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**Stephen H Sapertone\*** ([sap@gmu.edu](mailto:sap@gmu.edu)), Department of Mathematical Sciences, George Mason University, Fairfax, VA 22030. *Web based lectures for ODEs with Interactivity*. Preliminary report.

ODEweb (for Windows and OS X) is a browser-based interactive digital textbook for undergraduates in ordinary differential equations in mathematics, science, engineering, and economics. The material consists of 27 lectures plus corresponding exercises. Applications are interspersed and integrated throughout the lectures. A unique feature of ODEweb is a dynamic component not found in printed books. This feature is implemented in two ways: (1) a nonlinear layout and (2) interacts.

(1) Nonlinear layout - composed of hyperlinks and notelinks. Hyperlinks take the reader back (or forward) to referenced material. Notelinks ("pop-ups") contain material such as proofs and calculations that can be skipped on first reading so as not to interrupt the flow of text.

(2) Interacts - based on Mathematica CDF files embedded in the textual material. They demonstrate a variety of dynamically controlled "what if's", variable slope and direction fields, and parameter dependence of solutions to ODEs. Visualization tools provide a 3d framework for interpretation of implicit solutions to first-order ODEs and a 3d representation of solutions to 2nd order (or 2d-systems) with their phase plane projections. (Received August 18, 2017)