1116-37-2611 **Eric J Oden*** (odene@southwestern.edu), SU Box # 6939, 1001 E. University Ave., Georgetown, TX 78626. *A Physical Application of the Hypergeometric Function.*

A particular interest in physics classes is the case of the simple pendulum, whose period is approximated in undergraduate studies under the assumption of negligible amplitude during the oscillation (T = 2*pi*sqrt[L/g] , where L is the length of the pendulum and g is the acceleration due to gravity). Through an introduction of the Gaussian hypergeometric function, an exact solution for the period can be derived. In an expository demonstration, the function is introduced (as well as the preliminary Pochhammer symbol) and then applied to analysis of the physical system. The chaotic behavior of the double pendulum is then explored, including an investigation of its sensitivity to initial conditions. (Received September 22, 2015)