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The Role of Pre-College Preparation in College Physics Success¹

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There is no shortage of, often contradictory, opinions concerning how best to prepare students for college physics, but personal experience is a poor substitute for rigorous investigation. After collecting data from 11,000 science students and their instructors at randomly chosen colleges and universities, we can offer a more universal picture of the middle school to college learning progression in physics. Using epidemiological methods to mine the backgrounds of students taking introductory physics courses, we find predictors of performance and persistence while controlling for demographic differences. I will report on our findings on the value of middle school physical science preparation, lab experiences, technology use, classroom demonstrations, coverage, block scheduling, Advanced Placement, Physics First, project work, and facility in mathematics.

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