TROY DAY, Queen's University
The Price Equation and Stochastic Evolutionary Epidemiology

The Price equation has found widespread application in many areas of evolutionary biology, including the evolutionary epidemiology of infectious diseases. I will illustrate the utility of this approach by first deriving a version of Price's equation that can be applied in continuous time and to populations with overlapping generations and then show how it provides a useful perspective on pathogen evolution by considering the epidemiological meaning of each of its terms. Finally, I will extend these results to the case where population size is small and generates demographic stochasticity to show how the particular partitioning of evolutionary change given by Price's equation is also a natural way to partition the evolutionary consequences of such stochasticity. This is joint work with Todd Parsons, Amaury Lambert, and Sylvain Gandon.