NUMERICAL STUDY OF TWO UNIFIED MODELS FOR INFLATIONARY UNIVERSE AND PRESENT ACCELERATING UNIVERSE, G. J. Yost, T. Yasuda*, University of Northern Iowa, Department of Physics, Cedar Falls, IA 50614, takeshi.yasuda@uni.edu

The time evolution of the universe can be divided into various epochs ranging from the radiation dominated epoch which dominated the behavior of the very early universe to the current dust dominated epoch. Analysis of the inflationary period and present day acceleration rate of the universe is of crucial importance in the field of Cosmology. The inflation of the early universe and subsequent acceleration of the present day universe are explored through numerical analysis of two distinctly different models. The two models utilized are a version of the k-essence model proposed by Capozzillo, Nojiri, and Odinstov and a non-Riemaninnan model proposed by Branson, Lano Rodgers. The k-essence model proposed by (CNO) is a scalar field theory containing a non-standard kinetic energy term. Conversely the non-Riemaninnan theory is characterized by the non-metricity due to a second rank symmetric tensor . The Hubble parameters and the state functions of the aforementioned theories are computationally expressed and compared. Both the Riemaninnan theory and non-Riemaninnan theory require the presence of a scalar field that incorporates both phantom dark energy and quintessence.