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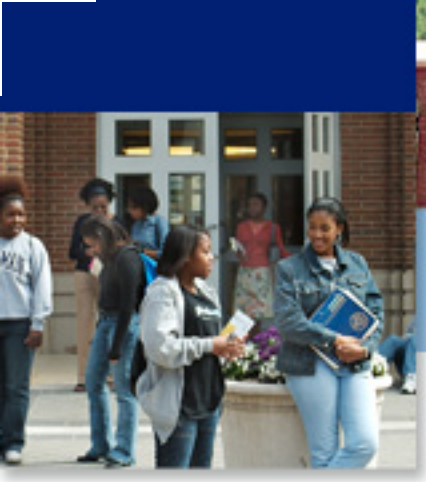
Undergraduate Mathematics:

Promising Recruitment/Retention Strategies to Ensure Diversity in the STEM Pipeline

Sylvia T. Bozeman, Ph.D., Professor of Mathematics
Spelman College, Atlanta, GA
September 22, 2009



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Recruitment/Retention Issues

1. Low visibility of role models in mathematics, and other STEM areas.
2. Lack of self-confidence and sense of belonging in science and mathematics.
3. Lack of nurturing environments and supportive communities that maintain high expectations, and show confidence in the ability of ALL students to achieve.
4. Insufficient funding of student scholarships
5. The challenge of maintaining a high-quality educational infrastructure—including the curriculum, personnel and facilities.

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Common Features in Effective Recruitment/Retention Strategies

- High school-to-college transition programs
- Recruitment by faculty and other majors
- Strategic community-building
- Advising and mentoring
- Undergraduate research
- Scholarships integrated into special programs
- College-to-graduate school transition programs

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Success of the Spelman College NASA WISE Scholars Program

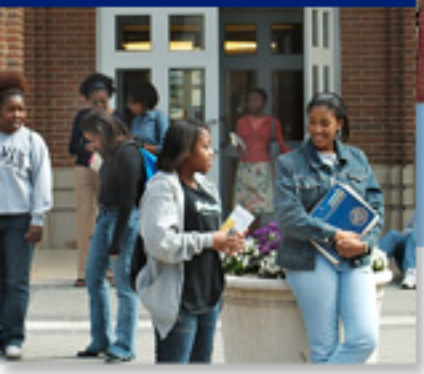
Women in Science and Engineering (WISE)

Monica Cox, Ph.D.

- Four summers as a NASA intern
- B.S. Mathematics
- M.S. Industrial Engineering
- Ph.D. Leadership & Policy Studies
- Asst. Prof. School of Engineering Educ. Purdue Univ.
- 2009 Recipient of the Presidential Early
- Career Award for Scientists and Engineers

SharolynWynter

- Two summers as NASA intern
- B.S. Mathematics
- M.S. Operations Research
- M.S. Industrial Engineering
- Research Experience for Undergraduates Univ. of MD (Spiral Program)
- Consultant for Deloitte



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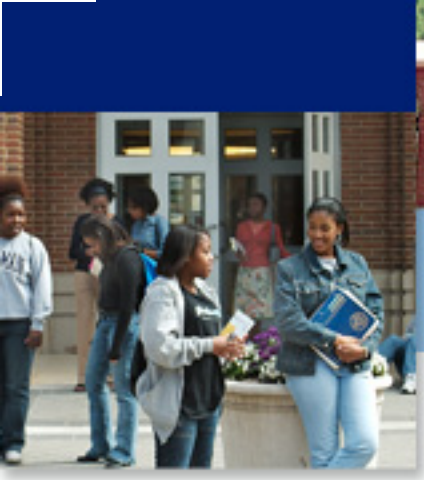
DELTA DECISIONS (Washington, DC)

An Operations Research Consulting Company

- Received the American Small Business Coalition's Rookie of the Year Award, 2008

- Founded in 2006 by three African-American women; two Spelman alumnae (B.S. in mathematics):

Kim Barnette and Afi Harrington
Both earned the Ph.D.
in Operations Research from
North Carolina State University



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Federal Roles in Promoting Diversity

- Promote partnerships and collaborations that improve diversity in STEM education
- Support NSF, including data collection and analysis
- Fund student scholarships at the undergraduate level, including incentives for those who will teach mathematics
- Fund institutions and organizations that make a difference in diversity, including support for enhancing the infrastructure of HBCUs and other Minority Serving Institutions (MSIs)