Panel 3: Academic Data & The Labor Market

MICHAEL TEITELBAUM
LABOR AND WORKLIFE PROGRAM
HARVARD LAW SCHOOL

FUTURE OF RESEARCH CONFERENCE
BOSTON, OCTOBER 2015

MICHAEL S. TEITELBAUM
TEITELBAUM@SLOAN.ORG
Four experiments

1. UCSF Graduate Student Internships for Career Exploration Program (GSICE)
2. BEST program, NIH
3. Professional Science Masters (PSM)
4. Stanford PhD Alumni Study
Experiment #1: UCSF Graduate Student Internships for Career Exploration Program (GSICE)

- Advanced grad students do internships outside of academe
- All basic and biomedical science graduate programs
- Internships full-time, 3 months
- Typically during one academic quarter
Experiment #2: BEST program, NIH

- Broaden graduate and postdoctoral training to reflect wider range of career options
- Collaborations with non-academic partners
  - contribute to coursework, rotations, internships, etc.
- Establish a new paradigm for graduate and postdoctoral training
Experiment #3: PSM: combine science & professional skills

The Professional Science Master’s Degree is a Hybrid Professional Degree

**STEM**
- Science
- Technology
- Engineering
- Math

**PSM**

**“PLUS”**
- Business Skills
- Communication Skills
- Teamwork Management
- Project Management
- Presentation Skills
- Regulatory Issues
- Intellectual Property Law
- Financial Management
- Etc.
Sustained growth, take-off 2008

300...and counting!

The Professional Science Masters Program reached its 300th affiliated program in 2013. In 2014, we are 322 programs strong at 152 universities.

1997: Beginning in 1997, the Sloan Foundation makes grants to 14 research universities to support the founding of programs in the natural sciences and mathematics, followed by a targeted bioinformatics effort at programs at another 12 research institutions.

2001: A Sloan grant to the Council of Graduate Schools (CGS) extends the PSM initiative to master's-focused institutions, which award 40% of science/math master's degrees and where faculty are heavily invested in high-quality master's education.

2007: The National Professional Science Master's Association forms to engage businesses, industries, nonprofit organizations, government agencies, and professional associations in the development of PSM degree programs and with internships and job placement for PSM degree program students and graduates.

2006: The Council of Graduate Schools, seeking to improve and advance graduate education, assumes primary responsibility for supporting and expanding the Sloan Professional Science Master's (PSM) initiative, with the goal of making it a regular feature of high-quality U.S. graduate education.

2011: The number of PSM programs expands rapidly as university systems in California, North Carolina, New York, Florida, and New Jersey implement system-wide PSM initiatives.

2012: Responsibility for PSM AFFILIATE and curricular and the science masters.com webpage transfers from the Council of Graduate Schools to a newly-established National PSM Office that is hosted at Rock Graduate Institute.

2013: Our 300th program.

2014: 322 programs at 152 universities.

100

“My students understand the contribution of STEM knowledge to real issues. They will become leaders in innovation that will spur the next generation of economic development.”

Dr. James Moran, Vice Chancellor Pennsylvania State System of Higher Education (PASSHE)

The PSM degree is designed to train the next generation of STEM professionals for integrator and leadership roles in science-intensive industries. By helping translate research into commercialization, PSM graduates are able to fuel innovation and economic growth.
Still expanding strongly

- Now up to 342 active PSM programs
- In 159 universities US/Canada
  - PSMs now being developed in S. Korea, Australia, UK, Netherlands, Sweden, etc.

PROMISING

- US graduate schools responding
- Up from zero PSMs and univ’s 18 years ago
  - VERY difficult period for higher ed
National Research Council, National Academies, 2008
A Degree of Uncommon Success

How academe and outsiders collaborated to shape the ‘professional science master’

By Leonard Cassuto | JUNE 29, 2015
Data on PSM alumni careers?

- Can we locate via social media? (Tobias/Richards)
- 70 “oldest” PSM programs, begun 1997-2005
  - 44 campuses, 3,619 alumni
- Surprise: found 78% of these early alumni
- Can identify employers, job titles, resumés
- Employers: Large co’s (31%), small co’s (14%)
  - Education (16%)--need disaggregate: PhD? Postdoc? Staff?
### Stanford PhD Alumni Employment

#### PhD Alumni in the Study

<table>
<thead>
<tr>
<th>Field</th>
<th>10-Year</th>
<th>5-Year</th>
<th>Total PhDs</th>
<th>Located: Initial Position</th>
<th>Located: Current Position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002-03</td>
<td>2003-04</td>
<td>2007-08</td>
<td>2008-09</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>223</td>
<td>229</td>
<td>229</td>
<td>241</td>
<td>922</td>
</tr>
<tr>
<td>Biosciences*</td>
<td>66</td>
<td>73</td>
<td>95</td>
<td>74</td>
<td>308</td>
</tr>
<tr>
<td>Natural Sciences*</td>
<td>82</td>
<td>63</td>
<td>77</td>
<td>84</td>
<td>306</td>
</tr>
<tr>
<td>Humanities</td>
<td>58</td>
<td>70</td>
<td>74</td>
<td>71</td>
<td>273</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>57</td>
<td>73</td>
<td>67</td>
<td>64</td>
<td>261</td>
</tr>
<tr>
<td>Education</td>
<td>36</td>
<td>37</td>
<td>33</td>
<td>30</td>
<td>136</td>
</tr>
<tr>
<td>Earth Sciences</td>
<td>27</td>
<td>23</td>
<td>31</td>
<td>35</td>
<td>116</td>
</tr>
<tr>
<td>Business</td>
<td>15</td>
<td>19</td>
<td>22</td>
<td>17</td>
<td>73</td>
</tr>
<tr>
<td>Law</td>
<td>7</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>571</strong></td>
<td><strong>591</strong></td>
<td><strong>636</strong></td>
<td><strong>622</strong></td>
<td><strong>2,420</strong></td>
</tr>
</tbody>
</table>

*(Biology and Biophysics included in Biosciences)
Interesting data on career pathways (but confounded by postdocs in “academic”?)
Thank you!

MICHAEL S. TEITELBAUM
TEITELBAUM@SLOAN.ORG

ONLINE RESOURCES ON PSM DEGREE:
HTTP://WWW.SCIENCEMASTERS.COM
HTTP://WWW.NPSMA.ORG
HTTP://WWW.NASH-PSM.ORG