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A Stochastic Approach to Academic Fraud.

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Abstract

School fraud has become a serious issue that has increasingly affected the education system in recent years. In this study, school fraud is treated as an infectious phenomenon that spreads within a school community through interactions between individuals who commit fraud and the broader student population. The modeling of human behavior, particularly academic fraud, cannot be explained by deterministic models due to the random behavior of individuals within a given population. In this paper, we will present a stochastic model describing the phenomenon of academic fraud. We show that, in this case, the basic production number of the deterministic system does not provide a criterion for determining whether fraud propagates or dies out. For the stochastic model, we define a basic stochastic production number that serves as an effective threshold for controlling the extinction of the phenomenon. Finally, we present numerical experiments that confirm the theoretical results.

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