Advanced Mathematical Pathways for Underserved Students

presented by

Daniel Zaharopol

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Those of us in science and math careers had many experiences to help us get here. From our own independent projects, to a teacher who took a special interest and gave us extra problems, to clubs and competitions, we were shaped not just by the standard school curriculum but in how we went beyond it. Now imagine someone who wants to be a scientist or a mathematician entering their freshman year of college—but who doesn’t have that same preparation. College is a difficult transition for everyone, but on top of the usual challenges, an underserved student will have far fewer academic experiences that demanded college-level thinking, and they might be entering a very different culture. Far too many low-income and underrepresented students drop out at this point, contributing to the gaps we see in attainment at both the undergraduate and graduate levels. Everyone talks about the need for greater diversity in math and science, but what can we actually do about it? I will first look at the kind of thinking that our fields demand of us and the preparation many of us received. Then, I’ll share the progress made at Bridge to Enter Advanced Mathematics (BEAM), a program I started in New York City which provides this pathway for underserved students. In particular, I will talk about what it means (and takes) to teach deep, rich, proof-based mathematics to young students with disadvantaged backgrounds, and what is required to coach them into taking up other opportunities in the future.

Dan Zaharopol is the Executive Director of the Art of Problem Solving Foundation. There, he founded Bridge to Enter Advanced Mathematics (BEAM), a program to help underserved students study advanced mathematics and enter careers as scientists, mathematicians, engineers, and programmers. Previously, he was a co-founder and CEO of Learning Unlimited, a nonprofit that supports college students creating educational programs for middle and high school students. Dan’s work has been featured in the New York Times, the Atlantic Monthly, and Bloomberg View, and he is the recipient of several teaching awards. He serves on the boards of directors for Canada/USA Mathcamp and for the New York Math Circle, and on the advisory board of the New York Center for Mathematical Talent at NYU. His bachelor’s degree is in mathematics from MIT, and he has two masters’ degrees in mathematics and teaching mathematics, both from the University of Illinois at Urbana-Champaign.

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