In addition, in order to consider the uncertainty in the estimation of model parameters, a bootstrapping approach is employed. This technique permits to forecast model trends in the next few years using confidence intervals.

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