

The mathematics of crime

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Applying mathematical tools to criminology is a relatively new but promising and exciting avenue of research. In this talk we present several examples of mathematical models that are meant to frame and analyze basic sociological findings such as the broken windows effect and repeat victimization theories. We discuss agent based models and partial differential equations to study burglary and the spread of opportunistic crime, game theories to investigate the role of informants within a violent society, stochastic simulations to model recidivism and rehabilitation efforts and a network model to study possible methods of dismantling a growing criminal organization. Some of our results are confirmed by data and experimental realizations conducted on actual human subjects in a behavioral laboratory.