

Colleges Work to Retain Women in STEM Majors

By Kelsey Sheehy

STEM fields suffer from an image problem. Often seen as [a boys club or a path for geeks](#), colleges struggle to attract and retain women in science, technology, engineering and math majors.

Dorms dedicated exclusively to female engineers help foster a sense of community and offer support for students.

Only about 25 percent of STEM degree holders are women, due largely to a lack of female [college](#) students studying engineering, computer science and physical sciences such as physics and chemistry, according to reports.

"I never felt like I was at a disadvantage because there were so many men in the room, but it was definitely noticeable," says Sarah Hefter Flanigan, who earned a bachelor's and master's in aerospace engineering from [Virginia Tech](#) and [Cornell University](#), respectively. "You had to learn to interact with people in an academic and social environment where you were outnumbered."

Flanigan's drive to achieve her childhood dream – to be an astronaut and a Hokie – helped her overcome any STEM gender gap, but being outnumbered can be daunting for some aspiring female scientists and mathematicians.

"For me, it was obviously intimidating," says Amyriz Garcia, a civil engineering student at the [University of Texas—Austin](#). "I was in an engineering major and being around engineers is kind of intimidating – especially men."

Colleges and universities are working to stymie that feeling via [outreach and mentoring programs](#).

"We're really trying to build that community so if they are the only woman in a class or on a project team they don't feel like the only one," says Tricia Berry, director of UT—Austin's Women in Engineering program. Female students account for just 10 to 15 percent of students in certain engineering majors at the university, Berry says.

Schools such as UT—Austin and Virginia Tech use learning communities to create that sense of belonging. These programs put new students in residence halls with more experienced female engineering students who can mentor them along the way.

Women in these dorms live, study and play together – volunteering for community service and competing on intramural sports teams – giving them the support system male students have had all along, Bevelee Watford, associate dean of academic affairs at Virginia Tech's College of Engineering, said at the U.S. News [STEM Solutions](#) conference last month.

Roughly 1,000 of the school's 1,300 freshman engineering students last year were men. Those men can shout down the hall and easily find one or two students able to help them on a calculus problem, said Watford, who recalled feeling isolated as the only engineer on her floor when she attended Virginia Tech in the 1980s.

"No question this is in some way impacting students' ability to keep going through the engineering curriculum," said Watford, noting that the five-year graduation rate for women in these residence communities was 82 percent compared with 65 percent for all students.

Living in an all-female section of a residence hall as an undergraduate at [Michigan Technological University](#) helped Kaitlyn Bunker overlook the gender gap in her program.

"It was really cool because I would go to class and look around and see maybe one or two other women, then go

home and my area was all women, so I didn't notice so much," says Bunker, now a Ph.D. candidate in electrical engineering at Michigan Tech and the collegiate director for the Society of Women Engineers.

Another key piece: role models.

While Bunker's father – a mechanical engineer – inspired her to pursue engineering, women she encountered through the Society of Women Engineers also helped guide her path. Reading biographies of award recipients at a SWE conference in 2009 even cemented her decision to work toward her doctorate, she says.

"I realized these women were working on cutting-edge technologies and a lot of them have Ph.D.s. That made me decide to go for one and to one day be one of these women," Bunker says. "I don't necessarily know their names or where they are now, but they were big in helping me."

While experts tout the benefits of female role models for women studying in the field, students should not discount the advice and guidance of male mentors.

Flanigan, the Virginia Tech alumna, credits a former professor – Chris Hall – as one of the biggest influences on her career. Hall recruited her to work in his space simulation lab and tasked her with leading his introductory engineering courses when he was traveling.

Perhaps most importantly, he talked to her about what she wanted to do after college and pushed her to take the steps she needed to get there, she says.

Flanigan now works in what she calls her "dream job," guiding NASA spacecraft as an aerospace engineer for the Johns Hopkins Applied Physics Laboratory in Maryland.