

MAA Strategic Planning Around STEM Issues

By David M. Bressoud

Over the past two years, I have chaired a strategic planning group on *STEM* (Science, Technology, Engineering, Mathematics) *Issues*. We made our final report to the Board of Governors at MathFest this past August. Our purpose was to explore what the MAA can do to highlight and encourage change to better serve all students who take mathematics; to develop curricula that will attract students to take more mathematics and better prepare them for whatever comes after graduation; and to encourage more students, especially those from underrepresented groups, to study more mathematics. The report itself takes the form of a collection of questions with which the MAA members, committees, and leadership will need to wrestle. This column can do no more than give an indication of what we found. The full report is at www.maa.org/StrategicPlanning.

The first and most dramatic finding was that most MAA members are unaware of the rich pool of resources that the MAA makes available, from the *Guidelines for Programs and Departments in Undergraduate Mathematical Sciences* to the *Grant Writing Guide*, and very few members take advantage of these resources. We need to do a much better job of publicizing what is available and ensuring that faculty think of the MAA for such resources and can find what they need when they need it.

We also identified three dominant threats to our profession. The first of these is *lack of growth*. Over the past two decades, while college enrollments have grown by almost 50%, the number of mathematics majors and the number of students in credit-bearing mathematics courses has remained stagnant. This makes it difficult for departments of mathematics to hold on to their budgets and faculty lines, but more importantly it means that the mathematical community has failed to demonstrate the importance of mathematics across the curriculum or successfully to engage and encourage non-traditional students.

The second threat is *the need to do more with less*. This is a corollary of failing to grow, but it is also the reality of today's tight budgets. Departments are under tremendous pressure to increase class size and to replace regular faculty with adjuncts. The MAA has a critical role to play here in supporting departments as they make the case to hold onto their resources and in helping them make the most of the resources they do have.

The third threat is *the trouble at the transitions*. The greatest of these is the transition from high school to college where we are losing many talented students who can and should be doing more mathematics, but the MAA also needs to pay attention to the transition to upper-level courses, the transition from 2-year to 4-year undergraduate programs, and the transition from undergraduate to graduate study.

The report goes on to identify ten general areas in which the MAA has a role in helping mathematicians and their depart-

ments to be more effective. These include: *reaching out to new populations and retaining students, improving the first-year experience, teacher preparation, research experiences for undergraduates*, the use of *technology*, and the involvement of the MAA in helping departments to establish and run successful *Professional Science Master's programs*.

It is an ambitious agenda, but anything less would not be worthy of the MAA. One of the primary missions of the MAA is to support undergraduate mathematics education. This means providing its members, both individuals and departments, with the information and tools they need to provide their students with the best mathematics education. We must never lose sight of that. 🍷



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