

THE MATHEMATICS OF CHANGE

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This talk invites you to take a journey into the fascinating world of mathematics! I show how I have applied mathematical ideas and tools over the last 30 years of research in a variety of academic fields, such as in biology (models of Wood Frogs), epidemiology (models for the dynamics of Chagas disease), engineering (breaking systems and thermostats in cars, models of Micro-Electo-Mechanical Systems (MEMS)), smart dampers, and thermal science (melting of materials).

We are living through times of rapid technological growth and this research provides examples of how abstract mathematical thinking can be very useful in understanding and possibly predicting outcomes of some of these changes. Indeed, the models for the growth of a population of Wood Frogs allow us to study the conditions for the flourishing or extinction of the population. The talk will describe this and other predictive models.

The talk is aimed at the general public, including those whose relationship with mathematics is tenuous, and no technical or mathematical knowledge is needed. All that is required is curiosity about applications of mathematics to real world processes.

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