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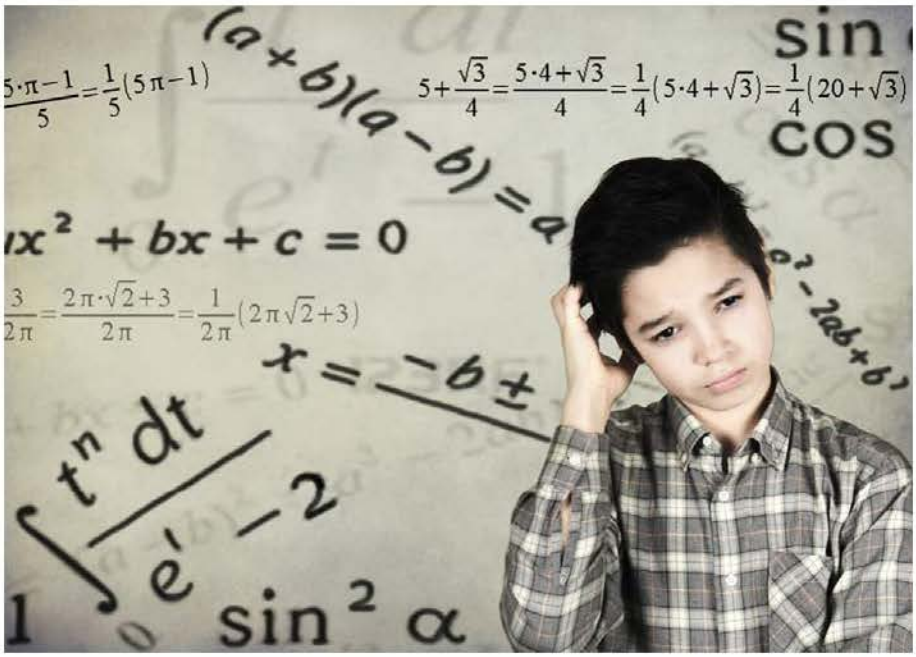
Down With Algebra II!

It drives dropout rates and is mostly useless in real life. Andrew Hacker has a plan for getting rid of it.

By Dana Goldstein



Algebra II, which is required by the new Common Core curriculum standards used by 47 states and territories, drives dropouts at both the high school and college levels.

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In his new book ***The Math Myth: And Other STEM Delusions***, political scientist Andrew Hacker proposes replacing algebra II and calculus in the high school and college curriculum with a practical course in statistics for citizenship (more on that later). Only mathematicians and some engineers actually use advanced math in their day-to-day work, Hacker argues—even the doctors, accountants, and coders of the future shouldn't have to master abstract math that they'll never need.

I showed the book to my husband, Andrei, a computer programmer who loved math in school. He scrunched up his face. "People don't use Shakespeare in their jobs, but it's still important for them to read it," he said.

"It's not the same," I told him. **"Reading fiction builds empathy."**

"Math helps us understand the world around us!" Andrei replied. "Like how derivatives demonstrate change over time." He smiled, and I could tell that for him, it was all clear and beautiful.

But I had no idea what he was talking about. In high school, I found math so indecipherable that I would sometimes cry over my homework. I don't think I ever

understood what a derivative signified 15 years ago, when I was struggling my way to a low B in calculus—a class I was convinced I had to take to pad my college applications.

Hacker attacks not only algebra but the entire push for more rigorous STEM education.

So Hacker's book is deeply comforting. I'm not alone, it tells me—lots of smart people hate math. The reason I hated math, was mediocre at it, and still managed to earn a bachelor's degree was because I had upper-middle-class parents who paid for tutoring and eventually enrolled me in a college that doesn't require math credits in order to graduate. For low-income students, math is often an impenetrable barrier to academic success. Algebra II, which includes polynomials and logarithms, and is required by the new **Common Core curriculum standards** used by 47 states and territories, drives dropouts at both the high school and college levels. The situation is most dire at public colleges, which are the most likely to require abstract algebra as a precondition for a degree in every field, including art and theater.

"We are really destroying a tremendous amount of talent—people who could be talented in sports writing or being an emergency medical technician, but can't even get a community college degree," Hacker told me in an interview. "I regard this math requirement as highly irrational."

Unlike most professors who publicly opine about the education system, Hacker, though an eminent scholar, teaches at a low-prestige institution, Queens College, part of the City University of New York system. Most CUNY students come from low-income families, and a 2009 **faculty report** found that 57 percent fail the system's required algebra course. A subsequent **study** showed that when students were allowed to take a statistics class instead, only 44 percent failed.

Such findings inspired Hacker, in 2013, to create a curriculum to test the ideas he presents in *The Math Myth*. For two years, he taught what is essentially a course in civic numeracy. Hacker asked students to investigate the gerrymandering of Pennsylvania congressional districts by calculating the number of actual votes Democrats and Republicans received in 2012. The students discovered that it took an average of 181,474 votes to win a Republican seat, but 271,970 votes to win a Democratic seat. In another lesson, Hacker distributed two Schedule C forms, which businesses use to declare their tax-deductible expenses, and asked students to figure out which form was fabricated. Then he introduced Benford's Law, which holds that in any set of real-world numbers, ones, twos, and threes are more frequent initial digits than fours, fives, sixes, sevens, eights, and nines. By applying this rule, the students could identify the fake Schedule C. (The IRS uses the same technique.)

In his 19-person numeracy seminar, the lowest grade was a C, Hacker says. But he says that the math establishment—a group he calls "the Mandarins" in his book—doesn't take kindly to a political scientist challenging disciplinary dogma, even at Queens College. The school has reclassified his class as a "special studies" course.