Differential Equation Models in Epidemiology

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Abstract

This course introduces differential equation models of infective diseases, such as Covid-19, that are passed from person to person. Differential equation models are commonly used by governments to predict the course of an infective disease, including under possible interventions. Along the way you will learn about the modern theory of ordinary differential equations, including phase portraits, linearization, and slow-fast systems. The course includes the use of game theory to model the response of people to epidemics and vaccination programs.

Prerequisites: Introductory knowledge of differential equations and linear algebra.