NCSES: A federal statistical agency within NSF

Mission
Responsible for statistical data on:
• Research and development.
• The science and engineering workforce.
• U.S. competitiveness in science and engineering.
• The condition and progress of science, technology, engineering and mathematics (STEM) education in the United States.

Publications and products
• Special analytic reports.
• InfoBriefs.
• Detailed statistical tables.
• Working papers designed to further exploration and discussion of a topic.
WMPD in brief

- Federal government's most comprehensive look at the participation of women, minorities and persons with disabilities in science and engineering education and employment.
- Serves as a statistical abstract with no policy or program recommendations or endorsements.
- Uses data from surveys conducted by NCSES and several other federal agencies, including Education, Commerce, and Labor.
- Illustrates variations between the representation of women, racial and ethnic groups, and persons with disabilities in the overall population and in science and engineering education and employment.
- Presentation of data is nuanced due to important variations by field and occupation.
Scientists and engineers working in S&E occupations (left) compared with the noninstitutionalized resident population of the United States, ages 18-64 (right), by race, ethnicity and sex.

### S&E Occupations

- **49%**
- **18%**
- **14%**
- **7%**
- **3%**
- **2%**
- **4%**
- **2%**

### U.S. Population

- **31%**
- **31%**
- **3%**
- **3%**
- **6%**
- **7%**
- **9%**
- **8%**
- **3%**

**NOTES:** Hispanic may be any race. Other includes individuals not of Hispanic ethnicity who reported more than one race or a race not listed separately.

**Sources:** 2015 National Survey of College Graduates (left), 2014 American Community Survey (right)
What is an “underrepresented minority?”

Blacks, Hispanics and Native Americans are underrepresented across science and engineering. Combined, those groups make up 31% of the U.S. population. That share is lower at various levels of S&E.

<table>
<thead>
<tr>
<th></th>
<th>U.S. general population</th>
<th>S&amp;E bachelor’s recipients</th>
<th>S&amp;E doctorate recipients</th>
<th>Employment in S&amp;E occupations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>31%</td>
<td>21%</td>
<td>13%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Sources: 2014 American Community Survey (population); National Center for Education Statistics degree completion data (bachelor’s and doctorate recipients); 2015 National Survey of College Graduates (employment)
**Field of degree: Women**

<table>
<thead>
<tr>
<th>2014: High participation</th>
<th>2014: Low participation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Psychology</strong></td>
<td><strong>Economics</strong></td>
</tr>
<tr>
<td>77% of bachelor's degrees</td>
<td>31% of bachelor's degrees</td>
</tr>
<tr>
<td>79% of master's degrees</td>
<td>41% of master's degrees</td>
</tr>
<tr>
<td>73% of doctorate degrees</td>
<td>34% of doctorate degrees</td>
</tr>
<tr>
<td><strong>Biosciences</strong></td>
<td><strong>Computer Sciences</strong></td>
</tr>
<tr>
<td>58% of bachelor's degrees</td>
<td>18% of bachelor's degrees</td>
</tr>
<tr>
<td>57% of master's degrees</td>
<td>29% of master's degrees</td>
</tr>
<tr>
<td>53% of doctorate degrees</td>
<td>21% of doctorate degrees</td>
</tr>
<tr>
<td><strong>Social Sciences</strong></td>
<td><strong>Physics</strong></td>
</tr>
<tr>
<td>55% of bachelor's degrees</td>
<td>19% of bachelor's degrees</td>
</tr>
<tr>
<td>57% of master's degrees</td>
<td>23% of master's degrees</td>
</tr>
<tr>
<td>51% of doctorate degrees</td>
<td>19% of doctorate degrees</td>
</tr>
<tr>
<td><strong>Engineering</strong></td>
<td></td>
</tr>
<tr>
<td>20% of bachelor's degrees</td>
<td></td>
</tr>
<tr>
<td>24% of master's degrees</td>
<td></td>
</tr>
<tr>
<td>23% of doctorate degrees</td>
<td></td>
</tr>
</tbody>
</table>

Source: National Center for Education Statistics degree completion data
Field of degree: Minorities

Degrees earned by underrepresented minorities: 1995-2014

Percent

25

Non-S&E bachelor's
S&E bachelor's
Non-S&E master's
S&E master's
Non-S&E doctorate
S&E doctorate

15

10

5

0


NOTE: Data not available for 1999.

Source: National Center for Education Statistics degree completion data
Occupation

Employed women scientists and engineers, as a percentage of selected occupations: 2016

- All occupations
- S&E occupations
- Social and related scientists
- Psychologists
- Economists
- Life scientists
- Physical and related scientists
- Computer and math scientists
- Engineers
- S&E-related occupations
- Health-related occupations
- Health diagnosing and treating practitioners
- S&E precollege teachers
- S&E technologists and technicians
- Technologists and technicians in the life sciences
- Non-S&E occupations

Source: 2015 National Survey of College Graduates
Employment as a percentage of selected occupations: 2016

Employed Hispanic scientists and engineers

Employed black scientists and engineers

NOTE: Hispanic may be any race.

Source: 2015 National Survey of College Graduates
Employment sectors of scientists and engineers

By sex, race and ethnicity

Source: 2015 National Survey of College Graduates

URM = underrepresented minority.
Unemployment rate among scientists and engineers: 2015

- **U.S. general population unemployment rate**: 5.8%
- **Unemployment rate for scientists and engineers**: 3.3%
- **White women**: 2.8%
- **White men**: 3.0%
- **Asian women**: 4.0%
- **Asian men**: 3.0%
- **Underrepresented women**: 6.0%
- **Underrepresented men**: 4.2%

Sources: 2015 National Survey of College Graduates; Bureau of Labor Statistics (for general population unemployment rate)
Early career doctorate holders

- Covers those who received their first doctoral degree within the past 10 years.
- Critical component of the U.S. workforce.
- Trained in latest research practices
- Data presented on 183,000 individuals with S&E degrees employed mainly at Universities (95%)

**Academic employment among early career doctorate holders with S&E degrees**

- Full-time faculty: 39%
- Postdoc: 38%
- Other positions: 13%
- Other faculty: 10%

Source: Early Career Doctorate Holders: Pilot ECDS (2014 data)
Persons with disabilities in S&E

- Persons with disabilities in U.S. population: 13%.
- Persons with disabilities in S&E workforce: 11%.
- Persons with disabilities are as likely as those without disability to enroll in S&E fields.
- Difficulty in seeing is the most frequently reported disability, followed by difficulty in hearing.

Sources: 2014 American Community Survey (first point); 2015 National Survey of College Graduates (second point) 2014 National Center for Education Statistics enrollment data (third point) 2013 NCSES SESTAT survey data (fourth point)
Age at onset of disability among scientists and engineers: 2015

Employment status among scientists and engineers, by disability status: 2015

Source: 2015 National Survey of College Graduates
Accessing WMPD

Women, Minorities, and Persons with Disabilities in Science and Engineering

Women, Minorities, and Persons with Disabilities in Science and Engineering provides statistical information about the participation of these three groups in science and engineering education and employment. A formal report, in the form of a digest, is issued every 2 years.

Introduction

The representation of certain groups of people in science and engineering (S&E) education and employment differs from their representation in the U.S. population. Women, persons with disabilities, and three racial and ethnic groups—blacks, Hispanics, and American Indians or Alaska Natives—are underrepresented in S&E. While women have reached parity with men among the degree recipients overall, they constitute disproportionately smaller percentages of employed scientists and engineers than they do of the U.S. population. Blacks, Hispanics, and American Indians or Alaska Natives have gradually increased their share of S&E degrees, but they remain underrepresented in educational attainment and the S&E workforce. By contrast, Asians are overrepresented among S&E degree recipients and employed scientists and engineers.

Underrepresentation and overrepresentation of women and racial or ethnic groups vary by field of study and occupation. Variations in the representation of these groups are rocked in differences in precollege course taking, participation in S&E higher education, and overall educational attainment.

Women and underrepresented minorities constitute a substantial portion of the U.S. population ages 18 to 64 years in 2014. Women were about 56% of this population. Hispanics, 17%; blacks, 13%; Asians, 6%; and other racial and ethnic groups combined (American Indians or Alaska Natives, Native Hawaiians or other Pacific Islanders, and individuals who report more than one race) were 1%. According to the latest Census Bureau projections, minorities will account for 56% of the U.S. population by 2060. The largest growth is projected in the numbers of Hispanics, Asians, and persons of multiple races. Despite increasing numbers, the proportion of blacks is projected to grow only 1 percentage point by 2060.

Noninstitutionalized resident population of the United States ages 18–64, by race, ethnicity, and sex: 2014

![Pie chart showing race and ethnicity distribution in the U.S. population ages 18–64 in 2014]
Special thanks to the following individuals:

Robert Margetta, public affairs specialist, Office of Legislative and Public Affairs.

Beethika Khan, Director, Science and Engineering Indicators Program, NCSES.

Katherine Hale, Amy Burke, Jaquelina Falkenheim, and Peter Muhlberger, senior analysts, Science and Engineering Indicators Program, who developed and wrote the report, and Kelly Phou, survey statistician, who led the pilot Early Career Doctorates survey. All are at NCSES.

Tanya Gore, Christine Hamel, and Catherine Corlies, Information and Technology Services Program, NCSES, who produced the printed volume of the WMPD Digest.

Rajinder Raut and Robin Pentola, Information and Technology Services Program, NCSES, who developed the web version of the report.
Thank you for your interest

NCSES strives to make data and analysis available to all members of the public. If you are seeking more information, or with assistance navigating or understanding WMPD, please contact:

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- Jaquelina C. Falkenheim, senior analyst
- Katherine Hale, senior analyst
- Beethika Khan, program director
- Robert Margetta, public affairs specialist
- Peter Muhlberger, senior analyst
Appendix
Undergraduate enrollment by type of school: 2014

**NOTE:** Hispanic may be any race.
Science and engineering bachelor’s degrees

Earned by black or African American women, by field: 1995-2014

NOTE: Data not available for 1999.

Earned by Hispanic women, by field: 1995-2014

NOTES: Data not available for 1999. Hispanic may be any race.
Field of degree: Women, men and racial and ethnic groups

• Differences between underrepresented minority women and men: women earn a higher proportion of S&E degrees.
  • Particularly evident at the bachelor’s level.

• Differences between white women and men: Women earn a smaller share of S&E degrees.
  • Particularly evident at the doctoral degree level.

• Similarities between Asian women and men: they earn about the same proportions of S&E degrees at each degree level.
Citizenship status and country of doctorate

Of the approximately 183,000 S&E early career doctorate holders working in academic institutions, FFRDCs, or NIH’s Intramural Research Program, about 6 in 10 are U.S. citizens and permanent residents.

Broad field of degree among early career doctorate holders with a science and engineering degree: 2014

Percent

Science and Engineering

100
90
80
70
60
50
40
30
20
10
0

All
U.S. citizens and permanent residents
Temporary visa holders

Science

All
U.S. citizens and permanent residents
Temporary visa holders

Engineering

All
U.S. citizens and permanent residents
Temporary visa holders

Men
Women

NCSES
National Center for Science and Engineering Statistics
NSF: Broadening Participation

The National Science Foundation is committed to enhancing the U.S. economy, security and innovation ecosystem by broadening participation in science and engineering. Among its programs are:

- **NSF INCLUDES**: facilitates partnerships, communication and cooperation among groups that have developed proven approaches to broadening participation.

- **ADVANCE**: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

- **Louis Stokes Alliances for Minority Participation**: assists universities and colleges in increasing the numbers of STEM students to diversity the workforce.

- **Alliances for Graduate Education and the Professoriate**: works to develop academic infrastructure to enable underrepresented minority placement in faculty positions.

- **Tribal Colleges & Universities Program**: supporting research programs at tribal colleges and universities.