

1116-S1-2058 **Beverly H. West*** (bhw2@cornell.edu). *Teaching Differential Equations without Computer Graphics Solutions is a Crime.*

In the early 1980s computer graphics revolutionized the teaching of ordinary differential equations (ODEs.) Yet the movement to teach and learn the qualitative methods that interactive graphics affords seems to have lost momentum. There still exist college courses, even at big universities, being taught without the immense power that computer graphics has brought to differential equations. Most differential equations that arise in mathematical models are nonlinear, and linearization only approximates solutions sufficiently near an equilibrium. Graphs of phase plane trajectories and time series solutions allow one to see and analyze the crucial behaviors, whether or not analytic solutions exist. Furthermore, interactivity is key to experimenting with parameters in order to modify behaviors. Now, a quarter of a century later, we have far more technology – but many features of the original software have been lost in the rush to the future. I will address both educational and software concerns. This is not only an academic issue – multiple nonacademic agencies (FDA, NIH, USCGS, etc.) immediately took up our software tools in the late 1980s. We should not be depriving today’s students of the skills to analyze behaviors of solutions to ODEs . (Received September 21, 2015)