962-J1-479 **Susan L Callahan*** (scallahan@cottey.edu), Susan Callahan, Cottey College, 1000 W. Austin, Nevada, MO 64772. *Forced Investigation: A Student Project Using Derive in Differential Equations.*

The traditional first course in ordinary differential equations includes the problem of a block oscillating on a spring. I typically cover simple harmonic motion and damped motion, but don't have time to lecture on forced motion. The project described in this talk requires students to solve, by computer, the IVPs associated with three driving forces. The solutions, along with the solution of the corresponding homogeneous equation, are graphed. Resonance is obvious in one of the graphs. The students then complete a table comparing the frequencies of the applied forces to the frequency of the free oscillations and make a conjecture about the conditions for resonance to occur. Derive is the software available on my campus (a utility file solves linear differential equations), but any CAS capable of solving a second-order nonhomogeneous linear equation could be used. (Received September 14, 2000)