

The McMicken College of Arts & Sciences  
Department of Mathematical Sciences

Colloquium

# Professor Chris Cosner

University of Miami

Thursday, November 9, 2017

Room 120, 60 West Charlton

4:00 – 5:00 pm

## *Dynamics of Populations with Individual Variation in Dispersal on Bounded Domains*

Most classical models for the movement of organisms assume that all individuals have the same patterns and rates of movement, but there is empirical evidence that movement rates and patterns may vary among individuals. One way to capture variation in dispersal is to allow individuals to switch between two distinct dispersal modes. We consider models for populations with logistic-type local population dynamics whose members can switch between two different nonzero rates of diffusion. The resulting reaction-diffusion systems can be cooperative at some population densities and competitive at others. We analyze the dynamics of such systems on bounded regions. (Traveling waves and spread rates have been studied by others for similar models in the context of biological invasions.) The analytic methods include ideas and results from reaction-diffusion theory, semi-dynamical systems, and bifurcation/continuation theory.

Refreshments will be served 3:15 – 3:45 pm in the Faculty & Graduate Student Lounge Room 4118 French Hall West

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