

MON-HD-02 (3:12 to 3:24 PM) | Contributed Talk | Multiple Predictors of Performance in Introductory General Physics Courses

Presenting Author: David Meltzer, Arizona State University

Additional Author | Dakota H. King, University of Arizona College of Veterinary Medicine

We have examined the relationship between various pre-instruction assessment measures and final course grades for students enrolled in introductory general physics courses at five campuses of four universities; the total sample size was over 1000. The three assessments were the Force Concept Inventory, the Lawson Test of Scientific Reasoning, and a mathematics diagnostic test that we have developed and tested over the past seven years. We find, with greater than 95 percent consistency, that top-quartile scorers on the pre-instruction assessments have double or greater probability of receiving high (top quartile) course grades, and half or less probability of receiving low (bottom quartile) course grades, compared to students who scored in the bottom quartile on the assessments. We estimate the relative strength of the various predictors using multiple linear regression, and comment on the course-to-course variations observed both in relative strength of, and degree of intercorrelation among the assessment measures.

Supported in part by NSF DUE #1504986 and #1914712