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Azmy Ackleh, Baoling Ma* (bxm4254@louisiana.edu) and **Robert Miller**. *A General Nonautonomous Nonlinear Structured Population Model: Existence-Uniqueness Results and Finite Difference Approximations.*

We derive a structured population model which is mathematically very general and has applications in ecology, epidemiology, cell biology, etc. A finite difference method is developed to approximate the solution of the model. Convergence of the numerical approximations to a unique weak solution of bounded total variation is proved. Some applications of the model are provided at the end. (Received August 29, 2014)