STEM Diversity at UC Berkeley: Where are we & What did we learn?

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STEM Equity Planning Director
Division of Equity & Inclusion
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Berkeley STEM Equity & Inclusion Initiative

Goals:
• Describe the nature of the STEM diversity pipeline on our campus
  o Data collection and analysis, executive summary
• Support key stakeholders in creating an outward-facing campus vision around STEM diversity
  o Community gathering
• Help build resources for programs on campus
  o Future next steps

July - October  
Data collected on STEM diversity programs

November - January  
Data analysis of 118 programs

February - April  
Dissemination of results & collected recommendations

May - onward  
Identified needs and next steps

http://diversity.berkeley.edu/campus-climate/stem-equity-and-inclusion-initiative
Action: Proposals for next steps

Research: Data collection & analysis

Equity & Inclusion

Reflection: Recommendations

Stakeholders

Increase richness & sustainability of STEM diversity efforts

Equity & Inclusion, Stakeholders
Action: Proposals for next steps

Reflection: Recommendations

Research: Data collection & analysis

Increase richness & sustainability of STEM diversity efforts

Equity & Inclusion, Stakeholders

Equity & Inclusion

Stakeholders
What constituents do our programs target?

![Target Constituencies](chart)

- **33%** K-12
- **66%** Undergraduate
- **34%** Graduate
- **17%** Postdoc
- **17%** Faculty

Percent of Total Programs n=118
STEM Subjects covered by programs

- Missing: 7%
- STEM: 37%
- Cross-disciplinary: 7%
- Health: 3%
- Chemistry: 5%
- Math and Physical Sciences: 8%
- Biological Sciences: 8%
- Engineering: 25%

Percent of Total Programs n=118
STEM subjects by target constituency

<table>
<thead>
<tr>
<th>STEM Subject</th>
<th>Engineering</th>
<th>Biological Sciences</th>
<th>Math and Physical Sciences</th>
<th>Chemistry</th>
<th>Health</th>
<th>Cross-Disciplinary</th>
<th>STEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-12 (n=39)</td>
<td>33%</td>
<td>0%</td>
<td>21%</td>
<td>0%</td>
<td>0%</td>
<td>5%</td>
<td>36%</td>
</tr>
<tr>
<td>Undergraduate (n=78)</td>
<td>22%</td>
<td>10%</td>
<td>8%</td>
<td>6%</td>
<td>3%</td>
<td>8%</td>
<td>38%</td>
</tr>
<tr>
<td>Graduate (n=40)</td>
<td>10%</td>
<td>13%</td>
<td>10%</td>
<td>5%</td>
<td>3%</td>
<td>10%</td>
<td>45%</td>
</tr>
<tr>
<td>Postdoctoral (n=20)</td>
<td>0%</td>
<td>10%</td>
<td>15%</td>
<td>10%</td>
<td>0%</td>
<td>15%</td>
<td>45%</td>
</tr>
<tr>
<td>Faculty (n=20)</td>
<td>0%</td>
<td>10%</td>
<td>15%</td>
<td>15%</td>
<td>0%</td>
<td>5%</td>
<td>45%</td>
</tr>
</tbody>
</table>
Underrepresented groups served by programs

Diverse Groups Served

- Missing: 3%
- Homeless: 1%
- Undocumented: 1%
- Gender spectrum: 2%
- International: 3%
- Intersectional: 4%
- LGBT+: 6%
- People of color: 8%
- Veterans: 10%
- People with disabilities: 12%
- All: 14%
- First-generation: 30%
- Low-income: 38%
- Women: 38%
- URM: 44%

Percent of Total Programs, n=118
## Underrepresented groups by target constituency

<table>
<thead>
<tr>
<th>Targeted Underrepresented Group</th>
<th>URM</th>
<th>Women</th>
<th>Low-income</th>
<th>First-generation</th>
<th>All</th>
<th>People with disabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-12 (n=39)</td>
<td>36%</td>
<td>31%</td>
<td>54%</td>
<td>31%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Undergraduate (n=78)</td>
<td>46%</td>
<td>35%</td>
<td>37%</td>
<td>32%</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Graduate (n=40)</td>
<td>30%</td>
<td>40%</td>
<td>13%</td>
<td>8%</td>
<td>28%</td>
<td>15%</td>
</tr>
<tr>
<td>Postdoctoral (n=20)</td>
<td>20%</td>
<td>40%</td>
<td>10%</td>
<td>5%</td>
<td>25%</td>
<td>15%</td>
</tr>
<tr>
<td>Faculty (n=20)</td>
<td>25%</td>
<td>45%</td>
<td>10%</td>
<td>5%</td>
<td>30%</td>
<td>25%</td>
</tr>
</tbody>
</table>
What services are programs providing?

- Curriculum/Courses
- College Prep/Recruitment
- Research Experiences
- Mentoring
- Professional Development
- Networking
- Outreach
- Support/Community (Student/Identity Groups, Departmental)
- Grants/Fellowships/Financial Support
- Best Practices
What services are programs providing?

K-12
- Outreach, 29
- College Prep, 13
- Research/Hands-on Activities, 16

Undergraduate
- Professional Development, 39
- Undergrad Research, 20
- Non-research Mentoring, 32

Graduate
- Networking, 11
- Mentoring, 14
- Student Group, Support and Community, 17

Postdoctoral
- Best Practices, 6
- Identity Group, Support and Community, 8

Faculty
- Best Practices, 6
- Identity Group, Support and Community, 7
Looking more in-depth: Undergraduate research opportunities

**STEM Subjects Covered in Undergraduate Research Programs**

- **Engineering**: 35%
- **Biological Sciences**: 20%
- **Math and Physical Sciences**: 5%
- **Chemistry**: 5%
- **Health**: 0%
- **Cross-Disciplinary**: 5%

Percent of Total Programs n=20
Looking more in-depth: Undergraduate research opportunities

Diverse Groups Served in Undergraduate Research Programs

- Homeless: 0%
- Undocumented: 0%
- Gender spectrum: 0%
- International: 0%
- Intersectional: 0%
- LGBT+: 5%
- People of color: 5%
- Veterans: 15%
- People with disabilities: 10%
- All: 10%
- First-generation: 35%
- Low-income: 50%
- Women: 40%
- URM: 60%

Percent of Total Programs n=20
Looking more in-depth: Graduate networking opportunities

**STEM Subjects Covered in Graduate Networking Programs**

- **STEM**: 36%
- **Cross-Disciplinary**: 18%
- **Health**: 0%
- **Chemistry**: 18%
- **Math and Physical Sciences**: 18%
- **Biological Sciences**: 0%
- **Engineering**: 9%

Percent of Total Programs n=11
Looking more in-depth: Graduate networking opportunities

Diverse Groups Served in Graduate Networking Programs

- Homeless: 0%
- Undocumented: 0%
- Gender spectrum: 0%
- International: 0%
- Intersectional: 0%
- LGBT+: 18%
- People of color: 0%
- Veterans: 9%
- People with disabilities: 9%
- All: 18%
- First-generation: 9%
- Low-income: 9%
- Women: 36%
- URM: 36%

Percent of Total Programs n=11
Looking more in-depth: Opportunities for growth

- Bridging K-12 programs with undergraduate recruitment
- Connecting undergraduate research to graduate recruitment
- More programs that directly support postdocs and faculty
- Acknowledging low-income and first-generation communities at graduate, postdoc, and faculty levels
- Determining the value of discipline specific programs versus STEM programs
- Extend efforts to include more diverse groups that are underrepresented in STEM & acknowledging intersectional identities at all levels
**Ac#on:** Proposals for next steps

**Research:** Data collection & analysis

**Reflection:** Recommendations

**Equity & Inclusion:**

**Stakeholders:**

Increase richness & sustainability of STEM diversity efforts

**Action:** Proposals for next steps

**Equity & Inclusion, Stakeholders:**
Funding sources for programs

**Funding Source**

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing</td>
<td>4%</td>
</tr>
<tr>
<td>None</td>
<td>4%</td>
</tr>
<tr>
<td>Unknown Source</td>
<td>8%</td>
</tr>
<tr>
<td>Private funding</td>
<td>56%</td>
</tr>
<tr>
<td>Public funding</td>
<td>81%</td>
</tr>
</tbody>
</table>

Percent of Total Programs n=118

**Berkeley Funding Source for Programs**

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program</td>
<td>12%</td>
</tr>
<tr>
<td>Center</td>
<td>6%</td>
</tr>
<tr>
<td>ASUC/GA</td>
<td>20%</td>
</tr>
<tr>
<td>Department</td>
<td>25%</td>
</tr>
<tr>
<td>College</td>
<td>37%</td>
</tr>
<tr>
<td>E&amp;I</td>
<td>12%</td>
</tr>
<tr>
<td>University</td>
<td>29%</td>
</tr>
</tbody>
</table>

Percent of Total Programs n=51
Funding needs identified

- Funding is often piecemeal
- Large funding streams are difficult to obtain
- Processes are complicated & cumbersome
- Lack of coordination
Partnership matrix

Blue dots indicate programs surveyed, $n=118$

Red dots include additional Berkeley partners not surveyed, $n=92$
Partnership needs identified

- No incentives for collaboration
- Lack of structure for collaboration
- Lack of information about collaboration opportunities
Assessment conducted on programs

![Program Assessment chart]

- General Assessment
  - Quantitative and Qualitative
  - Qualitative
  - Quantitative

- Student Learning Assessment
  - Quantitative and Qualitative
  - Qualitative
  - Quantitative
Assessment needs identified

- Need to pair programs with research
- Expertise required, which can be costly
- Continuous evaluation and updating of programs
- Measure impact to know what is working and fix what is not
- Apply data and outcomes to obtain funding
Additional needs identified

Accountability: Not incentivized at campus, faculty, or program level

Policy: Bureaucracy, budget cuts, and internal politics hurt progress

Resources: Lack of administrative support, time, tools, buy-in, etc.

Rewards: Few systems to reward individuals or programs for their work
Action: Proposals for next steps

Research: Data collection & analysis

Reflection: Recommendations

Increase richness & sustainability of STEM diversity efforts

Equity & Inclusion

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Equity & Inclusion, Stakeholders