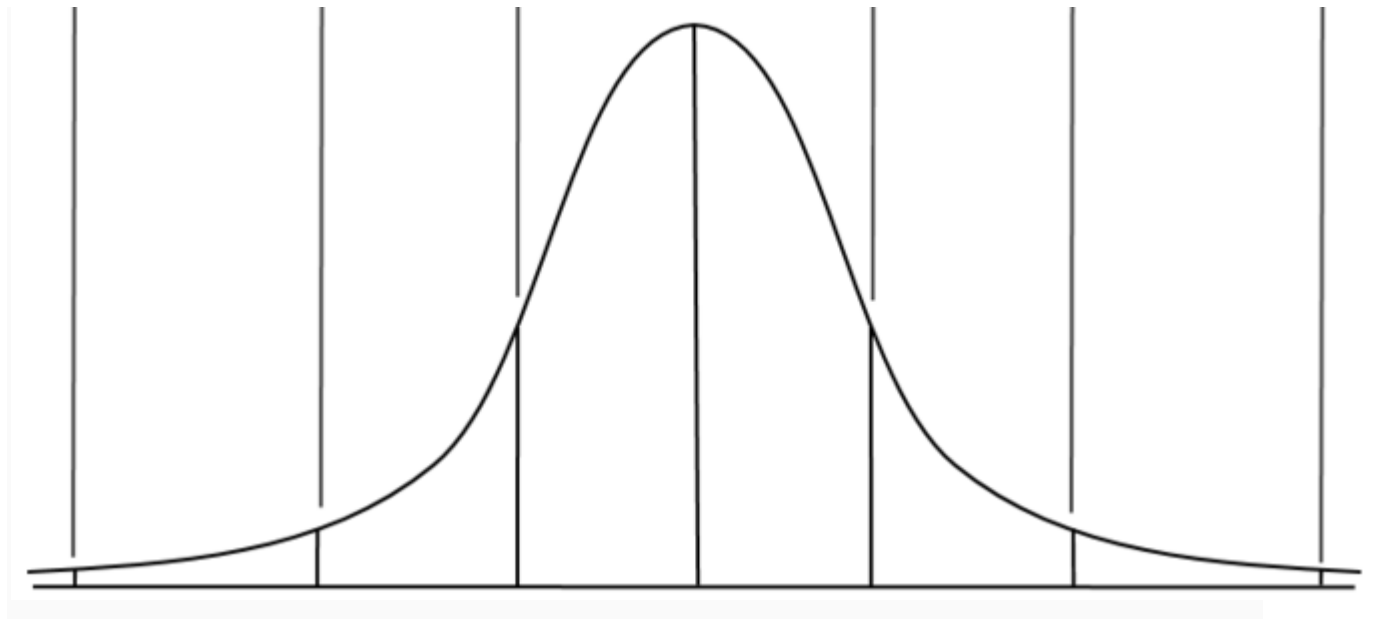


## Grading for STEM Equity

Study suggests that professors should standardize their grading curves, saying it's an efficient way to boost women's enrollment in STEM.

By [Colleen Flaherty](#)

December 18, 2019



Harsher grading policies in science, technology, engineering and math courses disproportionately affect women -- because women value good grades significantly more than men do, according to a new [working paper](#) published by the National Bureau of Economic Research.

What to do? The study's authors suggest restricting grading policies that equalize average grades across classes, such as curving all courses around a B grade. Beyond helping close STEM's gender gap, they wrote, such a policy change would boost overall enrollment in STEM classes.

Using administrative data coupled with thousands of students' course evaluations from the University of Kentucky from the fall of 2012, the study's authors determined that students spent one hour more per week studying for a STEM course than for a non-STEM course, on average. At the same time, they earned lower grades in STEM courses.

The STEM classes in the sample were almost twice as large as their non-STEM counterparts and associated with grades that were 0.3 points lower. They were also associated with a 40 percent more study time.

Women in the sample had higher grades in both STEM and non-STEM courses than men. But they were significantly underrepresented in STEM. Trying to explain that lack of representation, the authors created a demand-side model of course choice, in which students selected classes and exerted effort based on their disciplinary preferences, perceived "costs" of studying and expected grades.

The study examined supply-side issues in STEM enrollment as well, and posits that professors give lower grades, in part, to prevent overenrollment (which is costly to them, in terms of time). But based their supply-side model, the authors found that requiring the same mean grade across classes led to a substantial increase in the number of STEM classes taken by women.

The authors note that many factors contribute to the STEM gender gap, not just grades. But it is a major factor, they argue -- and one that is arguably easier to do something about than other cultural issues.

Noting that professors generally all have different grading policies, the study proposes that curving all courses around a B grade would increase overall STEM participation by 7.2 percent overall and women's participation, in particular, by 11.3 percent.

Grading along a curve -- any curve -- is itself a controversial idea. Some professors say it's bad pedagogical practice. And it's hard to see how to get professors across fields to agree on a grading scheme without an administrative directive to do so. That, in turn, would likely spark concerns

about academic freedom, as teaching, including grading, is widely understood to be the domain of the faculty.

Yet attracting more women to STEM by standardizing grading is relatively straightforward and affordable, the study says, as compared to longer-term cultural and curricular efforts.

Enrolling more women in STEM this way could also lead to other changes that make the natural sciences “more hospitable to women,” the study says, “creating a positive feedback loop.”

Co-author Thomas Ahn, assistant professor of manpower and economics at the Naval Postgraduate School, said that the paper is fundamentally about how colleges and universities can encourage more women -- and men -- to take STEM courses. Among the reasons that they should, he said, is that STEM careers tend to be more lucrative than non-STEM careers, and so have implications for the gender wage gap.

Echoing the paper, Ahn said that compared to other efforts on this front, “tweaks” to grading curves can be done at the school or department level “quickly, without the need for federal or state-level intervention.” Faculty members already alter their grading standards from year to year, he added.

“If we’re worried about the overall deficit in graduating skilled workers in STEM and the gender gap,” he said, academe shouldn’t “wait and hope for a big, comprehensive, expensive fix. We have the ability to effect change now.”

Ahn's co-authors are Peter Arcidiacono, Amy Hopson and James R. Thomas.

[https://www.insidehighered.com/news/2019/12/18/study-suggests-professors-should-standardize-their-grading-curves-boost-womens?utm\\_source=Inside+Higher+Ed&utm\\_campaign=9f02957c72-DNU\\_2019\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_1fcbc04421-9f02957c72-198467257&mc\\_cid=9f02957c72&mc\\_eid=0c2028f1a2](https://www.insidehighered.com/news/2019/12/18/study-suggests-professors-should-standardize-their-grading-curves-boost-womens?utm_source=Inside+Higher+Ed&utm_campaign=9f02957c72-DNU_2019_COPY_01&utm_medium=email&utm_term=0_1fcbc04421-9f02957c72-198467257&mc_cid=9f02957c72&mc_eid=0c2028f1a2)