News, Views and Careers for All of Higher Education

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Exito Calculado

Guillermo Martinez, a graduate student in mathematics at the University of Texas at Austin, had just finished teaching the last calculus discussion section before a test last semester.

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A Hispanic freshman approached him. “He told me straight out that he had never met a ‘Mexican guy’ who knew so much math,” Martinez recalls.

Apparently, that student hasn’t been around the Texas math department very long.

In the 2003-4 academic year, the department awarded more math and statistics bachelor’s degrees to Hispanic students — 17 men and 9 women, as opposed to 17 total five years ago — than any other department in the country. According the most recent data from National Center for Education Statistics, 663 Hispanic students received bachelor’s degrees in math or statistics in 2002-3, meaning that, if the number were similar the following year, Texas would have awarded about 4 percent of the nation’s total.

In part for that accomplishment, the department was chosen as 2005’s example of *Excelencia*, by Excelencia in Education, a Washington organization that promotes Latino student success in higher education. The group seeks to identify successful programs in the hope that other institutions will learn from them. *Excelencia* in Education is currently seeking nominations for the next round of awards.

The diverse UT-Austin math department has tenure-track faculty members from at least nine countries, and is led by Efraim Armendariz, one of the few Mexican-American full math professors around. Sarita Brown, president of *Excelencia,* said that, the last time she checked, Armendariz was one of three Mexican-American full professors of math at major research institutions, and the only department head.

Students and professors say that having such role models in the department makes a difference. Martinez said the student who approached him said he’d never felt so prepared for a test. “He attributed his newfound

success to us being of the same race and him understanding me better because of it," Martinez said. "I figure when one sees someone that he can relate to excel in a certain area, then he or she feels they can accomplish the same task."

But Texas isn't just counting on friendly faces.

Cristina Villalobos is an assistant professor of mathematics at the University of Texas-Pan American. She started on her path in the Emerging Scholars Program at Texas. In her freshman year, the program put Villalobos together with about 15 other calculus students from under-represented groups for six hours a week outside of class where they "discovered that studying in groups is effective," she said. "It provided some mentoring and support," Villalobos added. Two graduate students and one student who went through Emerging Scholars the year before came to the sessions to answer questions, math-related or otherwise, when they arose. Villalobos grew up in the Rio Grande Valley, which is over 80 percent Hispanic, and said that Austin was "a big culture shock. Being connected to minority students in ESP definitely helped."

Armendariz said that the keys to success are: giving students a positive experience in that first calculus class, and, beyond that course, "opening up the major" to multiple courses of study.

In an effort to get students hooked, Armendariz said that senior faculty members will often teach introductory courses, and that instructional ability is worth its weight in gold when the department goes looking for new faculty members — something that's not always the case with research-oriented departments. "When you combine good teaching with a really diverse faculty, it's a much more cosmopolitan environment for students from urban areas," Armendariz said.

Once the hook is set, the department still has to reel students in. That's where the "opening up" comes in. Armendariz said that many Hispanic students, and students in general, are turned off by a rigid course of study. The Texas math department offers multiple programs, or "entry points" after calculus as Armendariz called them, from actuarial science and applied mathematics, to "UTeach," which trains math teachers.

Mary A. Rankin, dean of the the College of Natural Sciences, started UTeach about five years ago. Armendariz said that 43 of the 179 bachelor's degrees the department awarded last year were for the teaching program. Because of the high Hispanic population in Texas, "we'll get more than our share of undergraduate majors," he added. "I'm more concerned about what's happening with the training of teachers." Armendariz said that many of the Hispanic students in the state who get math degrees become teachers, but that few have sufficient teacher training. Schools with large minority populations "do not get the best trained people," he said. He's encouraged that some of the Mexican-American UTeach students return to teach in their home communities.

Villalobos said that there are 600 math majors at UT-Pan American, but only two programs of study for them. She said that mentoring and summer programs have lit her path. Uri Treisman, a math professor at UT-Austin, was one of her influential summer mentors. Treisman developed an early version of the Emerging Scholars Program while a graduate student at the University of California at Berkeley. He now leads the Charles A. Dana Center at UT-Austin, which promotes minority success in math, through a host of research projects and initiatives, including fostering collaboration between public school math teachers and university professors.

According to Martinez, having a lot of Hispanic graduate students roaming the halls doesn't hurt. "I hear students say they're struggling," he said. "They don't understand something, and then you explain it in Spanish and they're like 'Oh, OK.'"

— David Epstein

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