The Role and Status of the Master’s Degree in STEM

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Types of Master’s Degrees in STEM

- Terminal Master’s – In some fields, such as engineering and geology, the master’s is the preferred advanced degree necessary for employment.
- Step Toward the Doctorate – In other fields, the master’s is awarded as students advance to the doctoral level.
- Consolation Prize – In certain fields, the master’s is awarded when students fail to advance to the doctoral level.
- Professional Science Master’s – more about that later.
Enrollment in Master’s* Programs by Field, Fall 2008

- Other Fields: 85,535
- Social & Behavioral Sciences: 77,747
- Public Admin. & Services: 55,360
- Physical Sciences: 53,800
- Health Sciences: 105,645
- Engineering: 69,561
- Education: 296,347
- Business: 241,190
- Biological & Agricultural Sciences: 29,089
- Arts and Humanities: 62,131

*Also includes graduate-level certificate and education specialist programs.

Source: CGS/GRE Survey of Graduate Enrollment and Degrees
Master’s* Proportion of Total Graduate Enrollment by Field, Fall 2008

* Also Includes graduate-level certificate and education specialist programs.

Source: CGS/GRE Survey of Graduate Enrollment and Degrees
### Enrollment in Master’s* Programs by Sex, Fall 2008

<table>
<thead>
<tr>
<th>Field</th>
<th>% Men</th>
<th>% Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Fields</td>
<td>36.2</td>
<td>63.8</td>
</tr>
<tr>
<td>Social &amp; Behav. Sciences</td>
<td>32.8</td>
<td>67.2</td>
</tr>
<tr>
<td>Public Admin &amp; Svcs</td>
<td>24.3</td>
<td>75.7</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>17.6</td>
<td>82.4</td>
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<tr>
<td>Health Sciences</td>
<td>23.6</td>
<td>76.4</td>
</tr>
<tr>
<td>Engineering</td>
<td>54.3</td>
<td>45.7</td>
</tr>
<tr>
<td>Education</td>
<td>42.9</td>
<td>57.1</td>
</tr>
<tr>
<td>Business</td>
<td>40.3</td>
<td>59.7</td>
</tr>
</tbody>
</table>

* Also includes graduate-level certificate and education specialist programs

Source: CGS/GRE Survey of Graduate Enrollment and Degrees
Growth in Master’s Degrees in Science and Engineering, 1966-2007


Includes the Social & Behavioral Sciences

Natural Sciences, Mathematics and Engineering


Master’s Degrees Increased Most in Computer Sciences; Least in Physical Sciences, 1998-2007

Source: National Science Foundation, WebCASPAR Database, May 3, 2010
Women’s Proportion Among Master’s Degrees in STEM Fields, 2007

Source: National Science Foundation, Women, Minorities and Persons with Disabilities, Tables E-3, E-5 and E-6, 2010..
Growth of URMs* Earning Master’s Degrees in S&E, 1998-2007

Source: National Science Foundation, Women, Minorities and Persons with Disabilities, Table E-5, 2010..

*Includes African Americas, Hispanics and American Indians/Alaska Natives.
URMs Are Far from Parity in Master’s Degree STEM Fields, 2007

Enrollments in PSM Programs by Discipline, 2008

- Health/Medical Physics: 162
- Applied/Industrial Physics: 31
- Environmental and Geosciences: 508
- Food Safety/Pharmacology & Toxicology: 53
- Chemistry/Biochemistry/Forensics: 67
- Applied Statistics/Computational Science: 158
- Financial Math/Industrial Math: 295
- Microbiology/Cell & Molecular Biology: 157
- Bioinformatics/Biotechnology: 1161

Source: NPSMA, PSM Degree Program Enrollee and Graduate Report, 2009
PSM Graduates by Discipline, 2008

- Health/Medical Physics: 33
- Applied/Industrial Physics: 6
- Environmental and Geosciences: 78
- Food Safety/Pharmacology and: 8
- Chemistry/Biochemistry/Forensics: 18
- Applied Statistics/Computational Science: 55
- Financial Mathematics/Industrial: 99
- Microbiology/Cell and Molecular Biology: 20
- Bioinformatics/Biotechnology: 234

Total Graduates: 2008 - 551

Source: NPSMA, PSM Degree Program Enrollee and Graduate Report, 2009
Summary

- Master’s programs represent about ¾’s of total graduate enrollment, with education and business comprising about 50% of total master’s enrollment.
- Women represent more than 60% of total enrollment in master’s programs, but their proportion varies greatly by discipline – highest in the health sciences and lowest in engineering.
- The growth in STEM master’s degrees was led by computer science and psychology.
- U.S. citizens and permanent residents earn a majority of science and engineering master’s degrees regardless of discipline – highest in psychology and social sciences; lowest in computer science and engineering.
Summary (continued)

- From 1998-2007, master’s degrees increased the most in computer sciences; least in physical sciences.
- In STEM, women earn the most master’s degrees in the social and behavioral sciences.
- While URMs represent over a third of 18-24-year olds in 2007, they earned 18% of all master’s degrees, 16% of all STEM, but only 12% of NS&E degrees.
- Enrollments and Degrees in PSM programs are rising rapidly. NPSMA estimates September 2009 enrollment at 3,800 and 2009 Graduates at 750. Still a very small part of total STEM master’s.
- Overall, women are about 46% of all PSM graduates, URMS 8%, and U.S. citizens and permanent residents about two-thirds.