MAR16-2015-007232 E

Abstract for an Invited Paper
for the MAR16 Meeting of
the American Physical Society

Apples vs. Oranges: Comparison of Student Performance in a MOOC vs. a Brick-and-Mortar Class

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In the fall of 2013, my colleagues and I taught the calculus-based introductory physics course to 800 tuition-paying students at the University of Colorado at Boulder. At the same time we taught a free massive open online version of the same course (MOOC), through Coursera.com. The initial enrollment in the MOOC was 10,000 students, of whom 255 completed the course. Students in both courses received identical lectures with identical embedded clicker questions, identical homework assignments, and identical timed exams. We present data on participation rates and exam performance for the two groups. We find that the MOOC is like a drug targeted at a very specific population. When it works, it works well, but it works for very few students. This MOOC worked well for older, well-educated students, who already had a good understanding of Newtonian mechanics.