1107-62-152 **Edward L Boone*** (elboone@vcu.edu), 4123 Harris Hall, 1015 Floyd Ave, Richmond, VA 23284.

Model validation of a single degree-of-freedom oscillator: a case study.

In this talk, we investigate a validation process in order to assess the predictive capabilities of a single degree-of-freedom oscillator. Model validation is understood here as the process of determining the accuracy with which a model can predict observed physical events or important features of the physical system. Therefore, assessment of the model needs to be performed with respect to the conditions under which the model is used in actual simulations of the system and to speci c quantities of interest used for decision-making. Model validation also supposes that the model be trained and tested against experimental data. In this work, virtual data are produced from a nonlinear single degree of-freedom oscillator, the so-called oracle model, which is supposed to provide an accurate representation of reality. The mathematical model to be validated is derived from the oracle model by simply neglecting the nonlinear term. The model parameters are identi ed via Bayesian updating. This calibration process also includes a modeling error due to model misspecifi cation and modeled as a normal probability density function with zero mean and standard deviation to be calibrated. (Received January 12, 2015)