

Abstract: In the late 1980's, Ronald Mickens of Clark Atlanta University introduced the concept of a "Nonstandard Finite Difference Scheme" as a methodology which would best approximate solutions to systems of differential equations. Often in modeling with differential equations, conservation laws arise such as in population dynamics. In this talk, we discuss how various laws lead to the construction of nonstandard finite difference (NSFD) schemes within the Mickens' NSFD methodology. By using several well-known population models, we will illustrate the details of our procedures by constructing property preserving NSFD discretizations.