

# Early Start on STEM

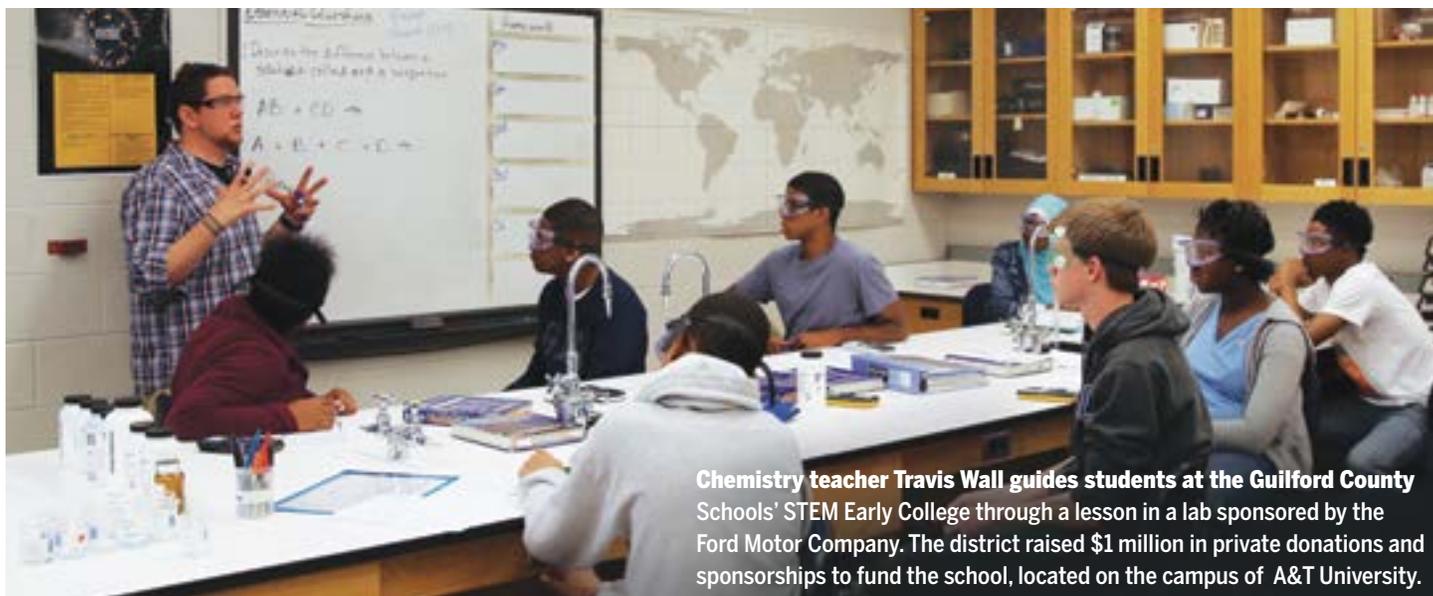
A North Carolina district grows future scientists and engineers through its Early College program

*Glenn Cook*

ate has a funny way of altering a person's career plans. When Stacey Alston graduated from North Carolina A&T University in 1999, he thought his path was set. He planned to return to his home in Nash County, about 100 miles away, and teach and coach at his former high school. Flash forward 15 years, and Alston is sitting at his desk in a building on the A&T campus only a few hundred yards from where he took classes. Instead of coaching athletes, he's leading 150 high school students through a rigorous early college curriculum focused on one of three majors—biomedical, engineering, and sustainable energy.

The students at the STEM Early College, a partnership between North Carolina's Guilford County Schools and A&T that opened in 2012, will graduate from high school with up to 60 hours of college credit in their chosen field. Forty-nine of the 50 students from the first class are on track to graduate in 2016, and more than half earned straight A's for the first semester.

Districts across the country are looking for ways to get students interested in STEM (science, technology, engineering, and math) subjects and careers to fill the many jobs that the U.S. economy requires to stay competitive globally.



**Chemistry teacher Travis Wall guides students at the Guilford County Schools' STEM Early College through a lesson in a lab sponsored by the Ford Motor Company. The district raised \$1 million in private donations and sponsorships to fund the school, located on the campus of A&T University.**

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Offering STEM Early College is one way to do that. Funded with more than \$1 million in startup costs raised by Guilford Superintendent Mo Green and university Chancellor Harold Martin, the school will add 50 more students next year to reach its enrollment cap of 200. Because students don't pay for the classes at any of the nine early/middle college schools in Guilford County, fundraising continues in earnest as the district tries to navigate dramatic state cuts in education spending.

Early colleges, however, have proven a popular alternative in Guilford County, which has the most of any district in the country. And they remain a huge part of the K-16 landscape in North Carolina, despite a lagging economy and a dramatic shift in the state's political powerbase.

### A PASSION FOR STEM

STEM Early College has an enrollment cap of 50 students each year. That cap fuels the perception that the program takes only the best and the brightest. But Alston says the college is looking for students who are hungry and passionate about science, technology, engineering, and math.

"We have a wide range of students from all walks of life, and they're all very highly motivated," he says. "What they have in common is that they want to work hard, they want to work in these STEM fields, and they want to be successful."

Freshmen and sophomores in the program take all of their requirements for graduation in the first two years, then move into college coursework. Students who are accepted make a commitment to summer classes as well as a mix of in-class and online coursework. Those who meet all the requirements will have up to 60 transferable college hours upon graduation.

"It's a prescribed curriculum. There aren't a lot of options here," Alston says. "We have three tracks, and once you pick a track we're going to tell you what classes you're going to take."

It seems to be working. The school has exceeded expected growth in the state's accountability system for each of its first three years, and last year, 95 percent of students passed the end-of-grade tests. In 2014, the program was named a STEM School of Distinction by the STEM Learning Network, and students sent one of their experiments on the space shuttle.

"What this school proves is, if you put the opportunity out there, kids are going to take advantage of it," Alston says. "Is this opportunity worth the money it costs? I think so. If you're going to compete globally you have to give kids an opportunity they wouldn't normally get."

### EARLY COLLEGE TREND

Early colleges take on many guises and forms, ranging from separate campuses that serve small groups of students in a targeted manner to schoolwide initiatives that offer college-level courses to all eligible students. Over the past decade, as the cost of college tuition has spiraled upward by double-digit percentages, these schools have become more appealing, especially among student populations that have been traditionally underserved.

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"We're at a tipping point for early colleges," says Julie Edwards, a researcher for the SERVE Center at the University of North Carolina at Greensboro who has studied the effect these programs have on student achievement. "People are seeing that these programs work, that more students who graduate from them are enrolling in postsecondary education, and they are earning more college credit. That makes for an appealing option."

Guilford, North Carolina's third largest district with 77,000 students, embraced early/middle colleges more than a decade ago. The STEM Early College is the ninth such school to open in the county.

"Guilford has had a fairly unique adoption of the early college movement," Edwards says. "Most districts have one, maybe two, early colleges, but Guilford bought into the idea of creating these even more focused schools serving defined audiences and populations. There really is a mix there that you don't see in a lot of districts."

The mix is due in large part to the large number of private and public universities and community colleges in the region. Three of the schools are partnerships with Guilford Technical Community College (GTCC), while

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the private Bennett, Greensboro, and Guilford colleges also host students on their campuses. The University of North Carolina at Greensboro (UNCG) also has a middle college on its campus.

North Carolina A&T, a historically black university, has the STEM school and a male-only middle college on its campus. Guilford County also has two stand-alone high school campuses in partnership with GTCC and three school-within-a-school academies focusing on aviation, health sciences, and college transfer credits.

Joel Vargas of Jobs for the Future, a nonprofit that helps districts design early college programs, says Guilford and other districts that focus on STEM skills have a natural opportunity to gain buy-in from the business community.

“They’ve been really smart with the STEM focus,” Vargas says. “There’s a natural affinity with corporations that have an interest and an affinity in building a pipeline of qualified workers. The recession we just came out of made a lot of people concerned about getting people ready for careers in addition to college, and there’s been a lot of interest especially in this pathway.”

### STRONGER STEM CONNECTIONS

The 2008 recession hit just months after Green took over as Guilford County’s superintendent, devastating an area already facing a huge economic transition due to the decline of the tobacco and textile industries in the late 1990s. Green was in the middle of his “Mo Wants to Know” tour through the district, seeking community input on the district’s future.

“Our district was already doing some good things, but we chose to focus on academic excellence and character development,” he says. “When we were developing our strategic plan, that’s when the bottom falls out. But we knew that wouldn’t last forever, and what we decided to do was find a way to raise everyone’s expectations.”

Seven of Guilford’s nine early/middle college schools started under former Superintendent Terry Grier, who now leads the Houston Independent School District. Green, who took over after Grier left in 2008, opened the middle college at UNCG in 2011-12 and the STEM Early College during one of the worst parts of the economic downturn.

Green knew that improving the district’s overall technology infrastructure, as well as opportunities for students to access and use technology, was critical. He



also knew that raising the funds for a new school like the STEM Early College would require support from the business community.

“We knew we needed to have stronger connections to STEM. We needed to be growing more students in those disciplines and those areas, so we said, ‘Why don’t we create a school to do that?’ Of course, you can’t just take money from existing schools because you want to start a new school,” he says. “We had to find a way to develop the projections for what the school would cost and then go out and find a way to find the funding.”

### ‘WE’RE INVESTED IN YOU’

Back to fate: While Green, A&T’s chancellor, and local business leaders were raising funds for the STEM Early College, Alston was working as an assistant principal in Wake County.

When the STEM Early College position opened up, Alston applied to return to his alma mater. Three years into what he calls his “toughest coaching assignment ever,” Alston is glad he took the chance.

“When you have a situation like this where both sides, the district and the university, are willing to take a risk and they are invested in making sure that it’s successful, then you have to go for it,” he says. “That’s what I tell our students: We’ve invested in you and in your success. And we’re not going to stop until we see them succeed.”

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**Stacey Alston, principal at the STEM Early College, stands with a group of students in the foyer of the school. “We have a wide range of students from all walks of life, and they’re all very highly motivated,” he says.**