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Michael Tabor* (tabor@math.arizona.edu), Program in Applied Mathematics, University of Arizona, Tucson, AZ 85721-0089. *The Applied Mathematics Laboratory: translating what you see into what you do.*

Many of the most important advances in mathematics have been motivated by the need to explain fundamental phenomena, such as the motion of planets and fluids; or to quantify and predict the complex structures that develop in physical and natural systems. To fully appreciate the modeling, quantification, and explanation of such important and varied processes much is to be gained by exposure to the relevant observations and experiments in conjunction with the associated mathematical analysis. Direct, hands-on, experimentation can help develop intuition about complex processes and how to model them. The goal of the Applied Mathematics Laboratory is to provide students with an innovative approach to mathematical modeling through the use of laboratory experiments in ways that not only teach good mathematics but also helps develop an appreciation of scientific methodologies and critical professional skills. The Applied Mathematics Laboratory at the University of Arizona is used for a required course for all first year graduate students, advanced graduate courses in mathematical modeling, research, and outreach. The Laboratory was started with a grant from the NSF Division of Mathematical Sciences in 1994. (Received September 20, 2009)