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Azmy S. Ackleh and **Jeremy J. Thibodeaux*** (thibodea@loyno.edu). *A second-order finite difference approximation for a mathematical model of erythropoiesis*. Preliminary report.

We present a second-order finite difference scheme for approximating solutions of a mathematical model of erythropoiesis (red blood cell production), which consists of two quasi-linear partial differential equations and one nonlinear ordinary differential equation. Through numerical simulations, we compare the method to a previously developed first-order method and numerically show that the method is indeed second-order. (Received September 20, 2011)