

2010 Award for an Exemplary Program or Achievement in a Mathematics Department

The Award for an Exemplary Program or Achievement in a Mathematics Department was established by the AMS Council in 2004 and was given for the first time in 2006. The purpose is to recognize a department that has distinguished itself by undertaking an unusual or particularly effective program of value to the mathematics community, internally or in relation to the rest of society. Departments of mathematical sciences in North America that offer at least a bachelor's degree in mathematical sciences are eligible. Through the generous support of an anonymous donor, the award carries a cash prize of US\$5,000.

The award is presented by the AMS Council acting on the recommendation of a selection committee. For the 2010 award, the members of the selection committee were: Steven A. Bleiler (chair), Amy Cohen, William B. Jacob, Michael E. Moody, and Roger A. Wiegand.

The previous recipients of the award are Harvey Mudd College (2006), the University of California, Los Angeles (2007), the University of Iowa (2008), and the University of Nebraska, Lincoln (2009).

The recipient of the 2010 Award for an Exemplary Program or Achievement in a Mathematics Department is the MATHEMATICS DEPARTMENT AT NORTH CAROLINA STATE UNIVERSITY. What follows is the selection committee's citation.

Citation

The American Mathematical Society is pleased to recognize the Department of Mathematics at North Carolina State University with the 2010 Award for an Exemplary Program or Achievement by a Mathematics Department. Emerging from a strong field of nominees, the Department of Mathematics at North Carolina State has clearly distinguished itself through its many activities and programs.

The department offers the largest REU (Research Experiences for Undergraduates) program in the U.S., including a special program REU+ for undergraduates from traditionally underrepresented groups. The department also exhibits a strong commitment to outreach to other departments and disciplines, as well as to business, industry, and government, including outreach requirements in the major and graduate programs. It is further distinguished by a well-thought-out program of activities to increase student participation in their professional development, and by the effective and encouraging environment, complete with integrated professional experiences, that the department has developed for its advanced degree programs, which nicely complements the department's long-standing and continuing commitment to diversity in the mathematics work force.

For these reasons and more, the Society is proud to recognize the Mathematics Department at North Carolina State University with this year's award.

2010 Mathematics Programs that Make a Difference

Each year the AMS Committee on the Profession (CoProf) selects outstanding programs to be designated as *Mathematics Programs that Make a Difference*. For 2010 the honored programs are the DEPARTMENT OF COMPUTATIONAL AND APPLIED MATHEMATICS (CAAM), RICE UNIVERSITY, and the SUMMER PROGRAM IN QUANTITATIVE SCIENCES, HARVARD SCHOOL OF PUBLIC HEALTH.

CoProf created the Mathematics Programs that Make a Difference designation in 2005 as a way to bring recognition to outstanding programs that successfully address the issue of underrepresented groups in mathematics. Each year CoProf identifies two exemplary programs that:

- 1) aim to bring more individuals from underrepresented minority backgrounds into some portion

of the pipeline beginning at the undergraduate level and leading to an advanced degree in mathematics, or retain them in the pipeline;

2) have achieved documentable success in doing so; and

3) are replicable models.

Previously designated Mathematics Programs that Make a Difference are: the graduate program at the University of Iowa and the Summer Institute in Mathematics for Undergraduates/Research Experience for Undergraduates at Universidad de Puerto Rico, Humacao (2006); Enhancing Diversity in Graduate Education (EDGE) and the Mathematical Theoretical Biology Institute (2007); the Mathematics Summer Program in Research and Learning (Math SPIRAL) at the University of Maryland and the Summer Undergraduate Mathematical Science Research Institute at Miami University (Ohio) (2008); and the Department of Statistics at North Carolina State University and the Department of Mathematics at the University of Mississippi (2009).

The selection committee for the 2010 Mathematics Programs that Make a Difference consisted of: Gerard Buskes, Donald Cole, Jackie Hughes-Oliver, Susan Loepp (chair), Francis Edward Su, Michelle Wachs, and Kim Weems.

Below are CoProf's citations, followed by brief descriptions of the programs prepared by *Notices* staff.

Department of Computational and Applied Mathematics (CAAM), Rice University

Citation

Be it resolved that the American Mathematical Society and its Committee on the Profession recognize the Department of Computational and Applied Mathematics at Rice University for its significant efforts to encourage students from underrepresented groups to continue in the study of mathematics.

The department's unwavering commitment to students through individual guidance and support has created an exceptionally welcoming community in which students thrive. Over the last twenty-five years, the department has graduated thirty-four underrepresented minority Ph.D.s. Graduates of the program have distinguished careers in government labs, industry, and academia. The department of Computational and Applied Mathematics at Rice University has made, and continues to make, a remarkable contribution to the national effort to produce more minority Ph.D.s in the mathematical sciences.

The AMS commends the members of the Department of Computational and Applied Mathematics at Rice University for their high level of commitment and their successful efforts to improve the diversity of the profession of mathematics in the United States.

Program Description

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 twenty-five years, the department has produced thirty-four Ph.D.s from these groups. Additionally, CAAM has produced forty-three female Ph.D.s.

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), 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 Ph.D.s 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 thirty years at Rice University, Tapia has 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 Rivière, 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 Ph.D.s: An article in the August 2004 *Notices* that presented statistics about which departments were producing the most women Ph.D.s in mathematics pointed to CAAM as one of the standouts, with 45.5 percent of its Ph.D.s 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 Ph.D. 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).

Website: <http://www.caam.rice.edu/>

Summer Program in Quantitative Sciences, Harvard School of Public Health

Citation

Be it resolved that the American Mathematical Society and its Committee on the Profession recognize the Summer Program in Quantitative Sciences, Harvard School of Public Health, for its significant efforts to encourage students from underrepresented groups to continue in the study of mathematics and statistics.

The program's strong, personal connection with students has resulted in remarkable success. Talented undergraduate students from underrepresented minority groups are recruited and mentored for four weeks during the summer. The program includes research projects, training in biostatistics, and opportunities to network with faculty members and graduate students. Graduates of the program hold leadership positions in the biostatistics community and have received prestigious fellowships and grants. Established in 1992, the program is one of the first of its kind and has served as a model for similar programs throughout the country. The program has made a remarkable contribution to the national effort to produce more minority students pursuing careers in biostatistics and public health.

The AMS commends the faculty and staff members of the Harvard School of Public Health for their high level of commitment and their successful efforts to improve the diversity of the profession of the mathematical sciences in the United States.

Program Description

The Summer Program in Quantitative Sciences at the Harvard School of Public Health (HSPH) is designed to attract mathematically talented students from underrepresented minority groups to consider graduate school and careers in biostatistics and public health. Since 1994, when the program first began admitting students, 153 students have participated, and twenty have enrolled in HSPH for graduate school. The program receives funding from the National Institutes of Health.

Each year, between six and twelve minority students have participated in the program, and

it is also open to students from other groups underrepresented in graduate education in public health, such as first-generation college students, low-income college students, and handicapped students. An essential element of the program's success is its small size, which permits the development of personal connections with all of the students. Lasting four weeks, the program includes an introductory course in biostatistics and statistical computing that meets each day for lectures and computer labs; typically the course is taught by a minority statistician who is a student in the HSPH Biostatistics Department. There is an afternoon lecture series on epidemiology, health and social behavior, environmental health, and current research in biostatistics. In addition, students engage in small-group research projects that are based on studies being conducted by scientists at HSPH or at the Harvard Medical School.

Career development sessions bring students together with faculty and career advisors to discuss the importance of the GRE examination, tips for applying to graduate school, and issues specific to minority students. Participants also take a practice GRE test. Field trips to such places as the genotyping facility at the Channing Laboratory of Brigham and Women's Hospital expose the students to the vast array of research activities and educational options relating to biostatistics.

Of the 131 program participants known to have received their undergraduate degrees, at least eighty-seven (66 percent) have completed graduate degrees or gone on to pursue graduate studies, at least sixty-seven (51 percent) have pursued graduate study related to health or medical school, and forty (31 percent) have gone on to pursue graduate training in statistics or biostatistics. Currently, two students are in graduate programs at the Harvard School of Public Health, and twenty have received either master's or doctorate degrees at the HSPH.

Program Director: Rebecca Betensky, Professor of Biostatistics, Harvard School of Public Health

Program Coordinator: Catherine Haskell

Website: <http://www.hsph.harvard.edu/biostats/diversity/summer/>