

Abstract Submitted
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Patterns of Incorrect Responses on the FCI and Course Success¹

JAMES WELLS, Keck Science Department of Claremont McKenna, Pitzer, and Scripps Colleges and University of Connecticut, FRIDAH MOKAYA, DIEGO VALENTE, University of Connecticut — The Force Concept Inventory (FCI) is often used to measure the effectiveness of instructional pedagogy in introductory physics courses both at the algebra- and calculus-based level. Scores on the FCI are correlated with the performance of students in a class, as measured by their final course grade. We have collected data from several semesters of first-semester introductory mechanics courses at a public 4-year university, taught in large-scale classrooms with pedagogy including elements of Just-in-Time Teaching pedagogy along with active learning course components. The data collected includes pre- and post-test FCI scores, midterm exam grades, and final course grades. We examine whether certain patterns of incorrect answers on the FCI post-test are predictive of course grades, indicating whether certain specific student preconceptions are more detrimental than others to the success of students in an introductory mechanics course.

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