

New Undergraduate Research Prize

Frank Morgan



Undergraduates at work at the Williams College “SMALL” undergraduate research project. Photograph by Cheryl LeClaire, *Williams Alumni Review*.

The new prize for undergraduate research announced on page 74 stands to recognize and encourage the excellent mathematical research that undergraduates are already doing. Undergraduates are working on problems of current research interest, proving theorems, writing up results for publication, and giving talks on their work. They are making significant contributions to mathematics. At the same time, they find out what real mathematics is like. They gain a new perspective and a new appreciation for their courses and for their teachers. They can make

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more intelligent decisions about whether to go on to graduate school. And when they do not go on in mathematics, they become a new breed of politicians, business people, magazine editors, or other members of the general populace who have an appreciation of mathematics.

Undergraduate research in mathematics is no longer an oddity. Dozens of colleges and universities sponsor summer undergraduate mathematics research programs, many supported by the National Science Foundation. The National Security Agency, the Institute for Defense Analysis, AT&T, Bellcore, and NSF centers and institutes have expanded or created undergraduate research programs. Many national and regional meetings now include sessions on undergraduate research. Pi Mu Epsilon and the Mathematical Association of America award prizes and support to undergraduate speakers. The Council on Undergraduate Research, which sponsors research conferences for undergraduates from all fields, now has a mathematical and computer sciences division. At the first annual Hudson River regional undergraduate mathematics conference at Siena College near Albany last year, faculty and students from calculus students to senior mathematics majors participated as equals in giving talks, chairing sessions, and discussing mathematics (see the article on page 946 of the October 1994 *Notices* by Douglas Briggs, one of the undergraduate participants).

It seems that undergraduate research can thrive in diverse locations and in diverse areas of mathematics. Good work and accessible questions are proliferating. Students cite theorems of

previous students and pose conjectures for their successors. The 1994 AMS *What's Happening in the Mathematical Sciences* features some work by undergraduates in an article entitled "Soap solution".

History. In 1990 the Association for Women in Mathematics established the Alice T. Schafer Prize for excellence in mathematics by an undergraduate woman. The Schafer prize inspired Joe Gallian, who for seventeen years has run the granddaddy of modern undergraduate mathematics research programs at the University of Minnesota in Duluth, and Stan Wagon to propose an undergraduate research prize to the MAA. Gallian took the idea to the CUPM Subcommittee on Undergraduate Research in Mathematics, chaired by John Greever. Wagon took the idea to the MAA Coordinating Council on Awards, chaired by Henry Alder. In an astonishing tribute to our mathematical organizations and committees, the idea developed rapidly to fruition, with the help of Aparna Higgins (chair of the MAA Committee on Student Chapters), Beth Ruskai (chair of the Joint Committee on Women in the Mathematical Sciences), Ron Graham (AMS President), Gil Strang (SIAM Vice-president for Education), and many others throughout the mathematics community.

The prize. The prize has some interesting features. To proclaim the existence of excellent undergraduate research, there is a single prize of one thousand dollars. To recognize the keenness of the competition, there is provision for a few honorable mentions. To recognize the important role collaboration often plays, the prize may be shared by a group of students working together.

Nominations. For the first award, research papers (submitted by the student or a nominator) and a supporting letter must be submitted by June 30, 1995. Undergraduates in the United States, Canada, or Mexico as of December 1994 are eligible.

Faculty or students interested in organizing or participating in undergraduate research might contact Jack Ryff at the NSF (jryff@nsf.gov) for advice and a list of the current NSF Research Experiences for Undergraduates.