

Abstract Submitted  
for the APR20 Meeting of  
The American Physical Society

**Longitudinal impact of flipped and traditional introductory physics courses** BENJAMIN W. DREYFUS, REBECCA M. JONES, AN T. HOANG, George Mason University — The first two semesters of introductory calculus-based physics at George Mason University are taught in two parallel formats: a flipped section (taught in a SCALE-UP-style active learning classroom, replacing lecture and recitation) and a traditional lecture section. To assess the influence on these formats on student performance and retention, we analyzed a data set of over 1000 students who took the traditional and/or flipped introductory courses in 2013-15, and tracked them longitudinally through their subsequent physics and engineering courses. Initial results suggest that taking flipped Physics I is associated with higher grades in later courses, and taking flipped Physics II is associated with lower grades. However, the full picture is more complicated. A greater fraction of the students who take flipped Physics II go on to take advanced courses, which suggests that flipped Physics II is associated with higher overall retention in physics and related fields.

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Date submitted: 10 Jan 2020

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