

Hawaii University International Conferences
2011 Mathematics and Engineering June 13-15, 2011

Abstract for Proceedings

“Culture and Service in the Undergraduate Mathematics Curriculum”

Angela Hare, PhD
Professor of Mathematics & Department Chair
Dept. of Information and Mathematical Sciences
Messiah College: Box 3041
One College Avenue
Grantham, PA, USA 17027
AHare@messiah.edu
1-717 766-2511, x7230

Abstract:

Incorporating aspects of culture and service into the undergraduate mathematics major content courses and degree requirements can strengthen students' appreciation of the power of mathematical thought to affect societal well-being. Several case-studies illustrating cultural aspects of mathematical study will be discussed, including modeling hyperbolic geometry using feminine handicraft, grouping and numeracy practices in some Asian and African people groups, and comparing K-12 mathematics pedagogy in the American and French educational systems. The paper also highlights examples from the author's institution of student service through mathematical sciences to persons with disabilities in West Africa, coordinated by a campus organization in which students and faculty work together on applied projects brought by global client organizations. It concludes with an anecdotal description of how students' views of their vocational options in mathematical sciences expand when factors of culture and service are included in the undergraduate curriculum.