

Math Horizons

1/4 page
 $3\frac{7}{16} \times 4\frac{1}{2}$ "

MATH HORIZONS

During the last decade, calculus renewal efforts occurred at all levels of post-secondary institutions as outgrowths of the Tulane Conference in 1987 and the subsequent national conference on Calculus for A New Century, hosted by the National Academy of Sciences. An MAA special report, *Assessing Calculus Reform Efforts* [1], estimated that "at least 150,000 students or 32% of all calculus enrollments in the spring of 1994 were in reform courses. Since 1994, several reform calculus texts have been among the highest selling nationally, and the number of institutions utilizing one or more aspects of reform in their calculus courses continues to rise. The calculus renewal movement continues to have a significant impact on undergraduate mathematics education. Instructors have experimented with alternative teaching methods that included the use of technology, collaborative learning, and out-of-class projects. These methods were integrated into new curricula with an increased emphasis on conceptual understanding. Today, all new editions of calculus texts, even so-called traditional ones, incorporate significant themes and problems developed as part of the calculus renewal movement.

One major, although unanticipated, outcome of the calculus renewal effort is the development of comparable efforts to revise college algebra and developmental mathematics offerings. There have also been several efforts to rethink precalculus courses, most notably those by Baxter Hastings, Connolly et al. and Gordon, et al. However since the publication of the volume, *Preparing for a New Calculus* [2], the mathematics community has paid insufficient attention to courses that bridge precalculus courses with calculus courses. The need to address this issue is essential since, as Lynn Steen points out, "Clearly precalculus (and its alter ego college algebra) is the single most common mathematics course in undergraduate education." The enrollment data in the fall of 2000 supports Steen's statement. In particular, the precalculus enrollment then was twice the enrollment of calculus I at all types of institutions and four times the enrollment of calculus I at two-year schools [12]. It is now time to renew a national dialogue on these issues.

The Rethinking the Preparation for Calculus project focused on precalculus courses that are not terminal—that is, those that are

Students who were substantially underprepared reported more conceptual problems and feelings of being overwhelmed in the early stages of their major... Not only did most of these students abandon their ambition to continue with a S.M.E. (Science, Mathematics, and Engineering) major, they also suffered emotional damage by attempting what proved an impossible task.

Several colleges and universities, for example, University of Michigan, University of Texas at El Paso, and SUNY Farmingdale have recognized the need for rethinking the precalculus curriculum and have implemented completely different approaches.

Furthermore, given the importance that two- and four-year schools attach to the development of articulation agreements among two- and four-year schools, it is essential that there should be some serious discussion on the topic in conjunction with any discussion of changing precalculus courses.

Overview of the conference

At the 2001 joint meetings in New Orleans, Jack Narayan discussed the idea of having an

During the last decade, calculus renewal efforts occurred at all levels of post-secondary institutions as outgrowths of the Tulane Conference in 1987 and the subsequent national conference on Calculus for A New Century, hosted by the National Academy of Sciences. An MAA special report, *Assessing Calculus Reform Efforts* [1], estimated that "at least 150,000 students or 32% of all calculus enrollments in the spring of 1994 were in reform courses." Since 1994, several reform calculus texts have been among the highest selling nationally, and the number of institutions utilizing one or more aspects of reform in their calculus courses continues to rise. The calculus renewal movement continues to have a significant impact on undergraduate mathematics education. Instructors have experimented with alternative

One major, although unanticipated, outcome of the calculus renewal effort is the development of comparable efforts to revise college algebra and developmental mathematics offerings. There have also been several efforts to rethink precalculus courses, most notably those by Baxter Hastings, Connolly et al. and Gordon, et al. However since the publication of the volume, *Preparing for a New Calculus* [2], the mathematics community has paid insufficient attention to courses that bridge precalculus courses with calculus courses. The need to address this issue is essential since, as Lynn Steen points out, "Clearly precalculus (and its alter ego college algebra) is the single most common mathematics course in undergraduate education." The enrollment data in the fall of 2000 supports Steen's statement. In particular, the precalculus enrollment then was twice the enrollment of calculus I at all types of institutions and four times the enrollment of calculus I at two-year schools [12]. It is now time to renew a national dialogue on these issues.

The Rethinking the Preparation for Calculus project focused on precalculus courses that are not terminal—that is, those that are requirements for some type of calculus. All of

26 OCTOBER 1977

MATH HORIZONS Advertising Rates, 1/4 page

1X	2X	3X	4X
\$485	\$455	\$435	\$415

To place an ad call:
1.800.821.1221
 or e-mail:
rhall@marketinggeneral.com

The Department of Mathematics at the University of Scholastica

Offers the M.S. degree and the Ph.D. in several areas of pure and applied mathematics.

The University of the MAA offers graduate students the ability to receive tuition waivers and teaching assistantships, which carry a stipend of \$1 billion a year. In return students teach 20 labs per week.

Students who are U.S. citizens or permanent residents and will be undergraduates in the fall of 2009 are eligible to apply.

Preference will be given to applications received by February 31.

For additional information please contact:
 Dr. Matt E. Matik
 Department of Mathematics • University of Scholastica
 Washington, DC 90026



Phone: (800) 555-5555
 Fax: (800) 555-5555
 E-mail: matem@ic.edu • www.UScholastica.edu