

Nudge a young person toward STEM? Nudge them toward physics first



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I would like to address Mr. Mick Gronewold's commentary, "Nudge a young person toward STEM." As a physics teacher, and more specifically as a female physics teacher who holds a bachelor's degree in physics, "nudging young people towards STEM" is a deep passion of mine, particularly as it relates to female and minority students.

I have certainly "nudged" students. Last year five of my students enrolled in physics programs for college and I have two more on the way. However, I cannot help but read Mr. Gronewold's commentary with some dismay knowing the realities I face in my position.

I am proud to teach at Auburn High School, which is certainly one of the most diverse schools in the Rockford School District and also houses the special programs for CAPA and Gifted. As a result, we are able to provide a wide array of courses for students in the building, including three sections of algebra-based AP Physics and one section of calculus-based physics, which is the only section in the region where students prepare for both the mechanics and electricity and magnetism exam in one year.

Additionally, we run multiple sections of general physics. Yet even still, I find myself needing to heavily recruit students to consider taking the course at any level. Here in the Rock River Valley, enrolling in physics is the exception, not the norm.

There are a great number of reasons why students do not enroll in physics: fear of difficulty, a general misunderstanding of what the

course will cover, but more than anything, enrollment is rarely encouraged or even suggested to students.

The reality is that physics is considered a gateway course to STEM careers and success in STEM college courses. ("National Alliance of Black School Educators Endorses Physics First," 2012). In fact, in one study physics enrollment in high school had the highest correlation to pursuing a STEM career over any other high school course. (Feder, 2011)

Due to this fact, and the overwhelming gap regarding enrollment for minority students (25 percent vs 41 percent of white students, nationwide), not having physics as part of the high school norm is furthering the inequities these students already face.

In addition, ACT found that students who took biology, chemistry and physics prior to graduating scored, on average, three points higher than those who did not.

Additionally, the number of graduates who met the ACT benchmarks for science was doubled. This fact was also true for low-income students. ("ACT's Policy Platform: K-12 Education," n.d.) ACT's benchmarks serve as an indication that students will get a B or higher in their first University entry-level science course.

While having the opportunities to engage in courses like robotics are exciting and valuable, without a firm foundation in the core sciences, including physics, students are placed at a disadvantage when it comes to college entrance exams, selecting a STEM career, and ultimately success during the first year of college.

If you want to nudge a student towards a STEM career, the most effective thing you can do is encourage them to enroll in physics first.

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