Department of Computational and Applied Mathematics (CAAM) Rice University

The Department of Computational and Applied Mathematics (CAAM) at Rice University has been one of the most successful departments in the nation in mentoring and producing mathematical sciences doctorates drawn from underrepresented minority groups. In the past 25 years, the department has produced 34 PhDs from these groups. Additionally, CAAM has produced 43 female PhDs.

The twelve members of the CAAM faculty are involved in cutting edge research in inverse problems, discrete and continuous optimization, computational neuroscience, partial differential equations (PDE),

Richard Tapia with students.
Photo courtesy of Rice Center for Excellence and Equity in Education.

PDE constrained optimization, and large scale numerical linear algebra. The interdisciplinary nature of the department has played a role in making CAAM attractive to groups traditionally underrepresented in mathematics.

Much of the department's success in the training of PhDs from underrepresented minority groups has come through the leadership of Richard Tapia, the recipient of the 2004 AMS Award for Distinguished Public Service to Mathematics. During his more than 30 years at Rice University, Tapia personally mentored dozens of students from underrepresented groups, many of whom have gone on to outstanding positions in academia and industry. His enthusiasm and high standards have helped to make CAAM a place where students of all backgrounds can thrive.

CAAM has two women professors, Liliana Borcea and Béatrice Riviére, who serve as role models for women students, and Tapia too has worked to increase the number of women students in the department. Although the department does not have a program specifically aimed at women, it has been very successful in producing women PhDs: An article in the August 2004 *Notices* that presented statistics about which departments were producing the most women PhDs in mathematics pointed to CAAM as one of the standouts, with 45.5 percent of its PhDs going to women in the years between 1995 and 2003.

CAAM has played a central role in promoting education diversity across the Rice campus and in the state of Texas. One example is the Rice University Center for Excellence and Equity in Education, which was founded by Tapia and which seeks to promote greater participation of underrepresented groups in the sciences and to encourage academic excellence for all. Tapia also established Alliances for Graduate Education and the Professoriate, which unites several colleges and universities in Texas in the common mission of significantly increasing the number of underrepresented minority students earning the PhD and positioning them to become leaders in science, technology, engineering, and mathematics.

Tapia's work on promoting diversity in mathematics, engineering, and the sciences has brought a national spotlight to the CAAM department. Among his many honors are the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (1996) and the Lifetime Mentor Award from the American Association for the Advancement of Science (1997). He is a founder of the national organization SACNAS (Society for the Advancement of Chicanos and Native Americans in Science).