

Abstract Submitted
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Assessing the Impacts of a Hybrid “Flipped” Approach to University Physics. CHRIS HUGHES, SCOTT PAULSON, James Madison University — Over the course of several years, the physics faculty at James Madison University has been gradually reforming the introductory calculus-based physics sequence to a hybrid model using a “flipped classroom” approach. The content traditionally delivered during lecture was divided into approximately 150 short (5-10 minute) videos. For homework, students are assigned 3-5 videos to watch before each class session. These assignments are combined with in-class activities including gouger problem solving and the tutorials developed by the University of Washington group to provide the students with focused guidance on concepts and skills that students traditionally have left our classes not having mastered. For the fall semester course on mechanics, the Force Concept Inventory (FCI) was used to evaluate student outcomes. For the spring semester course on E&M and optics, the Conceptual Survey of Electricity and Magnetism (CSEM) was used. Student reaction to the course structure was generally positive though there were some complaints in the student evaluations at the end of each semester. However, a positive impact on student outcomes was observed based on the Hake gains on the FCI.

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