Baylor Undergraduate Lecture Series
in
Mathematics
Fourth Annual Lectures

David Bressoud
DeWitt Wallace Professor of Mathematics
Macalester College
Past President of the Mathematical
Association of America
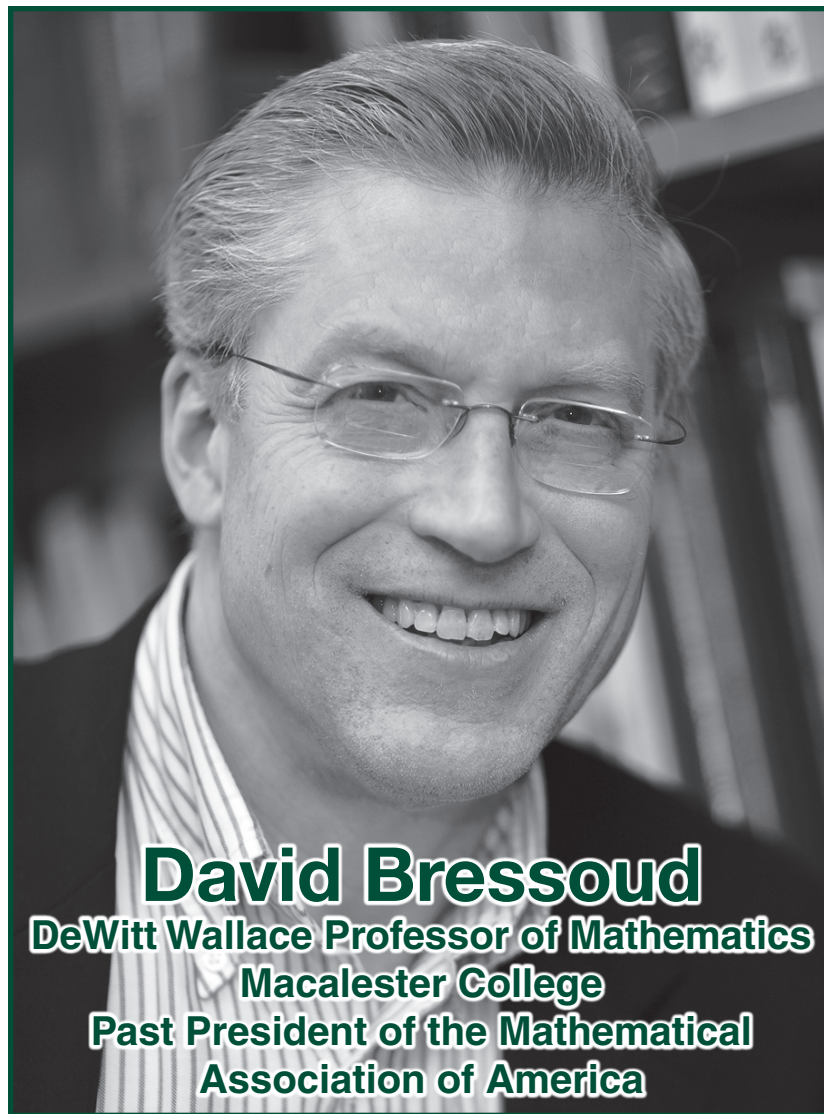
Calculus in High School:
Too much of a good thing?

Thursday, October 6, 2011 - 4:00 p.m.
Baylor Sciences Building, D109

Over the past quarter century, high school enrollment in calculus has grown tenfold, from 60,000 to 600,000, and continues to grow at 6% per year. We have passed the cross-over point where each year more students study first semester calculus in US high schools than in all 2- and 4-year colleges and universities in the United States. In theory, this should be an engine for directing more students toward careers in science, engineering and mathematics. In fact, it may be having the opposite effect. This talk will present an overview of the history of AP Calculus program, data on its effectiveness and the effects of this growth, and a description of the responses that are needed within our high schools and universities.

Proofs and Confirmations: The Story of Alternating Sign Matrix Conjecture

Friday, October 7, 2011 - 4:00 p.m.
Sid Richardson Building, SR 344

What is the role of proof in mathematics? Most of the time, the search for proof is less about establishing truth than it is about exploring unknown territory. In finding a route from what is known to the result one believes is out there, the mathematician often encounters unexpected insights into seemingly unrelated problems. I will illustrate this point with an example of recent research into a generalization of the permutation matrix known as "alternating sign matrix." This is a story that began with Charles Dodgson (aka Lewis Carroll), matures at the Institute for Defense Analysis, drew in researchers from combinatorics, analysis, and algebra, and ultimately was solved with insights from statistical mechanics.

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