NSF HRD Division

Programs targeted At Broadening Participation

- AGEP
- CREST
- HBCU-UP
- TCUP
- LSAMP
Institution of Higher Education

• STEM-Related Academic Integration
  • Student Focused Strategies
  • Faculty Focused Strategies
  • Institutional/Departmental Focused Strategies

The Tinto Model of Student Retention

• STEM-Related Professionalization
  • Student Focused Strategies
  • Faculty Focused Strategies
  • Institutional/Departmental Focused Strategies

STEM-Related Academic Integration

Entry into Graduate School STEM Specialization Into Science

LSAMP Model

LSAMP
## ELEMENTS OF THE LSAMP MODEL

<table>
<thead>
<tr>
<th><strong>PRE-BACCALAUREATE</strong></th>
<th><strong>BACCALAUREATE</strong>*</th>
<th><strong>UREATE</strong></th>
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<td>√</td>
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<tr>
<td>Conferences</td>
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<tr>
<td>Internships</td>
<td></td>
<td>√</td>
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<tr>
<td>Career Awareness</td>
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<td>√</td>
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<td>GRE Test Preparation</td>
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<td>Graduate School Admissions Support</td>
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<td>Graduate Summer Bridge</td>
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<td>√</td>
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<td><strong>Faculty</strong></td>
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<td>Workshop on Teaching</td>
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<td>Diversity Sensitivity Training</td>
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<td>Faculty Research Program</td>
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<td>New Course Development</td>
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<tr>
<td>Curriculum Material Sharing</td>
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<td>Distance Learning Courses</td>
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</tr>
<tr>
<td>Changes in Institutional/Departmental</td>
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<tr>
<td>Policies and Practices</td>
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</table>

*Bridge to the Doctorate
- Fellowship 24 Months Duration
- Graduate Coursework
- Skill Building
- Research Planning/Initiation
- Mentorship
- Teamsmanship
- Conferences: Scientific & Professional
- Career Awareness & Professional Development
- Ethics: Scientific and Professional
- Other: (International, etc.)

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STEM Bachelor Degrees Report Disciplines by Race/Ethnicity

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Black or African American</th>
<th>Hispanic or Latino</th>
<th>Native American</th>
<th>Native Hawaiian or Pacific Islander</th>
<th>More then one Race Reported - Minority</th>
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<td>Chemistry</td>
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<td>847</td>
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<td>19</td>
<td>59</td>
<td>1729</td>
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<td>Computer Science</td>
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<td>5037</td>
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<td>111</td>
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<td>8758</td>
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<tr>
<td>Geosciences</td>
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<td>177</td>
<td>31</td>
<td>10</td>
<td>20</td>
<td>355</td>
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<tr>
<td>Life/Biological Sciences</td>
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<td>6428</td>
<td>573</td>
<td>182</td>
<td>275</td>
<td>12317</td>
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<tr>
<td>Mathematics</td>
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<td>816</td>
<td>86</td>
<td>19</td>
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<td>1547</td>
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<tr>
<td>Physics/Astronomy</td>
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<td>276</td>
<td>35</td>
<td>43</td>
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<td>917</td>
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<td>14</td>
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<td><strong>11917</strong></td>
<td><strong>16281</strong></td>
<td><strong>1539</strong></td>
<td><strong>498</strong></td>
<td><strong>768</strong></td>
<td><strong>31003</strong></td>
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</tbody>
</table>
### STEM Bachelor Degrees Report Gender by Race/Ethnicity

<table>
<thead>
<tr>
<th>Gender</th>
<th>Black or African American</th>
<th>Hispanic or Latino</th>
<th>Native American *</th>
<th>Native Hawaiian or Pacific Islander</th>
<th>More than one Race Reported - Minority**</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>5765</td>
<td>9191</td>
<td>859</td>
<td>281</td>
<td>442</td>
<td>16538</td>
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<td>Female</td>
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<td>672</td>
<td>76</td>
<td>208</td>
<td>324</td>
<td>13986</td>
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<td>9</td>
<td>2</td>
<td>479</td>
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<tr>
<td>Total</td>
<td>11917</td>
<td>16281</td>
<td>1539</td>
<td>498</td>
<td>768</td>
<td>31003</td>
</tr>
</tbody>
</table>

*The Native American Category includes American Indians and Alaska Natives

** The More Than One Race Reported – Minority category comprises non-Hispanic/Latino who reported
a) Two or more race categories and
b) one or more of the reported categories includes: America Indian, Alaskan Native, Black or Africa American, Native Hawaiian or Other Pacific Islander.
Underrepresented Minority STEM Enrollment 1993-2011
Underrepresented Minority STEM Bachelor’s Degree 1992-2011
Percentage of LSAMP Projects Offering Various Components

Pre-College to College Programs
- Summer Bridge: 85%
- High School Outreach: 67%
- Career Awareness: 22%

Student Academic Development
- Scholarship/Stipend: 100%
- Tutoring: 74%
- Peer Study Groups: 63%
- Skill-Building Seminar: 60%
- Learning Center: 52%
- Academic Advising: 22%
- Summer Academic Enrichment: 15%

Student Professional Development
- Research Experience: 89%
- Mentorships: 82%
- Conferences: 82%
- Internships: 59%
- Career Awareness: 44%
Types of Mentoring Programs

Faculty Development

- Workshops on Teaching: 26%
- Professional Development: 22%
- Diversity Sensitivity Training: 11%

Curriculum Development Activities

- Course Reform: 56%
- New Course Development: 30%
- Curriculum Material Sharing: 15%
- Distance Learning Courses: 11%

Graduate Studies Development

- GPS Test Prep: 59%
- Graduate School Admission Support: 59%
- Graduate Summer Bridge: 15%

Community College Components

- Articulation Agreements: 74%
- Community College Outreach/Links: 59%
- Research for Students: 26%

Source: Urban Institute telephone interviews with project staff, 2002.
Keys to Success

- Alliance Structure
- Summer Bridge (skills, gatekeeping)
- Mentoring (Faculty and Students)
- Research Experience (academic excellence)
- Drop in Center (community)
- Caring Staff
A Model of Excellence
An Evaluative Study of the LSAMP Program

By the Urban Institute
Figure 6. Graduate Coursework, Degrees Pursued and Degrees Complete

**LSAMP Participants**
- **1,426 Graduates**
  - STEM: 100%
  - Took Further Coursework: 79%
  - Pursued Grad Degrees: 936
  - Completed Grad Degrees: 635

**National Underrepresented Minority**
- **36,234 Graduates**
  - STEM: 100%
  - Took Further Coursework: 62%
  - Pursued Grad Degrees: 22,501
  - Completed Grad Degrees: 7,139

**National White and Asian**
- **272,964 Graduates**
  - STEM: 100%
  - Took Further Coursework: 62%
  - Pursued Grad Degrees: 168,145
  - Completed Grad Degrees: 48,315

Source: UI LSAMP Graduate Survey and NSF NSRCG Longitudinal File.
*National comparison group statistic is not significantly different from LSAMP.*
Education Pipeline: Post-BA Coursework, Graduate Degrees Pursued and Completed

**LSAMP Graduates**
- 80% took further coursework after bachelor’s degree
- 65% pursued graduate degrees
- 45% completed graduate degrees
- 38% enrolled in STEM
- 25% completed STEM graduate degrees

**Non-LSAMP Graduates**
- 60% took further coursework after bachelor’s degree
- 45% pursued graduate degrees
- 20% completed graduate degrees
- 20% enrolled in STEM
- 9% completed STEM graduate degrees
Fields of Graduate Study: LSAMP Participants

<table>
<thead>
<tr>
<th>Field</th>
<th>Sought</th>
<th>Completed</th>
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<tbody>
<tr>
<td>Engineering</td>
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<td>160</td>
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<td>Health Professions</td>
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<td>Life Science</td>
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<td>Business</td>
<td>100</td>
<td>60</td>
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<td>Physical Science</td>
<td>80</td>
<td>50</td>
</tr>
<tr>
<td>All Other Fields</td>
<td>165</td>
<td>110</td>
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</tbody>
</table>

*SOURCE: Urban Institute LSAMP Graduate Survey, 2002
The LSAMP Bridge to the Doctorate (BD) Program
New York Bridge to the Doctorate Students

B.A. in Anthropology
Lehman College '05
Graduate Major: Anthropology
Career Goal: I am interested in pursuing a Doctorate in Anthropology.

B.S. Biochemistry
City College '06
Graduate Major: Biochemistry
Career Goal: Continue my professional development as a scientist by obtaining a Doctoral degree in Biochemistry.

B.S. Biology
Medgar Evers College '06
Graduate Major: Environmental Science
Career Goal: Gain acceptance to a Doctoral program and obtain a degree in Environmental Science.

B.S. Biology
Queens College '06
Graduate Major: Biology
Career Goal: Attend graduate school and further my studies in Biology. I am currently interested in the fields of Conservation Biology and Ecology.

B.S. Environmental Studies
College of Staten Island '03
Graduate Major: Biology
Career Goal: After obtaining a Doctoral degree, I hope to secure a position at a University/Hospital.

B.S. Physics
York College '06
Graduate Major: Physics
Career Goal: My goal is to obtain a Doctoral degree in the field of Mechanical Engineering or Applied Physics.

B.S. Computer Science
City College '05
Graduate Major: Computer Science
Career Goal: A career in the IT industry working in database systems and software engineering.

B.S. Computer Science
City College '06
Graduate Major: Computer Science
Career Goal: Obtain a Doctoral degree in Computer Science, with a specialization in Database Systems.

B.S. Computer Science
Lehman College '06
Graduate Major: Computer Science
Career Goal: Obtain a Doctoral degree in Computer Science and teach at the college level.

B.S. Geology
York College '06
Graduate Major: Geology
Career Goal: Complete graduate school and pursue a position in an organization such as the USGS.

B.S. Mathematics
NYC College of Technology '06
Graduate Major: Mathematics
Career Goal: Earn a Doctoral degree in Applied Mathematics, and work primarily in an industrial setting.

B.S. Chemical Engineering
City College '06
Graduate Major: Chemical Engineering
Career Goal: Contribute to the education of the next generation by becoming a Professor.
### BD Student Race/Ethnicity by Gender
**Generated: September 15th, 2014**

#### 2013 Cohort

<table>
<thead>
<tr>
<th>Gender</th>
<th>Native American</th>
<th>Asian</th>
<th>Black or African American</th>
<th>Hispanic or Latino</th>
<th>More Than One Race Reported - Minority</th>
<th>Native Hawaiian or Pacific</th>
<th>Race not Reported</th>
<th>White</th>
<th>Total by Gender</th>
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<tbody>
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<td>Female</td>
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<td>14</td>
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#### 2012 Cohort

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#### 2011 Cohort

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LSAMP alliances at the senior level are eligible for Bridge to the Doctorate (BD) support. BD funding provides financial support for eligible students for two years of graduate study. Proposals for BD support must describe effective strategies for recruiting, retaining, educating and graduating the participants. Proposers must provide documentation of past performance at the designated graduate institutional site of retaining, graduating and placing significant numbers of LSAMP graduates into doctoral-degree programs. A plan for formally connecting a significant number of matriculated LSAMP students, including master’s degree graduates, to doctoral degree programs is expected. Beginning in FY 2008, requests for BD support must be submitted as a new proposal in FastLane.

Total Students
1452

June 2011

2010-2011
Thank You