



# Coloquio Queretano de Matemáticas

**10 de Marzo @ 1pm**



**The survival of the likeliest, not the fittest**

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Explaining and predicting the rise and fall of population sizes of plants, animals, and microbes is a fundamental scientific problem, and underpins our ability to develop successful interventions in bio-restoration, bio-technologies, and bio-medicine. These populations form part of ecological systems, whose behavior is the result of self-organization processes sensitive to initial conditions and external random perturbations. For instance, probiotics have been engineered to restore gut microbiota, however, why are they sometimes successful and other times not? To answer these types of questions, unfortunately, we do not know the exact equations governing the dynamics of entire ecological systems nor do we have the technical capacity to know the exact conditions modulating such dynamics. In this talk, I will demonstrate that this uncertainty can be leveraged to increase our understanding of ecological systems by using a probabilistic perspective based on simple mathematical models. I will show that our ability to predict the behavior of ecological systems is a synonym of our ability to estimate the fraction of possible conditions compatible with emergent outcomes.

**investigación**


**ecología**


**sistemas complejos**

**Evento híbrido, con transmisión en vivo**

presencial: Aula Teórica, IM-UNAM Juriquilla

virtual: Zoom ID: 979 443 2722 pass: DRvwX2

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