University of Miami
Institute for Theoretical and Mathematical Ecology
in cooperation with the
Department of Mathematics
College of Arts and Sciences

Colloquium

Professor Sheree Arpin

Framingham State College

will present

"Modeling frequency-dependent selection in a population of fish"

Friday, February 27, 2009
4:30 - 5:30 pm, Ungar UB402

Refreshments served at 4:00 p.m. in UB 521

Abstract

We present discrete-time models for a population of predatory cichlid fish known to exhibit frequency-dependent selection. We construct the models by incorporating both population genetic and population dynamic processes. We show the models predict a temporal phenotypic oscillation in mouth-handedness, which coincides with field data and is driven by the defense mechanism of the prey species. Furthermore, our analysis indicates a previously unknown and, perhaps, unexpected feature of the oscillation. We will discuss the different routes to destabilizing a 1:1 phenotypic ratio and their biological implications.