1023-41-319 **Diego Ernesto Dominici*** (dominicd@newpaltz.edu), Department of Mathematics, State University of New York at New Paltz, 1 Hawk Drive. Suite 9, New Paltz, NY 12561-2443.

Asymptotic analysis of differential-difference equations. Preliminary report.

We analyze differential-difference equations of the form $g_{n+1}(x) = \Phi\left[x, n, g_n(x), g_n'(x)\right]$, where Φ is a given function. We use a discrete version of the ray method to obtain asymptotic approximations of $g_n(x)$ as $n \to \infty$. We illustrate our method with several examples including special functions, orthogonal polynomials and nested derivatives. We show the accuracy of our results with numerical experiments. (Received September 05, 2006)