Promoting, Capturing, and Disseminating Innovation

NSF EPSCoR Project Directors and Project Administrators Meeting
May 17, 2010
Promoting innovation: EHR strategies

• Preparing tomorrow’s diverse STEM workforce
  Transforming K-12, undergraduate, and graduate STEM education

• Developing the tools, resources, and models for tomorrow’s learners

Growing knowledge base through research and evaluation
Preparing tomorrow’s diverse STEM workforce: Comprehensive Broadening Participation in Undergraduate STEM
Need to Broaden Participation to Prepare Tomorrow’s S&E Innovators

- Minorities comprise an increasing share of U.S. labor force with non-Hispanic whites constituting a decreasing share.
- As early as 2039, more than 50% of the working age population will be from minority groups.
- By 2018, ten of the top thirty fastest growing occupations will be in STEM fields, requiring a bachelor’s or higher degree.
- Minority students continue to lag behind their majority counterparts in completing STEM baccalaureate programs.

### Projected Working Age (between 15-64) Population

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<tr>
<th>Year</th>
<th>White, Non-Hispanic</th>
<th>Hispanic</th>
<th>Black, Non-Hispanic</th>
<th>Asian</th>
<th>American Indian and Alaska Native</th>
<th>Native Hawaiian and Other Pacific Islander</th>
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<td>2010</td>
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These projections are from U.S. Census: [http://www.census.gov/population/www/projections/usinterimproj/](http://www.census.gov/population/www/projections/usinterimproj/)
S&E BS Degrees 1997-2006

These data are from NSF Women, Minorities, and Persons with Disabilities in Science and Engineering:
http://www.nsf.gov/statistics/wmpd/degrees.cfm#bachelor
President’s FY 2011 Budget Request

$103 million for Undergraduate and Graduate Student Support for the EHR Division of Human Resource Development:

– Increase of 14% ($13 million) over FY2010

– Additional funds to be used for a comprehensive program to increase successful baccalaureate degree production among minority students.

Grambling State University LSAMP Students
In order to accelerate change in building the STEM workforce, a new approach is proposed that will:

– Catalyze new models and collaborations, drawing on research and proven practice to achieve rapid gains in minority undergraduate STEM education success

– Build on current programs:
  
  • Louis Stokes Alliances for Minority Participation (LSAMP)
  • Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)
  • Tribal Colleges and Universities Program (TCUP)
Proposed Components

- **Louis Stokes Model Alliances**— pathways for students, new intramural networks and collaborations across institution types and organizations.

- **Transformative Initiatives**— institutional capacity and infrastructure building at minority-serving institutions (MSIs) and other institutions.

- **Targeted Initiatives**— faculty and academic program development focused on specific institutional opportunities at MSIs.

- **Education Research**— on issues that surround teaching and learning and increasing participation of underrepresented groups in STEM.
Expected Outcomes

• new, wider and more innovative pathways for students into STEM careers

• synergistic collaborations among MSIs and more effective institutional capacity-building

• increased co-funding and leveraging with other NSF directorates and offices, and with other federal agencies

• positioning of the total broadening participation effort for increased investment and maximized impact

PI and students collect samples from the Clark Fork River
NSF-funded Microbiology Research at Chief Dull Knife College
Expected Outcomes (con’t)

• new alliances with science-rich entities, such as large-scale public and private centers, laboratories, and other institutions

• leveraging for replication, implementation, adaptation and scaling-up of productive practices

• collaboration across institutional types and STEM sectors

Prairie View A&M Student Research Opportunity
Next Steps

• cooperative work with other NSF directorates and offices, and other federal agencies

• community input through regional workshops and public forums

• collaboration with the White House Initiatives on HBCUs, TCUs, and Excellence in Education for Hispanics; interaction with STEM professional organizations and societies

• synthesis of research and best practices, including review of the NRC study “U.S. Competitiveness: Underrepresented Groups and the Expansion of the Science and Engineering Workforce Pipeline” report expected in August 2010
DRL promotes innovative research, development, and evaluation of learning and teaching across all STEM disciplines by advancing cutting-edge knowledge and practices in both formal and informal settings.

DUE supports comprehensive approaches to strengthening STEM education at two- and four-year colleges and universities.

DGE leads NSF’s effort to attract the most talented U.S. students into graduate studies, and to support them in their quest to become the leading scientists and engineers of the future.

HRD serves as a focal point for NSF’s agency-wide commitment to enhancing the quality and excellence of STEM education and research through broadening participation of underrepresented groups and institutions.
• Joan Ferrini-Mundy, Acting AD (jferrini@nsf.gov)
• Caesar Jackson, Acting DD, HRD (crjackso@nsf.gov)
• Linda Skakey, DD, DUE (lslakey@nsf.gov)
• Dave Ucko, Acting DD, DRL (ducko@nsf.gov)
• Carol Van Hartesveldt, Acting DD, DGE (cvanhart@nsf.gov)