The Dr. W.F. James Chair of Studies in the Pure and Applied Sciences Public Lecture

Presented by:

Dr. Joel Brown
Department of Biological Sciences
University of Illinois at Chicago

Games Nature Plays: From Natural Ecosystems to Cancer

Wednesday, October 8, 2014
7:00 pm – 8:30 pm
Schwartz School of Business, Room 289

Abstract:
Game theory addresses problems where an individual's best choice depends upon the choices of others. This gives deeper meaning to the catchphrase *Life is a Game* than one might think. Via natural selection plants and animals evolve adaptations that maximize their chances of survival and reproduction. Like the fleetness of a deer and the stealth of a mountain lion, the adaptations of one creature are in response to another's – this is coevolution as a game. We shall explore a lockstep between game theory and applications to nature. Predator-prey foraging games explain the coexistence of gerbil species, snakes and owls in the Negev Desert of Israel, and these games can help us find and census snow leopards in Nepal. Plant's also play games via their roots underground and their stretching for light above – knowledge of such games improves crop yields. The scourge of cancer may also be best defined and understood as an evolutionary game. As units of natural selection, the tumor cells, evolve, speciate, metastasize, and most discouragingly evolve therapy resistance. In short, games may permeate our lives, our health and all of the nature around us – its game on!

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