

Michigan Math Club

Thursday at 4pm in the Nesbitt Room

Free Pizza and Pop

Modeling the Underlying Dynamics of the Spread of Crime

Carl Simon

Abstract for 24 October

The spread of crime is a complex, dynamic process that calls for a systems level approach. We build and analyze a series of dynamical systems models of the spread of crime, imprisonment and recidivism, using only abstract transition parameters. To find the general patterns among these parameters --- patterns that are independent of the underlying particulars, we compute analytic expressions for the equilibria and for the tipping points between high-crime and low-crime equilibria in these models. We examine, in particular, the effects of longer prison terms and of increased arrest rates on the prevalence of crime, with a follow-up analysis of the effects on a Three-Strike Policy.

