1145-76-2276 **Quentin Robinson*** (qrobinson5@nccu.edu). *Frequency of Upstream propagating soliton generation in the forced Korteweg-de Vries Equation.* Preliminary report.

We explore ways in which information gained from various approximations to the forced Korteweg-de Vries (fKdV) equation predict the behavior of the solution of the full equation. We find an exact, closed-form solution to the dispersionless, nonlinear approximation to fKdV using an appropriate forcing function and determine the amplitude and propagation speed of the shocks obtained from the same approximation. We determine a critical Froude number parameter value above which stationary solutions exist and examine their stability. We use WKB analysis as an application of inverse scattering theory to determine a relationship between the amplitude of the shock in the dispersionless approximation to fKdV and the amplitude of the upstream propagating solitary waves generated by the full equation. All of this information together provides a means of predicting which combinations of parameter values will result in the generation of upstream propagating solitons as well as a means of predicting the frequency of soliton generation. (Received September 25, 2018)