

Meeting: 1003, Atlanta, Georgia, MAA CP B1, MAA Session on My Favorite Demo: Innovative Strategies for Mathematics Instructors, I

1003-B1-419 **Kerry E. Moores*** (kerry.moores@usma.edu), MADN-MATH X5987, United States Military Academy, 646 Swift Road, West Point, NY 10996, and **Howard D. McInvale** (howard.mcinvale@usma.edu), MADN-MATH X5627, United States Military Academy, 646 Swift Road, West Point, NY 10996. *Some Like It Hot.*

Many students perceive mathematics as the mundane manipulation of numbers, symbols, and equations. Applied problems bring mathematics to life providing a setting in which to apply concepts learned in the classroom. The LabPro is a versatile data collection interface that can be used to collect data in a variety of ways in the classroom. LabPro includes analog sensors and computer software (Logger Pro) to capture the results of the data collection experiment. A well-known differential equations problem is to model Newton's law of cooling for a cup of coffee as it approaches room temperature. Does the coffee cool more rapidly if creamer is placed in the coffee immediately or if the coffee is allowed to cool for a set amount of time before creamer is placed in the coffee? My favorite demonstration is to allow students to collect data and observe the cooling properties of coffee under both sets of circumstances. As a result of this demonstration, students are able to determine a "best fit" function that models Newton's law of cooling under different conditions. The presentation will include a discussion of how the demonstration fits into a course below calculus, an actual demonstration of the collection equipment, and student responses to the demonstration. (Received September 14, 2004)